PDP Systems and Options Catalog

1988 July – December

digital

**PDP Systems and
Options Catalog
1988 July – December**

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Introduction

The *PDP-11 Systems and Options Catalog* is published quarterly as an ordering and configuring publication for Digital's customers and sales representatives. It contains a collection of the most current configuring and ordering information available for actively marketed PDP-11 systems, hardware options, software, and services.

The terminology described in this introduction is used throughout the catalog.

Ordering Information

Model numbers are used to order products in this catalog. For products that are voltage/frequency dependent, the model numbers appear in the following sequence: the 120-Vac/60-Hz variation of the model appears first; the 240-Vac/50-Hz model follows. For example, with model number RA81-AA/AD, RA81-AA designates the 120-V/60-Hz model and RA81-AD designates the 240-Vac/50-Hz model. The same rule applies for model numbers printed using parentheses instead of a slash, i.e., RA81-AA(AD) is identical to RA81-AA/AD.

Configuring Information

Five factors must be considered when configuring PDP-11 systems

- *UNIBUS System Expansion Space* — The physical space in a CPU or expansion box that accommodates a specific type of backplane or module. For example, SU (System Unit) or quad slots.
- *Power Requirements* — The amount of dc current and watts each option requires. The figures for available power are supplied in the configuration template provided for each PDP-11 system described in Chapter 1.
- *Bus Loads* — The number of ac and dc busloads drawn by each option. The figures for available bus loads are supplied in the configuration template provided for each PDP-11 system described in Chapter I.
- *Priority* — The order in which options are placed in the backplane that can affect system performance. For example, the UDA50 controller is always configured as the last device in the UNIBUS backplane.

  Note: Module placement will be done by Manufacturing or by Field Service.
- *I/O Distribution Panel Insert Space* — The space in the I/O Distribution Panel located at the back of the system box or expansion cabinet that is used to carry connectors for communications and peripheral devices. Options vary in the number of I/O panel inserts of space they require. The number of available insert spaces is included in the configuration template provided for each PDP-11 system described in Chapter 1.

Once you have selected those options that meet your system requirements, list them in the option column of the configuration template. Refer to the configuring information table that lists the power and space requirements mentioned above, and begin subtracting the figures given for each option from the figures provided in the configuration template.

Mounting Information

SU (System Units) — Definition of space available in UNIBUS CPU and expansion cabinets for mounting backplane(s) to accommodate modules. For example, a BA11-KU/KV box has five SUs worth of space that could accommodate up to two DD11-DK backplanes and one DD11-CK backplane.

Backplane — Hardware interface containing edge connector slots for insertion of modules. These backplanes allow for the connection of the modules to the bus and to a power supply source. For example, DD11-CK, DD11-DK.

Dual-height Module — A 13.2-cm-by-20.3-cm (5.22-in by 8-in) module with two connectors.

Quad-height Module — A 26.5-cm-by-20.3-cm (10.44-in by 8-in) module with four connectors.

Hex-height Module — A 39.6-cm-by-20.3-cm (15.6-in by 8-in) module with six connectors. Used only in UNIBUS systems.

Dual Slot — Space in the backplane capable of accepting one dual-height module.

Quad Slot — Space in the backplane capable of accepting one quad-height module. In Q-bus systems, the slot will also accept one dual-height module and may accept two dual-height modules.

Note: Q-bus and UNIBUS quad-height modules are not interchangeable.

Hex Slot — Space in a UNIBUS backplane capable of accepting a hex-height or quad-height module.

I/O Distribution Panel Insert — Space in the plate (I/O Distribution Panel) located at the back of Q-bus systems boxes and UNIBUS CPU and expansion cabinets for simple connection of modules and cables. There are three panel insert sizes for Q-bus options: Size A (2.54 cm by 10.1 cm, 1.0 in by 4.0 in), size B (6.6 cm by 8.1 cm, 2.6 in by 3.2 in), and size C (10.1 cm by 10.1 cm, 4.0 in by 4.0 in). UNIBUS option panel inserts are in multiples of 5 cm by 10.1 cm (2.0 in by 4.0 in) panel units.

How to Order a Standard System

The Standard Systems Menu/Worksheets for the MicroPDP-11 systems are provided to assist in the selection of the appropriate system configuration(s). Care must be taken when transferring the information from the worksheet to an order form. In order to qualify for a Standard System, orders must adhere to the following rules:

- Mandatory items must be included on the order.
- Options as part of a Standard System configuration are limited to those stated in the menus.
- Orders will be verified through the precertification technical edit process to ensure consistency with the Standard System ordering rules.
- Options required beyond those available on the Standard System menu must be submitted on a separate order with appropriate installation charges.
- Product change orders are not allowed.
- Returns are not allowed.

Power Requirements

dc Amperes Available — dc current available for system expansion at 5 V and at 12 V for Q-bus systems and at 5 V, 15 V, and – 15 V for UNIBUS systems.

ac Amperes Available — ac current available for system expansion at 120 V within a specific system cabinet for peripheral expansion.

dc Amperes Drawn — dc current drawn from the system at 5 V and at 12 V for Q-bus systems and at 5 V, 15 V, and – 15 V for UNIBUS options.

ac Amperes Drawn — ac current drawn by the option at 120 V or 240 V.

Bus Load Requirements

System Bus Loads — The number of ac and dc loads remaining on the Q-bus or UNIBUS.

System Bus Loads Drawn — The number of bus loads the option draws from the Q-bus or UNIBUS.

Units of Measure

K = 1,024
M = 1,024²(1,048,576)
b/in = bits per inch
b/s = bits per second
in/min = inches per minute
in/s = inches per second (formerly ips)
cm/min = centimeters per minute
cm/s = centimeters per second
ch/in = characters per inch
ch/s = characters per second
dpi = dots per inch
li/min = lines per minute
li/in = lines per inch
li/cm = lines per centimeter
pp/min = pages per minute
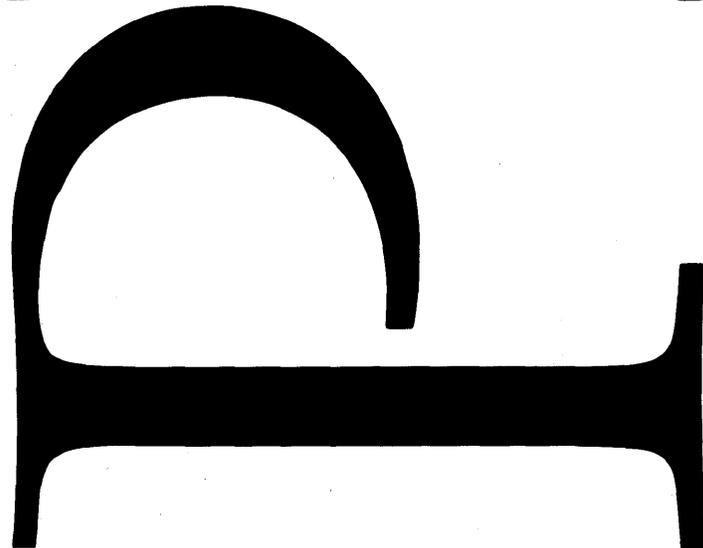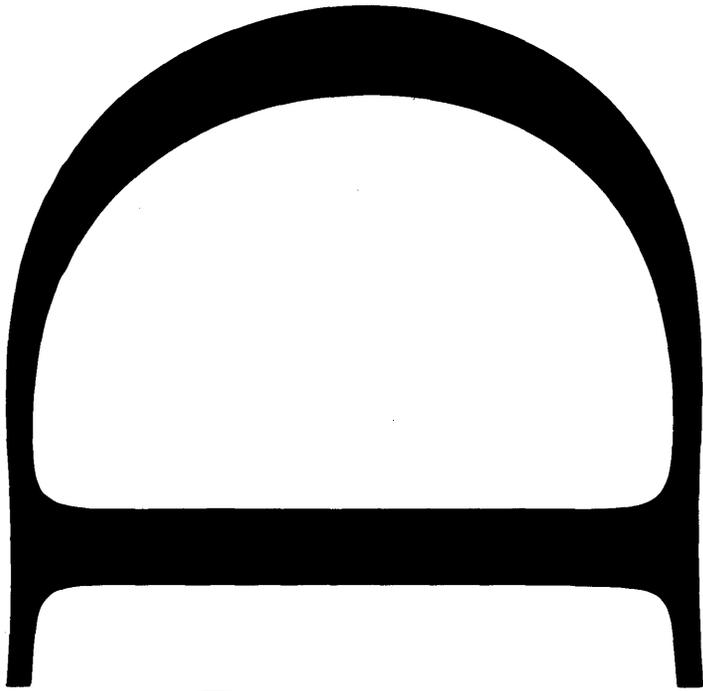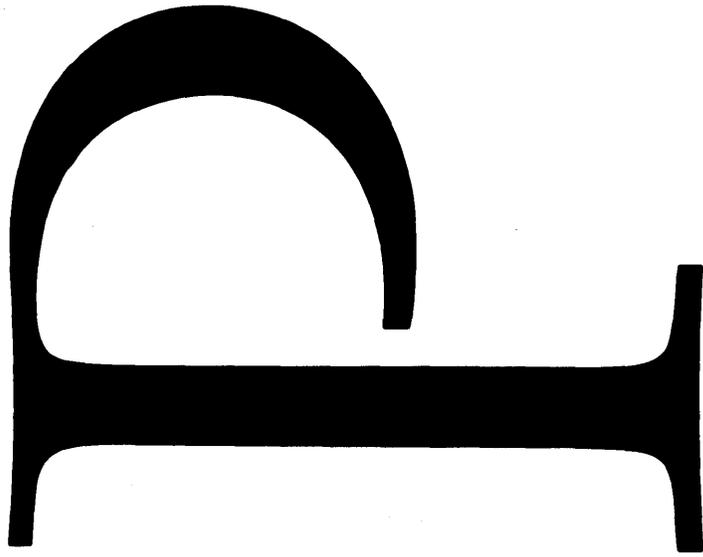
Digital's PDP-11 systems are based on a compatible set of processors that use a common architecture and a common instruction set. PDP-11 systems offer the widest selection of operating systems, languages, data management, communications, and applications software in the industry. In addition, they can easily be connected to our larger VAX systems, to personal computers, to other vendors' mainframes, and into an Ethernet local area network.

The *Systems* and *Software* chapters of this catalog give you quick and easy-to-use information about the hardware and software that will meet your requirements. (As not all hardware options are supported by all operating systems, *Software Product Descriptions* should be consulted to verify support). The Processor Selection Chart on the following page compares Digital PDP-11 systems.

This chapter is divided into four parts: Q-bus systems, UNIBUS systems, Industrial Systems, and MIRA High Availability Microsystems. The major differences between the Q-bus and UNIBUS are in the bus structure and the type and variety of peripheral devices they support. Industrial Systems and MIRA High Availability Microsystems are designed to meet specific customer needs.

The Q-bus supports small, inexpensive computer systems including the MicroPDP-11/83, the MicroPDP-11/73, the MicroPDP-11/53 PLUS, and the MicroPDP-11/53. The UNIBUS supports the PDP-11/84, the PDP-11/44, and the PDP-11/24.

Processor	Maximum Memory	Mass Storage Devices (See Software Selection Charts for Specific O/S Support)		
		Floppy	Hard Disk	Tape
MicroPDP-11/83	4 Mbytes	RX50 (800 Kbytes) RX33 (1.2 Mbytes)	RA81 (456 Mbytes) RA60 (205 Mbytes) RD54 (159 Mbytes) RD53 (71 Mbytes) RD32 (42 Mbytes)	TK50 (95 Mbytes) TSV05 (40 Mbytes)
MicroPDP-11/73	4 Mbytes	RX50 (800 Kbytes) RX33 (1.2 Mbytes)	RD54 (159 Mbytes) RD53 (71 Mbytes) RD32 (42 Mbytes)	TK50 (95 Mbytes) TSV05 (40 Mbytes)
MicroPDP-11/53 PLUS	4 Mbytes		RD54 (159 Mbytes)* RD53 (71 Mbytes) RD32 (42 Mbytes)	TK50 (95 Mbytes) TSV05 (40 Mbytes)
MicroPDP-11/53	4 Mbytes	RX33 (1.2 Mbytes)	RD54 (159 Mbytes)* RD53 (71 Mbytes)* RD31 (20 Mbytes) RD32 (42 Mbytes)	TK50 (95 Mbytes)* TSV05 (40 Mbytes)
PDP-11/84	4 Mbytes	RX50 (800 Kbytes)	RA82 (622 Mbytes) RA81 (456 Mbytes) RA60 (205 Mbytes) RC25 (52 Mbytes)	TU81E (145 Mbytes) TK50 (95 Mbytes) TU80 (40 Mbytes) TS05 (40 Mbytes)

*External to BA23 box only

EXTENDING THE PDP-11 VAX/VMS COEXISTENCE AND MIGRATION PROGRAM Digital PDP-11 VAX/VMS Compatibility Guides

In response to customer's request, Digital has created PDP-11 VAX/VMS Compatibility Guides to help users understand the similarities and differences between PDP-11 system environments and the VAX/VMS system environment. The compatibility guides provide technical help for PDP-11 customers who work or expect to work in a mixed PDP-11 and VAX environment or who are migrating or planning to migrate from PDP-11s to VAXes.

Separate language guides, i.e., the BASIC and FORTRAN compatibility guides, are available to help programmers understand the similarities and differences between the programming languages available from Digital for the PDP-11 operating systems and those for VMS. With programmers as their primary audience, each language guide covers topics such as language elements, character sets, and subprograms. Each guide also provides some general guidelines for writing transportable code. This information assists people with operating in a mixed PDP-11 VMS environment and with moving applications from a PDP-11 environment to VMS.

The language compatibility guides are useful as:

- a day-to-day reference for programmers working in a mixed PDP-11/VMS environment
- a tool for understanding and performing an application conversion
- an accelerated training vehicle with new information being related to familiar topics
- a guide for writing transportable programs.

Although they are not a complete guide to PDP-11 to VAX/VMS migration, these guides, available at no cost to the customer, should prove to be an invaluable resource to anyone engaged in any migration efforts.

Ordering Information

EJ-31491-41	FORTRAN Compatibility Guide
EJ-31492-41	BASIC Compatibility Guide

The MicroPDP-11 computer family enables organizations to buy minicomputer power and multiuser capacity in a variety of inexpensive configurations. The MicroPDP-11/53 has the power to support up to eight users and is the first MicroPDP-11 system to support the new "half-height" devices that offer greater capacity at a lower cost for improved price/performance. The MicroPDP-11/53-PLUS has additional onboard memory for improved performance and reliability and supports larger system devices. The MicroPDP-11/73 can handle larger applications, with up to twenty-five simultaneous users (depending on the application), and supports the larger system devices. The most powerful MicroPDP-11 is the MicroPDP-11/83, which incorporates the 18-MHz J-11 chipset, a floating-point accelerator, and a private memory interconnect for maximum performance. It can easily support more than thirty users.

All the MicroPDP-11s support the standard PDP-11 operating systems including Micro/RSX, a low-cost version of Digital's RSX-11M-PLUS operating system, and Micro/RSTS, a subset of RSTS/E that supports all of the RSTS/E system calls and programming facilities. Both are distributed on RX33 floppy diskette or TK50 tape for simple installation. The MicroPDP-11 family also uses RT-11 (a single-user realtime system), CTS-300 (for small-business timesharing), and DSM-11 (an integrated operating system using the ANSI-standard MUMPS language). An extensive list of programming languages including BASIC, COBOL-81, DIBOL, FORTRAN-77, MACRO-11, and Pascal are all supported by the MicroPDP-11 family.

The following chart shows the variety of offerings, by enclosure, for each of the MicroPDP-11 Multiuser System family members.

MicroPDP-11 System Summary

System	BA23	BA123	BA213	MicroSystem Cabinet
MicroPDP-11/53 Standard Systems	**DH-153Q1-AA/A2/A3** KDJ11-DA (15 MHz, 512 Kbytes) RX33/RD31 BA23 Floorstand/Tabletop			
	DH-153Q2-AA/A2/A3 KDJ11-DA (15 MHz, 512 Kbytes) RX33/RD31 BA23 Rackmount			
	DH-153Q5-AA/A2/A3 KDJ11-DA (15 MHz, 512 Kbytes) RX33/RD32 BA23 Floorstand/Tabletop			
	DH-153Q6-AA/A2/A3 KDJ11-DA (15 MHz, 512 Kbytes) RX33/RD32 BA23 Rackmount			
MicroPDP-11/53 PLUS Standard Systems	**DH-153Q3-BA/B2/B3** KDJ11-DB (15 MHz, 1.5 Mbytes) RD53/TK50/DHQ11 BA23 Floorstand/Tabletop			
	DH-153Q4-BA/B2/B3 KDJ11-DB (15 MHz, 1.5 Mbytes) RD53/TK50/DHQ11 BA23 Rackmount			
	DH-153Q7-BA/B2/B3 KDJ11-DB (15 MHz, 1.5 Mbytes) RD32/TK50 BA23 Floorstand/Tabletop			
	DH-153Q8-BA/B2/B3 KDJ11-DB (15 MHz, 1.5 Mbytes) RD32/TK50 BA23 Rackmount			
MicroPDP-11/73 Standard Systems	**DH-173Q1-CA/C2/C3** KDJ11-BB (15 MHz) No Floating-point Support RD53/TK50/DHQ11 BA23 Floorstand/Tabletop			
System Building Blocks	**173QY-C2/C3** KDJ11-BB/1 Mbyte BA23 Floorstand/Tabletop	**173QB-C2/C3** KDJ11-BB/1 Mbyte BA123		
	173QZ-C2/C3 KDJ11-BB/1 Mbyte BA23 Rackmount			
	173QY-D2/D3 KDJ11-BB/2 Mbytes BA23 Floorstand/Tabletop	**173QB-D2/D3** KDJ11-BB/2 Mbytes BA123		
	173QZ-D2/D3 KDJ11-BB/2 Mbytes BA23 Rackmount			
MicroPDP-11/83 Standard Systems	**DH-183Q1-BA/B2/B3** KDJ11-BF/Floating Point 2 Mbytes PMI/RD54 TK50/DHQ11 BA23 Floorstand/Tabletop	**DH-183Q2-CA/C2/C3** KDJ11-BF/ Floating Point/BA123 2 Mbytes PMI/RD54 TK50/DHQ11 (2)	**DH-183Q5-AA/A2/A3** KDJ11-BF/BA213 Floating Point 2 Mbytes PMI/RD54 TK50/CXY08	**DH-183Q3-BA/B2/B3** KDJ11-BF (18 MHz)/Floating Point 2 Mbytes PMI/H9642/BA23 (2) RA81/KDA50/TK50 DHQ11 (2)
System Building Blocks	**183QY-D2/D3** KDJ11-BF/2 Mbytes PMI BA23 Floorstand/Tabletop	**183QB-D2/D3** KDJ11-BF/2 Mbytes PMI BA123		**183QE-D2/D3** KDJ11-BF/2 Mbytes PMI H9642/BA23 (2)
	183QZ-D2/D3 KDJ11-BF/2 Mbytes PMI BA23 Rackmount			

Note: The "A" versions of Standard Systems include a Documentation and Diagnostics kit.

MicroPDP-11/83

Features

- 2-Mbyte base configuration expandable in 1- or 2-Mbyte increments of PMI ECC MOS memory up to 4 Mbytes (depending on configuration)
- One serial-line standard for connection of console terminal
- 22-bit Q-bus backplane
- I/O distribution panel for easy I/O device connection
- Choice of pedestal, tabletop, rackmount, floorstand, or cabinet-based (manufacturing-integrated) packaging
- Optional four-line or eight-line asynchronous multiplexer from 50 to 9600 baud (DZQ11, DHQ11, CXY08, CXA16, or CXB16)
- Optional Ethernet capability (DEQNA, DELQA)
- 159-Mbyte or 71-Mbyte fixed-disk drive (RD54 or RD53)
- 1.2-Mbyte "half-height" floppy-diskette drive (RX33)
- 42-Mbyte "half-height" fixed-disk drive (RD32)
- 800-Kbyte dual-diskette drive (RX50)
- 95-Mbyte cartridge-tape drive (TK50)
- 52-Mbyte (26 fixed/26 removable) tabletop disk drive (RC25)
- 456-Mbyte high-capacity fixed-disk drive for the cabinet package (RA81)
- 205-Mbyte high-capacity removable-disk drive for the cabinet package (RA60)
- 40-Mbyte industry-standard, 1,600-b/in streaming-tape drive (TSV05)

MicroPDP-11/73

Features

- 1- or 2-Mbyte increments of parity MOS memory expandable up to 4 Mbytes (depending on configuration)
- One serial-line standard for connection of console terminal
- 22-bit Q-bus backplane
- I/O distribution panel for easy I/O device connection
- Choice of pedestal, tabletop, rackmount, floorstand, or cabinet-based (field upgrade only) packaging
- Optional four-line or eight-line asynchronous multiplexer from 50 to 9600 baud (DZQ11, DHV11, or DHQ11)
- Optional Ethernet capability (DEQNA, DELQA)
- 159-Mbyte or 71-Mbyte fixed-disk drive (RD54 or RD53)
- 1.2-Mbyte "half-height" floppy-diskette drive (RX33)
- 42-Mbyte "half-height" fixed-disk drive (RD32)
- 800-Kbyte dual-diskette drive (RX50)
- 95-Mbyte cartridge-tape drive (TK50)
- 52-Mbyte (26 fixed/26 removable) tabletop disk drive (RC25)
- The following items may be integrated by customers in the field
  –456-Mbyte high-capacity fixed-disk drive for the cabinet package (RA81)
  –205-Mbyte high-capacity removable-disk drive for the cabinet package (RA60)
  –40-Mbyte industry-standard, 1,600-b/in steaming-tape drive (TSV05)

**MicroPDP-11/53 PLUS,
MicroPDP-11/53**

Features

- System module with 15 MHz J-11 chipset
- Onboard parity memory
  - MicroPDP-11/53 PLUS: 1.5 Mbytes
  - MicroPDP-11/53: 0.5 Mbytes
- MicroPDP-11/73 complete instruction set
- Expandable up to 4 Mbytes of memory
- Two serial-line units, implementing EIA RS-232 or EIA RS-423
- 22-bit Q-bus backplane
- I/O distribution panel
- Choice of pedestal, tabletop, or rackmount packaging
- Optional four-line or eight-line asynchronous multiplexer from 50 to 9600 baud (DZQ11 or DHQ11)
- Optional Ethernet capability (DEQNA, DELQA)
- Optional 52-Mbyte (26 fixed/26 removable) tabletop disk drive (RC25)
- RX33 1.2-Mbyte "half-height" floppy-diskette drive (MicroPDP-11/53 only)
- RD31 "half-height" 20-Mbyte Winchester drive (MicroPDP-11/53 only)
- RD32 "half-height" 42-Mbyte Winchester drive
- RD53 "full-height" 71-Mbyte Winchester drive (MicroPDP-11/53 PLUS only)
- TK50 95-Mbyte cartridge tape (MicroPDP-11/53 PLUS only)
- Add-on support of RD54, RD53 and TK50

Mass-storage Expansion

The BA23 pedestal (desktop) and rackmount packages can accommodate *one* RD54 or RD53 fixed disk, or up to *two* RD32 or RD31 half-height disks, and up to *two* RX33 "half-height" diskettes or *one* RX50 diskette or TK50 tape drive inside the basic BA23 system enclosure. They can also be expanded to include tabletop or rackmount versions of the full-height devices.

The BA213 floorstand package can accommodate one TK50 tape drive and up to three RD53 or RD54 disk drives.

The BA123 floorstand package can accommodate up to four 5.25-inch storage devices. These can include the RD54, RD53, RX50, RX33, and TK50 disk and tape drives, with a maximum of three RD54 or RD53 disk drives.

The H9642-JA/JB cabinet package can accommodate two BA23 chassis that can contain a total of four 5.25-inch storage devices. These can include up to two RD54s or RD53s and up to two RX50 or TK50 disk and tape drives.
Up to four RX33s can be accommodated, depending upon the other devices in the configuration. The H9642-JA/JB cabinet also provides space for two 10.5-inch storage devices. These can include the RA81, RA60, and the TSV05 disk and tape drives.

The RC25 disk subsystem is externally mounted. The RC25 is available in rackmount and tabletop versions.

Power Requirements and Bus Loads

Each option requires mounting space (quad or dual slot), dc current, and ac and dc bus loads. If you select a Standard System configuration, it is not necessary to calculate the current or bus loads. This has already been done for you. However, if you select a System Building Block configuration, you must calculate these by using the available configuration templates. Simply subtract the option from the available amperes and bus loads in the configuring templates.

Each available option slot of the traditional Micro PDP-11 enclosures can accept one quad option or two dual options. When configuring options, place dual-width options beside each other to efficiently use the slot space. If you have a dual option followed by a quad option, a bus grant continuity card will be supplied.

Each available option slot of the new BA213 enclosure can accept only one dual or quad option.

Refer to the Configuring Charts in the *Options* chapter and in the *Disks and Tapes* chapter for the power requirements, bus loads, module size, and I/O distribution panel insert sizes for each option.

I/O Management
BA23, BA123, H9642

In addition to calculating power requirements and available backplane slots, the utilization of the I/O distribution panel must be considered when configuring systems in the BA23, BA123, or H9642-SA/SB enclosures.

The I/O distribution panel is a plate located at the back of the system box designed to simplify cable management. It is used to mount connectors (panel inserts) for communications and peripheral cables that connect the CPU to these devices.

Options have panel inserts that come in two sizes: Size A: 2.5 cm by 10.1 cm (1 inch by 4 inches); and Size B: 6.6 cm by 8.1 cm, (2.6 inches by 3.2 inches). The BA23 I/O distribution panel has space for two Size A inserts and four Size B inserts. An adapter place is included for converting two Size B inserts to three Size A inserts. The BA123 has space for ten panel inserts of which four are Size A and six are Size B. The H9642-JA/JB I/O distribution panel has space for six Size A inserts and eleven Size B inserts.

BA213

The modules of the new BA213 enclosure feature connections through an integral module handle rather than through internal cabling to a back insert panel.

Refer to the Configuring Charts in the *Options* chapter and in the *Disks and Tapes* chapter for the power requirements, bus loads, module size, and I/O distribution panel insert sizes for each option.

Q-bus Options

The following is a list of system options for the MicroPDP-11/83, 11/73, 11/53 PLUS, and 11/53. The options and all ordering details are completely described in the *Options* and *Disks and Tapes* chapters.

Memory (RAM) Options

MSV11-MB*	1-Mbyte MOS memory
MSV11-QA	1-Mbyte parity MOS memory (11/73, 11/53 PLUS, 11/53)
MSV11-QB	2-Mbyte parity MOS memory (11/73, 11/53 PLUS, 11/53)
MSV11-QC	4-Mbyte parity MOS memory (11/73, 11/53 PLUS, 11/53)
MSV11-JD	1-Mbyte PMI ECC MOS memory (11/83)
MSV11-JE	2-Mbyte PMI ECC MOS memory (11/83)

*Not integrated in MicroPDP-11 systems by Digital.

Memory (CMOS) Options

MCV11-DC	32-Kbyte CMOS Memory

Memory (ROM) Options

MRV11-C	PROM/ROM module with 16 sockets; accommodates 24-pin devices
MRV11-D	PROM/ROM module with 16 sockets; accommodates 24- and 28-pin devices

Communications Options

DELQA-SA/SF*	Ethernet-to-Q-bus communications controller for systems in BA200-series enclosures
DEQNA-M	Ethernet communications controller
DHQ11-M	8-line asynchronous dual-height multiplexer (modem control)
DZQ11-M	4-line asynchronous multiplexer (modem control)
DHF11-AA/AB	16-line fiber optic terminal controller
DHF11-BA/BB	32-line fiber optic terminal controller
DLVJ1-M	4-line asynchronous interface (modem control)
DLVE1-M	Single-line asynchronous interface (modem control)
DMV11-M	Single-line, synchronous interface (EIA RS-232-C/CCITT V. 28, CCITT V. 35, or EIA RS-423/RS-449)
DMV11-N	Single-line, synchronous interface (integral modem)
DPV11-M	Single-line, synchronous interface (EIA RS-232-C/CCITT V. 28 or EIA RS-232-C/CCITT V. 11)
KMV1A-M	Single-line synchronous/asynchronous interface (EIA RS-232-C/CCITT V. 28, EIA RS-422/CCITT V. 11, or EIA RS-423/CCITT V. 10)
CXY08-AA/AF*	8-line asynchronous interface (modem control) (EIA RS-232-C)
CXA16-AA/AF*	16-line asynchronous interface (no modem control) (EIA RS-423A)
CXB16-AA/AF*	16-line asynchronous interface (no modem control) (EIA RS-422)

*AA/SA denotes factory installed. AF/SF denotes field service installed.

Options

Realtime Options	**AAV11-C**	Digital-to-analog converter
	ADV11-C	Analog-to-digital converter
	AXV11-C	Analog I/O device
	KWV11-C	Realtime clock
	DRV11-B	DMA parallel interface
	DRV11-J	Four 16-line parallel interfaces
	DRV11-L	Parallel interface
	DRV11-WA	22-bit DMA parallel interface
	IEQ11-AD/AF	Bit-parallel, byte-serial DMA Q-bus interface controllers
Disk Storage Options	**RA81-HA/HD**	Integrated 456-Mbyte fixed-disk drive, 120/240 V
	RQA81	RA81 with KDA50 controller
	RA60-AF	Integrated 205-Mbyte removable-disk drive, 120/240 V
	RQA60	RA60 with KDA50 controller
	KDA50-QA	RA81 and RA60 disk controller
	RD54A	Integrated 159-Mbyte fixed-disk drive
	RD54-D, -R	Add-on 159-Mbyte fixed-disk drive
	RD54A-SA/SF*	Integrated 159-Mbyte fixed-disk drive for the BA213 enclosure
	RD53A	Integrated 71-Mbyte fixed-disk drive
	RD53-D, -R	Add-on 71-Mbyte fixed-disk drive
	RD53A-SA/SF*	Integrated 71-Mbyte fixed-disk drive for the BA213 enclosure
	RD31A-AA	Integrated 20-Mbyte "half-height" fixed-disk drive for BA23
	RD31A-AB	Integrated second 20-Mbyte "half height" fixed-disk drive, with cables and stacking hardware
	RX33A-AA	Integrated 1.2-Mbyte "half-height" floppy-disk drive for BA23
	RX33A-AB	Integrated second 1.2-Mbyte "half-height" floppy-disk drive, with cables and stacking hardware
	RX50A	Integrated 800-Kbyte dual-diskette drive
	RX50-D, -R	Add-on 800-Kbyte dual-diskette drive
	RQDX3	RD/RX disk controller
	RQDXE	Extender module for the RQDX3 controller

*AA/SA denotes factory installed. AF/SF denotes field service installed.

Tape Storage Options	**TK50-AA**	Integrated 95-Mbyte cartridge-tape drive
	TK50-D, -R	Add-on 95-Mbyte cartridge-tape drive
	TK50E-SA/SF*	Integrated 95-Mbyte cartridge-tape drive for the BA213 enclosure
	TQK50	TK50 tape controller
	TQK50-SA/SF*	TK50 tape controller for the BA213 enclosure
	TSV05-AA/AB	40-Mbyte streaming-tape drive, 120/240 V
Q-bus Expansion Hardware	**BA23-A**	Master expansion box
	BA23-CC/DD	BA23 expansion box, 120/240 V
	BA11-SE/SF	5.25-inch 9-slot expander box, no console, 120/240 V
Storage Expansion Hardware	**H9642-JA/JB**	Micro system cabinet with I/O, 120/240 V
	H9642-C	40-inch stand-alone front-load cabinet
	H9642-AP/AR	Storage cabinet, 120/240 V
	H9646-CA	60-inch stand-alone communications cabinet

*AA/SA denotes factory installed. AF/SF denotes field service installed.

Options

Information Kit Options	The MicroPDP-11 information kits contain all diagnostics and documentation for the entire MicroPDP-11 Multiuser System family (MicroPDP-11/83, 11/73, 11/53 PLUS, and 11/53). The MicroPDP-11/53 will use the RX50-based kits; the RX33 will both read and write RX50 format.

ZYAAE-P3	English-language diagnostics and documentation on RX50 media for the H9642-JA/JB systems
ZYAAE-P5	English-language diagnostics and documentation on TK50 media for the H9642-JA/JB systems
ZYAAB-P3	English-language diagnostics and documentation on RX50 media for the BA123 systems
ZYAAB-P5	English-language diagnostics and documentation on TK50 media for the BA123 systems
ZYAAS-P5	English-language diagnostics and documentation on TK50 media for the BA213 systems
ZYAAA-P3	English-language diagnostics and documentation on RX50 media for the BA23 systems
ZYAAA-P5	English-language diagnostics and documentation on TK50 media for the BA23 systems

Diagnostics

The following diagnostics may be ordered separately:

ZYA03-P3	English-language diagnostics on RX50 media
ZYA03-P5	English-language diagnostics on TK50 media
ZYA03-P4	English-language diagnostics on RC25 media
ZYA03-P6	English-language diagnostics on TK25 media

Documentation

The following documentation may be ordered separately:

ZYAAE-GZ	English-language documentation for the H9642-JA/JB systems
ZYAAB-GZ	English-language documentation for the BA123 systems
ZYAAS-GZ	English-language documentation for the BA213 systems
ZYAAA-GZ	English-language documentation for the BA23 systems

Q-bus System Upgrades

MicroPDP-11/73 Upgrade Kits	**11/73-UA**	KDJ11-BB (11/73) CPU board and cabinet kit, diagnostics on RX50, documentation, and Field Service installation. (MicroPDP-11/23 to 11/73)
	11/73-UB	KDJ11-BB (11/73) CPU board and cabinet kit, diagnostics on RX50, documentation, and Field Service installation. (MicroPDP-11/23 PLUS to 11/73)
	11/73-UC	KDJ11-BB (11/73) CPU board, 512 Kbytes memory, BA23-A, RLV12 disk controller, diagnostics on RL02, documentation, and Field Service installation. (MicroPDP-11/03 or 11/23-A to 11/73)
MicroPDP-11/83 Upgrade Kits	**11/83-UA**	KDJ11-BF (11/83) CPU board and cabinet kit, 2 Mbytes PMI memory, diagnostics on RX50, documentation, and Field Service installation. (MicroPDP-11/73 to 11/83)
	11/83-UB	KDJ11-BF (11/83) CPU board and cabinet kit, 2 Mbytes PMI memory, diagnostics on RX50, documentation, and Field Service installation. (MicroPDP-11/23 to 11/83)
	11/83-UC	KDJ11-BF (11/83) CPU board and cabinet kit, 2 Mbytes PMI memory, diagnostics on RL02, documentation, and Field Service installation. (MicroPDP-11/23 PLUS to 11/83)
MicroVAX II Upgrade Kits	**630XR-CA**	MicroPDP-11 to MicroVAX II, VMS/license, TK50, 120 V.
	630XR-CB	MicroPDP-11 to MicroVAX II, VMS/license, TK50, 240 V.
	630XR-CC	MicroPDP-11 to MicroVAX II, VMS/license, 120/240 V.
	630XR-DA	MicroPDP-11 to MicroVAX II, ULTRIX/license, TK50, 120 V.
	630XR-DB	MicroPDP-11 to MicroVAX II, ULTRIX/license, TK50, 240 V.
	630XR-DC	MicroPDP-11 to MicroVAX II, ULTRIX/license, 120/240 V.
Backplane Upgrade	**11E23-UA**	Four- to eight-slot system upgrade. Includes Field Service installation.

Upgrades

MicroPDP-11 to MicroVAX II Upgrade Kit Variations

Part No.	Description	CA	CB	CC	DA	DB	DC
RQDX3-M	RX/RD disk controller						
QZ002-C5	MicroVMS 8-user license & key	1	1	1			
QZ002-H5	MicroVMS 8-user	1	1	1			
QZZEK-UZ	ULTRIX-32 MicroVAX II license				1	1	1
QLZEL-UZ	ULTRIX-32, 2-8 user upgrade license				1	1	1
TQK50-AB	Controller for TK50		1	1	1	1	
TK50-DA	TK50 drive, desktop, 120V	1			1		
TK50-DB	TK50 drive, desktop, 240V		1			1	
QZZEK-H5	ULTRIX-32 MicroVAX II				1	1	1
QLZEL-H5	ULTRIX-32 capacity key media/documentation, TK50				1	1	1
KA630-AA	MicroVAX II CPU/floating-point unit, 1 Mbyte of memory	1	1	1	1	1	1
MS630-CA	8 Mbytes of memory, one quad	1	1	1	1	1	1
ZNAAA-C5	Hardware information kit w/ diagnostics	1	1	1	1	1	1
CK-KA630-AB	CPU distribution panel w/ cables	1	1	1	1	1	1
M9407	Grant continuity card	1	1	1	1	1	1
	Product variation label	1	1	1	1	1	1
	Product I.D. medallion	1	1	1	1	1	1
EK-63XRA-IN	Installation guide	1	1	1	1	1	1
	Field Service deinstallation and installation	1	1	1	1	1	1
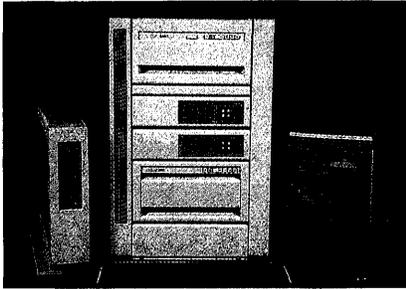
Product Description

The MicroPDP-11/83 is Digital's most powerful 16-bit supermicrosystem. The MicroPDP-11/83 combines Digital's 18-MHz J-11 chip and a companion floating-point accelerator chip with a private memory interconnect (PMI) to produce system throughput that approaches PDP-11/70 integer performance. This chipset and PMI-memory combination boosts realtime computing power to the highest supermicro performance levels.

The MicroPDP-11/83 is fully compatible with the 16-bit PDP-11 architecture and its entire collection of system and application software and offers a wide array of mass-storage devices and communications interfaces that are all compatible with the Q22 bus.

The MicroPDP-11/83 also has the widest of any range of configuration flexibility. It is offered in four enclosures: the MicroPDP-11 system BA23, BA123, BA213, and H9642 cabinet. The storage devices offer range from half-height RD/RX devices to high-capacity RA devices formerly available only on much larger systems.

The MicroPDP-11/83 is also supported by Ethernet local area networking for low-cost, high-speed local area communications.

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-183Q1-BA	Includes MicroPDP-11/83 CPU, 2-Mbyte(MSV11-JE) PMI memory, floating-point accelerator, RD54 159-Mbyte disk drive, RQDX3 disk controller, TK50 95-Mbyte tape drive and tape controller, DHQ11, BA23 pedestal/tabletop enclosure, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. –BA model recommended for US. Base Hardware System includes 1 serial line for a console terminal, a BC22D-10 serial-line cable, and 8 modem/data serial lines (modem control) on the DHQ11. RT-11 and CTS-300 are not supported on Standard Systems due to lack of DHQ11 support.
	☐	1	DH-183Q1-B2	Same as DH-183Q1-BA except no diagnostics or documentation – see Step 4 to order separately, 120 V	
	☐	1	DH-183Q1-B3	Same as DH-183Q1-BA except does not include a 240-V power cord, diagnostics or documentation – see Steps 2 and 4 to order separately, 240 V	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN02A-2E	Central European – 220 V @ 6 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY821-UZ	DSM-11	Each license includes 90-day limited warranty.
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.3 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for more details.
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	
	☐	1	QY505-UZ	RSX-11M-PLUS	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.4.
	☐	1	QY642-UZ	RSX-11S	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 15 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics/documentation on RX50 media	Optional for -B2 and -B3. Included in DH-183Q1-BA.
	☐	1	ZYAAA-P5	English-language diagnostics/documentation on TK50 media	
5 Additional Memory	☐	1	MSV11-JD	1-Mbyte PMI ECC MOS memory	Choose only one.
	☐	1	MSV11-JE	2-Mbyte PMI ECC MOS memory	
6 Add-on Mass Storage (external) Required Selections	☐	–	BC17Y-1J	Daisychain cable (Required if 2 external RDxx and/or RXxx devices are selected.)	An RQDX3 supports a total of four devices, with the following device definitions: RX50 = 2 devices RX33 = 1 device RDxx = 1 device
	☐	1	RQDXE-AA	RQDX3 extender module (Required for addition of any external RD/RX drives.)	Choose zero, one, or two combinations in this step, along with one RQDXE.
Disks	☐	–	RD54-DA/DB	159-Mbyte tabletop-disk drive	
	☐	–	RD53-DA/DB	71-Mbyte tabletop-disk drive	
	☐	–	RX50-DA/DB	800-Kbyte tabletop-disk drive	
	☐	1	RQDXE-AA	RQDX3 extender module	
Tapes	☐	–	TK50-DA/DB	95-Mbyte tabletop-tape drive	
	☐	–	TQK50-AB	TK50 controller	
	☐	1	TSV05-BA/BB	40-Mbyte industry standard 1,600-bpi streaming-tape drive in cabinet	
	☐	1	CK-TS05-14	Cabinet kit	
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one. Select cable from Step 11.
		1	CK-DELQA-YB	Cabinet kit	
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	
8 Environmental Power Product	☐	–	H7229-AD	Standby uninterruptable power system (1,440 VA, 1,050 W)	
9 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 9 serial lines using 3 B-size slots. This leaves 1 additional B-size slot in the distribution panel available for options. Please refer to the 183QY configuration template.	
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from step 11.
		1	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections.	
	☐	1	DZQ11-M	4 serial lines	
		1	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead.	
	☐	1	DLVJ1-M	4 serial lines	
		1	CK-DLVJ1-LB	Cabinet kit	

MicroPDP-11/83 BA23 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (9) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.1 and I.2 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.2 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250 ch/s dot-matrix printer	See Table I.1 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot-matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
11 Cables	☐	–	**BNE3M-xx**	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals: –05 = 5-ft –10 = 10-ft –20 = 20-ft –40 = 40-ft
	☐	–	**H4000**	Ethernet transceiver	

For 25-pin connections (cabinet kits CK-DLVJ1-LB and CK-DZQ11-DB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC22D-25**	25-ft null modem serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC22D-50**	50-ft null modem serial cable	
	☐	–	**BC22D-A0**	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC16E-25**	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC16E-50**	50-ft serial cable	
	☐	–	**H8751-A**	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.
12 Operating System Media and Documentation	☐ ☐ ☐ ☐	1 1 1 1	**Q___-H3** **Q___-H5** **Q___-HM** **Q___-GZ**	RX50 media/documentation kit TK50 media/documentation kit TSV05 media/documentation kit Documentation-only kit	Choose desired order codes from Table I.4. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.4 for appropriate part number and SPD number.)
13 Layered Product License, Media, and Documentation	☐ ☐ ☐ ☐ ☐	1 1 1 1 1	**Q___-UZ** **Q___-H3** **Q___-H5** **Q___-HM** **Q___-GZ**	Single-use license RX50 media/documentation kit TK50 media/documentation kit TSV05 media/documentation kit Documentation-only kit	Repeat Step 13 if more than one layered product is desired.

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 BA23 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
14 Software Services	☐ RX50 ☐ TK50		Q-___-B3 Q-___-B5	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service.
	☐ RX50 ☐ TK50		Q-___-73 Q-___-75	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐ RX50 ☐ TK50 ☐ TSV05		Q___-33 Q___-35 Q___-3M	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-83 Q___-85 Q___-8M	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50.
	☐ RX50		Q___-93	DECsupport Service Agreement – access to a service database (for most products)	To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.4 for appropriate part number and SPD number.)
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-I3 Q___-I5 Q___-IM	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

Configuration Rules for MicroPDP-11/83 BA23-based System Building Blocks

The BA23 pedestal or rackmount enclosure backplane has a total of eight slots. It contains a 230-watt power supply and dedicated space for up to four half-height storage devices. Use the following rules when configuring the BA23 pedestal or rackmountable systems with devices that are not included on the menu.

- Write the module and mass-storage device names in the left column beside the slot and shelf numbers. When configuring these systems, please note that quad-height modules use both the "AB" and "CD" portions of a slot.

- Slot 1 is always reserved for the CPU module, and slot 2 is reserved for the memory option.

- Slots 3 through 8 can accommodate either two dual-height or one quad-height option.

- Mass-storage shelf devices can be either one full-height (i.e. RD54, RD53, TK50) or two half-height devices (i.e. RX33, RD31, RD32) per cavity.

- Enter the 5-V and 12-V currents, power, the ac and dc bus loads, and I/O panel inserts required for each module and mass-storage device. The column totals must not exceed the limits listed at the bottom.

MicroPDP-11/83 PLUS Configuration Template for 183QY, 183QZ

SLOT	MODULE	Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 ABCD	KDJ11-BF	5.5	0.2	29.9	2.3	1.0	1	N/A
2 ABCD	MSV11-JE	4.1	0	18.5	2.5	0.5	N/A	N/A
3 AB	— — — —							
CD								
4 AB	— — — —							
CD								
5 AB	— — — —							
CD								
6 AB	— — — —							
CD								
7 AB	— — — —							
CD								
8 AB	— — — —							
CD								
Mass-storage Shelf Device								
1A								
1B								
2A								
2B								
Total these columns:								
Must not exceed		36 A	7 A	230 W	22	20	4	2

MicroPDP-11/83 BA23 System Building Block

Note: The selection of Steps 1 through 4, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	**183QY-D2**	Includes MicroPDP-11/83 CPU, 2-Mbyte (MSV11-JE) memory, asynchronous console serial line on the CPU module, BC22D-10 serial-line cable, BA23A-AF pedestal/tabletop enclosure, and a US 120-V power cord. Does not include diagnostics or user documentation – see Step 5 to order separately, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – D2 recommended for US.
	☐	1	**183QY-D3**	Same as 183QY-D2 except does not include a 240-V power cord – see Step 2 to order separately, 240 V	
	☐	1	**183QZ-D2**	Same as 183QY-D2 except includes a BA23A-AR rackmount enclosure instead of a BA23A-AF enclosure, 120 V	
	☐	1	**183QZ-D3**	Same as 183QY-D3 except includes a BA23A-AR rackmount enclosure instead of a BA23A-AF enclosure, 240 V	
2 Power Cords	☐	1	**BN02A-2E**	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	**BN03A-2E**	Central European – 220 V @ 6 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	**BN04A-2E**	Switzerland – 220 V @ 6 A	
	☐	1	**BN05A-2E**	Australia/New Zealand – 240/230 V @ 6 A	
	☐	1	**BN06A-2E**	Denmark – 220 V @ 6 A	
	☐	1	**BN07A-2E**	Italy – 220 V @ 6 A	
	☐	1	**BN18K-1K**	Japan – 200 V @ 6 A	
	☐	1	**BN18L-2E**	Israel – 230 V @ 6 A	
	☐	1	**BN18J-1K**	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.3 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for more details.
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.4.
	☐	1	QY505-UZ	RSX-11M-PLUS	
	☐	1	QY642-UZ	RSX-11S	
	☐	1	QY013-UZ	RT-11	
4 Integrated Mass Storage (internal)	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	Choose only one combination.
		1	RQDX3-AA	RD/RX controller	BA23 box supports up to two RX33s and/or two RD32s. The -AA variation is used for the first drive and the -AB variation is used for the second drive.
RD54, TK50		1	TK50-AA	95-Mbyte cartridge-tape drive	
		1	TQK50-AA	TK50 controller	
	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD54, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD54, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	
		1	RX50A-AA	800-Kbyte disk drive	
RD54, RX50		1	RQDX3-AA	RD/RX controller	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RQDX3-AA	RD/RX controller	
		1	TK50-AA	95-Mbyte cartridge-tape drive	
RD53, TK50		1	TQK50-AA	TK50 controller	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD53, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD53, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RX50A-AA	800-Kbyte disk drive	
RD53, RX50		1	RQDX3-AA	RD/RX controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RQDX3-AA	RD/RX controller	
		1	TK50-AA	95-Mbyte cartridge-tape drive	
RD32, TK50		1	TQK50-AA	TK50 controller	

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage (internal) *(Continued)*	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RQDX3-AA	RD/RX controller	
2 RD32s, TK50		1	TK50-AA	95-Mbyte cartridge-tape drive	
		1	TQK50-AA	TK50 controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD32, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
2 RD32s, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD32, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
2 RD32s, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
RD32, RX50		1	RX50A-AA	800-Kbyte disk drive	
		1	RQDX3-AA	RD/RX controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
2 RD32s, RX50		1	RX50A-AA	800-Kbyte disk drive	
		1	RQDX3-AA	RD/RX controller	

Note: Selection from Steps 5 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics/ documentation on RX50 media	Choose one.
	☐	1	ZYAAA-P5	English-language diagnostics/ documentation on TK50 media	
6 Additional Memory	☐	1	MSV11-JD	1-Mbyte PMI ECC MOS memory	Choose only one.
	☐	1	MSV11-JE	2-Mbyte PMI ECC MOS memory	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
7 Add-on Mass Storage (external) Required Selections	☐	–	BC17Y-1J	Daisychain cable (Required if 2 external RDxx and/or RXxx devices are selected.)	An RQDX3 supports a total of four devices, with the following device definitions.
	☐	1	RQDXE-AA	RQDX3 extender module (Required for addition of any external RD/RX drives.)	RX50 = 2 devices RX33 = 1 device RDxx = 1 device
	☐	–	H9302	Rackmount kit (Required for all external rackmount devices – one kit for every 2 devices.)	Depending on what was selected in Step 4, choose zero, one, or two combinations in this step, along with one RQDXE.
Disks	☐	–	RD54-DA/DB	159-Mbyte tabletop-disk drive	
	☐	–	RD54-RA/RB	159-Mbyte rackmount-disk drive	
	☐	–	RD53-DA/DB	71-Mbyte tabletop-disk drive	
	☐	–	RD53-RA/RB	71-Mbyte rackmount-disk drive	
	☐	–	RX50-DA/DB	800-Kbyte tabletop-disk drive	
	☐	–	RX50-RA/RB	800-Kbyte rackmount-disk drive	
Tapes	☐	– –	TK50-DA/DB TQK50-AB	95-Mbyte tabletop-tape drive TK50 controller	
	☐	– –	TK50-RA/RB TQK50-AB	95-Mbyte rackmount-tape drive TK50 controller	
	☐	1 1	TSV05-BA/BB CK-TS05-14	40-Mbyte industry-standard 1,600-bpi streaming-tape drive in cabinet Cabinet kit	
8 Ethernet Interface	☐	1 1	DELQA-M CK-DELQA-YB	Ethernet interface Cabinet kit	Choose only one. Select cable from Step 12.
	☐	1 1	DEQNA-M CK-DEQNA-KB	Ethernet interface Cabinet kit	
9 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 1 serial line, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 183QY configuration template.	
	☐	1 1	DHQ11-M CK-DHQ11-AB	8 serial lines Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	Choose only one if no other asynchronous options are selected. Select cable from Step 12. DHQ11 is not supported by RT-11 and CTS-300.
	☐	– –	DHQ11-M CK-DHV11-WB	8 serial lines Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	Choose up to three if no other asynchronous options are selected. Select cable from Step 12. DHQ11 is not supported by RT-11 and CTS-300.
	☐	– –	DZQ11-M CK-DZQ11-DB	4 serial lines Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead.	
	☐	– –	DLVJ1-M CK-DLVJ1-LB	4 serial lines Cabinet kit	Choose up to two if no other asynchronous options are selected. Select cable from Step 12.

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (1) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.1 and I.2 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.2 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250 ch/s dot-matrix printer	See Table I.1 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot-matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation,
	☐	–	LGK31-___	Country kit for LG31-A3	selected from the country variation table,
	☐	–	LJ250-___	Companion color printer serial interface	for each non-U.S. LG31-A3 selected.
11 Environmental Power Product	☐	–	H7229-AD	Standby uninterruptable power system (1,440 VA, 1,050 W)	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Cables	☐	–	**BNE3M-xx**	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet
	☐	–	**H4000**	Ethernet transceiver	interface is ordered. For appropriate cable length, -xx equals:
					-05 = 5-ft
					-10 = 10-ft
					-20 = 20-ft
					-40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LB, AB, CK-DHQ11-AB, and CK-DZQ11-DB):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC22D-25**	25-ft null modem serial cable	Number of serial terminals should at least
	☐	–	**BC22D-50**	50-ft null modem serial cable	equal the number of terminals on the
	☐	–	**BC22D-A0**	100-ft null modem serial cable	system (*one* 10-ft console serial cable is included in Step 1).

For MMJ connections (cabinet kit CK-DHQ11-WB):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC16E-25**	25-ft serial cable	Number of serial cables should at least
	☐	–	**BC16E-50**	50-ft serial cable	equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**H8571-A**	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
13 Operating System Media and Documentation	☐	1	**Q___-H3**	RX50 media/ documentation kit	Choose desired order codes from Table I.4. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.4 for appropriate part number and SPD number.)
	☐	1	**Q___-H5**	TK50 media/ documentation kit	
	☐	1	**Q___-HM**	TSV05 media/ documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
14 Layered Product License, Media, and Documentation	☐	1	**Q___-UZ**	Single-use license	Repeat Step 14 if more than one layered product is desired.
	☐	1	**Q___-H3**	RX50 media/ documentation kit	
	☐	1	**Q___-H5**	TK50 media/ documentation kit	
	☐	1	**Q___-HM**	TSV05 media/ documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
15 Software Services	☐ RX50		**Q___-B3**	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 15, do not order from Steps 16 and 17.
	☐ TK50		**Q___-B5**		All software products must have the same level service.
	☐ RX50		**Q___-73**	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license.
	☐ TK50		**Q___-75**		Order media and documentation at no extra charge.

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Step	Check	Qty	Part Number		Product Description	Product/Order Limitations or Remarks
16 Hardware Maintenance Services	☐	–	DECservice		Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic		8 hours per day, Monday-Friday	
						For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent		OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor		OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership		Digital support for OEMs who maintain their own and/or their end user's equipment	
17 Software Maintenance Services	☐		RX50	Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐		TK50	Q___-35		
	☐		TSV05	Q___-3M		
	☐		RX50	Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.4 for appropriate part number and SPD number.)
	☐		TK50	Q___-85		
	☐		TSV05	Q___-8M		
	☐		RX50	Q___-93	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	
	☐		TK50	Q___-95		
	☐		TSV05	Q___-9M		
						Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐		RX50	Q___-I3	Installation Service – installation of software products on system	
	☐		TK50	Q___-I5		
	☐		TSV05	Q___-IM		

Table I.1 - Multinational Order Codes for Printers

Country/ Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer	LG31 Printer	LJ250 Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA	LGK31-AA	LJ250-CA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB	LGK31-CA	LJ250-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC	LGK31-AA	LJ250-CA
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD	LGK31-AD	LJ250-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE	LGK31-AE	LJ250-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF	LGK31-CA	LJ250-CC
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG	LGK31-AG	LJ250-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH	LGK31-CA	LJ250-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI	LGK31-AI	LJ250-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ	LGK31-AA	
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK	LGK31-AK	LJ250-CB
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL	LGK31-AK	LJ250-CB
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM	LGK31-CA	LJ250-CC
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN	LGK31-CA	LJ250-CC
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP	LGK31-CA	LJ250-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LGK31-AA	LJ250-CA
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LN03S-AR	LGK31-AA	
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS	LGK31-CA	LJ250-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT	LGK31-AT	LJ250-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LN03S-AU	LGK31-CA	
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV	LGK31-CA	LJ250-CC
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW	LGK31-AK	LJ250-CB
Japan	Hiragana			LN03-AA	LN03S-AY	LGK31-AA	
Australia/ New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	LGK31-AZ	LJ250-AZ

MicroPDP-11/83 BA23 System Ordering Tables

Table I.2 - Multinational Order Codes for Video Terminals

Country/ Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-__A	VT320-__A	VT330-__A	VT330-__A	VT340-__A	VT340-__A
Belgium	Flemish	VT320-__B	VT320-__B	VT330-__B		VT340-__B	
Canada	French	VT320-__C	VT320-__C	VT330-__C		VT340-__C	VT340-__C
Denmark	Danish	VT320-__D	VT320-__D	VT330-__D		VT340-__D	
UK/Ireland	English	VT320-__E	VT320-__E	VT330-__E	VT330-__E	VT340-__E	VT340-__E
Finland	Finnish	VT320-__F	VT320-__F	VT330-__F		VT340-__F	
W. Germany/Austria	German	VT320-__G	VT320-__G	VT330-__G		VT340-__G	
Holland	Dutch	VT320-__H	VT320-__H	VT330-__H		VT340-__H	
Italy	Italian	VT320-__I	VT320-__I	VT330-__I		VT340-__I	
Switzerland	French	VT320-__K	VT320-__K	VT330-__K		VT340-__K	
Switzerland	German	VT320-__L	VT320-__L	VT330-__L		VT340-__L	
Sweden	Swedish	VT320-__M	VT320-__M	VT330-__M		VT340-__M	
Norway	Norwegian	VT320-__N	VT320-__N	VT330-__N		VT340-__N	
France	French	VT320-__P	VT320-__P	VT330-__P		VT340-__P	
Canada	English	VT320-__A	VT320-__A				
Spain	Spanish	VT320-__S	VT320-__S	VT330-__S		VT340-__S	
Portugal	Portuguese	VT320-__V	VT320-__V	VT330-__V		VT340-__V	
Australia/ New Zealand	English	VT320-__Z	VT320-__Z	VT330-__Z		VT340-__Z	

Table I.3 - Support for Hardware Options by Operating System

	RSX-11			Micro/ RSX	A-to-Z	RT-11	CTS-300	RSTS/E	Micro/ RSTS	MPP-RT	MPP-RSX	MPP-Micro/ RSX	DSM-11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y[4]	N	Y[4]	Y[4]	Y[4]	Y[4]
DEQNA	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y	Y	Y[1]	N	Y	Y	Y	Y
DHQ11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DHV11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DLVJ1	Y[2]	Y[2]	Y[2]	N	N	Y	Y	N	N	Y	Y	Y	Y
TSV05	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y

The following devices are supported by all of the above operating systems:
RD53
RD54
RX50
RX33
TK50
DZQ11

[1]DECnet required

[2]Multiple DLVJ1s are not supported

[3]Supported for target systems, not host systems

[4]Supported in DEQNA mode only

Note: Refer to the SPD for hardware option support information not supplied by this table.

Table I.4 - Ordering Information for Operating Systems and Layered Products

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5		QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5		QJ354-GZ
DSM-11	12.18	QY821-UZ	QY821-H3	QY821-H5	QJ821-HM	QY821-GZ
MicroPower/Pascal-Micro/						
RSX	18.24	QY029-UZ	QY029-H3			QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-HM	QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ	QJ029-H3			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5		QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5		QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-HM	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ676-HM	QJ628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-HM	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-HM	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-HM	QJ013-GZ

Layered Products

	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Layered Products						
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5		QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5		QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5		QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5		QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5		QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5		QY957-GZ
BASIC-PLUS-2						
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-HM	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5		QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-HM	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5		QY809-GZ
BASIC-PLUS						
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5		QJ913-GZ
COBOL-81						
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-HM	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5		QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-HM	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5		QY808-GZ
DATATRIEVE-11						
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-HM	QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3	QY819-H5		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-HM	QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3			QY302-GZ
DECdx						
RSX-11M	13.39	QJ708-UZ			QJ708-HM	QJ708-GZ
RSX-11M PLUS	13.39	QY845-UZ			QY845-HM	QY845-GZ
RSTS/E	13.32	QJ706-UZ			QJ706-HM	QJ706-GZ
DECmail-11						
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-HM	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5		QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-HM	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5		QY815-GZ
DECnet						
RSX-11M - Full Node	10.75	QJ764-UZ		QJ764-H5	QJ764-HM	QJ764-GZ
RSX-11M - End Node	10.75	QJ765-UZ		QJ765-H5	QJ765-HM	QJ765-GZ
RSX-11M-PLUS - Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-HM	QJ766-GZ
RSX-11M-PLUS - End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-HM	QJ767-GZ
RSX-11S - Full Node	10.74	QJ762-UZ		QJ762-H5	QJ762-HM	QJ762-GZ
RSX-11S - End Node	10.74	QJ763-UZ		QJ763-H5	QJ763-HM	QJ763-GZ
Micro/RSX-End Node Only	18.27	QY766-UZ	QY766-H3	QY766-H5		QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-HM	QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-HM	QY692-GZ

Table I.4 *(Continued)* - Ordering Information for Operating Systems and Layered Products

Layered Products (Continued)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
DECtype						
RSX-11M-PLUS	14.82	QR038-UZ			QR038-HM	QR038-GZ
Micro/RSX	18.14	QY038-UZ	QY038-H3	QY038-H5		QY038-GZ
DECword						
RSTS/E	13.14	QR480-UZ			QR480-HM	QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3			QY480-GZ
Development Kits						
Micro/RSX	14.28	QY800-UZ	QY801-H3	QY801-H5		QY801-GZ
Micro/RSTS	18.12	QY830-UZ	QY830-H3	QY830-H5		QY830-GZ
DIBOL						
RSX-11M-PLUS	14.24	QY540-UZ			QY540-HM	QY540-GZ
Micro/RSX	18.05	QY807-UZ	QY807-H3	QY807-H5		QY807-GZ
RSTS/E	14.08	QY528-UZ			QY528-HM	QY528-GZ
Micro/RSTS	14.08	QY519-UZ	QY519-H3	QY519-H5		QY519-GZ
FMS						
RSX-11M, S, M-PLUS	12.27	QY715-UZ			QY715-HM	QY715-GZ
Micro/RSX	18.34	QY322-UZ	QY322-H3			QY322-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3			QJ713-GZ
RSTS/E	13.17	QY716-UZ			QY716-HM	QY716-GZ
FORTRAN IV						
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-HM	QP230-GZ
RT-11, CTS-300	12.10	QJ813-UZ	QJ813-H3	QJ813-H5	QJ813-HM	QJ813-GZ
RSTS/E	12.41	QR435-UZ			QR435-HM	QR435-GZ
FORTRAN-77						
RSX-11M, M-PLUS	14.31	QY668-UZ		QY668-H5	QY668-HM	QY668-GZ
Micro/RSX	18.04	QY803-UZ	QY803-H3	QY803-H5		QY803-GZ
RSTS/E	14.49	QY100-UZ			QY100-HM	QY100-GZ
Micro/RSTS	18.10	QY810-UZ	QY810-H3			QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-C3		QA609-CM	QA609-GZ
Pascal						
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-HM	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5		QY806-GZ
PDP-11 Symbolic Debugger						
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-HM	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5		QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-HM	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5		QY811-GZ
RTEM-11						
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-HM	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-HM	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5		QY004-GZ
SORT/MERGE						
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-HM	QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3			QY812-GZ

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-183Q5-AA	Includes MicroPDP-11/83 CPU with FPA, 2-Mbyte (MSV11-JE) PMI memory, (1) RD54 159-Mbyte disk drive, RQDX3 disk controller, TK50 95-Mbyte tape drive and tape controller, CXY08, BA213 floorstand enclosure, US 120-V power cord, and English-language documentation and diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – AA model recommended for US. Base Hardware System includes 1 serial line for a console terminal, a BC16E-10 serial-line cable, with 1 H8571-A 25-pin cable adapter, and 8 modem/data serial lines (modem control) on the CXY08.
	☐	1	DH-183Q5-A2	Same as DH-183Q5-AA except no diagnostics or documentation – see Step 4 to order separately, 120 V	RT-11 and CTS-300 are not supported on Standard Systems due to lack of CXY08 support.
	☐	1	DH-183Q5-A3	Same as DH-183Q5-AA except 240 V, and does not include a 240-V power cord, diagnostics, or documentation — see Steps 2 and 4 to order separately, 240 V	
2 Power Cords	☐	1	BN20E-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN20D-2E	Central European – 220 V @ 6 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN20F-2E	Switzerland – 220 V @ 6 A	
	☐	1	BN20C-2E	Australia/New Zealand – 240/230 V @ 6 A	
	☐	1	BN20H-2E	Denmark – 220 V @ 6 A	
	☐	1	BN20J-2E	Italy – 220 V @ 6 A	
	☐	1	BN20B-1K	Japan – 200 V @ 6 A	
	☐	1	BN20L-2E	Israel – 230 V @ 6 A	
	☐	1	BN20A-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY821-UZ	DSM-11	Each license includes 90-day limited warranty.
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.7 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems.
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.8.
	☐	1	QY505-UZ	RSX-11M-PLUS	
	☐	1	QY642-UZ	RSX-11S	

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 RD54-based BA213 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAS-P5	English-language diagnostics/documentation on TK50 media	Optional for -A2 and -A3. Included in DH-183Q5-AA.
5 Additional Mass Storage	☐	(1-2)	RD54A-SA	159-Mbyte fixed-disk drive	The Base System includes (1) RD54. Choose up to two additional disks in any combination.
	☐	(1-2)	RD53A-SA	71-Mbyte fixed-disk drive	

The base hardware system (Step 1) uses 5 of the 12 available bulkhead slots, leaving a total of 7 slots available for additional options. Choose up to a total of 7 options from Steps 6-8.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
6 Additional Memory	☐	(1-2)	MSV11-JD	1-Mbyte PMI ECC MOS memory	Maximum allowable memory is 4 Mbytes per system. Choose one MSV11-JE or up to two MSV11-JD modules.
	☐	1	MSV11-JE	2-Mbyte PMI ECC MOS memory	
7 Ethernet Interface	☐	1	DELQA-SA	Ethernet interface	Choose only one. Order cable from Step 10.
	☐	1	DEQNA-SA	Ethernet interface	
8 Additional Asynchronous Serial Lines	☐	–	CXA16-AA	16 serial lines, RS-423-A, no modem control	Order cable from Step 10.
	☐	–	CXB16-AA	16 serial lines, RS-422, no modem control	
	☐	–	CXY08-AA	8 serial lines, RS-232-C, modem control	

9 Terminals

For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (9) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.5 and I.6 for country variations.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.6 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250 ch/s dot-matrix printer	See Table I.5 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240 ch/s dot-matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
9 Terminals *(Continued)* Line printers	☐	1	**LG01-EA**	600-li/min text-only printer with LPV11 and cables	The LPV11 can support up to two LG01/LG02 printers. The -EA variation, which includes the LPV11, is prerequisite for the -JA variation.
	☐	1	**LG02-EA**	600-li/min text/graphics line impact matrix printer with LPV11 and cables	
	☐	1	**LG01-JA**	600-li/min text-only printer with cable only	
	☐	1	**LG02-JA**	600-li/min text/graphics line , impact matrix printer with cable only	
10 Cables	☐	–	**BNE3M-xx**	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	**H4000**	Ethernet transceiver	-05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft

Serial cables for use with the CXY08:

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC22D-25**	25-ft null modem serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC22D-50**	50-ft null modem serial cable	
	☐	–	**BC22D-A0**	100-ft null modem serial cable	

Serial cables for use with the CXA16 and CXB16:

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC16E-10**	10-ft null modem MMJ serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC16E-25**	25-ft null modem MMJ serial cable	
	☐	–	**BC16E-50**	50-ft null modem MMJ serial cable	
	☐	–	**H8571-A**	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 9.
11 Operating System Media and Documentation	☐	1	**Q___-H5**	TK50 media/ documentation kit	Choose desired order codes from Table I.8. Not all operating systems and layered products have TK50 kits. Order codes for the license, media kits, and documentation-only are not always the same. Repeat Step 12 if more than 1 layered product is desired. (Refer to Table I.8 for appropriate part number and SPD number.)
	☐	1	**Q___-GZ**	Documentation-only kit	
12 Layered Product License, Media, and Documentation	☐	1	**Q___-UZ**	Single-use license	
	☐	1	**Q___-H5**	TK50 media/ documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
13 Software Services	☐	TK50	Q____-B5	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15.
					All software products must have the same level service.
	☐	TK50	Q____-75	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license.
					Order media and documentation separately at no extra charge.
14 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	Onsite services. Choose only one type of service agreement per system.
	☐	–	Basic	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐	TK50	Q____-35	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐	TK50	Q____-85	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify correct service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.8 for appropriate part number and SPD number).
	☐	TK50	Q____-95	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	
	☐	TK50	Q____-I5	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

Table I.5 - Multinational Order Codes for Printers

Country/Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LN03S-AR
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LN03S-AU
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW
Japan	Hiragana			LN03-AY	LN03S-AY
Australia/New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ

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MicroPDP-11/83 BA213 System Ordering Tables

Table I.6 - Multinational Order Codes for Video Terminals

Country/Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-___A	VT320-___A	VT330-___A	VT330-___A	VT340-___A	VT340-___A
Belgium	Flemish	VT320-___B	VT320-___B	VT330-___B		VT340-___B	
Canada	French	VT320-___C	VT320-___C	VT330-___C		VT340-___C	VT340-___C
Denmark	Danish	VT320-___D	VT320-___D	VT330-___D		VT340-___D	
UK/Ireland	English	VT320-___E	VT320-___E	VT330-___E	VT330-___E	VT340-___E	VT340-___E
Finland	Finnish	VT320-___F	VT320-___F	VT330-___F		VT340-___F	
W. Germany/Austria	German	VT320-___G	VT320-___G	VT330-___G		VT340-___G	
Holland	Dutch	VT320-___H	VT320-___H	VT330-___H		VT340-___H	
Italy	Italian	VT320-___I	VT320-___I	VT330-___I		VT340-___I	
Switzerland	French	VT320-___K	VT320-___K	VT330-___K		VT340-___K	
Switzerland	German	VT320-___L	VT320-___L	VT330-___L		VT340-___L	
Sweden	Swedish	VT320-___M	VT320-___M	VT330-___M		VT340-___M	
Norway	Norwegian	VT320-___N	VT320-___N	VT330-___N		VT340-___N	
France	French	VT320-___P	VT320-___P	VT330-___P		VT340-___P	
Canada	English	VT320-___A	VT320-___A				
Spain	Spanish	VT320-___S	VT320-___S	VT330-___S		VT340-___S	
Portugal	Portuguese	VT320-___V	VT320-___V	VT330-___V		VT340-___V	
Australia/New Zealand	English	VT320-___Z	VT320-___Z	VT330-___Z		VT340-___Z	

Table I.7 - Support for Hardware Options by Operating System

	RSX-11			Micro/RSX	A-to-Z	RT-11	CTS-300	RSTS/E	Micro/RSTS	MPP-RT	MPP-RSX	MPP-Micro/RSX	DSM-11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y[3]	N	Y[3]	Y[3]	Y[3]	Y[3]
DEQNA	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y	Y	Y[1]	N	Y	Y	Y	Y
CXA16	Y	Y	Y	Y	Y	N	N	Y	Y	Y[2]	Y	Y	Y
CXB16	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	N	Y
CXY08	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y

The following devices are supported by all of the above operating systems:
RD54
TK50

[1]DECnet required

[2]Supported for target systems, not host systems

[3]Supported in DEQNA mode only

Note: Refer to the SPD for hardware option support information not supplied by this table.

Table I.8 - Ordering Information for Operating Systems and Layered Products

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5		QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5		QJ354-GZ
DSM-11	12.18	QY821-UZ	QY821-H3	QY821-H5	QJ821-HM	QY821-GZ
MicroPower/Pascal-Micro/ RSX	18.24	QY029-UZ	QY029-H3			QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-HM	QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ	QJ029-H3			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5		QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5		QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-HM	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ676-HM	QY628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-HM	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-HM	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-HM	QJ013-GZ

Layered Products

	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Layered Products						
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5		QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5		QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5		QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5		QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5		QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5		QY957-GZ
BASIC-PLUS-2						
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-HM	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5		QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-HM	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5		QY809-GZ
BASIC-PLUS						
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5		QY913-GZ
COBOL-81						
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-HM	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5		QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-HM	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5		QY808-GZ
DATATRIEVE-11						
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-HM	QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3	QY819-H5		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-HM	QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3			QY302-GZ
DECdx						
RSX-11M	13.39	QJ708-UZ			QJ708-HM	QJ708-GZ
RSX-11M PLUS	13.39	QY845-UZ			QY845-HM	QY845-GZ
RSTS/E	13.32	QJ706-UZ			QJ706-HM	QJ706-GZ
DECmail-11						
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-HM	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5		QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-HM	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5		QY815-GZ
DECnet						
RSX-11M - Full Node	10.75	QJ764-UZ			QJ764-HM	QJ764-GZ
RSX-11M - End Node	10.75	QJ765-UZ			QJ765-HM	QJ765-GZ
RSX-11M-PLUS - Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-HM	QJ766-GZ
RSX-11M-PLUS - End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-HM	QJ767-GZ
RSX-11S - Full Node	10.74	QJ762-UZ			QJ762-HM	QJ762-GZ
RSX-11S - End Node	10.74	QJ763-UZ			QJ763-HM	QJ763-GZ
Micro/RSX-End Node Only	18.27	QY766-UZ	QY766-H3	QY766-H5		QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-HM	QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-HM	QY692-GZ

MicroPDP-11/83 BA213 System Ordering Tables

Table I.8 *(Continued)* - Ordering Information for Operating Systems and Layered Products

Layered Products (Continued)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
DECtype						
RSX-11M-PLUS	14.82	QR038-UZ			QR038-HM	QR038-GZ
Micro/RSX	18.14	QP038-UZ	QY038-H3	QY038-H5		QY038-GZ
DECword						
RSTS/E	13.14	QR480-UZ			QR480-HM	QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3			QY480-GZ
Development Kits						
Micro/RSX	14.28	QY801-UZ	QY801-H3	QY801-H5		QY801-GZ
Micro/RSTS	18.12	QY829-UZ	QY830-H3	QY830-H5		QY830-GZ
DIBOL						
RSX-11M-PLUS	14.24	QP540-UZ			QY540-HM	QY540-GZ
Micro/RSX	18.05	QP807-UZ	QY807-H3	QY807-H5		QY807-GZ
RSTS/E	14.08	QP528-UZ			QY528-HM	QY528-GZ
Micro/RSTS	14.08	QP519-UZ	QY519-H3	QY519-H5		QY519-GZ
FMS						
RSX-11M, S, M-PLUS	12.27	QJ715-UZ			QJ715-HM	QJ715-GZ
Micro/RSX	18.34	QP322-UZ	QY322-H3			QY322-GZ
RSTS/E	13.17	QJ716-UZ			QJ716-HM	QJ716-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3			QJ713-GZ
FORTRAN IV						
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-HM	QP230-GZ
RSTS/E	12.41	QR435-UZ	QR435-H3		QR435-HM	QR435-GZ
RT-11, CTS-300	12.10	QY813-UZ	QJ813-H3	QJ813-H5	QJ813-HM	QJ813-GZ
FORTRAN-77						
RSX-11M, M-PLUS	14.31	QJ668-UZ		QY668-H5	QY668-HM	QY668-GZ
Micro/RSX	18.04	QP803-UZ	QY803-H3	QY803-H5		QY803-GZ
RSTS/E	14.49	QR100-UZ			QR100-HM	QR100-GZ
Micro/RSTS	18.10	QP810-UZ	QY810-H3	QY810-H5		QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-C3		QA609-CM	QA609-GZ
Pascal						
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-HM	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5		QY806-GZ
PDP-11 Symbolic Debugger						
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-HM	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5		QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-HM	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5		QY811-GZ
RTEM-11						
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-HM	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-HM	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5		QY004-GZ
SORT/MERGE						
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-HM	QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3			QY812-GZ

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-183Q2-CA	Includes MicroPDP-11/83 CPU with FPA, 2-Mbyte (MSV11-JE) PMI memory, (1) RD54 159-Mbyte disk drive, RQDX3 disk controller, TK50 95-Mbyte tape drive and tape controller, (2) DHQ11s, BA123 floorstand enclosure, US 120-V power cord, and English-language documentation and diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – CA model recommended for US. Base Hardware System includes 1 serial line for a console terminal, a BC22D-10 serial-line cable, and 16 modem/data serial lines (modem control) on the DHQ11s.
	☐	1	DH-183Q2-C2	Same as DH-183Q2-CA except no diagnostics or documentation – see Step 4 to order separately, 120 V	RT-11 and CTS-300 are not supported on Standard Systems due to lack of DHQ11 support.
	☐	1	DH-183Q2-C3	Same as DH-183Q2-CA except and does not include a240-V power cord, diagnostics, or documentation – see Steps 2 and 4 to order separately, 240 V	
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY821-UZ	DSM-11	Each license includes 90-day limited warranty.
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.11 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for more details.
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	
	☐	1	QY505-UZ	RSX-11M-PLUS	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.12.
	☐	1	QY642-UZ	RSX-11S	

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 RD54-Based BA123 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAB-P3	English-language diagnostics/documentation on RX50 media	Optional for -C2 and -C3. Included in DH-183Q2-CA.
	☐	1	ZYAAB-P5	English-language diagnostics/documentation on TK50 media	
5 Additional Memory	☐	–	MSV11-JD	1-Mbyte PMI ECC MOS memory	Choose one MSV11-JE or two MSV11-JD modules.
	☐	1	MSV11-JE	2-Mbyte PMI ECC MOS memory	
6 Additional Mass Storage RX33	☐	1	RX33A-BA	1.2-Mbyte diskette drive	Choose only one.
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
RD54	☐	(1-2)	RD54A-BA	159-Mbyte fixed-disk drive	
RD54, RX33	☐	1	RD54A-BA	159-Mbyte fixed-disk drive	
		1	RX33A-BA	1.2-Mbyte diskette drive	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
RD54, RX50	☐	1	RD54A-BA	159-Mbyte fixed-disk drive	
		1	RX50A-BA	800-Kbyte diskette drive	
RD53	☐	(1-2)	RD53A-BA	71-Mbyte fixed-disk drive	
RD53, RX33	☐	1	RD53A-BA	71-Mbyte fixed-disk drive	
		1	RX33A-BA	1.2-Mbyte fixed-disk drive	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
RD53, RX50	☐	1	RD53A-BA	71-Mbyte fixed-disk drive	
		1	RX50A-BA	800-Kbyte diskette drive	
RX50	☐	1	RX50A-BA	800-Kbyte diskette drive	
	☐	1	TSV05-BA/BB	40-Mbyte industry-standard 1,600 b/in streaming-tape drive in cabinet	
TSV05		1	CK-TS05-11	Cabinet kit	
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YA	Cabinet kit	Select cable from Step 11.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KA	Cabinet kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
8 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 17 serial lines, using 5 B-size distribution slots. This leaves 1 additional B-size slot in the distribution panel available for options. Please refer to the 183QY configuration template.	
	☐	1 1	**DHQ11-M** **CK-DHQ11-WA**	8 serial lines Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
	☐	1 1	**DZQ11-M** **CK-DZQ11-DA**	4 serial lines Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1 1	**DLVJ1-M** **CK-DLVJ1-LA**	4 serial lines Cabinet kit	
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (17) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.9 and I.10 for country variations.	
Text	☐ ☐ ☐ ☐	– – – –	**DL-VT320-A___** **DL-VT320-B___** **DL-VT320-C___** **DL-VT320-F___**	White video terminal Green video terminal Amber video terminal WPS amber video terminal	Terminals include keyboard. See Table I.10 for country variations.
Text and Graphics	☐ ☐ ☐ ☐ ☐ ☐	– – – – – –	**VT330-A___** **VT330-B___** **VT330-C___** **VT330-D___** **VT340-A___** **VT340-D___**	White graphics terminal Green graphics terminal Amber graphics terminal WPS white graphics terminal Color graphics terminal WPS color graphics terminal	
Hardcopy (Output Only)	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	– – – – – – – – – – –	**LA75-___** **LA75X-SF** **LA210-___** **LA21X-BT** **LA21X-SF** **LA21X-SH** **LN03-___** **LN03S-___** **LG31-A2** **LG31-A3** **LGK31-___**	250 ch/s dot-matrix printer Single-tray sheetfeeder, LA75 240 ch/s dot-matrix printer Bidirectional forms tractor for LA210 Single-tray sheetfeeder for LA210, 8.5 by 11 Single-tray sheetfeeder for LA210, A4 8-pp/min laser printer 8-pp/min graphics laser printer 300-li/min enhanced text line matrix impact printer, U.S. version 300-li/min enhanced text line matrix impact printer, non-U.S. Country kit for LG31-A3	Hardcopy output-only printers are not suitable as console terminals. See Table I.9 for country variations. LG31-A2 (recommended for U.S.) includes country kit. It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
Line printers	☐ ☐	– –	**LG01-BA** **LG02-BA**	600-li/min text-only printer with LPV11 and cables 600-li/min text/graphics line impact matrix printer with LPV11 and cables	Includes the printer, controller module, and all cables and accessories needed for installation.

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 RD54-Based BA123 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Environmental Power Products	☐	–	H7229-AD	Standby uninterruptable power system (1,440 VA, 1,050 W)	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	H4000	Ethernet transceiver	-05 = 5 ft. -10 = 10 ft. -20 = 20 ft. -40 = 40 ft.

For 25-pin connections (cabinet kits CK-DLVJ1-LA and CK-DZQ11-DA):

	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WA):

	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each BC16E cable ordered above.
12 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/ documentation kit	Choose desired order codes from Table I.12. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.12 for appropriate part number and SPD number.)
	☐	1	Q___-H5	TK50 media/ documentation kit	
	☐	1	Q___-HM	TSV05 media/ documentation kit	
	☐	1	Q___-GZ	Documentation-only kit	
13 Layered Product License, Media, and Documentation	☐	1	Q___-UZ	Single-use license	Repeat Step 13 if more than one layered product is desired.
	☐	1	Q___-H3	RX50 media/ documentation kit	
	☐	1	Q___-H5	TK50 media/ documentation kit	
	☐	1	Q___-HM	TSV05 media/ documentation kit	
	☐	1	Q___-GZ	Documentation-only kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
14 Software Services	☐ RX50 ☐ TK50		Q___-B3 Q___-B5	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service.
	☐ RX50 ☐ TK50		Q___-73 Q___-75	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐ RX50 ☐ TK50 ☐ TSV05		Q___-33 Q___-35 Q___-3M	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-83 Q___-85 Q___-8M	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RXS-11M-PLUS distribution on a TK50.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-93 Q___-95 Q___-9M	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	To verify correct service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.12 for appropriate part number and SPD number.)
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-I3 Q___-I5 Q___-IM	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

Configuration Rules

The MicroPDP-11/83 BA123 enclosure uses a 460-watt power supply that consists of two regulators. Regulator "A" supplies power for slots 1, 3, 5, 7, 9, and 11 and mass-storage shelves 3, 4, and 5. Regulator "B" supplies power for slots 2, 4, 6, 8, 10 and 12 and mass-storage shelves 1 and 2. When configuring the BA123 caster-mounted enclosure:

- Use the 12-slot configuration template for the system building blocks. Write the module and mass-storage device names in the left column beside the slot and shelf numbers. When configuring these systems, please note that quad-height modules use both the "AB" and "CD" portions of a slot.
- Slots 1 through 4 are limited to either one dual- or one quad-height Q-bus option.
- Slots 5 through 12 can accommodate either two dual-height or one quad-height options.
- Enter the 5 V and 12 V currents, power, the ac and dc bus loads and I/O panel inserts required for each module and mass-storage device. Be sure that you enter the power for each option in the columns of the appropriate regulator. The column totals must not exceed the limits listed at the bottom.
- Due to start-up current limitations in the BA123 power supply, if an RD54 disk drive is connected to the same 12-volt power supply regulator as another RD-type disk drive, then only five of the seven amperes provided by that regulator can be used for powering the two disks and any additional options.

Configuration Template for 183QB
MicroPDP-11/83 System Building Block

SLOT	MODULE	Regulator A Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Regulator B Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	AC Loads	DC Loads	I/O Inserts B	A
1 ABCD	KDJ11-BF	5.5	0.2	29.9				2.3	1.0	1	0
2 ABCD	MSV11-JE				4.1	0	8.5	2.5	0.5	0	0
3 AB / CD	— — — —										
4 AB / CD	— — — —										
5 AB / CD	— — — —										
6 AB / CD	— — — —										
7 AB / CD	— — — —										
8 AB / CD	— — — —										
9 AB / CD	— — — —										
10 AB / CD	— — — —										
11 AB / CD	— — — —										
12 AB / CD	— — — —										
13 AB / CD	signal dist.	.52		2.60							

Mass-storage Shelf Device

								AC Loads	DC Loads	B	A
5								0	0	0	0
4								0	0	0	0
3								0	0	0	0
2								0	0	0	0
1								0	0	0	0

Total these columns:

	5 Vdc	12 Vdc	Power	5 Vdc	12 Vdc	Power	AC	DC	B	A
With RD54 must not exceed	36 A	5 A	230 W	36 A	5 A	230W	38	20	6	4
Without RD54 must not exceed	36 A	7 A	230 W	36 A	7 A	230W	38	20	6	4

Note: The selection of Steps 1 through 4, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	**183QB-D2**	Includes MicroPDP-11/83 CPU with FPA, 2-Mbyte (MSV11-JE) PMI memory, BA123 floorstand enclosure, and US 120-V power cord. Does not include diagnostics or user documentation. See Step 4 to order separately, 120 V	Each system includes one-year onsite warranty. Choose one. – D2 recommended for US. Base Hardware System includes 1 serial line for a console terminal and a BC22D-10 serial-line cable.
	☐	1	**183QB-D3**	Same as 183QB-D2 except does not include a 240-V power cord – see Step 2 to order separately, 240 V	
2 Power Cords	☐	1	**BN02A-2E**	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	**BN03A-2E**	Central European – 220 V @ 6 A	
	☐	1	**BN04A-2E**	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	**BN05A-2E**	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway,
	☐	1	**BN06A-2E**	Denmark – 220 V @ 6 A	Portugal, Spain, and Sweden.
	☐	1	**BN07A-2E**	Italy – 220 V @ 6 A	
	☐	1	**BN18K-1K**	Japan – 200 V @ 6 A	
	☐	1	**BN18L-2E**	Israel – 230 V @ 6 A	
	☐	1	**BN18J-1K**	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	**QY354-UZ**	CTS-300	Each license includes 90-day limited warranty.
	☐	1	**QY821-UZ**	DSM-11	
	☐	1	**QY029-UZ**	MicroPower/Pascal-Micro/RSX	Refer to Table I.11 for list of hardware
	☐	1	**QP029-UZ**	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	**QJ029-UZ**	MicroPower/Pascal-RT	system. Not all hardware options are
	☐	1	**QY829-UZ**	Micro/RSTS	supported by all operating systems.
	☐	1	**QY800-UZ**	Micro/RSX	Refer to the SPD for details.
	☐	1	**QY430-UZ**	RSTS/E	
	☐	1	**QY628-UZ**	RSX-11M	Check that the operating system software
	☐	1	**QY505-UZ**	RSX-11M-PLUS	chosen is available on the distribution
	☐	1	**QY642-UZ**	RSX-11S	device that is selected. Refer to Table I.12.
	☐	1	**QY013-UZ**	RT-11	
4 Integrated Mass Storage (internal) RX33	☐	1	**RX33A-BA**	1.2-Mbyte diskette drive	Choose only one combination.
		1	**RQDX3-BA**	RD/RX controller	
		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
	☐	(1-3)	**RD54A-BA**	159-Mbyte fixed-disk drive	
		1	**RQDX3-BA**	RD/RX controller	
		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
RD54, TK50		1	**TQK50-BA**	TK50 controller	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage (internal) *(Continued)*	☐	1	**RD54A-BA**	159-Mbyte fixed-disk drive	
		1	**RX33A-BA**	1.2-Mbyte diskette drive	
		1	**RQDX3-BA**	RD/RX controller	
RD54, RX33		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
	☐	(1-2)	**RD54A-BA**	159-Mbyte fixed-disk drive	
		1	**RQDX3-BA**	RD/RX controller	
RD54, RX50		1	**RX50A-BA**	800-Kbyte diskette drive	
	☐	(1-2)	**RD54A-BA**	159-Mbyte fixed-disk drive	
		1	**RX33A-BA**	1.2-Mbyte diskette drive	
		1	**RQDX3-BA**	RD/RX controller	
		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
RD54, RX33, TK50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-BA**	TK50 controller	
	☐	(1-2)	**RD54A-BA**	159-Mbyte fixed-disk drive	
		1	**RX50A-BA**	800-Kbyte disk drive	
		1	**RQDX3-BA**	RD/RX controller	
RD54, RX50 TK50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-BA**	TK50 controller	
	☐	(1-3)	**RD53A-BA**	71-Mbyte fixed-disk drive	
		1	**RQDX3-BA**	RD/RX controller	
		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
RD53, TK50		1	**TQK50-BA**	TK50 controller	
	☐	1	**RD53A-BA**	71-Mbyte fixed-disk drive	
		1	**RX33A-BA**	1.2-Mbyte diskette drive	
		1	**RQDX3-BA**	RD/RX controller	
RD53, RX33		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
	☐	(1-2)	**RD53A-BA**	71-Mbyte fixed-disk drive	
		1	**RQDX3-BA**	RD/RX controller	
RD53, RX50		1	**RX50A-BA**	800-Kbyte diskette drive	
	☐	(1-2)	**RD53A-BA**	71-Mbyte fixed-disk drive	
		1	**RX33A-BA**	1.2-Mbyte diskette drive	
		1	**RQDX3-BA**	RD/RX controller	
		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
RD53, RX33 TK50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-BA**	TK50 controller	
	☐	(1-2)	**RD53A-BA**	71-Mbyte fixed-disk drive	
		1	**RX50A-BA**	800-Kbyte diskette drive	
		1	**RQDX3-BA**	RD/RX controller	
RD53, RX50 TK50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-BA**	TK50 controller	

Note: Selection from Steps 5 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Diagnostics and Documentation	☐	1	**ZYAAB-P3**	English-language diagnostics/ documentation on RX50 media	
	☐	1	**ZYAAB-P5**	English-language diagnostics/ documentation on TK50 media	
6 Additional Memory	☐	1-2	**MSV11-JD**	1-Mbyte PMI ECC MOS memory	Choose one MSV11-JE or up to two
	☐	1	**MSV11-JE**	2-Mbyte PMI ECC MOS memory	MSV11-JD additional memory modules.

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 BA123 System Building Block

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YA	Cabinet kit	Select cable from Step 11.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KA	Cabinet kit	
8 Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 1 serial line, using 1 B-size distribution slot. This leaves 5 additional B-size slots in the distribution panel available for options. Please refer to the 183QB configuration template.	
	☐	–	DHQ11-M	8 serial lines	Choose up to two if no other
		–	CK-DHQ11-AA	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
	☐	–	DHQ11-M	8 serial lines	Choose up to five if no other
		–	CK-DHQ11-WA	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DA	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	–	DLVJ1-M	4 serial lines	Choose up to two if no other
		–	CK-DLVJ1-LA	Cabinet kit	asynchronous options are selected Select cable from Step 11.
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (17) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.9 and I.10 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table
	☐	–	DL-VT320-B___	Green video terminal	I.10 for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.9 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation,
	☐	–	LGK31-___	Country kit for LG31-A3	selected from the country variation table,
	☐	–	LJ250-___	Companion color printer serial interface	for each non-U.S. LG31-A3 selected.
Line printers	☐	1	LG01-BA	600-li/min text-only printer with LPV11 and cables	Includes the printer, controller module, and all cables and accessories needed
	☐	1	LG02-BA	600-li/min text/graphics line impact matrix printer with LPV11 and cables	for installation.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Environmental Power Product	☐	–	H7229-AD	Standby uninterruptable power system (1,440 VA, 1,050 W)	
11 Cables	☐ ☐	– –	BNE3M-xx H4000	Ethernet right-angle cable Ethernet transceiver	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals: -05 = 5 ft. -10 = 10 ft. -20 = 20 ft. -40 = 40 ft.

For 25-pin connections (cabinet kits CK-DLVJ1-LA, CK-DHQ11-AA, and CK-DZQ11-DA):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐ ☐ ☐	– – –	BC22D-25 BC22D-50 BC22D-A0	25-ft null modem serial cable 50-ft null modem serial cable 100-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).

For MMJ connections (cabinet kit CK-DHQ11-WA):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐ ☐	– –	BC16E-25 BC16E-50	25-ft serial cable 50-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75- type printer selected in Step 9.
12 Operating System Media and Documentation	☐ ☐ ☐ ☐	1 1 1 1	Q___-H3 Q___-H5 Q___-HM Q___-GZ	RX50 media/ documentation kit TK50 media/ documentation kit TSV05 media/ documentation kit Documentation-only kit	Choose desired order codes from Table I.12. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.12 for appropriate part number and SPD number.) Repeat Step 13 if more than one layered product is desired.
13 Layered Product License, Media, and Documentation	☐ ☐ ☐ ☐ ☐	1 1 1 1 1	Q___-UZ Q___-H3 Q___-H5 Q___-HM Q___-GZ	Single-use license RX50 media/ documentation kit TK50 media/ documentation kit TSV05 media/ documentation kit Documentation-only kit	
14 Software Services	☐ RX50 ☐ TK50		Q___-B3 Q___-B5	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service.
	☐ RX50 ☐ TK50		Q___-73 Q___-75	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
15 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐ ☐ ☐	RX50 TK50 TSV05	Q___-33 Q___-35 Q___-3M	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ ☐ ☐	RX50 TK50 TSV05	Q___-83 Q___-85 Q___-8M	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50.
	☐ ☐ ☐	RX50 TK50 TSV05	Q___-93 Q___-95 Q___-9M	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.12 for appropriate part number and SPD number.)
	☐ ☐ ☐	RX50 TK50 TSV05	Q___-I3 Q___-I5 Q___-IM	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

Table I.9 - Multinational Order Codes for Printers

Country/ Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer	LG31 Printer	LJ250 Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA	LGK31-AA	LJ250-CA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB	LGK31-CA	LJ250-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC	LGK31-AA	LJ250-CA
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD	LGK31-AD	LJ250-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE	LGK31-AE	LJ250-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF	LGK31-CA	LJ250-CC
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG	LGK31-AG	LJ250-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH	LGK31-CA	LJ250-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI	LGK31-AI	LJ250-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ	LGK31-AA	
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK	LGK31-AK	LJ250-CB
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL	LGK31-AK	LJ250-CB
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM	LGK31-CA	LJ250-CC
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN	LGK31-CA	LJ250-CC
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP	LGK31-CA	LJ250-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LGK31-AA	LJ250-CA
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LNO3S-AR	LGK31-AA	
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS	LGK31-CA	LJ250-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT	LGK31-AT	LJ250-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LGK3S-AU	LGK31-CA	
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV	LGK31-CA	LJ250-CC
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW	LGK31-AK	LJ250-CB
Japan	Hiragana			LN03-AY	LN03S-AY	LGK31-AA	
Australia/ New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	LGK31-AZ	LJ250-AZ

MicroPDP-11/83 BA123 System Ordering Tables

Table I.10 - Multinational Order Codes for Video Terminals

Country/ Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-___A	VT320-___A	VT330-___A	VT330-___A	VT340-___A	VT340-___A
Belgium	Flemish	VT320-___B	VT320-___B	VT330-___B		VT340-___B	
Canada	French	VT320-___C	VT320-___C	VT330-___C		VT340-___C	VT340-___C
Denmark	Danish	VT320-___D	VT320-___D	VT330-___D		VT340-___D	
UK/Ireland	English	VT320-___E	VT320-___E	VT330-___E	VT330-___E	VT340-___E	VT340-___E
Finland	Finnish	VT320-___F	VT320-___F	VT330-___F		VT340-___F	
W. Germany/Austria	German	VT320-___G	VT320-___G	VT330-___G		VT340-___G	
Holland	Dutch	VT320-___H	VT320-___H	VT330-___H		VT340-___H	
Italy	Italian	VT320-___I	VT320-___I	VT330-___I		VT340-___I	
Switzerland	French	VT320-___K	VT320-___K	VT330-___K		VT340-___K	
Switzerland	German	VT320-___L	VT320-___L	VT330-___L		VT340-___L	
Sweden	Swedish	VT320-___M	VT320-___M	VT330-___M		VT340-___M	
Norway	Norwegian	VT320-___N	VT320-___N	VT330-___N		VT340-___N	
France	French	VT320-___P	VT320-___P	VT330-___P		VT340-___P	
Canada	English	VT320-___A	VT320-___A				
Spain	Spanish	VT320-___S	VT320-___S	VT330-___S		VT340-___S	
Portugal	Portuguese	VT320-___V	VT320-___V	VT330-___V		VT340-___V	
Australia/ New Zealand	English	VT320-___Z	VT320-___Z	VT330-___Z		VT340-___Z	

Table I.11 - Support for Hardware Options by Operating System

	RSX-11			Micro/ RSX	A-to-Z	RT-11	CTS-300	RSTS/E	Micro/ RSTS	MPP-RT	MPP-RSX	MPP-Micro/ RSX	DSM -11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y[4]	N	Y[4]	Y[4]	Y[4]	Y[4]
DEQNA	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y	Y	Y[1]	N	Y	Y	Y	Y
DHQ11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DHV11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DLVJ1	Y[2]	Y[2]	Y[2]	N	N	Y	Y	N	N	Y	Y	Y	Y
TSV05	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y

The following devices are supported by all of the above operating systems:
  RD53
  RD54
  RX50
  RX33
  TK50
  DZQ11

[1]DECnet required

[2]Multiple DLVJ1s are not supported

[3]Supported for target systems, not host systems

[4]Supported in DEQNA mode only.

Note: Refer to the SPD for hardware option support information not supplied by this table.

Table I.12 - Ordering Information for Operating Systems and Layered Products

Note: The SPD number is provided for additional reference.

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5		QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5		QJ354-GZ
DSM-11	12.18	QY821-UZ	QY821-H3	QY821-H5	QY821-HM	QY821-GZ
MicroPower/Pascal-Micro/						
RSX	18.24	QY029-UZ	QY029-H3			QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-HM	QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ	QJ029-H3			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5		QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5		QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-HM	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ676-HM	QJ628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-HM	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-HM	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-HM	QJ013-GZ

Layered Products

Layered Products	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Layered Products						
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5		QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5		QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5		QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5		QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5		QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5		QY957-GZ
BASIC-PLUS-2						
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-HM	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5		QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-HM	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5		QY809-GZ
BASIC-PLUS						
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5		QY913-GZ
COBOL-81						
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-HM	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5		QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-HM	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5		QY808-GZ
DATATRIEVE-11						
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-HM	QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3	QY819-H5		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-HM	QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3			QY302-GZ
DECdx						
RSX-11M	13.39	QJ708-UZ			QJ708-HM	QJ708-GZ
RSX-11M-PLUS	13.39	QY845-UZ			QY845-HM	QY845-GZ
RSTS/E	13.32	QJ706-UZ			QJ706-HM	QJ706-GZ
DECmail-11						
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-HM	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5		QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-HM	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5		QY815-GZ
DECnet						
RSX-11M-Full Node	10.75	QJ764-UZ			QJ764-HM	QJ764-GZ
RSX-11M-End Node	10.75	QJ765-UZ			QJ765-HM	QJ765-GZ
RSX-11M-PLUS-Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-HM	QJ766-GZ
RSX-11M-PLUS-End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-HM	QJ767-GZ
RSX-11S-Full Node	10.74	QJ762-UZ			QJ762-HM	QJ762-GZ
RSX-11S-End Node	10.74	QJ763-UZ			QJ763-HM	QJ763-GZ
Micro/RSX-End Node only	18.27	QY766-UZ	QY766-H3	QY766-H5		QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-HM	QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-HM	QY692-GZ

Table I.12 *(Continued)* - Ordering Information for Operating Systems and Layered Products

Layered Products (Continued)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
DECtype						
RSX-11M-PLUS	14.82	QR038-UZ			QR038-HM	QR038-GZ
Micro/RSX	18.14	QP038-UZ	QY038-H3	QY038-H5		QY038-GZ
DECword						
RSTS/E	13.14	QR480-UZ			QR480-HM	QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3			QY480-GZ
Development Kits						
Micro/RSX	14.28	QY800-UZ	QY801-H3	QY801-H5		QY801-GZ
Micro/RSTS	18.12	QY829-UZ	QY830-H3	QY830-H5		QY830-GZ
DIBOL						
RSX-11M-PLUS	14.24	QP540-UZ			QY540-HM	QY540-GZ
Micro/RSX	18.05	QP807-UZ	QY807-H3	QY807-H5		QY807-GZ
RSTS/E	14.08	QP528-UZ			QY528-HM	QY528-GZ
Micro/RSTS	14.08	QP519-UZ	QY519-H3	QY519-H5		QY519-GZ
FMS						
RSX-11M, S, M-PLUS	12.27	QJ715-UZ			QJ715-HM	QJ715-GZ
Micro/RSX	18.34	QP322-UZ	QY322-H3			QY322-GZ
RSTS/E	13.17	QJ716-UZ			QJ716-HM	QJ716-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3			QJ713-GZ
FORTRAN IV						
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-HM	QP230-GZ
RSTS/E	12.41	QR435-UZ	QR435-H3		QR435-HM	QR435-GZ
RT-11	12.10	QY813-UZ	QJ813-H3	QJ813-H5	QJ813-HM	QJ813-GZ
FORTRAN-77						
RSX-11M, M-PLUS	14.31	QJ668-UZ		QY668-H5	QY668-HM	QY668-GZ
Micro/RSX	18.04	QP803-UZ	QY803-H3	QY803-H5		QY803-GZ
RSTS/E	14.49	QR100-UZ			QR100-HM	QR100-GZ
Micro/RSTS	18.10	QP810-UZ	QY810-H3	QY810-H5		QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-C3		QA609-CM	QA609-GZ
Pascal						
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-HM	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5		QY806-GZ
PDP-11 Symbolic Debugger						
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-HM	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5		QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-HM	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5		QY811-GZ
RTEM-11						
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-HM	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-HM	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5		QY004-GZ
SORT/MERGE						
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-HM	QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3			QY812-GZ

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	**DH-183Q3-BA**	Includes MicroPDP-11/83 CPU with FPA, 2-Mbyte (MSV11-JE) PMI memory, RA81 456-Mbyte disk drive, KDA50 disk controller, TK50 95-Mbyte tape drive and tape controller, (2) DHQ11s, H9642-style (-JA/JB) cabinet w/dual BA23 boxes, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – BA model recommended for US. Base Hardware System includes 1 serial line for a console terminal, a BC22D-10 serial-line cable, and 16 modem/data serial lines (modem control) on the DHQ11s. RT-11 and CTS-300 are not supported on Standard Systems due to lack of DHQ11 support.
	☐	1	**DH-183Q3-B2**	Same as DH-183Q3-BA except no diagnostics or documentation – see Step 4 to order separately, 120 V	
	☐	1	**DH-183Q3-B3**	Same as DH-183Q3-BA except does not include a 240-V power cord, diagnostics, or documentation – see Steps 2 and 4 to order separately, 120 V	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	**BN18B-4E**	UK/Ireland – 240 V @ 13 A	Choose one power cord.
	☐	1	**BN18C-4E**	Central European – 220 V @ 16 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	**BN18D-4E**	Australia/New Zealand – 240/230 V @ 15 A	
	☐	1	**BN18E-4E**	Italy – 220 V @ 16 A	
	☐	1	**BN18C-4E**	Switzerland – 220 V @ 16 A	
	☐	1	**BN18F-4E**	Israel – 230 V @ 16 A	
	☐	1	**BN18H-4E**	India – 220 V @ 15 A	
	☐	1	**BN18T-4E**	Japan – 200 V @ 12 A	
	☐	1	**BN18P-4E**	Denmark – 220 V @ 16 A	
	☐	1	**BN18T-4E**	US – 208 V @ 12 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	**QY821-UZ**	DSM-11	Each license includes 90-day limited warranty.
	☐	1	**QY029-UZ**	MicroPower/Pascal-Micro/RSX	
	☐	1	**QP029-UZ**	MicroPower/Pascal-RSX	Refer to Table I.15 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for more details.
	☐	1	**QY829-UZ**	Micro/RSTS	
	☐	1	**QY800-UZ**	Micro/RSX	
	☐	1	**QY430-UZ**	RSTS/E	
	☐	1	**QY628-UZ**	RSX-11M	
	☐	1	**QY505-UZ**	RSX-11M-PLUS	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.16.
	☐	1	**QY642-UZ**	RSX-11S	

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 Cabinet Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
Note: Selection from Steps 4 through 16 is *optional* for a functioning system.					
4 Diagnostics and Documentation	☐	1	ZYAAE-P3	English-language diagnostics/documentation on RX50 media	Optional for -B2 and -B3. Included in DH-183Q3-BA.
	☐	1	ZYAAE-P5	English-language diagnostics/documentation on TK50 media	
5 Additional Memory	☐	1	MSV11-JD	1-Mbyte PMI ECC MOS memory	Choose only one.
	☐	1	MSV11-JE	2-Mbyte PMI ECC MOS memory	
6 Additional Mass Storage	☐	1	RA81-HA/HD	456-Mbyte fixed-disk drive	Choose only one.
		1	H9544-CF	Top trim kit	Note that the RA81 and TSV05 have one order number for 120 V and one for 240 V. The RA60 has one order number for both 120 V and 240 V.
		1	BC26V-6D	6-ft cable	
	☐	1	RA60-AF	205-Mbyte removable-disk drive	
		1	H9544-CD	Top trim kit	The RA60 or TSV05 should be mounted in the top slot of the CPU cabinet.
		1	BC26V-6D	6-ft cable	
	☐	1	TSV05-ZA/ZB	40-Mbyte industry-standard 1,600-b/in streaming-tape drive	If both the RA60 and TSV05 are desired, a separate cabinet is required for the RA60 (RA60-CA/CD).
	☐	1	TSV05-ZA/ZB	40-Mbyte industry-standard 1,600-b/in streaming-tape drive	
		1	RA60-CA/CD	205-Mbyte removable-disk drive in cabinet	
	☐	1	RX33A-AA	1.2-Mbyte diskette drive (first drive)	Can have up to two RX33s.
	☐	1	RX33A-AB	1.2-Mbyte diskette drive (second drive)	Requires an RQDX3-AA controller.
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	–	RD54A-AA	159-Mbyte fixed-disk drive	Choose up to two. Requires an RQDX3-AA controller. If two are selected, then an RQDXE-FA is required.
	☐	–	RD53A-AA	71-Mbyte fixed-disk drive	
	☐	1	RX50A-AA	800-Kbyte diskette drive	Choose one only if no RX33s are selected. Requires an RQDX3-AA controller.
	☐	1	RQDX3-AA	RD/RX controller	Choose only one.
	☐	1	RQDXE-FA	RQDX3 extender module	Choose one if RD or RX drives are in second BA23 box.
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YF	Cabinet kit	Select cable from step 10.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KF	Cabinet kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
8 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 17 serial lines, using 7 B-size distribution slots. This leaves 4 additional B-size slots in the distribution panel available for options. Please refer to the 183QE configuration template.	
	☐	–	**DHQ11-M**	8 serial lines	Choose up to two if no other asynchronous options are selected. Select cable from Step 10.
		–	**CK-DHQ11-AF**	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead.	
	☐	–	**DHQ11-M**	8 serial lines	Choose up to four if no other asynchronous options are selected. Select cable from Step 10.
		–	**CK-DHQ11-WF**	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	**DZQ11-M**	4 serial lines	
		–	**CK-DZQ11-DF**	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	–	**DLVJ1-M**	4 serial lines	Choose up to two if no other options are selected. Select cable from Step 10.
		–	**CK-DLVJ1-LF**	Cabinet kit	
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (17) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.13 and I.14 for country variations.	
Text	☐	–	**DL-VT320-A____**	White video terminal	Terminals include keyboard. See Table I.14 for country variations.
	☐	–	**DL-VT320-B____**	Green video terminal	
	☐	–	**DL-VT320-C____**	Amber video terminal	
	☐	–	**DL-VT320-F____**	WPS amber video terminal	
Text and Graphics	☐	–	**VT330-A____**	White graphics terminal	
	☐	–	**VT330-B____**	Green graphics terminal	
	☐	–	**VT330-C____**	Amber graphics terminal	
	☐	–	**VT330-D____**	WPS white graphics terminal	
	☐	–	**VT340-A____**	Color graphics terminal	
	☐	–	**VT340-D____**	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	**LA75-____**	250-ch/s dot-matrix printer	See Table I.13 for country variations.
	☐	–	**LA75X-SF**	Single-tray sheetfeeder, LA75	
	☐	–	**LA210-____**	240-ch/s dot-matrix printer	
	☐	–	**LA21X-BT**	Bidirectional forms tractor for LA210	
	☐	–	**LA21X-SF**	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	**LA21X-SH**	Single-tray sheetfeeder for LA210, A4	
	☐	–	**LN03-____**	8-pp/min laser printer	
	☐	–	**LN03S-____**	8-pp/min graphics laser printer	
	☐	–	**LG31-A2**	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	**LG31-A3**	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-US LG31-A3 selected.
	☐	–	**LGK31-____**	Country kit for LG31-A3	
	☐	–	**LJ250-____**	Companion color printer serial interface	
Line printers	☐	1	**LG01-BA**	600-li/min text-only printer with LPV11 and cables	Includes the printer, controller module, and all cables and accessories needed for installation.
	☐	1	**LG02-BA**	600-li/min text/graphics line impact matrix printer with LPV11 and cables	

MicroPDP-11/83 Q-bus Multiuser Systems

MicroPDP-11/83 Cabinet Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Cables	☐	–	**BNE3M-xx**	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals: -05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft
	☐	–	**H4000**	Ethernet transceiver	

For 25-pin connections (cabinet kits CK-DLVJ1-LF, CK-DHQ11-AF, and CK-DZQ11-DF):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC22D-25**	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC22D-50**	50-ft null modem serial cable	
	☐	–	**BC22D-A0**	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WF):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC16E-25**	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC16E-50**	50-ft serial cable	
	☐	–	**H8571-A**	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 9.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
11 Operating System Media and Documentation	☐	1	**Q___-H3**	RX50 media/documentation kit	Choose desired order codes from Table I.16. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.16 for appropriate part number and SPD number.)
	☐	1	**Q___-H5**	TK50 media/documentation kit	
	☐	1	**Q___-HM**	TSV05 media/documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
12 Layered Product License, Media, and Documentation	☐	1	**Q___-UZ**	Single-use license	Repeat Step 12 if more than one layered product is desired.
	☐	1	**Q___-H3**	RX50 media/documentation kit	
	☐	1	**Q___-H5**	TK50 media/documentation kit	
	☐	1	**Q___-HM**	TSV05 media/documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
13 Software Services	☐ RX50 ☐ TK50		**Q___-B3** **Q___-B5**	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15. All software products must have the same level service.
	☐ RX50 ☐ TK50		**Q___-73** **Q___-75**	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
14 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐ RX50 ☐ TK50 ☐ TSV05		Q___-33 Q___-35 Q___-3M	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-83 Q___-85 Q___-8M	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.16 for appropriate part number and SPD number.)
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-93 Q___-95 Q___-9M	DECsupport Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-I3 Q___-I5 Q___-IM	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

Configuration Rules for 183QE System Building Block

The cabinet enclosure houses two BA23 chassis that include two eight-slot backplanes for a total offering of fourteen backplane slots (two slots are reserved for cable management), two 230-watt power supplies, two control panels, one large I/O distribution panel, four fans, and space for four 5.25-inch storage devices and two 13-inch storage devices. Use the following rules when configuring the cabinet enclosure.

* The PMI memory module is installed in slot 1 of the upper BA23 frame.
* Additional PMI memory and the CPU module installed in slots 2 and 3 of the upper BA23 frame.
* The M9404 interconnect module is installed in the last slot of the upper BA23 frame which has the grant signal.
* If other dual-height modules are installed in slots 2 or 3 of either BA23 frame, they must be placed in the AB rows. No grant continuity card is necessary in the CD rows of slot rows 1, 2, or 3 of either BA23 frame.
* If a RQDX3 disk controller is present, it must be installed in the upper BA23 frame.
* Dual-height modules installed in slots 4-8 can be located in either the AB or CD rows. The opposite row must contain either another dual-height module or an M9047 grant continuity card.
* If a TSV05 tape controller is present, it must be installed in slot 4 of the upper BA23 frame.
* If a TK50 tape controller and drive is present, it must be installed in the lower BA23 frame. A second TK50 tape controller and drive may be installed in the upper BA23 frame.

183QE Configuration Template
Upper BA23 Chassis

SLOT	MODULE	Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 ABCD	MSV11-JE	4.1	0	8.5	2.5	0.5	0	0
2 ABCD	KDJ11-BF	5.5	0.2	29.9	2.3	1.0	1	0
3 ABCD								
4 AB								
CD	— — — —							
5 AB								
CD	— — — —							
6 AB								
CD	— — — —							
7 AB								
CD	— — — —							
8 AB								
CD	M9404	0	0	0	0	0	0	0

Mass-storage Shelf Device

1	— — — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —
2	— — — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —

		5 Vdc	12 Vdc	Watts	ac	dc	B	A
Total these columns:								
Must not exceed		36 A	7 A	230 W	17	10		

Lower BA23 Chassis

SLOT	MODULE	Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 AB	M9405-YB	0.5	0	2.5	0	0	0	0
CD								
2 AB	– – – –							
CD								
3 AB	– – – –							
CD								
4 AB	– – – –							
CD								
5 AB	– – – –							
CD								
6 AB	– – – –							
CD								
7 AB	– – – –							
CD								
8 AB	– – – –							
CD								

Mass-storage Shelf Device

1	– – – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –
2	– – – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –

Total these columns:

Must not exceed		36 A	7 A	230 W	22	10	11*	6*

*Both Upper and Lower Chassis share the same I/O inserts as listed in the Lower BA23 Chassis.

MicroPDP-11/83 Cabinet System Building Block

Note: The selection of Steps 1 through 4, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	183QE-D2	Includes MicroPDP-11/83 CPU with FPA, 2-Mbyte (MSV11-JE) PMI memory, asynchronous console serial line on the CPU module, BC22D-10 serial-line cable, H9642-style (-JA/JB) cabinet w/ dual BA23 boxes, and a US 120-V power cord. Does not include diagnostics or user documentation – see Step 5 to order separately, 120 V	Each system includes one-year onsite warranty. Choose one. – D2 recommended for US.
	☐	1	183QE-D3	Same as above, except does not include a 240-V power cord – see Step 2 to order separately, 240 V	
2 Power Cords	☐	1	BN18B-4E	UK/Ireland – 240 V @ 13 A	Choose one power cord.
	☐	1	BN18C-4E	Central European – 220 V @ 16 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN18D-4E	Australia/New Zealand – 240/230 V @ 15 A	
	☐	1	BN18E-4E	Italy – 220 V @ 16 A	
	☐	1	BN18C-4E	Switzerland – 220 V @ 16 A	
	☐	1	BN18F-4E	Israel – 230 V @ 16 A	
	☐	1	BN18H-4E	India – 220 V @ 15 A	
	☐	1	BN18T-4E	Japan – 200 V @ 12 A	
	☐	1	BN18P-4E	Denmark – 220 V @ 16 A	
	☐	1	BN18T-4E	US – 208 V @ 12 A	
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	Refer to Table I.15 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for more details.
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.16.
	☐	1	QY628-UZ	RSX-11M	
	☐	1	QY505-UZ	RSX-11M-PLUS	
	☐	1	QY642-UZ	RSX-11S	
	☐	1	QY013-UZ	RT-11	
4 Integrated Mass Storage (internal) RA60	☐	1	RA60-AF	205-Mbyte removable-disk drive	Choose only one combination from the first seven combinations. These combinations are to be integrated into the top and bottom slots of the CPU cabinet.
		1	H9544-CD	Top trim kit	
		1	BC26V-6D	6-ft cable	
		1	KDA50-QA	RA60 disk controller	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage *(Continued)* RA81	☐	1 1 1	RA81-HA/HD BC26V-6D KDA50-QA	456-Mbyte fixed-disk drive 6-ft cable RA81 disk controller	Note that the RA81 and TSV05 have one order number for 120 V and one for 240 V. The RA60 has one order number for 120 V and 240 V.
RA60, RA81	☐	1 1 1 2 1	RA60-AF H9544-CD RA81-HA/HD BC26V-6D KDA50-QA	205-Mbyte removable-disk drive Top trim kit 456-Mbyte fixed-disk drive 6-ft cable RA60/RA81 disk controller	The RA60 should be mounted in the top slot of the CPU cabinet.
2 RA81s	☐	2 1 2 1	RA81-HA/HD H9544-CF BC26V-6D KDA50-QA	456-Mbyte fixed disk drive Top trim kit 6-ft cable RA81 disk controller	
TSV05	☐	1	TSV05-ZA/ZB	40-Mbyte industry-standard 1,600-b/in streaming-tape drive	The TSV05 should be mounted in the top slot of the CPU cabinet.
TSV05, RA60	☐	1 1 1	TSV05-ZA/ZB RA60-CA/CD KDA50-QA	40-Mbyte industry-standard 1,600-b/in streaming-tape drive 205-Mbyte removable-disk drive RA60 disk controller	If both the RA60 and TSV05 are desired, a separate cabinet is required for the RA60 (RA60-CA/CD).
TSV05, RA81	☐	1 1 1 1	TSV05-ZA/ZB RA81-HA/HD BC26V-6D KDA50-QA	40-Mbyte industry-standard 1,600-b/in streaming-tape drive 456-Mbyte fixed disk drive 6-ft cable RA81 disk controller	The TSV05 should be mounted in the top slot of the CPU cabinet.
1 to 4 RX33s	☐	1-2 1 1 1-2 1	RX33A-AA RQDX3-AA RQDXE-FA RX33A-AB ZYA06-P3	1.2-Mbyte diskette drive RD/RX controller RQDX3 extender module 1.2-Mbyte diskette drive MicroPDP-11 RX33 formatter kit	Choose only one combination from the next 25 combinations. These combinations are to be integrated into the dual BA23 boxes that reside in the CPU cabinet. Each BA23 box supports up to two RX33s. The -AA variation is used for the first drive, and the -AB variation is used for the second drive.
TK50	☐	1 1	TK50-AA TQK50-AA	95-Mbyte cartridge-tape drive TK50 controller	
RX50	☐	1 1	RX50A-AA RQDX3-AA	800-Kbyte diskette drive RD/RX controller	
RD54, TK50	☐	1 1 1 1	RD54A-AA RQDX3-AA TK50-AA TQK50-AA	159-Mbyte fixed-disk drive RD/RX controller 95-Mbyte cartridge-tape drive TQK50 controller	
RD54, RX33	☐	1 1 1 1	RD54A-AA RX33A-AA RQDX3-AA ZYA06-P3	159-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit	
RD54, 2 RX33s	☐	1 1 1 1 1	RD54A-AA RX33A-AA RX33A-AB RQDX3-AA ZYA06-P3	159-Mbyte fixed-disk drive 1.2-Mbyte diskette drive 1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit	
RD54, RX50	☐	1 1 1	RD54A-AA RX50A-AA RQDX3-AA	159-Mbyte fixed-disk drive 800-Kbyte diskette drive RD/RX controller	

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage *(Continued)*	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**RQDXE-FA**	RQDX3 extender module	
		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
2 RD54s, TK50		1	**TQK50-AA**	TK50 controller	
	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RX33A-AA**	1.2-Mbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**RQDXE-FA**	RQDX3 extender module	
2 RD54s, RX33		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RX33A-AA**	1.2-Mbyte diskette drive	
		1	**RX33A-AB**	1.2-Mbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**RQDXE-FA**	RQDX3 extender module	
2 RD54s, RX33		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RX50A-AA**	800-Kbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
2 RD54s, RX50		1	**RQDXE-FA**	RQDX3 extender module	
	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RX33A-AA**	1.2-Mbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**RQDXE-FA**	RQDX3 extender module	
		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
2 RD54s, RX33, TK50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-AA**	TK50 controller	
	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RX33A-AA**	1.2-Mbyte diskette drive	
		1	**RX33A-AB**	1.2-Mbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**RQDXE-FA**	RQDX3 extender module	
		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
2 RD54s, 2 RX33s, TK50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-AA**	TK50 controller	
	☐	2	**RD54A-AA**	159-Mbyte fixed-disk drive	
		1	**RX50A-AA**	800-Kbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**RQDXE-FA**	RQDX3 extender module	
2 RD54s, TK50, RX50		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
		1	**TQK50-AA**	TK50 controller	
	☐	1	**RD53A-AA**	71-Mbyte fixed-disk drive	
		1	**RQDX3-AA**	RD/RX controller	
		1	**TK50-AA**	95-Mbyte cartridge-tape drive	
RD53, TK50		1	**TQK50-AA**	TK50 controller	
	☐	1	**RD53A-AA**	71-Mbyte fixed-disk drive	
		1	**RX33A-AA**	1.2-Mbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
RD53, RX33		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	
	☐	1	**RD53A-AA**	71-Mbyte fixed-disk drive	
		1	**RX33A-AA**	1.2-Mbyte diskette drive	
		1	**RX33A-AB**	1.2-Mbyte diskette drive	
		1	**RQDX3-AA**	RD/RX controller	
RD53, 2 RX33s		1	**ZYA06-P3**	MicroPDP-11 RX33 formatter kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage *(Continued)* RD53, RX50	☐	1 1 1	RD53A-AA RX50A-AA RQDX3-AA	71-Mbyte fixed-disk drive 800-Kbyte diskette drive RD/RX controller	
2 RD53s, TK50	☐	2 1 1 1 1	RD53A-AA RQDX3-AA RQDXE-FA TK50-AA TQK50-AA	71-Mbyte fixed-disk drive RD/RX controller RQDX3 extender module 95-Mbyte cartridge-tape drive TK50 controller	
2 RD53s, RX33	☐	2 1 1 1 1	RD53A-AA RX33A-AA RQDX3-AA RQDXE-FA ZYA06-P3	71-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller RQDX3 extender module MicroPDP-11 RX33 formatter kit	
2 RD53s, 2 RX33s	☐	2 1 1 1 1 1	RD53A-AA RX33A-AA RX33A-AB RQDX3-AA RQDXE-FA ZYA06-P3	71-Mbyte fixed-disk drive 1.2-Mbyte diskette drive 1.2-Mbyte diskette drive RD/RX controller RQDX3 extender module MicroPDP-11 RX33 formatter kit	
2 RD53s, RX50	☐	2 1 1 1	RD53A-AA RX50A-AA RQDX3-AA RQDXE-FA	71-Mbyte fixed-disk drive 800-Kbyte diskette drive RD/RX controller RQDX3 extender module	
2 RD53s, RX33, TK50	☐	2 1 1 1 1 1 1	RD53A-AA RX33A-AA RQDX3-AA RQDXE-FA ZYA06-P3 TK50-AA TQK50-AA	71-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller RQDX3 extender module MicroPDP-11 RX33 formatter kit 95-Mbyte cartridge-tape drive TK50 controller	
2 RD53s, 2 RX33s, TK50	☐	2 1 1 1 1 1 1 1	RD53A-AA RX33A-AA RX33A-AB RQDX3-AA RQDXE-FA ZYA06-P3 TK50-AA TQK50-AA	71-Mbyte fixed-disk drive 1.2-Mbyte diskette drive 1.2-Mbyte diskette drive RD/RX controller RQDX3 extender module MicroPDP-11 RX33 formatter kit 95-Mbyte cartridge-tape drive TK50 controller	
2 RD53s, TK50, RX50	☐	2 1 1 1 1 1	RD53A-AA RX50A-AA RQDX3-AA RQDXE-FA TK50-AA TQK50-AA	71-Mbyte fixed-disk drive 800-Kbyte diskette drive RD/RX controller RQDX3 extender module 95-Mbyte cartridge-tape drive TK50 controller	

Note: Selection from Steps 5 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Diagnostics and Documentation	☐ ☐	1 1	ZYAAE-P3 ZYAAE-P5	English-language diagnostics/documentation on RX50 media English-language diagnostics/documentation on TK50 media	Choose one.
6 Additional Memory	☐ ☐	1 1	MSV11-JD MSV11-JE	1-Mbyte PMI ECC MOS memory 2-Mbyte PMI ECC MOS memory	Choose only one.

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YF	Cabinet kit	Select cable from Step 10.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KF	Cabinet kit	
8 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 1 serial line, using 1 B-size distribution slot. This leaves 10 additional B-size slots in the distribution panel available for options. Please refer to the 183QE configuration template.	
	☐	–	DHQ11-M	8 serial lines	Choose up to four if no other asynchronous options are selected.
		–	CK-DHQ11-AF	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead.	Select cable from Step 10. DHQ11 is not supported by RT-11 and CTS-300.
	☐	–	DHQ11-M	8 serial lines	Choose up to eight if no other asynchronous options are selected.
		–	CK-DHQ11-WF	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	Select cable from Step 10. DHQ11 is not supported by RT-11 and CTS-300.
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DF	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	–	DLVJ1-M	4 serial lines	Choose up to two if no other asynchronous options are selected.
		–	CK-DLVJ1-LF	Cabinet kit	Select cable from Step 10.
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (1) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.13 and I.14 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.14 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.13 for country variations.
	☐	–	LA75X-SF	Single-tray sheet feeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-US LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
9 Terminals *(Continued)* Line printers	☐	1	**LG01-BA**	600-li/min text-only printer with LPV11 and cables	Includes the printer, controller module, and all cables and accessories needed for installation.
	☐	1	**LG02-BA**	600-li/min text/graphics line impact matrix printer with LPV11 and cables	
10 Cables	☐	–	**BNE3M-xx**	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	**H4000**	Ethernet transceiver	-05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LF, CK-DHQ11-AF, and CK-DZQ11-DF):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC22D-25**	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC22D-50**	50-ft null modem serial cable	
	☐	–	**BC22D-A0**	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WF):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC16E-25**	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**BC16E-50**	50-ft serial cable	
	☐	–	**H8571-A**	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 9.
11 Operating System Media and Documentation	☐	1	**Q___-H3**	RX50 media/ documentation kit	Choose desired order codes from Table I.16. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.16 for appropriate part number and SPD number.)
	☐	1	**Q___-H5**	TK50 media/ documentation kit	
	☐	1	**Q___-HM**	TSV05 media/ documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
12 Layered Product License, Media, and Documentation	☐	1	**Q___-UZ**	Single-use license	Repeat Step 12 if more than one layered product is desired.
	☐	1	**Q___-H3**	RX50 media/ documentation kit	
	☐	1	**Q___-H5**	TK50 media/ documentation kit	
	☐	1	**Q___-HM**	TSV05 media/ documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
13 Software Services	☐ RX50 ☐ TK50		**Q___-B3** **Q___-B5**	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15. All software products must have the same level service.
	☐ RX50 ☐ TK50		**Q___-73** **Q___-75**	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
14 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐ RX50 ☐ TK50 ☐ TSV05		**Q___-33 Q___-35 Q___-3M**	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ RX50 ☐ TK50 ☐ TSV05		**Q___-83 Q___-85 Q___-8M**	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.16 for appropriate part number and SPD number.)
	☐ RX50 ☐ TK50 ☐ TSV05		**Q___-93 Q___-95 Q___-9M**	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐ RX50 ☐ TK50 ☐ TSV05		**Q___-I3 Q___-I5 Q___-IM**	Installation Service – installation of software products on system	

Table I.13 - Multinational Order Codes for Printers

Country/ Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer	LG31 Printer	LJ250 Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA	LGK31-AA	LJ250-CA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB	LGK31-CA	LJ250-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC	LGK31-AA	LJ250-CA
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD	LGK31-AD	LJ250-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE	LGK31-AE	LJ250-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF	LGK31-CA	LJ250-CC
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG	LGK31-AG	LJ250-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH	LGK31-CA	LJ250-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI	LGK31-AI	LJ250-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ	LGK31-AA	
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK	LGK31-AK	LJ250-CB
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL	LGK31-AK	LJ250-CB
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM	LGK31-CA	LJ250-CC
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN	LGK31-CA	LJ250-CC
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP	LGK31-CA	LJ250-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LGK31-AA	LJ250-CA
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LN03S-AR	LGK31-AA	
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS	LGK31-CA	LJ250-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT	LGK31-AT	LJ250-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LN03S-AU	LGK31-CA	
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV	LGK31-CA	LJ250-CC
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW	LGK31-AK	LJ250-CB
Japan	Hiragana			LN03-AY	LN03S-AY	LGK31-AA	
Australia/ New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	LGK31-AZ	LJ250-AZ

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MicroPDP-11/83 Cabinet System Ordering Tables

Table I.14 - Multinational Order Codes for Video Terminals

Country/Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-___A	VT320-___A	VT330-___A	VT330-___A	VT340-___A	VT340-___A
Belgium	Flemish	VT320-___B	VT320-___B	VT330-___B		VT340-___B	
Canada	French	VT320-___C	VT320-___C	VT330-___C		VT340-___C	VT340-___C
Denmark	Danish	VT320-___D	VT320-___D	VT330-___D		VT340-___D	
UK/Ireland	English	VT320-___E	VT320-___E	VT330-___E	VT330-___E	VT340-___E	VT340-___E
Finland	Finnish	VT320-___F	VT320-___F	VT330-___F		VT340-___F	
W. Germany/Austria	German	VT320-___G	VT320-___G	VT330-___G		VT340-___G	
Holland	Dutch	VT320-___H	VT320-___H	VT330-___H		VT340-___H	
Italy	Italian	VT320-___I	VT320-___I	VT330-___I		VT340-___I	
Switzerland	French	VT320-___K	VT320-___K	VT330-___K		VT340-___K	
Switzerland	German	VT320-___L	VT320-___L	VT330-___L		VT340-___L	
Sweden	Swedish	VT320-___M	VT320-___M	VT330-___M		VT340-___M	
Norway	Norwegian	VT320-___N	VT320-___N	VT330-___N		VT340-___N	
France	French	VT320-___P	VT320-___P	VT330-___P		VT340-___P	
Canada	English	VT320-___A	VT320-___A				
Spain	Spanish	VT320-___S	VT320-___S	VT330-___S		VT340-___S	
Portugal	Portuguese	VT320-___V	VT320-___V	VT330-___V		VT340-___V	
Australia/New Zealand	English	VT320-___Z	VT320-___Z	VT330-___Z		VT340-___Z	

Table I.15 - Support for Hardware Options by Operating System

	RSX-11			Micro/RSX	A-to-Z	RT-11	CTS-300	RSTS/E	Micro/RSTS	MPP-RT	MPP-RSX	MPP-Micro/RSX	DSM-11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y[4]	N	Y[4]	Y[4]	Y[4]	Y[4]
DEQNA	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y	Y	Y[1]	N	Y	Y	Y	Y
DHQ11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DHV11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DLVJ1	Y[2]	Y[2]	Y[2]	N	N	Y	Y	N	N	Y	Y	Y	Y
TSV05	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y

The following devices are supported by all of the above operating systems.
 RD53
 RD54
 RX50
 RX33
 TK50
 RA81
 RA60
 DZQ11

[1]DECnet required

[2]Multiple DLVJ1s are not supported

[3]Supported for target systems, not host systems

[4]Supported in DEQNA mode only

Note: Refer to the SPD for hardware option support information not supplied by this table.

Table I.16 - Ordering Information for Operating Systems and Layered Products

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5		QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5		QJ354-GZ
DSM-11	12.18	QY821-UZ	QY821-H3	QY821-H5	QJ821-HM	QY821-GZ
MicroPower/Pascal-Micro/ RSX	18.24	QY029-UZ	QY029-H3			QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-HM	QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ	QJ029-H3			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5		QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5		QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-HM	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ676-HM	QJ628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-HM	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-HM	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-HM	QJ013-GZ

Layered Products

	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Layered Products						
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5		QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5		QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5		QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5		QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5		QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5		QY957-GZ
BASIC-PLUS-2						
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-HM	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5		QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-HM	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5		QY809-GZ
BASIC-PLUS						
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5		QJ913-GZ
COBOL-81						
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-HM	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5		QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-HM	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5		QY808-GZ
DATATRIEVE-11						
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-HM	QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3	QY819-H5		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-HM	QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3			QY302-GZ
DECdx						
RSX-11M	13.39	QJ708-UZ			QJ708-HM	QJ708-GZ
RSX-11M-PLUS	13.39	QY845-UZ			QY845-HM	QY845-GZ
RSTS/E	13.32	QJ706-UZ			QJ706-HM	QJ706-GZ
DECmail-11						
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-HM	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5		QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-HM	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5		QY815-GZ
DECnet						
RSX-11M - Full Node	10.75	QJ764-UZ		QJ764-H5	QJ764-HM	QJ764-GZ
RSX-11M - End Node	10.75	QJ765-UZ		QJ765-H5	QJ765-HM	QJ765-GZ
RSX-11M-PLUS - Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-HM	QJ766-GZ
RSX-11M-PLUS - End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-HM	QJ767-GZ
RSX-11S - Full Node	10.74	QJ762-UZ		QJ762-H5	QJ762-HM	QJ762-GZ
RSX-11S - End Node	10.74	QJ763-UZ		QJ763-H5	QJ763-HM	QJ763-GZ
Micro/RSX-End Node Only	18.27	QY766-UZ	QY766-H3	QY766-H5		QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-HM	QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-HM	QY692-GZ

Table I.16 (Continued) - Ordering Information for Operating Systems and Layered Products

Layered Products (Continued)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
DECtype						
RSX-11M-PLUS	14.82	QR038-UZ			QR038-HM	QR038-GZ
Micro/RSX	18.14	QY038-UZ	QY038-H3	QY038-H5		QY038-GZ
DECword						
RSTS/E	13.14	QR480-UZ			QR480-HM	QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3			QY480-GZ
Development Kits						
Micro/RSX	14.28	QY800-UZ	QY801-H3	QY801-H5		QY801-GZ
Micro/RSTS	18.12	QY830-UZ	QY830-H3	QY830-H5		QY830-GZ
DIBOL						
RSX-11M-PLUS	14.24	QY540-UZ			QY540-HM	QY540-GZ
Micro/RSX	18.05	QY807-UZ	QY807-H3	QY807-H5		QY807-GZ
RSTS/E	14.08	QY528-UZ			QY528-HM	QY528-GZ
Micro/RSTS	14.08	QY519-UZ	QY519-H3	QY519-H5		QY519-GZ
FMS						
RSX-11M, S, M-PLUS	12.27	QY715-UZ			QY715-HM	QY715-GZ
Micro/RSX	18.34	QY322-UZ	QY322-H3			QY322-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3			QY713-GZ
RSTS/E	13.17	QY716-UZ			QY716-HM	QY716-GZ
FORTRAN IV						
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-HM	QP230-GZ
RT-11, CTS-300	12.10	QY813-UZ	QJ813-H3	QJ813-H5	QJ813-HM	QJ813-GZ
RSTS/E	12.41	QR435-UZ	QR435-H3		QR435-HM	QR435-GZ
FORTRAN-77						
RSX-11M, M-PLUS	14.31	QY668-UZ		QY668-H5	QY668-HM	QY668-GZ
Micro/RSX	18.04	QY803-UZ	QY803-H3	QY803-H5		QY803-GZ
RSTS/E	14.49	QY100-UZ			QY100-HM	QY100-GZ
Micro/RSTS	18.10	QY810-UZ	QY810-H3			QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-C3		QA609-CM	QA609-GZ
Pascal						
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-HM	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5		QY806-GZ
PDP-11 Symbolic Debugger						
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-HM	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5		QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-HM	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5		QY811-GZ
RTEM-11						
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-HM	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-HM	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5		QY004-GZ
SORT/MERGE						
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-HM	QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3			QY812-GZ

Product Description

The MicroPDP-11/73 computer, featuring the J-11 CPU chipset, is a powerful midrange system that provides 70 percent of the MicroPDP-11/83 performance at a lower price.

The MicroPDP-11/73 supports a wide range of realtime or multitasking applications for as many as 41 users, depending on the enclosure. There is a pedestal enclosure designed to sit beside or under the desk. For applications that require more storage space, the system can be configured with up to 477 Mbytes of integrated disk space in a floorstand enclosure with casters. Or with an expander cabinet, the system can be configured with more than 1 Gbyte of storage space.

As a member of Digital's Q-bus family of 16-bit supermicrosystems, the MicroPDP-11/73 can use a wide variety of software already written for PDP-11s, including operating systems, languages, application packages, and communications software.

The MicroPDP-11/73 also is supported by Ethernet local area networking for low-cost, high-speed local area communications.

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	**DH-173Q1-CA**	Includes MicroPDP-11/73 CPU, 1-Mbyte (MSV11-QA) memory, RD53 71-Mbyte disk drive, RQDX3 disk controller, TK50 95-Mbyte tape drive and tape controller, DHQ11, BA23 pedestal/tabletop enclosure, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty.
					Choose one. – CA model recommended for US.
					Base Hardware System includes 1 serial line for a console terminal, a BC22D-10 serial-line cable, and 8 modem/data serial lines (modem control) on the DHQ11.
	☐	1	**DH-173Q1-C2**	Same as DH-173Q1-CA except no diagnostics or documentation – see Step 4 to order separately, 120 V	RT-11 and CTS-300 are not supported on Standard Systems due to lack of DHQ11 support.
	☐	1	**DH-173Q1-C3**	Same as DH-173Q1-CA except 240 V, and does not include a 240-V power cord, diagnostics or documentation – see Steps 2 and 4 to order separately, 240 V	
2 Power Cords	☐	1	**BN02A-2E**	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	**BN03A-2E**	Central European – 220 V @ 6 A	
	☐	1	**BN04A-2E**	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	**BN05A-2E**	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	**BN06A-2E**	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	**BN07A-2E**	Italy – 220 V @ 6 A	
	☐	1	**BN18K-1K**	Japan – 200 V @ 6 A	
	☐	1	**BN18L-2E**	Israel – 230 V @ 6 A	
	☐	1	**BN18J-1K**	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	**QY821-UZ**	DSM-11	Each license includes 90-day limited warranty.
	☐	1	**QY029-UZ**	MicroPower/Pascal-Micro/RSX	
	☐	1	**QP029-UZ**	MicroPower/Pascal-RSX	Refer to Table I.19 for list of hardware
	☐	1	**QY829-UZ**	Micro/RSTS	options supported by each operating
	☐	1	**QY800-UZ**	Micro/RSX	system. Not all hardware options are
	☐	1	**QY430-UZ**	RSTS/E	supported by all operating systems. Refer to the SPD for more details.
	☐	1	**QY628-UZ**	RSX-11M	
	☐	1	**QY505-UZ**	RSX-11M-PLUS	Check that the operating system software
	☐	1	**QY642-UZ**	RSX-11S	chosen is available on the distribution device that is selected. Refer to Table I.20.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 15 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics/documentation on RX50 media	Optional for -C2 and -C3. Included in DH-173Q1-CA.
	☐	1	ZYAAA-P5	English-language diagnostics/documentation on TK50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 1 Mbyte is included in the Base Hardware System.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Add-on Mass Storage (external) Required Selections	☐	–	BC17Y-1J	Daisychain cable (Required if 2 external RDxx and/or RXxx devices are selected.)	The embedded RQDX3 chosen in Step 1 can support a total of four internal and external devices, with the following device definitions:
	☐	1	RQDXE-AA	RQDX3 extender module (Required for addition of any external RD/RX drives.)	RX50 = 2 devices RX33 = 1 device RDxx = 1 device
	☐	1	H9302	Rackmount kit (Required for all external rackmount devices – one kit for every 2 devices.)	Choose zero, one, or two RD or RX devices in this section, along with one RQDXE.
Disks	☐	–	RD54-DA/DB	159-Mbyte tabletop-disk drive	
	☐	–	RD54-RA/RB	159-Mbyte rackmount-disk drive	
	☐	–	RD53-DA/DB	71-Mbyte tabletop-disk drive	
	☐	–	RD53-RA/RB	71-Mbyte rackmount-disk drive	
	☐	–	RX50-DA/DB	800-Kbyte tabletop-disk drive	
	☐	–	RX50-RA/RB	800-Kbyte rackmount-disk drive	
Tapes	☐	–	TK50-DA/DB	95-Mbyte tabletop-tape drive	
		–	TQK50-AB	TK50 controller	
	☐	–	TK50-RA/RB	95-Mbyte rackmount-tape drive	
		–	TQK50-AB	TK50 controller	
	☐	1	TSV05-BA/BB	40-Mbyte industry-standard 1,600-bpi streaming-tape drive in cabinet	
		1	CK-TS05-14	Cabinet kit	
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one. Select cable from Step 10.
		1	CK-DELQA-YB	Cabinet kit	
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	

MicroPDP-11/73 BA23 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
8 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 9 serial lines using 3 B-size distribution slots. This leaves 1 additional B-size slot in the distribution panel available for options. Please refer to the 173QY and 173QZ configuration template.	
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous
		1	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	options are selected. Select cable from Step 10.
	☐	1	DZQ11-M	4 serial lines	
		1	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	
		1	CK-DLVJ1-LB	Cabinet kit	
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (9) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Table I.17 and I.18 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.18
	☐	–	DL-VT320-B___	Green video terminal	for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.17 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot-matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation,
	☐	–	LGK31-___	Country kit for LG31-A3	selected from the country variation table,
	☐	–	LJ250-___	Companion color printer serial interface	for each non-US LG31-A3 selected.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals: -05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft
	☐	–	H4000	Ethernet transceiver	

For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DZQ11-DB, and DHQ11 included in Base System):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WB):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 9.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
11 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/documentation kit	Choose desired order codes from Table I.20. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.20 for appropriate part number and SPD number.)
	☐	1	Q___-H5	TK50 media/documentation kit	
	☐	1	Q___-HM	TSV05 media/documentation kit	
12 Layered Product License, Media and Documentation	☐	1	Q___-UZ	Single-use license	Repeat Step 12 if more than one layered product is desired.
	☐	1	Q___-H3	RX50 media/documentation kit	
	☐	1	Q___-H5	TK50 media/documentation kit	
	☐	1	Q___-HM	TSV05 media/documentation kit	
13 Software Services	☐ RX50 ☐ TK50		Q-___-B3 Q-___-B5	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15. All software products must have the same level service.
	☐ RX50 ☐ TK50		Q-___-73 Q-___-75	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.

MicroPDP-11/73 Q-bus Multiuser Systems

MicroPDP-11/73 BA23 Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
14 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐ RX50 ☐ TK50 ☐ TSV05		Q___-33 Q___-35 Q___-3M	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-83 Q___-85 Q___-8M	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.20 for appropriate part number and SPD number.)
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-93 Q___-95 Q___-9M	DECsupport Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	
					Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-I3 Q___-I5 Q___-IM	Installation Service – installation of software products on system	

Configuration Rules for 173QY and 173QZ System Building Block

The BA23 pedestal or rackmount enclosure backplane has a total of eight slots. It contains a 230-watt power supply and dedicated space for two 5.25-inch mass-storage devices. Use the following rules when configuring the BA23 pedestal or rackmountable systems.

- Use the eight-slot configuration template for the system building blocks. Write the module and mass-storage device names in the left column beside the slot and shelf numbers. When configuring these systems, please note that quad-height modules use both the "AB" and "CD" portions of a slot.
- Slot 1 is always reserved for the CPU module.
- Slots 2 through 8 can accommodate either two dual-height or one quad-height option.
- Mass-storage shelf devices can be either one full-height device (i.e., RD54, RD53, TK50) or two half-height devices (i.e. RX33, RD31, RD32) per cavity.
- Enter the 5-V and 12-V currents, power, the ac and dc bus loads, and I/O panel inserts required for each module and mass-storage device. The column totals must not exceed the limits listed at the bottom.

173QY and 173QZ Configuration Template

SLOT	MODULE	Current (Amps) 5 V dc	12 V dc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 ABCD	KDJ11-BB	5.5	0.2	29.9	2.3	1.0	1	0
2 ABCD	MSV11-QA	2.4	0	12.0	2.0	1.0	0	0
3 AB	— — — —							
CD								
4 AB	— — — —							
CD								
5 AB	— — — —							
CD								
6 AB	— — — —							
CD								
7 AB	— — — —							
CD								
8 AB	— — — —							
CD								

Mass-storage Shelf Device

1	— — — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —
2	— — — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —

Total these columns:

Must not exceed		36 A	7 A	230 W	32	20	4	2

Note: The selection of Steps 1 through 4, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	**173QY-C2**	Includes MicroPDP-11/73 CPU, 1-Mbyte (MSV11-QA) memory, asynchronous console serial line on the CPU module, BC22D-10 serial-line cable, BA23A-AF pedestal/tabletop enclosure, and a US 120-V power cord. Does not include diagnostics or user documentation – see Step 5 to order separately, 120 V	Each system includes one-year onsite hardware warranty. Choose one. -C2/-D2 recommended for US.
	☐	1	**173QY-C3**	Same as 173QY-C2 except does not include a 240-V power cord – see Step 2 to order separately, 240 V	
	☐	1	**173QZ-C2**	Same as 173QY-C2 except includes a BA23A-AR rackmount enclosure instead of a BA23A-AF enclosure, 120 V	
	☐	1	**173QZ-C3**	Same as 173QY-C3 except includes a BA23A-AR rackmount enclosure instead of a BA23A-AF enclosure, 240 V	
	☐	1	**173QY-D2**	Includes MicroPDP-11/73 CPU, 2-Mbyte (MSV11-QB) memory, asynchronous console serial line on the CPU module, BC22D-10 serial-line cable, BA23A-AF pedestal/tabletop enclosure, and a US 120-V power cord. Does not include diagnostics or user documentation – see Step 5 to order separately, 120 V	
	☐	1	**173QY-D3**	Same as 173QY-D2 except does not include a 240-V power cord – see Step 2 to order separately, 240 V	
	☐	1	**173QZ-D2**	Same as 173QY-D2 except includes a BA23A-AR rackmount enclosure instead of a BA23A-AF enclosure, 120 V	
	☐	1	**173QZ-D3**	Same as 173QY-D3 except includes a BA23A-AR rackmount enclosure instead of a BA23A-AF enclosure, 240 V	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.19 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	system. Not all hardware options are
	☐	1	QY829-UZ	Micro/RSTS	supported by all operating systems.
	☐	1	QY800-UZ	Micro/RSX	Refer to the SPD for more details.
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software
	☐	1	QY505-UZ	RSX-11M-PLUS	chosen is available on the distribution
	☐	1	QY642-UZ	RSX-11S	device that is selected. Refer to Table
	☐	1	QY013-UZ	RT-11	I.20.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage (Internal)	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	Choose only one combination.
		1	RQDX3-AA	RD/RX Controller	
		1	TK50-AA	95-Mbyte cartridge-tape drive	BA23 box supports up to two RX33s
RD54, TK50		1	TQK50-AA	TK50 controller	and/or two RD32s. The -AA variation is used for the first drive and the -AB
	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	variation is used for the second drive.
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD54, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD54, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD54A-AA	159-Mbyte fixed-disk drive	
		1	RX50A-AA	800-Kbyte disk drive	
RD54, RX50		1	RQDX3-AA	RD/RX controller	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RQDX3-AA	RD/RX controller	
		1	TK50-AA	95-Mbyte cartridge-tape drive	
RD53, TK50		1	TQK50-AA	TK50 controller	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD53, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD53, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage (Internal) *(Continued)* RD53, RX50	☐	1	RD53A-AA	71-Mbyte fixed-disk drive	
		1	RX50A-AA	800-Kbyte disk drive	
		1	RQDX3-AA	RD/RX controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RQDX3-AA	RD/RX controller	
		1	TK50-AA	95-Mbyte cartridge-tape drive	
RD32, TK50		1	TQK50-AA	TK50 controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RQDX3-AA	RD/RX controller	
		1	TK50-AA	95-Mbyte cartridge-tape drive	
2 RD32s, TK50		1	TQK50-AA	TK50 controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD32, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
2 RD32s, RX33		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
RD32, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RX33A-AA	1.2-Mbyte diskette drive	
		1	RX33A-AB	1.2-Mbyte diskette drive	
		1	RQDX3-AA	RD/RX controller	
2 RD32s, 2 RX33s		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RX50A-AA	800-Kbyte disk drive	
RD32, RX50		1	RQDX3-AA	RD/RX controller	
	☐	1	RD32A-AA	42-Mbyte half-height fixed-disk drive	
		1	RD32A-AB	42-Mbyte half-height fixed-disk drive	
		1	RX50A-AA	800-Kbyte disk drive	
2 RD32s, RX50		1	RQDX3-AA	RD/RX controller	

Note: Selection from Steps 5 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics/ documentation on RX50 media	Choose one.
	☐	1	ZYAAA-P5	English-language diagnostics/ documentation on TK50 media	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
6 Additional Memory	☐	–	**MSV11-QA**	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 1 Mybte is included in the C2 Base Hardware Systems and 2 Mybtes are included in the D2 Base Hardware Systems.
	☐	–	**MSV11-QB**	2-Mbyte MOS memory	
7 Add-on Mass Storage (external) Required Selections	☐	–	**BC17Y-1J**	Daisychain cable (Required if 2 external RDxx and/or RXxx devices are selected.)	An RQDX3 supports a total of four devices, with the following device definitions.
	☐	1	**RQDXE-AA**	RQDX3 extender module (Required for addition of any external RD/RX drives.)	RX50 = 2 devices RX33 = 1 device RDxx = 1 device
	☐	–	**TQK50-AB**	TK50 controller (One required for each TK50 selected.)	Depending on what was selected in Step 4, choose zero, one, or two combinations in this step, along with one RQDXE.
	☐	1	**H9302**	Rackmount kit (Required for all external rackmount devices – one kit for every 2 devices.)	
7 Add-on Mass Storage (external) Disks	☐	–	**RD54-DA/DB**	159-Mbyte tabletop-disk drive	
	☐	–	**RD54-RA/RB**	159-Mbyte rackmount-disk drive	
	☐	–	**RD53-DA/DB**	71-Mbyte tabletop-disk drive	
	☐	–	**RD53-RA/RB**	71-Mbyte rackmount-disk drive	
	☐	–	**RX50-DA/DB**	800-Kbyte tabletop-disk drive	
	☐	–	**RX50-RA/RB**	800-Kbyte rackmount-disk drive	
	☐	–	**TK50-DA/DB**	95-Mbyte tabletop-tape drive	
	☐	–	**TK50-RA/RB**	95-Mbyte rackmount-tape drive	
	☐	1	**TSV05-BA/BB**	40-Mbyte industry-standard 1,600-bpi streaming-tape drive in cabinet	
		1	**CK-TS05-14**	Cabinet kit	
8 Ethernet Interface	☐	1	**DELQA-M**	Ethernet interface	Choose only one.
		1	**CK-DELQA-YB**	Cabinet kit	Select cable from Step 11.
	☐	1	**DEQNA-M**	Ethernet interface	
		1	**CK-DEQNA-KB**	Cabinet kit	
9 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 1 serial line, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 173QY and 173QZ configuration template.	
	☐	1	**DHQ11-M**	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	**CK-DHQ11-AB**	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	**DHQ11-M**	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	**CK-DHQ11-WB**	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	**DZQ11-M**	4 serial lines	
		–	**CK-DZQ11-DB**	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	–	**DLVJ1-M**	4 serial lines	Choose up to two if no other asynchronous options are used. Select cable from Step 11.
		–	**CK-DLVJ1-LB**	Cabinet kit	

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (1) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.17 and I.18 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table
	☐	–	DL-VT320-B___	Green video terminal	I.18 for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.17 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot-matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation,
	☐	–	LGK31-___	Country kit for LG31-A3	selected from the country variation table,
	☐	–	LJ250-___	Companion color printer serial interface	for each non-US LG31-A3 selected.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
11 Cables	☐	–	**BNE3M-xx**	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet
	☐	–	**H4000**	Ethernet transceiver	interface is ordered. For appropriate cable length, -xx equals: -05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC22D-25**	25-ft null modem serial cable	Number of serial terminals should at least
	☐	–	**BC22D-50**	50-ft null modem serial cable	equal the number of terminals on the
	☐	–	**BC22D-A0**	100-ft null modem serial cable	system (*one* 10-ft console serial cable is included in Step 1).

For MMJ connections (cabinet kit CK-DHQ11-WB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	**BC16E-25**	25-ft serial cable	Number of serial cables should at least
	☐	–	**BC16E-50**	50-ft serial cable	equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	**H8571-A**	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System Media and Documentation	☐	1	**Q___-H3**	RX50 media/ documentation kit	Choose desired order codes from Table I.20. Not all operating systems and
	☐	1	**Q___-H5**	TK50 media/ documentation kit	layered products have RX50, TK50, and TSV05 kits. Order codes for the license,
	☐	1	**Q___-HM**	TSV05 media/ documentation kit	media kits, and documentation-only are not always the same. (Refer to Table I.20
	☐	1	**Q___-GZ**	Documentation-only kit	for appropriate part number and SPD number.)
13 Layered Product License, Media, and Documentation	☐	1	**Q___-UZ**	Single-use license	Repeat Step 13 if more than one layered product is desired.
	☐	1	**Q___-H3**	RX50 media/ documentation kit	
	☐	1	**Q___-H5**	TK50 media/ documentation kit	
	☐	1	**Q___-HM**	TSV05 media/ documentation kit	
	☐	1	**Q___-GZ**	Documentation-only kit	
14 Software Services	☐	RX50	**Q___-B3**	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service.
	☐	TK50	**Q___-B5**		
	☐	RX50	**Q___-73**	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.
	☐	TK50	**Q___-75**		

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Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
15 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐ RX50 ☐ TK50 ☐ TSV05		Q___-33 Q___-35 Q___-3M	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-83 Q___-85 Q___-8M	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.20 for appropriate part number and SPD number.)
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-93 Q___-95 Q___-9M	DECsupport Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐ RX50 ☐ TK50 ☐ TSV05		Q___-I3 Q___-I5 Q___-IM	Installation Service – installation of software products on system	

Table I.17 - Multinational Order Codes for Printers

Country/ Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer	LG31 Printer	LJ250 Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA	LGK31-AA	LJ250-CA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB	LGK31-CA	LJ250-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC	LGK31-AA	LJ250-CA
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD	LGK31-AD	LJ250-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE	LGK31-AE	LJ250-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF	LGK31-CA	LJ250-CC
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG	LGK31-AG	LJ250-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH	LGK31-CA	LJ250-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI	LGK31-AI	LJ250-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ	LGK31-AA	
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK	LGK31-AK	LJ250-CB
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL	LGK31-AK	LJ250-CB
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM	LGK31-CA	LJ250-CC
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN	LGK31-CA	LJ250-CC
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP	LGK31-CA	LJ250-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LGK31-AA	LJ250-CA
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LN03S-AR	LGK31-AA	
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS	LGK31-CA	LJ250-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT	LGK31-AT	LJ250-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LN03S-AU	LGK31-CA	
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV	LGK31-CA	LJ250-CC
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW	LGK31-AK	LJ250-CB
Japan	Hiragana			LN03-AY	LN03S-AY	LGK31-AA	
Australia/ New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	LGK31-AZ	LJ250-AZ

Table I.18 - Multinational Order Codes for Video Terminals

Country/ Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-___A	VT320-___A	VT330-___A	VT330-___A	VT340-___A	VT340-___A
Belgium	Flemish	VT320-___B	VT320-___B	VT330-___B		VT340-___B	
Canada	French	VT320-___C	VT320-___C	VT330-___C		VT340-___C	VT340-___C
Denmark	Danish	VT320-___D	VT320-___D	VT330-___D		VT340-___D	
UK/Ireland	English	VT320-___E	VT320-___E	VT330-___E	VT330-___E	VT340-___E	VT340-___E
Finland	Finnish	VT320-___F	VT320-___F	VT330-___F		VT340-___F	
W. Germany/Austria	German	VT320-___G	VT320-___G	VT330-___G		VT340-___G	
Holland	Dutch	VT320-___H	VT320-___H	VT330-___H		VT340-___H	
Italy	Italian	VT320-___I	VT320-___I	VT330-___I		VT340-___I	
Switzerland	French	VT320-___K	VT320-___K	VT330-___K		VT340-___K	
Switzerland	German	VT320-___L	VT320-___L	VT330-___L		VT340-___L	
Sweden	Swedish	VT320-___M	VT320-___M	VT330-___M		VT340-___M	
Norway	Norwegian	VT320-___N	VT320-___N	VT330-___N		VT340-___N	
France	French	VT320-___P	VT320-___P	VT330-___P		VT340-___P	
Canada	English	VT320-___A	VT320-___A				
Spain	Spanish	VT320-___S	VT320-___S	VT330-___S		VT340-___S	
Portugal	Portuguese	VT320-___V	VT320-___V	VT330-___V		VT340-___V	
Australia/ New Zealand	English	VT320-___Z	VT320-___Z	VT330-___Z		VT340-___Z	

Table I.19 - Support for Hardware Options by Operating System

	RSX-11			Micro/ RSX	A-to-Z	RT-11	CTS- 300	RSTS/E	Micro/ RSTS	MPP- RT	MPP- RSX	MPP- Micro/ RSX	DSM -11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y[4]	N	Y[4]	Y[4]	Y[4]	Y[4]
DEQNA	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y	Y	Y[1]	N	Y	Y	Y	Y
DHQ11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DHV11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DLVJ1	Y[2]	Y[2]	Y[2]	N	N	Y	Y	N	N	Y	Y	Y	Y
TSV05	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y

The following devices are supported by all of the above operating systems:
RD53
RD54
RX50
RX33
TK50
DZQ11

[1]DECnet required

[2]Multiple DLVJ1s are not supported

[3]Supported for target systems, not host systems

[4]Supported in DEQNA mode only

Note: Refer to the SPD for hardware option support information not supplied by this table.

Table I.20 - Ordering Information for Operating Systems and Layered Products

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5		QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5		QJ354-GZ
DSM-11	12.18	QY821-UZ	QJ821-H3	QY821-H5	QJ821-HM	QY821-GZ
MicroPower/Pascal-Micro/RSX	18.24	QY029-UZ	QY029-H3			QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-HM	QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ	QJ029-H3			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5		QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5		QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-HM	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ676-HM	QJ628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-HM	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-HM	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-HM	QJ013-GZ

Layered Products

A-to-Z Layered Products						
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5		QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5		QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5		QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5		QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5		QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5		QY957-GZ
BASIC-PLUS-2						
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-HM	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5		QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-HM	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5		QY809-GZ
BASIC-PLUS						
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5		QJ913-GZ
COBOL-81						
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-HM	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5		QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-HM	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5		QY808-GZ
DATATRIEVE-11						
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-HM	QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3	QY819-H5		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-HM	QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3			QY302-GZ
DECdx						
RSX-11M	13.39	QJ708-UZ			QJ708-HM	QJ708-GZ
RSX-11M-PLUS	13.39					
RSTS/E	13.32	QJ706-UZ			QJ706-HM	QJ706-GZ
DECmail-11						
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-HM	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5		QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-HM	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5		QY815-GZ
DECnet						
RSX-11M - Full Node	10.75	QJ764-UZ		QJ764-H5	QJ764-HM	QJ764-GZ
RSX-11M - End Node	10.75	QJ765-UZ		QJ765-H5	QJ765-HM	QJ765-GZ
RSX-11M-PLUS - Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-HM	QJ766-GZ
RSX-11M-PLUS - End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-HM	QJ767-GZ
RSX-11S - Full Node	10.74	QJ762-UZ		QJ762-H5	QJ762-HM	QJ762-GZ
RSX-11S - End Node	10.74	QJ763-UZ		QJ763-H5	QJ763-HM	QJ763-GZ
Micro/RSX-End Node Only	18.27	QY766-UZ	QY766-H3	QY766-H5		QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-HM	QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-HM	QY692-GZ

Table I.20 *(Continued)* - Ordering Information for Operating Systems and Layered Products

Layered Products (Continued)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
DECtype						
RSX-11M-PLUS	14.82	QR038-UZ			QR038-HM	QR038-GZ
Micro/RSX	18.14	QY038-UZ	QY038-H3	QY038-H5		QY038-GZ
DECword						
RSTS/E	13.14	QR480-UZ			QR480-HM	QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3			QY480-GZ
Development Kits						
Micro/RSX	14.28	QY800-UZ	QY801-H3	QY801-H5		QY801-GZ
Micro/RSTS	18.12	QY830-UZ	QY830-H3	QY830-H5		QY830-GZ
DIBOL						
RSX-11M-PLUS	14.24	QY540-UZ			QY540-HM	QY540-GZ
Micro/RSX	18.05	QY807-UZ	QY807-H3	QY807-H5		QY807-GZ
RSTS/E	14.08	QY528-UZ			QY528-HM	QY528-GZ
Micro/RSTS	14.08	QY519-UZ	QY519-H3	QY519-H5		QY519-GZ
FMS						
RSX-11M, S, M-PLUS	12.27	QY715-UZ			QY715-HM	QY715-GZ
Micro/RSX	18.34	QY322-UZ	QY322-H3			QY322-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3			QJ713-GZ
RSTS/E	13.17	QY716-UZ			QY716-HM	QY716-GZ
FORTRAN IV						
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-HM	QP230-GZ
RT-11, CTS-300	12.10	QY813-UZ	QJ813-H3	QJ813-H5	QJ813-HM	QJ813-GZ
RSTS/E	12.41	QR435-UZ			QR435-HM	QR435-GZ
FORTRAN-77						
RSX-11M, M-PLUS	14.31	QY668-UZ		QY668-H5	QY668-HM	QY668-GZ
Micro/RSX	18.04	QY803-UZ	QY803-H3	QY803-H5		QY803-GZ
RSTS/E	14.49	QY100-UZ			QY100-HM	QY100-GZ
Micro/RSTS	18.10	QY810-UZ	QY810-H3			QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-C3		QA609-CM	QA609-GZ
Pascal						
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-HM	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5		QY806-GZ
PDP-11 Symbolic Debugger						
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-HM	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5		QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-HM	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5		QY811-GZ
RTEM-11						
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-HM	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-HM	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5		QY004-GZ
SORT/MERGE						
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-HM	QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3			QY812-GZ

Configuration Rules

The MicroPDP-11/73 BA123 enclosure uses a 460-watt power supply that consists of two regulators. Regulator "A" supplies power for slots 1, 3, 5, 7, 9, and 11 and mass-storage shelves 3, 4, and 5. Regulator "B" supplies power for slots 2, 4, 6, 8, 10 and 12 and mass-storage shelves 1 and 2. When configuring the BA123 caster-mounted enclosure:

- Use the 12-slot configuration template for the system building blocks. Write the module and mass-storage device names in the left column beside the slot and shelf numbers. When configuring these systems, please note that quad-height modules use both the "AB" and "CD" portions of a slot.
- Slots 1 through 4 are limited to either one dual- or one quad-height Q-bus option.
- Slots 5 through 12 can accommodate either two dual-height or one quad-height options.
- Enter the 5 V and 12 V currents, power, the ac and dc bus loads and I/O panel inserts required for each module and mass-storage device. Be sure that you enter the power for each option in the columns of the appropriate regulator. The column totals must not exceed the limits listed at the bottom.
- Due to start-up current limitations in the BA123 power supply, if an RD54 disk drive is connected to the same 12-volt power supply regulator as another RD-type disk drive, then only five of the seven amperes provided by that regulator can be used for powering the two disks and any additional options.

Configuration Template for 173QB
MicroPDP-11/73 System Building Block

SLOT	MODULE	Regulator A			Regulator B			AC	DC	I/O Inserts	
		Current (Amps)		Power	Current (Amps)		Power				
		5 Vdc	12 Vdc	(Watts)	5 Vdc	12 Vdc	(Watts)	Loads	Loads	B	A
1 ABCD	KDJ11-BB	5.5	0.2	29.9				2.3	1.0	1	0
2 ABCD	MSV11-QA				2.4	0	12.0	2.0	1.0	0	0
3 AB	— — — —										
CD											
4 AB	— — — —										
CD											
5 AB	— — — —										
CD											
6 AB	— — — —										
CD											
7 AB	— — — —										
CD											
8 AB	— — — —										
CD											
9 AB	— — — —										
CD											
10 AB	— — — —										
CD											
11 AB	— — — —										
CD											
12 AB	— — — —										
CD											
13 AB											
CD	signal dist.	.52		2.60							

Mass-storage Shelf Device

		Regulator A			Regulator B			AC	DC	I/O Inserts	
5								0	0	0	0
4								0	0	0	0
3								0	0	0	0
2								0	0	0	0
1								0	0	0	0
Total these columns:											
With RD54 must not exceed		36 A	5 A	230 W	36 A	5 A	230W	38	20	6	4
Without RD54 must not exceed		36 A	7 A	230 W	36 A	7 A	230W	38	20	6	4

Note: The selection of Steps 1 through 4, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	173QB-C2	Includes MicroPDP-11/73 CPU, 1 Mbyte (MSV11-QA) memory, BA123 floorstand enclosure and US 120-V power cord. Does not include diagnostics or user documentation – see step 3 to order separately, 120 V	Each system includes one-year onsite hardware warranty. Choose one. -C2/-D2 recommended for US. Base Hardware System includes 1 serial line for a console terminal and a BC22D-10 serial-line cable.
	☐	1	173QB-C3	Same as 173QB-C2 except does not include a 240-V power cord – see Step 2 to order separately, 240 V	
	☐	1	173QB-D2	Same as 173QB-C2 except 2 Mbytes (MSV11-QB) instead of 1 Mbyte (MSV11-QA), 120 V	
	☐	1	173QB-D3	Same as 173QB-C3 except 2 Mbytes (MSV11-QB) instead of 1 Mbyte (MSV11-QA), 240 V	
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	Central European countries include
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Austria, Belgium, France, Germany,
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.23 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating system.
	☐	1	QJ029-UZ	MicroPower/RT	Not all hardware options are supported by
	☐	1	QY829-UZ	Micro/RSTS	all operating systems. Refer to the SPD for
	☐	1	QY800-UZ	Micro/RSX	details.
	☐	1	QY430-UZ	RSTS/E	Check that the operating system software
	☐	1	QY628-UZ	RSX-11M	chosen is available on the distribution device
	☐	1	QY505-UZ	RSX-11M-PLUS	that is selected. Refer to Table I.24.
	☐	1	QY642-UZ	RSX-11S	
	☐	1	QY013-UZ	RT-11	

MicroPDP-11/73 BA123 System Building Block

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Integrated Mass Storage (Internal) RX33	☐	1 1 1	RX33A-BA RQDX3-BA ZYA06-P3	1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit	Choose only one combination.
RD54, TK50	☐	(1-3) 1 1 1	RD54A-BA RQDX3-BA TK50-AA TQK50-BA	159-Mbyte fixed-disk drive RD/RX controller 95-Mbyte cartridge-tape drive TK50 controller	
RD54, RX33	☐	1 1 1 1	RD54A-BA RX33A-BA RQDX3-BA ZYA06-P3	159-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit	
RD54, RX50	☐	(1-2) 1 1	RD54A-BA RQDX3-BA RX50A-BA	159-Mbyte fixed-disk drive RD/RX controller 800-Kbyte diskette drive	
RD54, RX33, TK50	☐	(1-2) 1 1 1 1	RD54A-BA RX33A-BA RQDX3-BA ZYA06-P3 TK50-AA TQK50-BA	159-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit 95-Mbyte cartridge-tape drive TK50 controller	
RD54, RX50, TK50	☐	(1-2) 1 1 1 1	RD54A-BA RX50A-BA RQDX3-BA TK50-AA TQK50-BA	159-Mbyte fixed-disk drive 800-Kbyte diskette drive RD/RX controller 95-Mbyte cartridge-tape drive TK50 controller	
RD53, TK50	☐	(1-3) 1 1 1	RD53A-BA RQDX3-BA TK50-AA TQK50-BA	71-Mbyte fixed-disk drive RD/RX controller 95-Mbyte cartridge-tape drive TK50 controller	
RD53, RX33	☐	1 1 1 1	RD53A-BA RX33A-BA RQDX3-BA ZYA06-P3	71-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit	
RD53, RX50	☐	(1-2) 1 1	RD53A-BA RQDX3-BA RX50A-BA	71-Mbyte fixed-disk drive RD/RX controller 800-Kbyte diskette drive	
RD53, RX33, TK50	☐	(1-2) 1 1 1 1	RD53A-BA RX33A-BA RQDX3-BA ZYA06-P3 TK50-AA TQK50-BA	71-Mbyte fixed-disk drive 1.2-Mbyte diskette drive RD/RX controller MicroPDP-11 RX33 formatter kit 95-Mbyte cartridge-tape drive TK50 controller	
RD53, RX50, TK50	☐	(1-2) 1 1 1 1	RD53A-BA RX50A-BA RQDX3-BA TK50-AA TQK50-BA	71-Mbyte fixed-disk drive 800-Kbyte diskette drive RD/RX controller 95-Mbyte cartridge-tape drive TK50 controller	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 5 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Diagnostics and Documentation	☐	1	ZYAAB-P3	English-language diagnostics/ documentation on RX50 media	
	☐	1	ZYAAB-P5	English-language diagnostics/ documentation on TK50 media	
6 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 1 Mbyte is included in the C2 Base Hardware System and 2 Mbytes are included in the D2 Base Hardware System.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YA	Cabinet kit	Select cable from Step 10.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KA	Cabinet kit	
8 Additional Asynchronous Serial Lines	The Base Hardware System (Step 1) includes 1 serial line, using 1 B-size distribution slot. This leaves 5 additional B-slots in the distribution panel available for options. Please refer to the 173QB configuration template.				
	☐	–	DHQ11-M	8 serial lines	Choose up to two if no other asynchronous options are selected. Select cable from Step 10. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-AA	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	DHQ11-M	8 serial lines	Choose up to five if no other asynchronous options are selected. Select cable from Step 10. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-WA	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DA	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	–	DLV11-M	4 serial lines	Choose up to two if no other asynchronous options are selected. Select cable from Step 10.
		–	CK-DLVJ1-LA	Cabinet kit	

MicroPDP-11/73 BA123 System Building Block

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (17) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.21 and I.22 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table
	☐	–	DL-VT320-B___	Green video terminal	I.22 for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.17 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot-matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S.	It is necessary to order one LGK31 with the appropriate country variation,
	☐	–	LGK31-___	Country kit for LG31-A3	selected from the country variation table,
	☐	–	LJ250-___	Companion color printer serial interface	for each non-US LG31-A3 selected.
Line printers	☐	1	LG01-BA	600-li/min text-only printer with LPV11 and cables	Includes the printer, controller module, and all cables and accessories needed
	☐	1	LG02-BA	600-li/min text/graphics line impact matrix printer with LPV11 and cables	for installation.
10 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet
	☐	–	H4000	Ethernet transceiver	interface is ordered. For appropriate cable length, -xx equals:
					-05 = 5-ft
					-10 = 10-ft
					-20 = 20-ft
					-40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LA, CK-DHQ11-AA, and CK-DZQ11-DA):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least
	☐	–	BC22D-50	50-ft null modem serial cable	equal the number of terminals on the
	☐	–	BC22D-A0	100-ft null modem serial cable	system (*one* 10-ft console serial cable is included in Step 1).

For MMJ connections (cabinet kit CK-DHQ11-WA):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least
	☐	–	BC16E-50	50-ft serial cable	equal the number of terminals on the system (*one* 10-ft console serial cable is included in Step 1).
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 9.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
11 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/documentation kit	Choose desired order codes from Table I.24. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.24 for appropriate part number and SPD number.)
	☐	1	Q___-H5	TK50 media/documentation kit	
	☐	1	Q___-HM	TSV05 media/documentation kit	
	☐	1	Q___-GZ	Documentation-only kit	
12 Layered Product License, Media, and Documentation	☐	1	Q___-UZ	Single-use license	Repeat Step 12 if more than one layered product is desired.
	☐	1	Q___-H3	RX50 media/documentation kit	
	☐	1	Q___-H5	TK50 media/documentation kit	
	☐	1	Q___-HM	TSV05 media/documentation kit	
	☐	1	Q___-GZ	Documentation-only kit	
13 Software Services	☐ RX50		Q___-B3	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15.
	☐ TK50		Q___-B5		All software products must have the same level service.
	☐ RX50		Q___-73	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license.
	☐ TK50		Q___-75		Order media and documentation at no extra charge.
14 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐ RX50		Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ TK50		Q___-35		
	☐ TSV05		Q___-3M		
	☐ RX50		Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.24 for appropriate part number and SPD number.)
	☐ TK50		Q___-85		
	☐ TSV05		Q___-8M		
	☐ RX50		Q___-93	DECsupport Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐ TK50		Q___-95		
	☐ TSV05		Q___-9M		
	☐ RX50		Q___-I3	Installation Service – installation of software products on system.	
	☐ TK50		Q___-I5		
	☐ TSV05		Q___-IM		

MicroPDP-11/73 BA123 System Ordering Tables

Table I.21 - Multinational Order Codes for Printers

Country/ Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer	LG31 Printer	LJ250 Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA	LGK31-AA	LJ250-CA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB	LGK31-CA	LJ250-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC	LGK31-AA	LJ250-CA
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD	LGK31-AD	LJ250-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE	LGK31-AE	LJ250-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF	LGK31-CA	LJ250-CC
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG	LGK31-AG	LJ250-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH	LGK31-CA	LJ250-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI	LGK31-AI	LJ250-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ	LGK31-AA	
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK	LGK31-AK	LJ250-CB
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL	LGK31-AK	LJ250-CB
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM	LGK31-CA	LJ250-CC
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN	LGK31-CA	LJ250-CC
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP	LGK31-CA	LJ250-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LGK31-AA	LJ250-CA
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LN03S-AR	LGK31-AA	
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS	LGK31-CA	LJ250-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT	LGK31-AT	LJ250-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LN03S-AU	LGK31-CA	
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV	LGK31-CA	LJ250-CC
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW	LGK31-AK	LJ250-CB
Japan	Hiragana			LN03-AY	LN03S-AY	LGK31-AA	
Australia/ New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	LGK31-AZ	LJ250-AZ

Table I.22 - Multinational Order Codes for Video Terminals

Country/ Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-___A	VT320-___A	VT330-___A	VT330-___A	VT340-___A	VT340-___A
Belgium	Flemish	VT320-___B	VT320-___B	VT330-___B		VT340-___B	
Canada	French	VT320-___C	VT320-___C	VT330-___C		VT340-___C	VT340-___C
Denmark	Danish	VT320-___D	VT320-___D	VT330-___D		VT340-___D	
UK/Ireland	English	VT320-___E	VT320-___E	VT330-___E	VT330-___E	VT340-___E	VT340-___E
Finland	Finnish	VT320-___F	VT320-___F	VT330-___F		VT340-___F	
W. Germany/Austria	German	VT320-___G	VT320-___G	VT330-___G		VT340-___G	
Holland	Dutch	VT320-___H	VT320-___H	VT330-___H		VT340-___H	
Italy	Italian	VT320-___I	VT320-___I	VT330-___I		VT340-___I	
Switzerland	French	VT320-___K	VT320-___K	VT330-___K		VT340-___K	
Switzerland	German	VT320-___L	VT320-___L	VT330-___L		VT340-___L	
Sweden	Swedish	VT320-___M	VT320-___M	VT330-___M		VT340-___M	
Norway	Norwegian	VT320-___N	VT320-___N	VT330-___N		VT340-___N	
France	French	VT320-___P	VT320-___P	VT330-___P		VT340-___P	
Canada	English	VT320-___A	VT320-___A				
Spain	Spanish	VT320-___S	VT320-___S	VT330-___S		VT340-___S	
Portugal	Portuguese	VT320-___V	VT320-___V	VT330-___V		VT340-___V	
Australia/ New Zealand	English	VT320-___Z	VT320-___Z	VT330-___Z		VT340-___Z	

Table I.23 - Support for Hardware Options by Operating System

	RSX-11			Micro/ RSX	A-to-Z	RT-11	CTS- 300	RSTS/E	Micro/ RSTS	MPP- RT	MPP- RSX	MPP- Micro/ RSX	DSM -11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y[4]	N	Y[4]	Y[4]	Y[4]	Y[4]
DEQNA	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y	Y	Y[1]	N	Y	Y	Y	Y
DHQ11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DHV11	Y	Y	Y	Y	Y	N	N	Y	Y	Y[3]	Y	Y	Y
DLVJ1	Y[2]	Y[2]	Y[2]	N	N	Y	Y	N	N	Y	Y	Y	Y
TSV05	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y

The following devices are supported by all of the above operating systems:
  RD53
  RD54
  RX50
  RX33
  TK50
  DZQ11

[1]DECnet required

[2]Multiple DLVJ1s are not supported

[3]Supported for target systems, not host systems

[4]Supported for DEQNA mode only

Note: Refer to the SPD for hardware option support information not supplied by the table.

MicroPDP-11/73 BA123 System Ordering Tables

Table I.24 - Ordering Information for Operating Systems and Layered Products

Note: The SPD number is provided for additional reference.

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5		QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5		QJ354-GZ
DSM-11	12.18	QY821-UZ	QY821-H3	QY821-H5	QJ821-HM	QY821-GZ
MicroPower/Pascal-Micro/ RSX	18.24	QY029-UZ	QY029-H3			QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-HM	QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ	QJ029-H3			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5		QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5		QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-HM	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ676-HM	QJ628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-HM	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-HM	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-HM	QJ013-GZ

Layered Products

A-to-Z Layered Products						
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5		QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5		QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5		QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5		QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5		QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5		QY957-GZ
BASIC-PLUS-2						
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-HM	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5		QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-HM	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5		QY809-GZ
BASIC-PLUS						
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5		QY913-GZ
COBOL-81						
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-HM	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5		QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-HM	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5		QY808-GZ
DATATRIEVE-11						
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-HM	QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3	QY819-H5		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-HM	QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3			QY302-GZ
DECdx						
RSX-11M	13.39	QJ708-UZ			QJ708-HM	QJ708-GZ
RSX-11M-PLUS	13.39					
RSTS/E	13.32	QJ706-UZ			QJ706-HM	QJ706-GZ
DECmail-11						
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-HM	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5		QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-HM	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5		QY815-GZ
DECnet						
RSX-11M-Full Node	10.75	QJ764-UZ			QJ764-HM	QJ764-GZ
RSX-11M-End Node	10.75	QJ765-UZ			QJ765-HM	QJ765-GZ
RSX-11M-PLUS-Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-HM	QJ766-GZ
RSX-11M-PLUS-End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-HM	QJ767-GZ
RSX-11S-Full Node	10.74	QJ762-UZ			QJ762-HM	QJ762-GZ
RSX-11S-End Node	10.74	QJ763-UZ			QJ763-HM	QJ763-GZ
Micro/RSX-End Node Only	18.27	QY766-UZ	QY766-H3	QY766-H5		QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-HM	QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-HM	QY692-GZ

Table I.24 *(Continued)* - **Ordering Information for Operating Systems and Layered Products**

Layered Products (Continued)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	TSV05 Media/Doc.	Documentation Only
DECtype						
RSX-11M-PLUS	14.82	QR038-UZ			QR038-HM	QR038-GZ
Micro/RSX	18.14	QP038-UZ	QY038-H3	QY038-H5		QY038-GZ
DECword						
RSTS/E	13.14	QR480-UZ			QR480-HM	QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3			QY480-GZ
Development Kits						
Micro/RSX	14.28	QY800-UZ	QY801-H3	QY801-H5		QY801-GZ
Micro/RSTS	18.12	QY829-UZ	QY830-H3	QY830-H5		QY830-GZ
DIBOL						
RSX-11M-PLUS	14.24	QP540-UZ			QY540-HM	QY540-GZ
Micro/RSX	18.05	QP807-UZ	QY807-H3	QY807-H5		QY807-GZ
RSTS/E	14.08	QP528-UZ			QY528-HM	QY528-GZ
Micro/RSTS	14.08	QP519-UZ	QY519-H3	QY519-H5		QY519-GZ
FMS						
RSX-11M, S, M-PLUS	12.27	QJ715-UZ			QJ715-HM	QJ715-GZ
Micro/RSX	18.34	QP322-UZ	QY322-H3			QY322-GZ
RSTS/E	13.17	QJ716-UZ			QJ716-HM	QJ716-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3			QJ713-GZ
FORTRAN IV						
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-HM	QP230-GZ
RSTS/E	12.41	QR435-UZ	QR435-H3		QR435-HM	QR435-GZ
RT-11	12.10	QY813-UZ	QJ813-H3	QJ813-H5	QJ813-HM	QJ813-GZ
FORTRAN-77						
RSX-11M, M-PLUS	14.31	QJ668-UZ		QY668-H5	QY668-HM	QY668-GZ
Micro/RSX	18.04	QP803-UZ	QY803-H3	QY803-H5		QY803-GZ
RSTS/E	14.49	QR100-UZ			QR100-HM	QR100-GZ
Micro/RSTS	18.10	QP810-UZ	QY810-H3	QY810-H5		QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-C3		QA609-CM	QA609-GZ
Pascal						
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-HM	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5		QY806-GZ
PDP-11 Symbolic Debugger						
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-HM	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5		QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-HM	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5		QY811-GZ
RTEM-11						
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-HM	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-HM	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5		QY004-GZ
SORT/MERGE						
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-HM	QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3			QY812-GZ

MicroPDP-11 Q-bus Multiuser Systems

MicroPDP-11/53 Systems
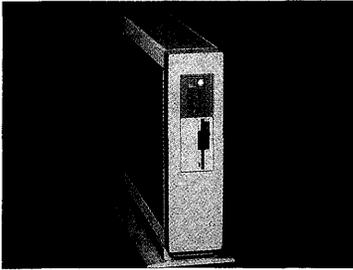
Product Description

The MicroPDP-11/53 and MicroPDP-11/53 PLUS are the entry-level 16-bit Q-bus supermicrosystems. They provide the PDP-11 reliability and growth potential at an attractive price.

The MicroPDP-11/53 replaces the MicroPDP-11/23, offering twice the performance for about the same price. The MicroPDP-11/53 PLUS provides a 30 percent performance boost over the MicroPDP-11/53 in applications that utilize the extra onboard memory. Both systems use the J-11 chipset and are designed to handle realtime or multitasking operations cost-effectively.

The MicroPDP-11/53 and MicroPDP-11/53 PLUS use onboard memory that conserves power and frees backplane slots. They also use half-height storage devices which use less space and power while providing greater capacity and flexibility. They are both configured in the BA23 pedestal and tabletop enclosures, allowing them to be among the most compact low-cost systems in the industry.

The MicroPDP-11/53 and MicroPDP-11/53 PLUS are also supported by Ethernet local area networks for low-cost, high-speed, local area communications.

Configuration Rules for MicroPDP-11/53 PLUS and MicroPDP-11/53 Standard Systems

The BA23 pedestal or rackmount enclosure backplane has a total of eight slots. It contains a 230-watt power supply and dedicated space for up to four half-height storage devices. Use the following rules when configuring the BA23 pedestal or rackmountable systems with devices that are not included on the menu.

Write the module and mass-storage device names in the left column beside the slot and shelf numbers. When configuring these systems, please note that quad-height modules use both the "AB" and "CD" portions of a slot.

Slot 1 is always reserved for the CPU module.

Slots 4 through 8 can accommodate either two dual-height or one quad-height option.

Enter the 5-V and 12-V currents, power, the ac and dc bus loads, and I/O panel inserts required for each module and mass-storage device. The column totals must not exceed the limits listed at the bottom.

MicroPDP-11/53 PLUS Configuration Template for 153Q3, 153Q4

SLOT	MODULE	Current (Amps)		Power (Watts)	Bus Loads		I/O Inserts	
		5 Vdc	12 Vdc		ac	dc	B	A
1 ABCD	KDJ11-DB	3.2	.19	18.2	4.8	1.0	1	N/A
2 ABCD	RQDX3	2.48	0.06	13.1	1.9	0.5	N/A	N/A
3 ABCD	TQK50-A	2.9	0.0	14.5	2.8	0.5	N/A	N/A
4 AB	DHQ11-M	1.8	0.3	12.6	3.2	0.5	2	N/A
CD								
5 AB	– – – –							
CD								
6 AB	– – – –							
CD								
7 AB	– – – –							
CD								
8 AB	– – – –							
CD								
Mass-storage Shelf Device								
1	TK50A-AA	1.35	2.4	35.55	N/A	N/A	N/A	N/A
2	RD53A-AA	0.9	2.5	34.5	N/A	N/A	N/A	N/A
Total these columns:								
Must not exceed		36 A	7 A	230 W	22	20	4	2

MicroPDP-11/53 PLUS Configuration Template for 153Q7, 153Q8

SLOT	MODULE	Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 ABCD	KDJ11-DB	3.20	.19	18.2	4.8	1.0	1	N/A
2 ABCD	RQDX3	2.48	0.06	13.1	1.9	0.5	N/A	N/A
3 ABCD	TQK50-A	2.9	0.0	14.5	2.8	0.5	N/A	N/A
4 AB CD	– – – –							
5 AB CD	– – – –							
6 AB CD	– – – –							
7 AB CD	– – – –							
8 AB CD	– – – –							

Mass-storage Shelf Device								
1	TK50A-AA	1.35	2.4	35.55	N/A	N/A	N/A	N/A
2A	RD32A-AA	.9	.6	33.0	N/A	N/A	N/A	N/A
2B								
Total these columns:								
Must not exceed		36 A	7 A	230 W	22	20	4	2

MicroPDP-11/53 Configuration Template for 153Q1, 153Q2

SLOT	MODULE	Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 ABCD	KDJ11-DA	3.47	.19	20.0	3.0	1.0	1	N/A
2 ABCD	RQDX3	2.48	0.06	13.1	1.9	0.5	N/A	N/A
3 ABCD								
4 AB CD	– – – –							
5 AB CD	– – – –							
6 AB CD	– – – –							
7 AB CD	– – – –							
8 AB CD	– – – –							

Mass-storage Shelf Device								
1A	RX33A-AA	.39	.54	8.60	N/A	N/A	N/A	N/A
1B								
2A	RD31A-AA	.58	1.105	15.5	N/A	N/A	N/A	N/A
2B								
Total these columns:								
Must not exceed		36 A	7 A	230 W	22	20	4	2

MicroPDP-11/53 Configuration Template for 153Q5, 153Q6

SLOT	MODULE	Current (Amps) 5 Vdc	12 Vdc	Power (Watts)	Bus Loads ac	dc	I/O Inserts B	A
1 ABCD	KDJ11-DA	3.47	.19	20.0	3.0	1.0	1	N/A
2 ABCD	RQDX3	2.48	0.06	13.1	1.9	0.5	N/A	N/A
3 ABCD								
4 AB CD	– – – –							
5 AB CD	– – – –							
6 AB CD	– – – –							
7 AB CD	– – – –							
8 AB CD	– – – –							

Mass-storage Shelf Device

1A	RX33A-AA	.39	.54	8.60	N/A	N/A	N/A	N/A
1B								
2A	RD32A-AA	.9	.6	33.0	N/A	N/A	N/A	N/A
2B								

	5 Vdc	12 Vdc	Power	ac	dc	B	A
Total these columns:							
Must not exceed	36 A	7 A	230 W	22	20	4	2

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q3-BA	Includes enhanced MicroPDP-11/53 PLUS System Module with 1.5 Mbytes of onboard memory, RD53 71-Mbyte disk drive, RQDX3 disk controller, TK50 95-Mbyte tape drive and controller, DHQ11 8-serial-line interface, BA23 pedestal/tabletop enclosure, U.S. 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. -BA model recommended for US. Base Hardware System includes two RS-423 serial ports and eight modem/data serial lines (modem control) on the DHQ11, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25-pin). Cabinet kit for the DHQ11 supports modem control.
	☐	1	DH-153Q3-B2	Same as DH-153Q3-BA except no diagnostics or documentation – see Step 4 to order separately	RT-11 and CTS-300 are not supported on Standard Systems due to lack of DHQ11 support.
	☐	1	DH-153Q3-B3	Same as DH-153Q3-BA except 240 V, and does not include a 240-V power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18J-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY821-UZ	DSM-11	Each license includes 90-day limited warranty.
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for more details.
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	
	☐	1	QY505-UZ	RSX-11M-PLUS	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.28.
	☐	1	QY642-UZ	RSX-11S	

MicroPDP-11/53 PLUS Pedestal/Tabletop TK50/RD53-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 15 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P5	English-language diagnostics/ documentation on TK50 media	Optional for -B2 and -B3. Included in DH-153Q3-BA.
	☐	1	ZYAAA-P3	English-language diagnostics/ documentation on RX50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system.
	☐	1	MSV11-QB	2-Mbyte MOS memory	1.5 Mbytes is included in the Base Hardware System.
6 Additional Mass Storage (external)	☐	–	RD54-DA/DB	159-Mbyte tabletop-disk drive	Choose up to two RDxx drives.
	☐	–	RD53-DA/DB	71-Mbyte tabletop-disk drive	
		1	RQDXE-AA	RQDX3 extender module	The daisychain cable (BC17Y-1J) is required
	☐	1	BC17Y-1J	Daisychain cable	if two external RDxx devices are selected.
	☐	1	TK50-DA/DB	95-Mbyte tabletop-tape drive	Choose only one.
		1	TQK50-AB	TK50 controller	
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YB	Cabinet kit	Select cable from step 10.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	
8 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 10 serial lines, using 3 B-size distribution slots. This leaves 1 additional B-size slot in the distribution panel available for options. Please refer to the 153Q3 and 153Q4 configuration template.	
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous
		1	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DEC-connect connections	options are selected. Select cable from Step 10.
	☐	1	DZQ11-M	4 serial lines	
		1	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	
		1	CK-DLVJ1-LB	Cabinet kit	
9 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (9) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26
	☐	–	DL-VT320-B___	Green video terminal	for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	

MicroPDP-11/53 PLUS Pedestal/Tabletop TK50/RD53-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
9 Terminals (*Continued*)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single tray sheetfeeder, LA75	
Hardcopy	☐	–	LA210-___	240-ch/s dot matrix printer	
(Output Only)	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
10 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	H4000	Ethernet transceiver	–05 = 5-ft –10 = 10-ft –20 = 20-ft –40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DZQ11-DB and DHQ11 included in Base System):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC16E-25	25-ft serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75- type printer selected in Step 9.
11 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/ documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
	☐	1	Q___-H5	TK50 media/ documentation kit	
	☐	1	Q___-HM	TSV05 media/ documentation kit	
12 Layered Product License, Media, and Documentation	☐	1	Q___-UZ	Single-use license	Repeat Step 12 if more than one layered product is desired.
	☐	1	Q___-H3	RX50 media/ documentation kit	
	☐	1	Q___-H5	TK50 media/ documentation kit	
	☐	1	Q___-HM	TSV05 media/ documentation kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
13 Software Services	☐	RX50	Q___-B3	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15.
	☐	TK50	Q___-B5		All software products must have the same level service.
	☐	RX50	Q___-73	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license.
	☐	TK50	Q___-75		Order media and separately documentation at no extra charge.
14 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐	RX50	Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐	TK50	Q___-35		
	☐	RX50	Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50.
	☐	TK50	Q___-85		
	☐	RX50	Q___-93	DECsupport Service Agreement – includes updates, telephone support, preventative and remedial support, and online access to a service database (for most products)	To verify correct service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number).
	☐	TK50	Q___-95		
	☐	RX50	Q___-I3	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐	TK50	Q___-I5		

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q4-BA	Includes enhanced MicroPDP-11/53 PLUS System Module with 1.5 Mbytes of onboard memory, RD53 71-Mbyte disk drive, RQDX3 disk controller, TK50 95-Mbyte tape drive and controller, DHQ11 8-serial-line interface, BA23 rackmount enclosure, U.S. 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. -BA recommended for US. Base Hardware System includes two RS-423 serial ports and eight modem/data serial lines (modem control) on the DHQ11, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25-pin). Cabinet kit for the DHQ11 supports modem control.
	☐	1	DH-153Q4-B2	Same as DH-153Q4-BA except no diagnostics or documentation – see Step 4 to order separately	RT-11 and CTS-300 are not supported on Standard Systems due to lack of DHQ11 support.
	☐	1	DH-153Q4-B3	Same as DH-153Q4-BA except 240 V, and does not include a 240-V power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	Central European countries include:
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Austria, Belgium, France, Germany,
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18J-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY821-UZ	DSM-11	Each license includes 90-day limited warranty.
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	Refer to Table I.27 for list of hardware
	☐	1	QY829-UZ	Micro/RSTS	options supported by each operating
	☐	1	QY800-UZ	Micro/RSX	system. Not all hardware options are supported by all operating systems.
	☐	1	QY430-UZ	RSTS/E	Refer to the SPD for more details.
	☐	1	QY628-UZ	RSX-11M	
	☐	1	QY505-UZ	RSX-11M-PLUS	Check that the operating system software
	☐	1	QY642-UZ	RSX-11S	chosen is available on the distribution device that is selected. Refer to Table I.28.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 15 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P5	English-language diagnostics/ documentation on TK50 media	Optional for -B2 and -B3. Included in DH-153Q4-BA.
	☐	1	ZYAAA-P3	English-language diagnostics/ documentation on RX50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 1.5 Mbytes is included in the Base Hardware System.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Add-on Mass Storage (external)	☐	–	RD54-RA/RB	159-Mbyte rackmount-disk drive	Choose up to two.
	☐	–	RD53-RA/RB	71-Mbyte rackmount-disk drive	
		1	RQDXE-AA	RQDX3 extender module	The daisychain cable (BC17Y-1J) is required
		1	H9302	Rackmount kit	if two external RDxx devices are selected.
	☐	1	BC17Y-1J	Daisychain cable	
	☐	1	TK50-RA/RB	95-Mbyte rackmount-disk drive	Choose only one.
		1	TQK50-AB	TK50 controller	
		1	H9302	Rackmount kit	
7 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one. Select cable from Step 10.
		1	CK-DELQA-YB	Cabinet kit	
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	

8 Additional Asynchronous Serial Lines

The Base Hardware System (Step 1) includes 10 serial lines, using 3 B-size distribution slots. This leaves 1 additional B-size slot in the distribution panel available for options. Please refer to the 153Q3 and 153Q4 configuration template.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 10.
		1	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	1	DZQ11-M	8 serial lines	
		1	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	
		1	CK-DLVJ1-LB	Cabinet kit	

9 Terminals

For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (9) plus additional number of serial lines selected in Step 8. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	

MicroPDP-11/53 PLUS Rackmount TK50/RD53-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
9 Terminals *(Continued)* Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
10 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	H4000	Ethernet transceiver	-05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DZQ11-DB and DHQ11 included in Base System):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC16E-25	25-ft serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 9.
11 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/ documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have RX50, TK50, and TSV05 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
	☐	1	Q___-H5	TK50 media/ documentation kit	
	☐	1	Q___-HM	TSV05 media/ documentation kit	
12 Layered Product License, Media, and Documentation	☐	1	Q___-UZ	Single-use license	Repeat Step 12 if more than one layered product is desired.
	☐	1	Q___-H3	RX50 media/ documentation kit	
	☐	1	Q___-H5	TK50 media/ documentation kit	
	☐	1	Q___-HM	TSV05 media/ documentation kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
13 Software Services	☐	RX50	Q___-B3	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 13, do not order from Steps 14 and 15.
	☐	TK50	Q___-B5		
					All software products must have the same level service.
	☐	RX50	Q___-73	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license.
	☐	TK50	Q___-75		
					Order media and documentation separately at no extra charge.
14 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
15 Software Maintenance Services	☐	RX50	Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐	TK50	Q___-35		
	☐	RX50	Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50.
	☐	TK50	Q___-85		
	☐	RX50	Q___-93	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	To verify correct service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number).
	☐	TK50	Q___-95		
	☐	RX50	Q___-I3	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐	TK50	Q___-I5		

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q7-BA	Includes enhanced MicroPDP-11/53 PLUS System Module with 1.5 Mbytes of onboard memory, RD32 42-Mbyte disk drive, TK50 95-Mbyte cartridge tape, RQDX3 disk controller, TQK50 tape controller, BA23 pedestal/tabletop enclosure, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V.	Each system includes one-year onsite hardware warranty.

Choose one. – BA model recommended for US.

Base Hardware System includes two RS-423 serial ports for a console terminal and an additional terminal or printer, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25 pin). |
| | ☐ | 1 | DH-153Q7-B2 | Same as DH-153Q7-BA except no diagnostics or documentation – see Step 4 to order separately | |
| | ☐ | 1 | DH-153Q7-B3 | Same as DH-153Q7-BA except 240 V, no power cord, diagnostics or documentation – see Steps 2 and 4 to order separately | |

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	system. Not all hardware options are
	☐	1	QY829-UZ	Micro/RSTS	supported by all operating systems.
	☐	1	QY800-UZ	Micro/RSX	Refer to the SPD for more details.
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software
	☐	1	QY505-UZ	RSX-11M-PLUS	chosen is available on the distribution
	☐	1	QY642-UZ	RSX-11S	device that is selected. Refer to Table I.28.
	☐	1	QY013-UZ	RT-11	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P5	English-language diagnostics and documentation on TK50 media	Optional for -B2 and -B3. Included in DH-153Q7-BA.
	☐	1	ZYAAA-P3	English-language diagnostics and documentation on RX50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. Base Hardware System includes 1.5 Mbytes.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Additional Mass Storage (internal)	☐	1	RD31A-AB	20-Mbyte fixed-disk drive	Choose only one.
	☐	1	RD32A-AB	42-Mbyte fixed-disk drive	
7 Additional Mass Storage (external)	☐	–	RD54-DA/DB	159-Mbyte tabletop disk drive	Choose up to two.
	☐	–	RD53-DA/DB	71-Mbyte tabletop disk drive	
		1	RDQXE-AA	RDQX3 extender module	The daisychain cable (BC17Y-1J) is required
	☐	1	BC17Y-1J	Daisychain cable	if two external RDxx devices are selected.
	☐	1	TK50-DA/DB	95-Mbyte tabletop tape drive	Choose only one.
		1	TQK50-AB	TK50 controller	
8 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YB	Cabinet kit	Select cable from Step 11.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	

9 Additional Asynchronous Serial Lines

The Base Hardware System (Step 1) includes 2 serial lines, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 153Q7 and 153Q8 configuration template.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	CK-DHQ11-AB	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	DHQ11-M	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
		1	CK-DLVJ1-LB	Cabinet kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (2) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Table I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26
	☐	–	DL-VT320-B___	Green video terminal	for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
(Output Only)	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet
	☐	–	H4000	Ethernet transceiver	interface is ordered. For appropriate cable length, -xx equals: -05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft
			For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):		
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least
	☐	–	BC22D-50	50-ft null modem serial cable	equal the number of terminals on the
	☐	–	BC22D-A0	100-ft null modem serial cable	system (*two* 25-ft console serial cables are included in Step 1).
			For MMJ connections (cabinet kit CK-DHQ11-WB):		
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least
	☐	–	BC16E-50	50-ft serial cable	equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System Media and Documentation	☐ ☐	1 1	Q___-H3 Q___-H5	RX50 media/ documentation kit TK50 media/ documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have both RX50 and TK50 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
13 Layered Product License, Media, and Documentation	☐ ☐ ☐	1 1 1	Q___-UZ Q___-H3 Q___-H5	Single-use license RX50 media/ documentation kit TK50 media/ documentation kit	Repeat Step 13 if more than one layered product is desired.
14 Software Services	☐ ☐	RX50 TK50	Q-___-B3 Q-___-B5	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service.
	☐ ☐	RX50 TK50	Q-___-73 Q-___-75	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐ ☐	RX50 TK50	Q___-33 Q___-35	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ ☐	RX50 TK50	Q___-83 Q___-85	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description
	☐ ☐	RX50 TK50	Q___-93 Q___-95	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	(SPD). (Refer to Table I.28 for appropriate part number and SPD number.)
	☐ ☐	RX50 TK50	Q___-I3 Q___-I5	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q8-BA	Includes enhanced MicroPDP-11/53 PLUS System Module with 1.5 Mbytes of onboard memory, RD32 42-Mbyte disk drive, TK50 95-Mbyte cartridge tape, RQDX3 disk controller, TQK50 tape controller, BA23 rackmount enclosure, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V.	Each system includes one-year onsite hardware warranty. Choose one. – BA model recommended for US. Base Hardware System includes two RS-423 serial ports for a console terminal and an additional terminal or printer, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25 pin).
	☐	1	DH-153Q8-B2	Same as DH-153Q8-BA except no diagnostics or documentation – see Step 4 to order separately	
	☐	1	DH-153Q8-B3	Same as DH-153Q8-BA except 240 V, no power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	system. Not all hardware options are
	☐	1	QY829-UZ	Micro/RSTS	supported by all operating systems.
	☐	1	QY800-UZ	Micro/RSX	Refer to the SPD for more details.
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software
	☐	1	QY505-UZ	RSX-11M-PLUS	chosen is available on the distribution
	☐	1	QY642-UZ	RSX-11S	device that is selected. Refer to Table I.28.
	☐	1	QY013-UZ	RT-11	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P5	English-language diagnostics and documentation on TK50 media	Optional for -B2 and -B3. Included in DH-153Q8-BA.
	☐	1	ZYAAA-P3	English-language diagnostics and documentation on RX50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 1.5 Mbytes is included in the Base Hardware System.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Additional Mass Storage (internal)	☐	1	RD31A-AB	20-Mbyte fixed-disk drive	Choose only one.
	☐	1	RD32A-AB	42-Mbyte fixed-disk drive	
7 Additional Mass Storage (external)	☐	–	RD54-RA/RB	159-Mbyte rackmount disk drive	Choose up to two.
	☐	–	RD53-RA/RB	71-Mbyte rackmount disk drive	
		1	RDQXE-AA	RDQX3 extender module	The daisychain cable (BC17Y-1J) is required if two external RDxx devices are selected.
		1	H9302	Rackmount kit	
	☐	1	BC17Y-1J	Daisychain cable	
	☐	1	TK50-RA/RB	95-Mbyte rackmount tape drive	Choose only one.
		1	TQK50-AB	TK50 controller	
8 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one.
		1	CK-DELQA-YB	Cabinet kit	Select cable from Step 11.
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	
9 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 2 serial lines, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 153Q7 and 153Q8 configuration template.	
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	CK-DHQ11-AB	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead.	
	☐	–	DHQ11-M	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections.	
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
		1	CK-DLVJ1-LB	Cabinet kit	

MicroPDP-11/53 Q-bus Multiuser Systems

MicroPDP-11/53 PLUS Rackmount TK50/RD32-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (2) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26
	☐	–	DL-VT320-B___	Green video terminal	for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	H4000	Ethernet transceiver	-05 = 5-ft
					-10 = 10-ft
					-20 = 20-ft
					-40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least
	☐	–	BC22D-50	50-ft null modem serial cable	equal the number of terminals on the
	☐	–	BC22D-A0	100-ft null modem serial cable	system (*two* 25-ft console serial cables are included in Step 1).

For MMJ connections (cabinet kit CK-DHQ11-WB):

	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least
	☐	–	BC16E-50	50-ft serial cable	equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

MicroPDP-11/53 PLUS Rackmount TK50/RD32-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/ documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have both RX50 and TK50 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
	☐	1	Q___-H5	TK50 media/ documentation kit	
13 Layered Product License, Media, and Documentation	☐	1	Q___-UZ	Single-use license	
	☐	1	Q___-H3	RX50 media/ documentation kit	Repeat Step 13 if more than one layered product is desired.
	☐	1	Q___-H5	TK50 media/ documentation kit	
14 Software Services	☐	RX50	Q-___-B3	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16.
	☐	TK50	Q-___-B5		All software products must have the same level service.
	☐	RX50	Q-___-73		
	☐	TK50	Q-___-75	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license.
					Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	
					For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐	RX50	Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐	TK50	Q___-35		
	☐	RX50	Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify correct service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number.)
	☐	TK50	Q___-85		
	☐	RX50	Q___-93	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	
	☐	TK50	Q___-95		
	☐	RX50	Q___-I3	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐	TK50	Q___-I5		

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q1-AA	Includes MicroPDP-11/53 System Module with 0.5 Mbytes of onboard memory, RD31 20-Mbyte disk drive, RX33 1.2-Mbyte diskette drive, RQDX3 disk controller, BA23 pedestal/tabletop enclosure, US 120-V powercord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – AA model recommended for US. Base Hardware System includes two RS-423 serial ports for a console terminal and an additional terminal or printer, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25 pin).
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q1-A2	Same as DH-153Q1-AA except no diagnostics or documentation – see Step 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q1-A3	Same as DH-153Q1-AA except 240 V, no power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	system. Not all hardware options are
	☐	1	QY829-UZ	Micro/RSTS	supported by all operating systems.
	☐	1	QY800-UZ	Micro/RSX	Refer to the SPD for more details.
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software
	☐	1	QY505-UZ	RSX-11M-PLUS	chosen is available on the distribution
	☐	1	QY642-UZ	RSX-11S	device that is selected. Refer to Table I.28.
	☐	1	QY013-UZ	RT-11	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics and documentation on RX50 media	Optional for -A2 and -A3. Included in DH-153Q1-AA.
	☐	1	ZYAAA-P5	English-language diagnostics and documentation on TK50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. Base Hardware System includes 0.5 Mbytes.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Additional Mass Storage (internal)	☐	1	RD31A-AB	20-Mbyte fixed-disk drive	Choose only one.
	☐	1	RD32A-AB	42-Mbyte fixed-disk drive	
	☐	1	RX33A-AB	1.2-Mbyte floppy-disk drive	Choose only one.
7 Additional Mass Storage (external)	☐	–	RD54-DA/DB	159-Mbyte tabletop disk drive	Choose only if less than two devices are selected in Step 6.
	☐	–	RD53-DA/DB	71-Mbyte tabletop disk drive	
		1	RQDXE-AA	RQDX3 extender module	If only one device is selected in Step 6, choose only one. If no devices are selected in Step 6, choose up to two.
	☐	1	BC17Y-1J	Daisychain cable	
					The daisychain cable (BC17Y-1J) is required if two external RDxx and/or RXxx devices are selected.
	☐	1	TK50-DA/DB	95-Mbyte tabletop tape drive	Choose only one.
		1	TQK50-AB	TK50 controller	
8 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one. Select cable from Step 11.
		1	CK-DELQA-YB	Cabinet kit	
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	

9 Additional Asynchronous Serial Lines

The Base Hardware System (Step 1) includes 2 serial lines, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 153Q1 and 153Q2 configuration template.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	CK-DHQ11-AB	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	DHQ11-M	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
		1	CK-DLVJ1-LB	Cabinet kit	

MicroPDP-11/53 Pedestal/Tabletop RX33/RD31-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (2) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26
	☐	–	DL-VT320-B___	Green video terminal	for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals: -05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft
	☐	–	H4000	Ethernet transceiver	
			For 25-pin connections (cabinet kits CK-DVLJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):		
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	
			For MMJ connections (cabinet kit CK-DHQ11-WB):		
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

MicroPDP-11/53 Pedestal/Tabletop RX33/RD31-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System Media and Documentation	☐ ☐	1 1	Q___-H3 Q___-H5	RX50 media/ documentation kit TK50 media/ documentation kit	Choose desired order codes from Table 1.28. Not all operating systems and layered products have both RX50 and TK50 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
13 Layered Product License, Media, and Documentation	☐ ☐ ☐	1 1 1	Q___-UZ Q___-H3 Q___-H5	Single-use license RX50 media/ documentation kit TK50 media/ documentation kit	Repeat Step 13 if more than one layered product is desired.
14 Software Services	☐ ☐	RX50 TK50	Q-___-B3 Q-___-B5	Startup Service Level III – includes DECsupport, DECstart, PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service.
	☐ ☐	RX50 TK50	Q-___-73 Q-___-75	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐ ☐	RX50 TK50	Q___-33 Q___-35	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐ ☐	RX50 TK50	Q___-83 Q___-85	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number.)
	☐ ☐	RX50 TK50	Q___-93 Q___-95	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	Contact your local Software Product Service (SPS) Business Account Specialist if you have questions.
	☐ ☐	RX50 TK50	Q___-I3 Q___-I5	Installation Service – installation of software products on system	

MicroPDP-11/53 Rackmount RX33/RD31-Based Standard System

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q2-AA	Includes MicroPDP-11/53 System Module with 0.5 Mbytes of onboard memory, RD31 20-Mbyte disk drive, RX33 1.2-Mbyte diskette drive, RQDX3 disk controller, BA23 rackmount enclosure, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – AA model recommended for US. Base Hardware System includes two RS-423 serial ports for a console terminal and an additional terminal or printer, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25 pin).
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q2-A2	Same as DH-153Q2-AA except no diagnostics or documentation – see Step 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q2-A3	Same as DH-153Q2-AA except 240 V, no power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware options supported by each operating system. Not all hardware options are supported by all operating systems. Refer to the SPD for details.
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	
	☐	1	QY829-UZ	Micro/RSTS	
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	Check that the operating system software chosen is available on the distribution device that is selected. Refer to Table I.28.
	☐	1	QY628-UZ	RSX-11M	
	☐	1	QY505-UZ	RSX-11M-PLUS	
	☐	1	QY642-UZ	RSX-11S	
	☐	1	QY013-UZ	RT-11	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics and documentation on RX50 media	Optional for -A2 and -A3. Included in DH-153Q2-AA.
	☐	1	ZYAAA-P5	English-language diagnostics and documentation on TK50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 0.5 Mbytes is included in the Base Hardware System.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Additional Mass Storage (internal)	☐	1	RD31A-AB	20-Mbyte fixed-disk drive	Choose only one.
	☐	1	RD32A-AB	42-Mbyte fixed-disk drive	
	☐	1	RX33A-AB	1.2-Mbyte floppy-disk drive	Choose only one.
7 Additional Mass Storage (external)	☐	–	RD54-RA/RB	159-Mbyte rackmount disk drive	Choose only if less than two devices are selected in Step 6.
	☐	–	RD53-RA/RB	71-Mbyte rackmount disk drive	
		–	RQDXE-AA	RQDX3 extender module	
		1	H9302	Rackmount kit	If only one device is selected in Step 6, choose only one. If no devices are selected in Step 6, choose up to two.
	☐	1	BC17Y-1J	Daisychain cable	
					The daisychain cable (BC17Y-1J) is required if two external RDxx and/or RXxx devices are selected.
	☐	1	TK50-RA/RB	95-Mbyte rackmount tape drive	Choose only one.
		1	TQK50-AB	TK50 controller	
		1	H9302	Rackmount kit	
8 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one. Select cable from Step 11.
		1	CK-DELQA-YB	Cabinet kit	
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	
9 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 2 serial lines, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 153Q1 and 153Q2 configuration template.	
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	CK-DHQ11-AB	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	DHQ11-M	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections.	
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
		1	CK-DLVJ1-LB	Cabinet kit	

MicroPDP-11/53 Q-bus Multiuser Systems

MicroPDP-11/53 Rackmount RX33/RD31-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (2) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-l/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-l/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	H4000	Ethernet transceiver	-05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft

For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	

For MMJ connections (cabinet kit CK-DHQ11-WB):

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System Media and Documentation	☐	1	Q___-H3	RX50 media/ documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have both RX50 and TK50 kits.
	☐	1	Q___-H5	TK50 media/ documentation kit	Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
13 Layered Product License, Media and Documentation	☐	1	Q___-UZ	Single-use license	
	☐	1	Q___-H3	RX50 media/ documentation kit	Repeat Step 13 if more than one layered product is desired.
	☐	1	Q___-H5	TK50 media/ documentation kit	
14 Software Services	☐	RX50	Q-___-B3	Startup Service Level III – includes DECsupport, DECstart, PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16.
	☐	TK50	Q-___-B5		All software products must have the same level service.
	☐	RX50	Q-___-73	Startup Service Level II – includes Basic, DECstart, installation, media/ documentation, and training	Complete the part number with the same five digits as the part number for the license.
	☐	TK50	Q-___-75		Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	**DECservice**	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	**Basic**	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	**OEM Sales Agent**	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	**OEM Service Distributor**	OEM purchases service in volume and resells to end user	
	☐	–	**OEM Partnership**	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐	RX50	Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐	TK50	Q___-35		
	☐	RX50	Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50.
	☐	TK50	Q___-85		
	☐	RX50	Q___-93	DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products)	To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number.)
	☐	TK50	Q___-95		
	☐	RX50	Q___-I3	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐	TK50	Q___-I5		

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q5-AA	Includes MicroPDP-11/53 System Module with 0.5 Mbytes of onboard memory, RD32 42-Mbyte disk drive, RX33 1.2-Mbyte diskette drive, RQDX3 disk controller, BA23 pedestal/tabletop enclosure, US 120-V powercord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – AA model recommended for US. Base Hardware System includes two RS-423 serial ports for a console terminal and an additional terminal or printer, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25 pin).
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q5-A2	Same as DH-153Q5-AA except no diagnostics or documentation – see Step 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q5-A3	Same as DH-153Q2-AA except 240 V, no power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	system. Not all hardware options are
	☐	1	QY829-UZ	Micro/RSTS	supported by all operating systems.
	☐	1	QY800-UZ	Micro/RSX	Refer to the SPD for details.
	☐	1	QY430-UZ	RSTS/E	
	☐	1	QY628-UZ	RSX-11M	Check that the operating system software
	☐	1	QY505-UZ	RSX-11M-PLUS	chosen is available on the distribution
	☐	1	QY642-UZ	RSX-11S	device that is selected. Refer to Table I.28.
	☐	1	QY013-UZ	RT-11	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks

Note: Selection from Steps 4 through 16 is *optional* for a functioning system.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Diagnostics and Documentation	☐	1	ZYAAA-P3	English-language diagnostics and documentation on RX50 media	Optional for -A2 and -A3. Included in DH-153Q5-AA.
	☐	1	ZYAAA-P5	English-language diagnostics and documentation on TK50 media	
5 Additional Memory	☐	–	MSV11-QA	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. Base Hardware System includes 0.5 Mbytes.
	☐	1	MSV11-QB	2-Mbyte MOS memory	
6 Additional Mass Storage (internal)	☐	1	RD31A-AB	20-Mbyte fixed-disk drive	Choose only one.
	☐	1	RD32A-AB	42-Mbyte fixed-disk drive	
	☐	1	RX33A-AB	1.2-Mbyte floppy-disk drive	Choose only one.
7 Additional Mass Storage (external)	☐	–	RD54-DA/DB	159-Mbyte tabletop disk drive	Choose only if less than two devices are selected in Step 6.
	☐	–	RD53-DA/DB	71-Mbyte tabletop disk drive	
		1	RQDXE-AA	RQDX3 extender module	
	☐	1	BC17Y-1J	Daisychain cable	If only one device is selected in Step 6, choose only one. If no devices are selected in Step 6, choose up to two.
					The daisychain cable (BC17Y-1J) is required if two external RDxx and/or RXxx devices areselected.
	☐	1	TK50-DA/DB	95-Mbyte tabletop tape drive	Choose only one.
		1	TQK50-AB	TK50 controller	
8 Ethernet Interface	☐	1	DELQA-M	Ethernet interface	Choose only one. Select cable from Step 11.
		1	CK-DELQA-YB	Cabinet kit	
	☐	1	DEQNA-M	Ethernet interface	
		1	CK-DEQNA-KB	Cabinet kit	
9 Additional Asynchronous Serial Lines				The Base Hardware System (Step 1) includes 2 serial lines, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 153Q5 and 153Q6 configuration template.	
	☐	1	DHQ11-M	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	CK-DHQ11-AB	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	DHQ11-M	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	CK-DHQ11-WB	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	DZQ11-M	4 serial lines	
		–	CK-DZQ11-DB	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	DLVJ1-M	4 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
		1	CK-DLVJ1-LB	Cabinet kit	

MicroPDP-11/53 Q-bus Multiuser Systems

MicroPDP-11/53 Pedestal/Tabletop RX33/RD32-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (2) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26 for country variations.
	☐	–	DL-VT320-B___	Green video terminal	
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table, for each non-U.S. LG31-A3 selected.
	☐	–	LGK31-___	Country kit for LG31-A3	
	☐	–	LJ250-___	Companion color printer serial interface	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet interface is ordered. For appropriate cable length, -xx equals:
	☐	–	H4000	Ethernet transceiver	-05 = 5-ft
					-10 = 10-ft
					-20 = 20-ft
					-40 = 40-ft
			For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):		
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC22D-50	50-ft null modem serial cable	
	☐	–	BC22D-A0	100-ft null modem serial cable	
			For MMJ connections (cabinet kit CK-DHQ11-WB):		
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	BC16E-50	50-ft serial cable	
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step. 10.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System **Media and Documentation**	☐ ☐	1 1	Q___-H3 Q___-H5	RX50 media/ documentation kit TK50 media/ documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have both RX50 and TK50 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
13 Layered Product License, Media, and Documentation	☐ ☐ ☐	1 1 1	Q___-UZ Q___-H3 Q___-H5	Single-use license RX50 media/ documentation kit TK50 media/ documentation kit	Repeat Step 13 if more than one layered product is desired.
14 Software Services	☐ ☐ ☐ ☐	RX50 TK50 RX50 TK50	Q-___-B3 Q-___-B5 Q-___-73 Q-___-75	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16. All software products must have the same level service. Complete the part number with the same five digits as the part number for the license. Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐ ☐	– –	DECservice Basic	Up to 24 hours per day, up to 7 days per week 8 hours per day, Monday-Friday	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system. For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐ ☐ ☐	– – –	OEM Sales Agent OEM Service Distributor OEM Partnership	OEM offers end user full range of Field Service products OEM purchases service in volume and resells to end user Digital support for OEMs who maintain their own and/or their end user's equipment	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
16 Software Maintenance Services	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	RX50 TK50 RX50 TK50 RX50 TK50 RX50 TK50	Q___-33 Q___-35 Q___-83 Q___-85 Q___-93 Q___-95 Q___-I3 Q___-I5	Self-Maintenance Service Agreement – includes updates Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products) DECsupport Service Agreement – includes updates, telephone support, preventive and remedial support, and online access to a service database (for most products) Installation Service – installation of software products on system	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU. In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number.) Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.

MicroPDP-11/53 Rackmount RX33/RD32-Based Standard System

Note: The selection of steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware System	☐	1	DH-153Q6-AA	Includes MicroPDP-11/53 System Module with 0.5 Mbytes of onboard memory, RD32 42-Mbyte disk drive, RX33 1.2-Mbyte diskette drive, RQDX3 disk controller, BA23 rackmount enclosure, US 120-V power cord, and English-language documentation and installation diagnostics, 120 V	Each system includes one-year onsite hardware warranty. Choose one. – AA model recommended for US. Base Hardware System includes two RS-423 serial ports for a console terminal and an additional terminal or printer, two 25-foot RS-423 cables with MMJ connectors, and two H8571-A adapters (MMJ to 25 pin).
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q6-A2	Same as DH-153Q6-AA except no diagnostics or documentation – see Step 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	
	☐	1	DH-153Q6-A3	Same as DH-153Q6-AA except 240 V, no power cord, diagnostics or documentation – see Steps 2 and 4 to order separately	
		1	ZYA06-P3	MicroPDP-11 RX33 formatter kit	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
2 Power Cords	☐	1	BN02A-2E	UK/Ireland – 240 V @ 5 A	Choose one power cord.
	☐	1	BN03A-2E	Central European – 220 V @ 6 A	
	☐	1	BN04A-2E	Switzerland – 220 V @ 6 A	Central European countries include
	☐	1	BN05A-2E	Australia/New Zealand – 240/230 V @ 6 A	Austria, Belgium, France, Germany, Finland, Netherlands, Norway, Portugal,
	☐	1	BN06A-2E	Denmark – 220 V @ 6 A	Spain, and Sweden.
	☐	1	BN07A-2E	Italy – 220 V @ 6 A	
	☐	1	BN18K-1K	Japan – 200 V @ 6 A	
	☐	1	BN18L-2E	Israel – 230 V @ 6 A	
	☐	1	BN18J-1K	US – 208-240 V @ 6 A	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
3 Base Software System	☐	1	QY354-UZ	CTS-300	Each license includes 90-day limited warranty.
	☐	1	QY821-UZ	DSM-11	
	☐	1	QY029-UZ	MicroPower/Pascal-Micro/RSX	Refer to Table I.27 for list of hardware
	☐	1	QP029-UZ	MicroPower/Pascal-RSX	options supported by each operating
	☐	1	QJ029-UZ	MicroPower/Pascal-RT	system. Not all hardware options are supported by all operating systems.
	☐	1	QY829-UZ	Micro/RSTS	Refer to the SPD for more details.
	☐	1	QY800-UZ	Micro/RSX	
	☐	1	QY430-UZ	RSTS/E	Check that the operating system software
	☐	1	QY628-UZ	RSX-11M	chosen is available on the distribution
	☐	1	QY505-UZ	RSX-11M-PLUS	device that is selected. Refer to Table I.28.
	☐	1	QY642-UZ	RSX-11S	
	☐	1	QY013-UZ	RT-11	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
Note: Selection from Steps 4 through 16 is *optional* for a functioning system.					
4 Diagnostics and Documentation	☐	1	**ZYAAA-P3**	English-language diagnostics and documentation on RX50 media	Optional for -A2 and -A3. Included in DH-153Q6-AA.
	☐	1	**ZYAAA-P5**	English-language diagnostics and documentation on TK50 media	
5 Additional Memory	☐	–	**MSV11-QA**	1-Mbyte MOS memory	Maximum allowable memory is 4 Mbytes per system. 0.5 Mbytes is included in the Base Hardware System.
	☐	1	**MSV11-QB**	2-Mbyte MOS memory	
6 Additional Mass Storage (internal)	☐	1	**RD31A-AB**	20-Mbyte fixed-disk drive	Choose only one.
	☐	1	**RD32A-AB**	42-Mbyte fixed-disk drive	
	☐	1	**RX33A-AB**	1.2-Mbyte floppy-disk drive	Choose only one.
7 Additional Mass Storage (external)	☐	–	**RD54-RA/RB**	159-Mbyte rackmount disk drive	Choose only if less than two devices are selected in Step 6.
	☐	–	**RD53-RA/RB**	71-Mbyte rackmount disk drive	
		1	**RQDXE-AA**	RQDX3 extender module	If only one device is selected in Step 6, choose only one. If no devices are selected in Step 6, choose up to two.
		1	**H9302**	Rackmount kit	
	☐	1	**BC17Y-1J**	Daisychain cable	The daisychain cable (BC17Y-1J) is required if two external RDxx and/or RXxx devices are selected.
	☐	1	**TK50-RA/RB**	95-Mbyte rackmount tape drive	Choose only one.
		1	**TQK50-AB**	TK50 controller	
8 Ethernet Interface	☐	1	**DELQA-M**	Ethernet interface	Choose only one. Select cable from Step 11.
		1	**CK-DELQA-YB**	Cabinet kit	
	☐	1	**DEQNA-M**	Ethernet interface	
		1	**CK-DEQNA-KB**	Cabinet kit	
9 Additional Asynchronous Serial Lines	The Base Hardware System (Step 1) includes 2 serial lines, using 1 B-size distribution slot. This leaves 3 B-size slots in the distribution panel available for options. Please refer to the 153Q5 and 153Q6 configuration template.				
	☐	1	**DHQ11-M**	8 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		1	**CK-DHQ11-AB**	Cabinet kit with full modem control, RS-232 signalling supporting 8 25-pin connections on the bulkhead	
	☐	–	**DHQ11-M**	8 serial lines	Choose up to three if no other asynchronous options are selected. Select cable from Step 11. DHQ11 is not supported by RT-11 and CTS-300.
		–	**CK-DHQ11-WB**	Cabinet kit with no modem control, RS-423 signalling supporting 8 remote MMJ DECconnect connections	
	☐	–	**DZQ11-M**	4 serial lines	
		–	**CK-DZQ11-DB**	Cabinet kit with full modem control, RS-232 signalling supporting 4 25-pin connections on the bulkhead	
	☐	1	**DLVJ1-M**	4 serial lines	Choose only one if no other asynchronous options are selected. Select cable from Step 11.
		1	**CK-DLVJ1-LB**	Cabinet kit	

MicroPDP-11/53 Q-bus Multiuser Systems

MicroPDP-11/53 Rackmount RX33/RD32-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
10 Terminals				For a console device, it is recommended that one video terminal and one hardcopy printer (e.g., the VT320 with an LA75) be ordered for each system. Total devices selected in this section should not exceed maximum number of serial lines (2) plus additional number of serial lines selected in Step 9. Most terminals are 120 V. Refer to Tables I.25 and I.26 for country variations.	
Text	☐	–	DL-VT320-A___	White video terminal	Terminals include keyboard. See Table I.26
	☐	–	DL-VT320-B___	Green video terminal	for country variations.
	☐	–	DL-VT320-C___	Amber video terminal	
	☐	–	DL-VT320-F___	WPS amber video terminal	
Text and Graphics	☐	–	VT330-A___	White graphics terminal	
	☐	–	VT330-B___	Green graphics terminal	
	☐	–	VT330-C___	Amber graphics terminal	
	☐	–	VT330-D___	WPS white graphics terminal	
	☐	–	VT340-A___	Color graphics terminal	
	☐	–	VT340-D___	WPS color graphics terminal	
Hardcopy (Output Only)	☐	–	LA75-___	250-ch/s dot-matrix printer	See Table I.25 for country variations.
	☐	–	LA75X-SF	Single-tray sheetfeeder, LA75	
	☐	–	LA210-___	240-ch/s dot matrix printer	
	☐	–	LA21X-BT	Bidirectional forms tractor for LA210	
	☐	–	LA21X-SF	Single-tray sheetfeeder for LA210, 8.5 by 11	
	☐	–	LA21X-SH	Single-tray sheetfeeder for LA210, A4	
	☐	–	LN03-___	8-pp/min laser printer	
	☐	–	LN03S-___	8-pp/min graphics laser printer	
	☐	–	LG31-A2	300-1/min enhanced text line matrix impact printer, U.S. version	LG31-A2 (recommended for U.S.) includes country kit.
	☐	–	LG31-A3	300-1/min enhanced text line matrix impact printer, non-U.S. version	It is necessary to order one LGK31 with the appropriate country variation, selected from the country variation table,
	☐	–	LGK31-___	Country kit for LG31-A3	for each non-U.S. LG31-A3 selected.
	☐	–	LJ250-___	Companion color printer serial interface	
11 Cables	☐	–	BNE3M-xx	Ethernet right-angle cable	Required if the DEQNA/DELQA Ethernet
	☐	–	H4000	Ethernet transceiver	interface is ordered. For appropriate cable length, -xx equals: -05 = 5-ft -10 = 10-ft -20 = 20-ft -40 = 40-ft
			For 25-pin connections (cabinet kits CK-DLVJ1-LB, CK-DHQ11-AB, and CK-DZQ11-DB):		
	☐	–	BC22D-25	25-ft null modem serial cable	Number of serial terminals should at least
	☐	–	BC22D-50	50-ft null modem serial cable	equal the number of terminals on the
	☐	–	BC22D-A0	100-ft null modem serial cable	system (*two* 25-ft console serial cables are included in Step 1).
			For MMJ connections (cabinet kit CK-DHQ11-WB):		
	☐	–	BC16E-25	25-ft serial cable	Number of serial cables should at least
	☐	–	BC16E-50	50-ft serial cable	equal the number of terminals on the system (*two* 25-ft console serial cables are included in Step 1).
	☐	–	H8571-A	MMJ to 25-pin adapter	Order one for each LA75-type printer selected in Step 10.

MicroPDP-11/53 Rackmount RX33/RD32-Based Standard System

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
12 Operating System	☐	1	Q___-H3	RX50 media/documentation kit	Choose desired order codes from Table I.28. Not all operating systems and layered products have both RX50 and TK50 kits. Order codes for the license, media kits, and documentation-only are not always the same. (Refer to Table I.28 for appropriate part number and SPD number.)
Media and Documentation	☐	1	Q___-H5	TK50 media/documentation kit	
13 Layered Product License,	☐	1	Q___-UZ	Single-use license	Repeat Step 13 if more than one layered product is desired.
	☐	1	Q___-H3	RX50 media/documentation kit	
Media and Documentation	☐	1	Q___-H5	TK50 media/documentation kit	
14 Software Services	☐	RX50	Q-___-B3	Startup Service Level III – includes DECsupport, DECstart PLUS, installation, media/documentation, and training	When ordering from Step 14, do not order from Steps 15 and 16.
	☐	TK50	Q-___-B5		All software products must have the same level service.
	☐	RX50	Q-___-73	Startup Service Level II – includes Basic, DECstart, installation, media/documentation, and training	Complete the part number with the same five digits as the part number for the license.
	☐	TK50	Q-___-75		Order media and documentation at no extra charge.
15 Hardware Maintenance Services	☐	–	DECservice	Up to 24 hours per day, up to 7 days per week	For hardware maintenance services after the initial one-year onsite hardware warranty, choose one type of service per system.
	☐	–	Basic	8 hours per day, Monday-Friday	For specific ordering information and quotations, consult your local Field Service office.
OEM Channel Options	☐	–	OEM Sales Agent	OEM offers end user full range of Field Service products	Indirect reseller programs. For specific ordering information and quotations, consult your local Field Service office.
	☐	–	OEM Service Distributor	OEM purchases service in volume and resells to end user	
	☐	–	OEM Partnership	Digital support for OEMs who maintain their own and/or their end user's equipment	
16 Software Maintenance Services	☐	RX50	Q___-33	Self-Maintenance Service Agreement – includes updates	Choose only one type of service agreement per system. All software products must have the same type of service agreement per CPU.
	☐	TK50	Q___-35		
	☐	RX50	Q___-83	Basic Service Agreement – includes updates, telephone support, and online access to a service database (for most products)	In general, complete the part number with the same five digits as the part number for the media and documentation kit. For example, order QY505-x5 for RSX-11M-PLUS distribution on a TK50. To verify service part numbers, refer to the latest Software Product Description (SPD). (Refer to Table I.28 for appropriate part number and SPD number.)
	☐	TK50	Q___-85		
	☐	RX50	Q___-93	DECsupport Service Agreement – includes updates, telephone support, preventative and remedial support, and online access to a service database (for most products)	
	☐	TK50	Q___-95		
	☐	RX50	Q___-I3	Installation Service – installation of software products on system	Contact your local Software Product Services (SPS) Business Account Specialist if you have questions.
	☐	TK50	Q___-I5		

MicroPDP-11/53 System Ordering Tables

Table I.25 - Multinational Order Codes for Printers

Country/Region	Language	LA75 Printer	LA210 Printer	LN03 Printer	LN03S Printer	LG31 Printer	LJ250 Printer
United States	English	LA75-CA	LA210-AA	LN03-AA	LN03S-AA	LGK31-AA	LJ250-CA
Belgium	Flemish	LA75-AB	LA210-AB	LN03-AB	LN03S-AB	LGK31-CA	LJ250-AB
Canada	French	LA75-CA	LA210-AC	LN03-AC	LN03S-AC	LGK31-AA	LJ250-CA
Denmark	Danish	LA75-AD	LA210-AD	LN03-AD	LN03S-AD	LGK31-AD	LJ250-AD
UK/Ireland	English	LA75-AE	LA210-AE	LN03-AE	LN03S-AE	LGK31-AE	LJ250-AE
Finland	Finnish	LA75-CC	LA210-AF	LN03-AF	LN03S-AF	LGK31-CA	LJ250-CC
W. Germany/Austria	German	LA75-AG	LA210-AG	LN03-AG	LN03S-AG	LGK31-AG	LJ250-AG
Holland	Dutch	LA75-AH	LA210-AH	LN03-AH	LN03S-AH	LGK31-CA	LJ250-AH
Italy	Italian	LA75-AI	LA210-AI	LN03-AI	LN03S-AI	LGK31-AI	LJ250-AI
Japan	Katakana	LA75-AJ	LA210-AJ	LN03-AJ	LN03S-AJ	LGK31-AA	
Switzerland	French	LA75-CB	LA210-AK	LN03-AK	LN03S-AK	LGK31-AK	LJ250-CB
Switzerland	German	LA75-CB	LA210-AL	LN03-AL	LN03S-AL	LGK31-AK	LJ250-CB
Sweden	Swedish	LA75-CC	LA210-AM	LN03-AM	LN03S-AM	LGK31-CA	LJ250-CC
Norway	Norwegian	LA75-CC	LA210-AN	LN03-AN	LN03S-AN	LGK31-CA	LJ250-CC
France	French	LA75-AP	LA210-AP	LN03-AP	LN03S-AP	LGK31-CA	LJ250-AP
Canada	English	LA75-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LGK31-AA	LJ250-CA
South America	Spanish	LA75-CA	LA210-AR	LN03-AR	LN03S-AR	LGK31-AA	
Spain	Spanish	LA75-AS	LA210-AS	LN03-AS	LN03S-AS	LGK31-CA	LJ250-AS
Israel	Hebrew	LA75-AT	LA210-AT	LN03-AT	LN03S-AT	LGK31-AT	LJ250-AT
South America	Portuguese	LA75-CA	LA210-AU	LN03-AU	LN03S-AU	LGK31-CA	
Portugal	Portuguese	LA75-CC	LA210-AV	LN03-AV	LN03S-AV	LGK31-CA	LJ250-CC
Switzerland	Italian	LA75-CB	LA210-AW	LN03-AW	LN03S-AW	LGK31-AK	LJ250-CB
Japan	Hiragana			LN03-AY	LN03S-AY	LGK31-AA	
Australia/New Zealand	English	LA75-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	LGK31-AZ	LJ250-AZ

Table I.26 - Multinational Order Codes for Video Terminals

Country/ Region	Language	VT320 Std Kit	VT320 WPS Kit	VT330 Std Kit	VT330 WPS Kit	VT340 Std Kit	VT340 WPS Kit
United States	English	VT320-___A	VT320-___A	VT330-___A	VT330-___A	VT340-___A	VT340-___A
Belgium	Flemish	VT320-___B	VT320-___B	VT330-___B		VT340-___B	
Canada	French	VT320-___C	VT320-___C	VT330-___C		VT340-___C	VT340-___C
Denmark	Danish	VT320-___D	VT320-___D	VT330-___D		VT340-___D	
UK/Ireland	English	VT320-___E	VT320-___E	VT330-___E	VT330-___E	VT340-___E	VT340-___E
Finland	Finnish	VT320-___F	VT320-___F	VT330-___F		VT340-___F	
W. Germany/Austria	German	VT320-___G	VT320-___G	VT330-___G		VT340-___G	
Holland	Dutch	VT320-___H	VT320-___H	VT330-___H		VT340-___H	
Italy	Italian	VT320-___I	VT320-___I	VT330-___I		VT340-___I	
Switzerland	French	VT320-___K	VT320-___K	VT330-___K		VT340-___K	
Switzerland	German	VT320-___L	VT320-___L	VT330-___L		VT340-___L	
Sweden	Swedish	VT320-___M	VT320-___M	VT330-___M		VT340-___M	
Norway	Norwegian	VT320-___N	VT320-___N	VT330-___N		VT340-___N	
France	French	VT320-___P	VT320-___P	VT330-___P		VT340-___P	
Canada	English	VT320-___A	VT320-___A				
Spain	Spanish	VT320-___S	VT320-___S	VT330-___S		VT340-___S	
Portugal	Portuguese	VT320-___V	VT320-___V	VT330-___V		VT340-___V	
Australia/ New Zealand	English	VT320-___Z	VT320-___Z	VT330-___Z		VT340-___Z	

Table I.27 - Support for Hardware Options by Operating System

	RSX-11			Micro/ RSX	A-to-Z	RT-11	CTS- 300	RSTS/E	Micro/ RSTS	MPP- RSX	MPP- Micro/ RSX	MPP- RT	DSM -11
	M	S	M+										
DELQA	N	N	N	N	N	N	N	Y^4	N	Y^4	Y^4	Y^4	Y^4
DEQNA	Y^1	Y^1	Y^1	Y^1	Y^1	Y	Y	Y^1	N	Y	Y	Y	Y
DHQ11	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y^2	Y
DHV11	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y^2	Y
DLVJ1	Y^3	Y^3	Y^3	N	N	Y^3	Y^3	N	N	Y^3	Y^3	Y^3	Y^3

The following devices are supported by all of the above operating systems:
RD31
RD32
RX50
RX33
TK50
DZQ11

[1]DECnet required

[2]Supported for target systems, not host systems

[3]Multiple DLVJ1s are not supported

[4]Supported in DEQNA mode only

Note: Refer to the SPD for hardware option support information not supplied by this table.

MicroPDP-11/53 System Ordering Tables

Table I.28 - Ordering Information for Operating Systems and Layered Products

Operating Systems	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	Documentation Only
A-to-Z Base System	18.16	QY950-UZ	QY950-H3	QY950-H5	QY950-GZ
CTS-300	12.09	QY354-UZ	QJ354-H3	QJ354-H5	QJ354-GZ
DSM-11	12.18	QY821-UZ	QY821-H3	QY821-H5	QY821-GZ
MicroPower/Pascal-Micro/RSX	18.24	QY029-UZ	QY029-H3		QY029-GZ
MicroPower/Pascal-RSX	14.83	QP029-UZ			QP029-GZ
MicroPower/Pascal-RT	19.12	QJ029-UZ			QJ029-GZ
Micro/RSTS	18.12	QY829-UZ	QY829-H3	QY829-H5	QY829-GZ
Micro/RSX	14.28	QY800-UZ	QY800-H3	QY800-H5	QY800-GZ
RSTS/E	13.01	QY430-UZ		QR430-H5	QR430-GZ
RSX-11M	14.35	QY628-UZ		QJ676-H5	QJ628-GZ
RSX-11M-PLUS	14.70	QY505-UZ		QR500-H5	QR500-GZ
RSX-11S	9.21	QY642-UZ		QJ642-H5	QJ642-GZ
RT-11	12.01	QY013-UZ	QJ013-H3	QJ013-H5	QJ013-GZ

Layered Products

Layered Products	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	Documentation Only
A-to-Z Layered Products					
Business Graphics	18.19	QY953-UZ	QY953-H3	QY953-H5	QY953-GZ
Data Inquiry	18.17	QY952-UZ	QY952-H3	QY952-H5	QY952-GZ
Electronic Mail	18.26	QY955-UZ	QY955-H3	QY955-H5	QY955-GZ
Developer's Kit	18.20	QY954-UZ	QY954-H3	QY954-H5	QY954-GZ
Word Processing	18.18	QY951-UZ	QY951-H3	QY951-H5	QY951-GZ
Document Transfer	18.31	QY957-UZ	QY957-H3	QY957-H5	QY957-GZ
BASIC-PLUS-2					
RSX-11M, M-PLUS	14.11	QY918-UZ		QY918-H5	QY918-GZ
Micro/RSX	18.06	QY805-UZ	QY805-H3	QY805-H5	QY805-GZ
RSTS/E	14.54	QY916-UZ		QY916-H5	QY916-GZ
Micro/RSTS	18.09	QY809-UZ	QY809-H3	QY809-H5	QY809-GZ
BASIC-PLUS					
RT-11	12.05	QY913-UZ	QJ913-H3	QJ913-H5	QJ913-GZ
COBOL-81					
RSX-11M, M-PLUS	14.26	QY994-UZ		QY994-H5	QY994-GZ
Micro/RSX	18.03	QY802-UZ	QY802-H3	QY802-H5	QY802-GZ
RSTS/E	13.16	QY993-UZ		QY993-H5	QY993-GZ
Micro/RSTS	18.08	QY808-UZ	QY808-H3	QY808-H5	QY808-GZ
DATATRIEVE-11					
RSX-11M, M-PLUS	12.48	QY301-UZ			QY301-GZ
Micro/RSX	18.15	QY819-UZ	QY819-H3		QY819-GZ
RSTS/E	12.48	QY300-UZ			QY300-GZ
Micro/RSTS	18.30	QY302-UZ	QY302-H3		QY302-GZ
DECdx					
RSX-11M	13.39	QJ708-UZ			QJ708-GZ
RSTS/E	13.32	QJ706-UZ			QJ706-GZ
DECmail-11					
RSX-11M-PLUS	13.27	QR454-UZ		QR454-H5	QR454-GZ
Micro/RSX	13.27	QY816-UZ	QY816-H3	QY816-H5	QY816-GZ
RSTS/E	13.19	QR451-UZ		QR451-H5	QR451-GZ
Micro/RSTS	13.19	QY815-UZ	QY815-H3	QY815-H5	QY815-GZ
DECnet					
RSX-11M - Full Node	10.75	QJ764-UZ		QJ764-H5	QJ764-GZ
RSX-11M - End Node	10.75	QJ765-UZ		QJ765-H5	QJ765-GZ
RSX-11M-PLUS - Full Node	10.66	QJ766-UZ		QJ766-H5	QJ766-GZ
RSX-11M-PLUS - End Node	10.66	QJ767-UZ		QJ767-H5	QJ767-GZ
RSX-11S - Full Node	10.74	QJ762-UZ		QJ762-H5	QJ762-GZ
RSX-11S - End Node	10.74	QJ763-UZ		QJ763-H5	QJ763-GZ
Micro/RSX-End Node Only	18.27	QY766-UZ	QY766-H3	QY766-H5	QY766-GZ
RT-11	10.72	QJ687-UZ	QJ687-H3		QJ687-GZ
DECnet/E	10.73	QY692-UZ		QY692-H5	QY692-GZ

Table 1.28 (*Continued*) - **Ordering Information for Operating Systems and Layered Products**

Layered Products (*Continued*)	SPD #	License Only	RX50 Media/Doc.	TK50 Media/Doc.	Documentation Only
DECtype					
RSX-11M-PLUS	14.82	QR038-UZ			QR038-GZ
Micro/RSX	18.14	QY038-UZ	QY038-H3		QY038-GZ
DECword					
RSTS/E	13.14	QR480-UZ			QR480-GZ
Micro/RSTS	13.14	QY480-UZ	QY480-H3		QY480-GZ
Development Kits					
Micro/RSX	14.28	QY800-UZ	QY801-H3	QY801-H5	QY801-GZ
Micro/RSTS	18.12		QY830-H3	QY830-H5	QY830-GZ
DIBOL					
RSX-11M-PLUS	14.24	QY540-UZ			QY540-GZ
Micro/RSX	18.05	QY807-UZ	QY807-H3	QY807-H5	QY807-GZ
RSTS/E	14.08	QY528-UZ			QY528-GZ
Micro/RSTS	14.08	QY519-UZ	QY519-H3	QY519-H5	QY519-GZ
FMS					
RSX-11M, S, M-PLUS	12.27	QY715-UZ			QJ715-GZ
Micro/RSX	18.34	QY322-UZ	QY322-H3		QY322-GZ
RSTS/E	13.17	QY716-UZ			QJ716-GZ
RT-11	12.22	QJ713-UZ	QJ713-H3		QJ713-GZ
FORTRAN-IV					
RSX-11M, M-PLUS	14.63	QP230-UZ			QP230-GZ
RT-11, CTS-300	12.10	QY813-UZ	QJ813-H3	QJ813-H5	QJ813-GZ
RSTS/E	12.41	QR435-UZ			QR435-GZ
FORTRAN-77					
RSX-11M, M-PLUS	14.31	QY668-UZ		QY668-H5	QY668-GZ
Micro/RSX	18.04	QY803-UZ	QY803-H3	QY803-H5	QY803-GZ
RSTS/E	14.49	QY100-UZ		QY100-H5	QY100-GZ
Micro/RSTS	18.10	QY810-UZ	QY810-H3	QY810-H5	QY810-GZ
RT-11	A3.55	QA609-DZ	QA609-H3		QA609-GZ
Pascal					
RSX-11M, M-PLUS	14.18	QY128-UZ		QY128-H5	QY128-GZ
Micro/RSX	18.07	QY806-UZ	QY806-H3	QY806-H5	QY806-GZ
Peripheral Processor Tool Kit					
RT-11	12.70	QJV51-UZ			
RSX-11M, M-PLUS	13.25	QJV52-UZ			
Micro/RSX	18.48	QYV52-UZ			
PDP-11 Symbolic Debugger					
RSX-11M, M-PLUS	12.78	QY232-UZ		QY232-H5	QY232-GZ
Micro/RSX	14.79	QY804-UZ	QY804-H3	QY804-H5	QY804-GZ
RSTS/E	12.79	QY233-UZ		QY233-H5	QY233-GZ
Micro/RSTS	18.11	QY811-UZ	QY811-H3	QY811-H5	QY811-GZ
RTEM-11					
RSX-11M	15.63	QJ291-UZ		QJ291-H5	QJ291-GZ
RSX-11M-PLUS	15.63	QJ304-UZ		QJ304-H5	QJ304-GZ
Micro/RSX	15.63	QY004-UZ	QY004-H3	QY004-H5	QY004-GZ
SORT/MERGE					
RSX-11M, M-PLUS	12.07	QP602-UZ			QP602-GZ
Micro/RSX	18.13	QY812-UZ	QY812-H3		QY812-GZ

Introduction

Today Digital offers new, enhanced variations of the high-performance PDP-11/84 system. Based on our highly successful UNIBUS technology, this product provides a wide range of minicomputer solutions; from small, dedicated control, communications, and computational applications to larger business and scientific timesharing systems. The UNIBUS is a bidirectional, asynchronous interconnect that links this versatile processor with the industry's most comprehensive set of mass storage systems and communications interfaces. It provides the configuration flexibility and growth capacity that make this processor the ideal solution for a broad spectrum of applications.

The PDP-11/84 executes a common instruction set, runs under the control of any of Digital's PDP-11 operating systems, and makes available the problem-solving power of Digital's proven languages, data management, communications, and networking products.

PDP-11/84

The PDP-11/84 is the newest high-end member of the PDP-11 family. It delivers PDP-11/70-class performance for a fraction of the cost. It is the most powerful, yet cost-effective UNIBUS processor ever designed. The PDP-11/84 is uniquely suited to span the entire range of traditional PDP-11 applications. It effectively combines all the advantages of today's technology with a proven architecture and more than a decade of system engineering enhancements.

Digital's continued investment and commitment to the PDP-11 family and our installed base of PDP-11 customers is reflected in the new, enhanced PDP-11/84 system packaging designs highlighted throughout this catalog edition.

Features

- Powerful, high-performance single-board CPU features Digital's C-MOS 18-MHz J-11 chipset
- The full PDP-11 instruction set including floating-point and EIS instructions, plus an integral floating-point co-processor
- Sophisticated 22-bit memory management, dual register set, separate instruction and data space, and three system modes: kernel, supervisor, and user
- Large 8-Kbyte CPU cache memory speeds program execution
- 2 Mbytes of memory, expandable up to 4 Mbytes with high-density PMI ECC MOS memory
- Private Memory Interconnect (PMI) architecture for high-speed data transfers between CPU and memory
- 32-Kbyte bootstrap/diagnostic ROM facility and 8-Kbyte EEPROM
- Program-controlled line-frequency clock
- One switch-selectable EIA/CCITT serial-line asynchronous interface for console terminal connection.
- ASCII console logic for system control and debugging with optional console terminal

Features
(Continued)

- High-speed DMA cache that delivers faster memory access for DMA peripheral devices
- Concurrent processing that allows the simultaneous execution of instructions and DMA transfers
- Programmable bus management that offers the CPU bus mastership regardless of pending DMA I/O requests
- New compact design that requires less power and floor space and offers more expansion capacity and flexibility than comparable system configurations
- New 9-slot backplane, housed in new 5.25-inch and 10.5-inch-by-19-inch rack-mount OEM design centers
- The 10.5-inch OEM design center is expandable to 27 slots with optional DD11-DK expansion backplanes
- New, enhanced system packaging that offers more configuration flexibility and growth capacity than ever before

PDP-11/84 Models

Model	Memory	Enclosure	SW Lic
New OEM Design Centers			
11/84-DC/DD	2	13.3-cm (5.25-in)	—
-DE/DF	4	rackmount box	—
11/84-EC/ED	2	26.6-cm (10.5-in)	—
-EE/EF	4	rackmount box	—
New Kernel Systems			
11X84-EC/ED	2	H9642 cabinet	—
-EE/EF	4	single-body	—
11W84-EC/ED	2	H9645 cabinet	—
-EC/EF	4	wide-body	—
11Y84-EC/ED	2	H9647 cabinet	—
-EE/EF	4	four-high	—
New System Building Block Configurations			
SX-JX200-EC/ED	2	H9642 cabinet	Yes
-EE/EF	4		
SX-JX300-EC/ED	2	H9645 cabinet	Yes
-EE/EF	4		
SX-JX400-EC/ED	2	H9647 cabinet	Yes
-EE/EF	4		Yes
New System Upgrade Packages			
11/84-U2	2	11/84-P upgrade	No
11/84-UH/UJ	2	13.3-cm (5.25-in)	Yes
		rackmount box	
11/84-UK/UL	2	26.6-cm (10.5-in)	Yes
		rackmount box	
Hardware Enclosures Only			
***11/84-UD/UE**	—	13.3-cm (5.25-in)	No
		rackmount box (only)	
***11/84-UF/UG**	—	26.6-cm (10.5-in)	No
		rackmount box (only)	

*Processor and memory modules not included.
All 11/84-U variations include installation, deinstallation, and select PDP-11
operating system licenses as specified. All PDP-11/84 models include
1-year DECservice warranty.

UNIBUS Options

The following is a partial listing of available system options for the PDP-11/84. These options and all ordering details are completely described in the *Options* and *Disks and Tapes* chapters. PDP-11/84 systems also support a wide range of older UNIBUS interfaces and device options.

Memory Options

MSV11-JD	1-Mbyte PMI ECC MOS memory
MSV11-JE	2-Mbyte PMI ECC MOS memory

Communications Options

DHU11-M	16-line asynchronous DMA multiplexer
DUP11-M	Single-line synchronous interface
DMR11-M	Single-line synchronous interface
DMP11-M	Single-line synchronous interface
PCL11-B	Multipoint parallel communications link
KMS1P-M	Single-line synchronous communications front-end processor
KMS11-BD/BE	8-line synchronous communications front-end processor
DELUA-M	High-performance Ethernet communications controller

Battery Backup Options

H7231-E	11X84 A-series battery backup option (cabinet level)
H7231-F	11/84 A-series battery backup option (box level)
H7231-H	11X84 and 11Y84 E-series battery backup option
H7231-J	11W84 E-series battery backup option

Realtime Options

DR11-C	General purpose parallel interface
DR11-W	General purpose DMA parallel interface
DR11-WC	DR11-WP with adapter module, cables, test connectors, and I/O distribution panel
DR11-WD	DR11-WC without interface module
DRS11-A	48-channel output module
DRS11-B	48-channel output module with open collector drivers
DRS11-MP	Optically isolated dc drivers with open collectors
DRU11-CC	Alternate buffer interface with TTL drivers
DRU11-CD	Alternate buffer interface with differential drivers
DSS11-A	Digital input device (TTL)
DSS11-B	Digital input device
DSS11-MP	Contact sense input
IEC11-AB	IEEE-488 UNIBUS interface
IEU11-AB	UNIBUS to dual IEEE-488 interface
KW11-P	Programmable realtime clock
IP112-A	Industrial I/O subsystem

Disk Storage Options	**SA482-AA/AD**	2.5-Gbyte storage array, four 622-Mbyte drives, 120/240 V
	SA482-HA/HD	1.244-Gbyte storage array, two 622-Mbyte drives, 120/240 V
	SA482-LA/LD	1.866-Gbyte storage array, three 622-Mbyte drives, 120/240 V
	RA82-EA/ED	1.866-Gbyte storage array, three 622-Mbyte drives, 42-inch-high cabinet, 120/240 V
	RA82-DA/DD	1.244-Gbyte storage array, two 622-Mbyte drives, 42-inch-high cabinet, 120/240 V
	RA82-CA/CD	622-Mbyte drive, 42-inch-high cabinet, 120/240 V
	RA82-AA/AD	622-Mbyte fixed-disk drive, 120/240 V
	RA81-AA/AD	456-Mbyte fixed-disk drive, 120/240 V
	RA60-AA/AD	205-Mbyte removable-disk drive, 120/240 V
	UDA50-A	RA81, RA80, and RA60 disk controller
	RUC25-AA/AB	52-Mbyte (26 fixed/26 removable) disk drive and UNIBUS controller, 120/240 V
	RX50-DA/DB	800-Kbyte tabletop dual-floppy diskette drive
	RX50-RA/RB	800-Kbyte rackmount dual-floppy diskette drive
	RUX50-YA	UNIBUS controller for 800-Kbyte dual-diskette drive
Tape Storage Options	**TU81E-AA/AB**	145/40-Mbyte magnetic-tape drive, 6,250 b/in (GCR), 1,600 b/in (PE) (25 and 75 in/sec), 120/240 V (Consult the SPD to determine whether operating system will support this device as a TU81 or TU81E.)
	TU80-AA/AB	40-Mbyte magnetic-tape drive (25 and 100 in/s), 120/240 V
	TSU05-AA/AB	40-Mbyte magnetic-tape drive (25 and 100 in/s), 120/240 V
	TK50-DA/DB	95-Mbyte tabletop cartridge-tape drive, 120/240 V
	TK50-RA/RB	95-Mbyte rackmount cartridge-tape drive, 120/240 V
	TUK50-AB	Controller for all rackmount and tabletop installations except 11/84 A-series 10.5-inch Design Center
	TUK50-BB	Includes 3-ft cable for use with 11/84 A-series only

Note: All rackmount TK50 and RX50 variations require H9302 installation kit and H9504-SC blank filler panel.

I/O Cabinet Kit and Bulkhead Expansion Options	**CK-DHU11-VD**	Remote I/O distribution cabinet kit; 8 lines with modem control, 8 without; 2 panel units (11/84 D- and E-series box, all cabinets)
	CK-DHU11-VF	Remote I/O distribution cabinet kit; 8 lines with modem control, 8 without; 2 panel units (11/84 A-series box only)
	CK-DZ11-VD	Remote I/O distribution cabinet kit; 8 lines with modem control, 8 without; 2 panel units (11/84 D- and E-series box, all cabinets)
	CK-DZ11-VF	Remote I/O cabinet kit; 8 lines without modem control, 1 panel unit (11/84 A-series box only)
	H9544-EX	I/O bulkhead expansion kit for H9645 cabinets; extends FCC-shielding to bottom 10.5-inch bay and adds 16 additional I/O panel units

UNIBUS Expansion Hardware	**BA11-LE/LF**	5.25-inch-high rackmount UNIBUS expansion box
	BA11A-EX/EY	Standard 10.5-inch-by-19-inch rackmount UNIBUS expansion box. 6-system unit (27-slot capacity).
	DB11-MP	UNIBUS repeater. Adds 19 unit bus loads and extends the UNIBUS length to 15.2 meters (50 feet).
	DD11-CK	Four-slot UNIBUS expansion backplane
	DD11-DK	Nine-slot UNIBUS expansion backplane
	H9642-FA/FB	Standard partitioned UNIBUS system expansion cabinet. Includes shielded mounting space for BA11A-EX/EY, and one 10.5-inch device option. Provides 13 I/O distribution panel inserts.
	H9642-FC/FD	Standard unpartitioned UNIBUS system expansion cabinet. Includes mounting space for BA11A-EX/EY. Provides 29 I/O distribution panel inserts.
	H9642-EA/EB	Standard (42-inch-high) H9642 shielded single-bay UNIBUS CPU cabinet with 877 power controller.
	H9645-EA/EB	Standard (42-inch-high) H9645 shielded widebody UNIBUS CPU cabinet with 877 power controller.
	H9647-EX/EY	Standard 4-HI H9647 (60.5-inch-high) shielded wide body UNIBUS CPU cabinet with three-phase power controller.
	H9647-A	Tall (60.5-inch), general purpose, four-high, widebody, EMI/RFI, shielded system cabinet with 877 power controller.
Storage Expansion Hardware	**H9646-AH/AJ**	60-inch tall, four-high, deep cabinet with three-phase power controller for mounting RA-type disks including RA60.
	H9642-AP/AR	Top-loading deep cabinet for the RA60 removable disk. Can accommodate any combination of three RA60s, RA82s, and RA81s in the middle and bottom cabinet bays.
	H9642-AS/AT	Top-loading standalone cabinet for RA81 or RA82.
	H9642-DB/DC	Standard 42-inch-high, general purpose, storage/expansion cabinet. Can accommodate three 5.25-inch or 10.5-inch mass-storage devices. Does not accommodate RA60s. This cabinet is intended for integration with an existing pre-FCC unshielded system cabinet and includes a joiner panel but no end panels. Alternate uses require ordering two H9544-A end panels. (When ordering for alternate uses, please state "for onsite system integration" in the notes section of your order form to avoid delayed shipment.)

Configuring Guidelines

New PDP-11/84 E-series systems are available in four levels of integration

- Two rackmountable box-level OEM design centers provide significant capacity and expansion space to span the gamut of traditional PDP-11 applications.

- The Cabinet-based Kernel Systems provide a foundation for OEM system integration by providing a selection of system and load devices plus a wide assortment of peripheral options. All product variations are based upon the 10.5-inch OEM design center.

- The System Building Blocks (SBBs) are based upon the kernel systems and include a choice of PDP-11 software licenses.

- The standard system offering consists of a subset of typical SBB configurations. These packages are offered periodically to simplify ordering high-volume variations of the base product set.

System Building Blocks

System building blocks allow you to take maximum advantage of Digital's packaging flexibility and to help keep the physical size and price of a system configuration to a minimum. With system building blocks, it is easy to order a system configuration that matches your precise requirements. The menu below is intended to provide a list of recommended storage and console terminal options for today's UNIBUS system building blocks.

A console terminal and at least one removable medium are required to install and service a system. Consult the *Software Product Descriptions* for minimum configuring requirements and detailed device support information.

Console Terminals	System Devices	Load Devices
VT300	RA81-AA/AD	TU80-AA/AB
VT200	RA60-AA/AD	TU81E-AA/AB
LA100	RA82-EA/ED, -DA/DD, -CA/CD, -AA/AD	TSU05-AA/AB
LA210	SA482-EA/ED, -HA/HD, -LA/LD	RX50-D/R
		TK50-D/R

I/O Distribution Panel

Along with the EMI/RFI advantages of today's UNIBUS systems packaging come some new configuration considerations. The most important of these is the I/O distribution panel (IODP). The IODP provides the transition between internal cabling and the external shielded cabling to the peripheral devices. All cables that enter or exit cabinets must pass through the IODP.

The I/O device connections are made with three components – an internal cable that originates at the option module or controller, a shielded external cable from the I/O panel to the peripheral, and a panel insert that mounts in the IODP and joins the internal and external cables. With the IODP, the panel insert provides the shielding and filtering necessary to contain potential EMI/RFI interference within the cabinet.

The IODP is an integral part of the CPU system cabinet. The panel insert and internal cable are provided with the specific option. The capacity of the IODP varies with the cabinet and CPU type. The type and style of inserts vary depending on the amount and type of connectors required by each option. Each IODP accepts multiple inserts. Unused IODP space is filled with blank inserts to maintain shielding integrity.

**PDP-11/84 Kernel System
and System Building
Block Configurations
(11X84, 11W84, 11Y84, SX-JX200,
SX-JX300, and SX-JX400)**

These PDP-11/84 product variations feature the new expandable 10.5-inch design center packaged in a choice of shielded 42-inch and 60-inch high cabinets. The base configurations include the 11/84 CPU and 2 or 4 Mbytes of memory. The system building block product also includes a choice of several PDP-11 operating system licenses. All product variations offer 10.5 inches of mounting space either above or both above and below the processor design center for combinations of 5.25-inch and 10.5-inch rackmount device options. At the rear of the cabinet there is a large IODP bulkhead that provides panel space for option connection. These configurations are generally used to create large systems that include many disks, magnetic tapes, and/or many (more than 32) terminals or communication lines.

Horizontal I/O Connection Panel
Standard on H9642 CPU Cabinets

Blank panel unit—
total of 12 panel units
available for option connection

Dedicated panel unit
for SLU connector

Dedicated panel space
for 877 power controller

11X84-E and
SX-JX200-E

Dedicated panel space
for RL02 connector

Dedicated panel space
for 2 SLU connectors

Dedicated panel space
for 877 power controller

Blank panel unit—
total of 12 panel units
available for option
connection

11W84-E and
SX-JX300-E

PDP-11/84 5.25-inch Rackmount Design Center
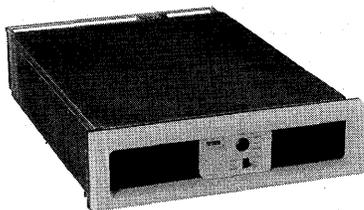
Product Description

The PDP-11/84 is offered in a new 5.25-inch rackmount variation with either 2 or 4 Mbytes of memory. The box configuration offers memory expansion to 4 Mbytes using MSV11-J PMI memory modules.

Features

- PDP-11/84 CPU and power supply (400 watts available)
- 2 Mbytes or 4 Mbytes of PMI ECC MOS memory
- 9-slot backplane (five slots for system expansion)
- Standard 13.3-cm (5.25-inch-by-19-inch) rackmount enclosure
- 1-year warranty

CPU Box Expansion

The PDP-11/84 box products are designed around a 9-slot backplane that includes 5 slots for system option expansion. An extended battery backup option is available (H7231-F).

Memory Expansion

Additional memory may be added in 1- or 2-Mbyte increments, up to a maximum of 4 Mbytes (MSV11-JD or MSV11-JE).

System Expansion

PDP-11/84 box products may be expanded by adding internal options and external mass storage. The UNIBUS may be extended outside of the box with a standard UNIBUS cable and UNIBUS PDP-11 expansion boxes.

Ordering Information

11/84-DC/DD	PDP-11/84-D 5.25-inch-high design center with 2 Mbytes of memory (MSV11-JE) in 13.3 cm (5.25-inch) box.
11/84-DE/DF	PDP-11/84-D 5.25-inch-high design center with 4 Mbytes of memory (2 MSV11-JE) in 13.3-cm (5.25-inch) box.

Diagnostics are not included with the standard OEM base product. Order separately.

Configuration Template

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

(Slots)

Slot	Option	dc Power								Bus Loads	
		Power		5 Volts		15 Volts		–15 Volts			
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able
			400		50		2		3		20
1	11/84 CPU										
2	Memory										
3	Memory										
4	UBA Interface	120	280	13.4	36.6	.1	1.9	—	3	1	19
5											
6											
7											
8											
9	UNIBUS Out										
	TOTAL										

CPU backplane 5-volt current rating is 50 A maximum.

PDP-11/84 UNIBUS Multiuser Systems

PDP-11/84 10.5-inch Rackmount Design Center
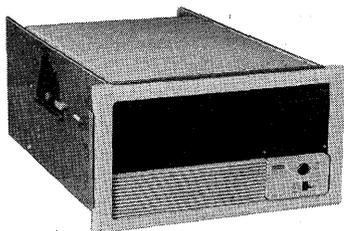
Product Description

The PDP-11/84 is offered in a new 10.5-inch rackmount variation with either 2 or 4 Mbytes of memory. The box configuration offers memory expansion to 4 Mbytes using MSV11-J PMI memory modules and offers added expansion capacity for a total of 27 slots (23 slots for additional system options).

Features

- PDP-11/84 CPU and power supply with 736 watts dc output power available
- 2 or 4 Mbytes of MSV11-J PMI memory with ECC
- 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK or DD11-CK backplanes
- Standard 26.6-cm (10.5-inch-by-19-inch) rackmount enclosure

CPU Box Expansion

The PDP-11/84 box products are designed around a 9-slot CPU backplane that includes five slots for system option expansion. The 9-slot backplane can be extended up to 27 module slots with optional DD11-DK and DD11-CK expansion backplanes. An optional battery backup unit is available (H7231-J).

Memory Expansion

An additional MSV11-J memory may be added in 1- or 2-Mbyte increments, up to a maximum of 4 Mbytes (MSV11-JD or -JE).

System Expansion

PDP-11/84 box products may be expanded by adding internal options and external mass storage. The UNIBUS may be extended outside of the box with a standard UNIBUS cable and UNIBUS PDP-11 expansion boxes.

Ordering Information

11/84-EC/ED	PDP-11/84 E-series design center with 2 Mbytes of memory (1 MSV11-JE) in 10.5-inch box.
11/84-EE/EF	PDP-11/84 E-series design center with 4 Mbytes of memory (2 MSV11-JE) in 10.5-inch box.

Diagnostics are not included with the product. Order separately.

Configuration Template
CPU backplane

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

(Slots)

Slot	Option	dc Power								Bus Loads	
		Power		5 Volts		15 Volts		– 15 Volts			
		Watts used	Available	Amps used	Available	Amps used	Available	Amps used	Available	Loads used	Available
			736		100		5		6		20
1	11/84 CPU										
2	Memory										
3	Memory										
4	UBA Interface	120	596	13.4	86.6	.1	4.9	—	6	1	19
5											
6											
7											
8											
9	UNIBUS Out										
	TOTAL										

First optional expansion backplane

Slot	Option	dc Power								Bus Loads	
		Power		5 Volts		15 Volts		– 15 Volts			
		Watts used	Available	Amps used	Available	Amps used	Available	Amps used	Available	Loads used	Available
10	UNIBUS In										
11											
12											
13											
14											
15											
16											
17											
18	UNIBUS Out										
	TOTAL										

Second optional expansion backplane

Slot	Option	dc Power								Bus Loads	
		Power		5 Volts		15 Volts		– 15 Volts			
		Watts used	Available	Amps used	Available	Amps used	Available	Amps used	Available	Loads used	Available
19	UNIBUS In										
20											
21											
22											
23											
24											
25											
26											
27	UNIBUS Out										
	TOTAL										

CPU backplane 5-volt current rating is 50 A maximum.
Optional expansion backplane 5-volt curent rating is 28 A maximum.

Product Description

The 11X84 is offered in two single-bay kernel system configurations, providing either 2 or 4 Mbytes of memory. These systems feature the 27-slot-capacity 10.5-inch design center enclosed in a shielded 42-inch-high H9642-style cabinet. These configurations offer memory expansion to 4 Mbytes using MSV11-J memory modules, and provide four system units of additional backplane mounting space. Optional system options may be selected from the list of UNIBUS options highlighted in the introduction.

Features

- PDP-11/84 CPU and power supply with 736 watts dc output power available
- 2 or 4 Mbytes of MSV11-J PMI memory with ECC
- 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK or DD11-CK backplanes
- I/O distribution panel with 13 panel units for FCC compliant system I/O
- Flexible system packaging – 42-inch-high H9642 cabinets with power controllers and mounting space for one 10.5-inch peripheral option

CPU Cabinet Expansion

All PDP-11/84 system cabinet products provide six system units of space for backplane expansion. The 9-slot backplane can be extended with DD11-CK or DD11-DK expansion backplanes. Mounting space is provided for an optional H7231-H battery backup unit.

Memory Expansion

Memory may be expanded to 4 Mbytes using MSV11-JD or -JE memory modules.

Mass Storage and System Expansion

There is one 26.6-cm (10.5-inch) cavity for mounting disk or tape options. The RA81, RA82, RC25, RL02, RX50, TS05, and TK50 options may be integrated into this configuration. Additional expansion can be provided via additional H9642 cabinets and UNIBUS PDP-11 expansion boxes.

Ordering Information

11X84-EC/ED	PDP-11/84 kernel system with 2 Mbytes of memory (1 MSV11-JE) in shielded H9642-style cabinet.
11X84-EE/EF	PDP-11/84 kernel system with 4 Mbytes of memory (2 MSV11-JE) in shielded H9642-style cabinet.

When a kernel system is ordered, system diagnostics are included. The load medium (RL02, tape, RC25, etc.) must be specified in the notes section of the Manufacturing Order Form. The default medium is 1,600-b/in magtape.

Configuration Template
CPU backplane

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

Slots 5-8 labeled "Slots"

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			736		100		5		6		20		13
1	11/84 CPU												1
2	Memory												
3	Memory												
4	UBA Interface	120	596	13.4	86.6	.1	4.9	—	6	1	19	—	12
5													
6													
7													
8													
9	UNIBUS Out												
	TOTAL												

First optional expansion backplane

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
10	UNIBUS In												
11													
12													
13													
14													
15													
16													
17													
18	UNIBUS Out												
	TOTAL												

Second optional expansion backplane

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
19	UNIBUS In												
20													
21													
22													
23													
24													
25													
26													
27	UNIBUS Out												
	TOTAL												

CPU backplane 5-volt current rating is 50 A maximum.
Optional expansion backplane 5-volt current rating is 28 A maximum.

PDP-11/84 UNIBUS Multiuser Systems

11W84 Widebody Kernel Systems
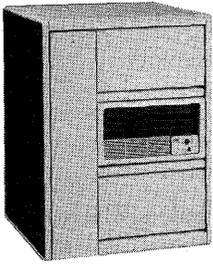
Product Description	The 11W84 is offered in two kernel system configurations, providing either 2 or 4 Mbytes of memory. These systems feature the 27-slot 10.5-inch design center enclosed in a shielded 42-inch-high H9645-style cabinet. These configurations offer memory expansion to 4 Mbytes using MSV11-J memory modules, and provide four system units of additional backplane mounting space. Optional system options may be selected from the list of UNIBUS options highlighted in the introduction.
Features	• PDP-11/84 CPU and power supply with 736 watts dc output power
	• 2 or 4 Mbytes of MSV11-JE PMI memory with ECC
	• 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK or DD11-CK backplanes
	• I/O distribution panel with 12 panel units for FCC-compliant system I/O connectivity (optional expansion)
	• Flexible system packaging – 42-inch-high H9645 cabinets with power controller and mounting space for two 10.5-inch peripheral options
CPU Cabinet Expansion	All PDP-11/84 system cabinet products provide six system units of space for backplane expansion. The 9-slot backplane can be extended with DD11-CK or DD11-DK expansion backplanes. Mounting space is provided for an optional H7231-J battery backup unit.
I/O Expansion	Standard configuration with 12 I/O distribution panels can be boosted to 28 I/O distribution panels with H9544-EX I/O bulkhead expansion kit. H9544-EX adds shielding and 16 I/O disbribution panels to bottom 10.5-inch bay, in lieu of a mass storage device.
Memory Expansion	Memory may be expanded to 4 Mbytes using MSV11-JD or -JE memory modules.
Mass Storage and System Expansion	There are two 26.6-cm (10.5-inch) cavities for mounting disk or tape options. The RA81, RA82, RC25, RL02, RX50, TS05, and TK50 options may be integrated into this configuration. Additional system expansion can be provided via additional H9642 cabinets and UNIBUS expansion boxes.

Ordering Information

11W84-EC/ED	PDP-11/84 kernel system with 2 Mbytes of memory (1 MSV11-JE) in shielded H9645-style cabinet.
11W84-EE/EF	PDP-11/84 kernel system with 4 Mbytes of memory (2 MSV11-JE) in shielded H9645-style cabinet.

When a kernel system is ordered, system diagnostics are included. The load medium (RL02, tape, RC25, etc.) must be specified in the notes section of the Manufacturing Order Form. The default medium is 1,600-b/in magtape.

Configuration Template
CPU backplane

```
      A    B    C    D    E    F
  1   KDJ11-B
  2   MSV11-JD or MSV11-JE
  3   MSV11-JD or MSV11-JE
  4   KTJ11-B
  5   Hex or Quad UNIBUS Options
Slots
  6   Hex or Quad UNIBUS Options
  7   Modified   Hex or Quad UNIBUS Options
      UNIBUS
  8   Modified   Hex or Quad UNIBUS Options
      UNIBUS
  9   UNIBUS     Quad Option
      Out
```

		dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
Slot	Option	Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			736		100		5		6		20		12
1	11/84 CPU											1	
2	Memory												
3	Memory												
4	UBA Interface	120	596	13.4	46.6	.1	1.9	—	3	1	19	—	11
5													
6													
7													
8													
9	UNIBUS Out												
	TOTAL												

First optional expansion backplane

		dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
Slot	Option	Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			28										
10	UNIBUS In												
11													
12													
13													
14													
15													
16													
17													
18	UNIBUS Out												
	TOTAL												

Second optional expansion backplane

		dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
Slot	Option	Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			28										
19	UNIBUS In												
20													
21													
22													
23													
24													
25													
26													
27	UNIBUS Out												
	TOTAL												

CPU backplane 5-volt current rating is 50 A maximum.

Product Description

The 11Y84 is offered in two kernel system configurations, providing either 2 or 4 Mbytes of memory. These systems feature the 11/84 E-series 10.5-inch design center enclosed in a shielded 60-inch H9647 cabinet. These configurations offer memory expansion to 4 Mbytes using MSV11-J memory modules, and provide four system units of additional backplane mounting space. Optional system options may be selected from the list of UNIBUS options highlighted in the introduction.

Features

- PDP-11/84 CPU and power supply with 736 watts dc output power
- 2 or 4 Mbytes of MSV11-JE PMI memory with ECC
- 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK or DD11-CK backplanes
- I/O distribution panel with 24 panel units for FCC-compliant system I/O connectivity (optional expansion)
- Flexible system packaging – 60-inch-high H9647 cabinets with three-phase power controllers and mounting space for two 10.5-inch peripheral options and one BA11A-EX/EY UNIBUS expansion box

CPU Cabinet Expansion

All PDP-11/84 system cabinet products provide six system units of space for backplane expansion. The 9-slot backplane can be extended with DD11-CK or DD11-DK expansion backplanes for a total of 27 slots. Mounting space is provided within the cabinet for an optional H7231-H battery backup unit.

Memory Expansion

Memory may be expanded to 4 Mbytes using MSV11-JD or -JE memory modules.

Mass Storage and System Expansion

There are two 10.5-inch cavities for mounting disk or tape options (RA82, RA81, RC25, RL02, TSU05, TK50, and RX50) in the upper half of the cabinet. There is also one shielded 10.5-inch cavity below the processor, intended for a BA11A expansion box. Additional expansion capacity external to cabinet is available with H9642 expansion cabinets.

Ordering Information

11Y84-EC/ED PDP-11/84 kernel system with 2 Mbytes of memory (1 MSV11-JE) in shielded H9647-style cabinet.

11Y84-EE/EF PDP-11/84 kernel system with 4 Mbytes of memory (2 MSV11-JE) in shielded H9647-style cabinet.

When a kernel system is ordered, system diagnostics are included. The load medium (RL02, tape, RC25, etc.) must be specified in the notes section of the Manufacturing Order Form. The default medium is 1,600-b/in magtape.

Configuration Template
CPU backplane

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

Slots 5, 6, 7, 8, 9 are on the left (labeled "Slots").

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts		Loads			
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			736		100		5		6		20		24
1	11/84 CPU											1	
2	Memory												
3	Memory												
4	UBA Interface	120	596	13.4	36.6	.1	1.9	—	3	1	19	—	23
5													
6													
7													
8													
9	UNIBUS Out												
	TOTAL												

First optional expansion backplane

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts		Loads			
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			28										
10	UNIBUS In												
11													
12													
13													
14													
15													
16													
17													
18	UNIBUS Out												
	TOTAL												

Second optional expansion backplane

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts		Loads			
		Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			28										
19	UNIBUS In												
20													
21													
22													
23													
24													
25													
26													
27	UNIBUS Out												
	TOTAL												

CPU backplane 5-volt current rating is 50 A maximum.

SX-JX200 Single-bay System Building Blocks
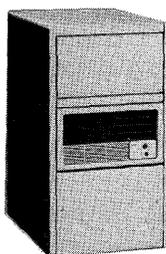
Product Description

The PDP-11/84-E is available in two system building block configurations. These configurations offer all the features of the 11X84 kernel systems and include a choice of four PDP-11 operating system licenses. Select from the assortment of system options listed in the UNIBUS Options section of this chapter. A supportable system requires at least one removable media (tape or disk) for loading software and diagnostics. A console terminal should be ordered separately.

Features

- PDP-11/84 CPU and power supply with 736 watts dc output power available
- 2 to 4 Mbytes of MSV11-JE PMI memory with ECC
- 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK backplanes
- I/O distribution panel with 13 panel units for FCC-compliant system I/O system capacity
- Flexible system packaging – 42-inch-high H9642 cabinets with power controllers and mounting space for one 10.5-inch peripheral options
- RSTS/E, RSX-11M, RSX-11M-PLUS, or DSM-11 license (-UZ) included

CPU Cabinet Expansion

All PDP-11/84 system cabinets include six system units of backplane mounting space. The 9-slot CPU backplane can be extended with additional DD11-DK expansion backplanes for a total of 27 slots. Mounting space is available in the cabinets for an H7231-H battery backup unit.

Memory Expansion

Memory may be expanded to 4 Mbytes using MSV11-JD or -JE memory modules.

Mass Storage Expansion

There is one 26.6-cm (10.5-inch) cavity available for mounting disk or tape options. The RA81, RA82, RL02, RC25, RX50, TS05, and TK50 options may be integrated into these configurations. Additional system expansion can be provided via UNIBUS PDP-11 expansion boxes and H9642 expansion cabinets.

Ordering Information

SX-JX200-EC/ED PDP-11/84 system building block with 2 Mbytes of memory in a H9642-style cabinet with a choice of PDP-11 operating system licenses.

SX-JX200-EE/EF PDP-11/84 system building block with 4 Mbytes of memory in a H9642-style cabinet with a choice of PDP-11 operating system licenses.

When a system building block is ordered, diagnostics are included. The load medium must be specified in the notes section of the Manufacturing Order Form. The default medium is 1,600-b/in magnetic tape.

Configuration Template
CPU backplane

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
Slots 6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

| | | dc Power | | | | | | | | Bus Loads | | Panel Units | |
| | | Power | | 5 Volts | | 15 Volts | | – 15 Volts | | | | | |
Slot	Option	Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			736		100		5		6		20		13
1	11/84 CPU											1	
2	Memory												
3	Memory												
4	UBA Interface	120	596	13.4	46.6	.1	1.9	—	3	1	19	—	12
5													
6													
7													
8													
9	UNIBUS Out												
	TOTAL												

First optional expansion backplane

| | | dc Power | | | | | | | | Bus Loads | | Panel Units | |
| | | Power | | 5 Volts | | 15 Volts | | – 15 Volts | | | | | |
Slot	Option	Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			28										
10	UNIBUS In												
11													
12													
13													
14													
15													
16													
17													
18	UNIBUS Out												
	TOTAL												

Second optional expansion backplane

| | | dc Power | | | | | | | | Bus Loads | | Panel Units | |
| | | Power | | 5 Volts | | 15 Volts | | – 15 Volts | | | | | |
Slot	Option	Watts used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Amps used	Avail-able	Loads used	Avail-able	Used	Avail-able
			28										
19	UNIBUS In												
20													
21													
22													
23													
24													
25													
26													
27	UNIBUS Out												
	TOTAL												

CPU backplane 5-volt current rating is 50 A maximum.

PDP-11/84 UNIBUS Multiuser Systems

SX-JX300 Widebody System Building Blocks
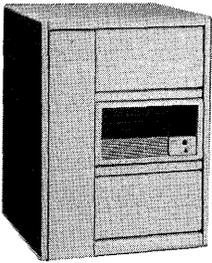
Product Description

The PDP-11/84-E is available in two system building block configurations. These configurations offer all the features of the 11W84 kernel systems and include a choice of four PDP-11 operating system licenses. Select from the assortment of system options listed in the UNIBUS Options section of this chapter. A supportable system requires at least one removable media (tape or disk) for loading software and diagnostics. A console terminal should be ordered separately.

Features

- PDP-11/84 CPU and power supply with 736 watts dc output power available
- 2 to 4 Mbytes of MSV11-J PMI memory with ECC
- 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK backplanes
- I/O distribution panel with 12 panel units for FCC-compliant system I/O
- Flexible system packaging – 42-inch-high H9645 cabinets with power controller and mounting space for one or two 10.5-inch peripheral options
- RSTS/E, RSX-11M, RSX-11M-PLUS, or DSM-11 license (-UZ) included

CPU Cabinet Expansion

All PDP-11/84 system cabinets include six system units of backplane mounting space. The 9-slot CPU backplane can be expanded with additional DD11-DK expansion backplanes for a total of 27 slots. There is mounting space in the CPU box for an additional 9-slot backplane, for a total of 27 slots. Mounting space is available in the cabinets for an optional H7231-J battery backup unit.

Memory Expansion

Memory may be expanded to 4 Mbytes using MSV11-JD or -JE memory modules.

Mass Storage Expansion

There are two 26.6-cm (10.5-inch) cavities available for mounting disk or tape options. The RA81, RA82, RL02, RC25, RX50, TS05, and TK50 options may be integrated into these configurations. Additional system expansion can be provided via UNIBUS PDP-11 expansion boxes and H9642 expansion cabinets.

Ordering Information

SX-JX300-EC/ED PDP-11/84 system building block with 2 Mbytes of memory and a H9645-style cabinet with a choice of PDP-11 operating system licenses.

SX-JX300-EE/EF PDP-11/84 system building block with 4 Mbytes of memory in a H9645-style cabinet with a choice of PDP-11 operating system licenses.

When a system building block is ordered, diagnostics are included. The load medium must be specified in the notes section of the Manufacturing Order Form. The default medium is 1,600-b/in magnetic tape.

Configuration Template
CPU backplane

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

(Slots)

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
		Watts used	Available	Amps used	Available	Amps used	Available	Amps used	Available	Loads used	Available	Used	Available
			736		100		5		6		20		12
1	11/84 CPU											1	
2	Memory												
3	Memory												
4	UBA Interface	120	596	13.4	36.6	.1	1.9	—	3	1	19	—	11
5													
6													
7													
8													
9	UNIBUS Out												
	TOTAL												

First optional expansion backplane

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
		Watts used	Available	Amps used	Available	Amps used	Available	Amps used	Available	Loads used	Available	Used	Available
					28								
10	UNIBUS In												
11													
12													
13													
14													
15													
16													
17													
18	UNIBUS Out												
	TOTAL												

Second optional expansion backplane

Slot	Option	dc Power								Bus Loads		Panel Units	
		Power		5 Volts		15 Volts		– 15 Volts					
		Watts used	Available	Amps used	Available	Amps used	Available	Amps used	Available	Loads used	Available	Used	Available
					28								
19	UNIBUS In												
20													
21													
22													
23													
24													
25													
26													
27	UNIBUS Out												
	TOTAL												

CPU backplane 5-volt current rating is 50 A maximum.

Product Description

The PDP-11/84-E-series is available in two four-high system building block configurations. These configurations offer all the features of the 11Y84 kernel systems and include a choice of PDP-11 operating system licenses. Select from the assortment of system options listed in the UNIBUS Options section of this chapter. A supportable system requires at least one removable media (tape or disk) for loading software and diagnostics. A console terminal should be ordered separately.

Features

- PDP-11/84 CPU and power supply with 736 watts dc output power available
- 2 to 4 Mbytes of MSV11-J PMI memory with ECC
- 9-slot CPU backplane, with 5 slots available for system options; expandable to 27 total slots with optional DD11-DK backplanes
- I/O distribution panel with 24 panel units for FCC-compliant system I/O
- Flexible system packaging – 60-inch-high H9647 cabinets with three-phase power controller and mounting space for two 10.5-inch peripheral options
- RSTS/E, RSX-11M, RSX-11M-PLUS, or DSM-11 license (-UZ) included

CPU Cabinet Expansion

All PDP-11/84 system cabinets include six system units of backplane mounting space. The 9-slot CPU backplane can be expanded with additional DD11-DK or DD11-CK expansion backplanes for a total of 27 slots. Mounting space is provided within the cabinet for an optional H7231-H battery backup unit.

Memory Expansion

Memory may be expanded to 4 Mbytes using MSV11-JD or -JE memory modules.

Mass Storage Expansion

There are two 10.5-inch cavities for mounting disk or tape options (RA82, RA81, RL02, RC25, TSU05, TK50, RX50) in the upper half of the cabinet. There is also one shielded 10.5-inch cavity below the processor, intended for a BA11A expansion box. Additional expansion capacity external to the cabinet is available with H9642 expansion cabinets.

Ordering Information

SX-JX400-EC/ED PDP-11/84 system building block with 2 Mbytes of memory and a H9647-style cabinet with a choice of PDP-11 operating system licenses.

SX-JX400-EE/EF PDP-11/84 system building block with 4 Mbytes of memory in a H9647-style cabinet with a choice of PDP-11 operating system licenses.

When a system building block is ordered, diagnostics are included. The load medium must be specified in the notes section of the Manufacturing Order Form. The default medium is 1,600-b/in magnetic tape.

Configuration Template
CPU backplane

	A	B	C	D	E	F
1	KDJ11-B					
2	MSV11-JD or MSV11-JE					
3	MSV11-JD or MSV11-JE					
4	KTJ11-B					
5	Hex or Quad UNIBUS Options					
6	Hex or Quad UNIBUS Options					
7	Modified UNIBUS	Hex or Quad UNIBUS Options				
8	Modified UNIBUS	Hex or Quad UNIBUS Options				
9	UNIBUS Out	Quad Option				

(Slots)

Slot	Option	dc Power Power Watts used	Power Avail-able	5 Volts Amps used	5 Volts Avail-able	15 Volts Amps used	15 Volts Avail-able	–15 Volts Amps used	–15 Volts Avail-able	Bus Loads Loads used	Bus Loads Avail-able	Panel Units Used	Panel Units Avail-able
			736		100		5		6		20		24
1	11/84 CPU											1	
2	Memory												
3	Memory												
4	UBA Interface	120	596	13.4	36.6	.1	1.9	—	3	1	19	—	23
5													
6													
7													
8													
9	UNIBUS Out												
	TOTAL												

First optional expansion backplane

Slot	Option	dc Power Power Watts used	Power Avail-able	5 Volts Amps used	5 Volts Avail-able	15 Volts Amps used	15 Volts Avail-able	–15 Volts Amps used	–15 Volts Avail-able	Bus Loads Loads used	Bus Loads Avail-able	Panel Units Used	Panel Units Avail-able
					28								
10	UNIBUS In												
11													
12													
13													
14													
15													
16													
17													
18	UNIBUS Out												
	TOTAL												

Second optional expansion backplane

Slot	Option	dc Power Power Watts used	Power Avail-able	5 Volts Amps used	5 Volts Avail-able	15 Volts Amps used	15 Volts Avail-able	–15 Volts Amps used	–15 Volts Avail-able	Bus Loads Loads used	Bus Loads Avail-able	Panel Units Used	Panel Units Avail-able
					28								
19	UNIBUS In												
20													
21													
22													
23													
24													
25													
26													
27	UNIBUS Out												
	TOTAL												

CPU backplane 5-volt current rating is 50 A maximum.

UNIBUS System Upgrades

The new, enhanced 11/84 extends the PDP-11/84 to a wider range of upgrade possibilities than ever before. Existing UNIBUS PDP-11 applications can be upgraded to the processing power of the PDP-11/84 with both box- and cabinet-level upgrade components. Older UNIBUS PDP-11 processors can be enhanced and expanded to handle more users and more applications. These upgrade paths offer unbeatable hardware and software investment protection.

The PDP-11/84 is a form, fit, and function enhancement for virtually any previous UNIBUS processor. It is compatible with an extensive range of previously installed UNIBUS peripherals and options. Upgrades should be examined from a total system perspective. For example, more serial lines and/or additional disk storage capacity may complement a processor upgrade and further leverage your investment in PDP-11s, by enhancing reliability and reducing operating costs.

The 11/84 upgrade packages include the 11/84 processor and are configured with 2 Mbytes of memory in a 5.25-inch (13.3-cm) or 10.5-inch (26.6-cm) enclosure. All include one year of DECservice warranty as well as a license to replace an existing RSX-11M, RSX-11M-PLUS, RSTS/E, or DSM-11 operating system license. All upgrade packages include de-installation of the existing CPU and installation of the new 11/84 to simplify your system growth needs.

For information regarding processor trade-in programs and system-upgrade programs, contact your Digital sales representative. Enclosure-only hardware upgrades, (with no module set), are also available, for customers who wish to update system packaging as part of the upgrade process.

Design Center (Box-level) Upgrade Packages

11/84-U2	11/84-P module set upgrade includes 11/84 CPU and 2 Mbytes of memory.
11/84-UH/UJ	5.25-inch box-level upgrade includes the 11/84-DC/DD with 2 Mbytes of memory, diagnostics, documentation, and service, 120/240V.
11/84-UK/UL	10.5-inch box-level upgrade includes the 11/84-EC/ED with 2 Mbytes of memory, diagnostics, documentation, and service, 120/240V.

Enclosure Hardware Only (No Module Sets) Upgrade Packages

11/84-UD/UE	5.25-inch box and backplane-only package (used with the 11/84 module set). Includes documentation and service, 120/240V.
11/84-UF/UG	10.5-inch box and backplane-only package (used with the 11/84 module set). Includes documentation and service, 120/240V.
H9642-EA/EB	H9642 42-inch-high, FCC-shielded CPU cabinet with power controller and mounting space for a single 10.5-inch (26.6-cm) peripheral option, 120/240 V.
H9645-EA/EB	H9645 42-inch-high, 29-inch widebody FCC-shielded CPU cabinet with power controller and mounting space for two 10.5-inch (26.6-cm) peripheral options, 120/240 V.
H9647-EX/EY	H9647 60-inch-high, 29-inch-wide, four-high, FCC-shielded CPU cabinet with power controller and mounting space for three 26.6-cm system expansion and peripheral options, 120/240 V (three-phase).

Table II.1: CPU Site Preparation Data

Model	Voltage Nominal V	Freq Nominal Hz	Number of Phases	Current ac Amps	Thermal Dissipation		Receptacle Type	PCS/PDS Cable Type	Physical Size			
					Watts	Btu/h			Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
11/84-DC/DE	120	60	1	8.5	650	2218	5-15R		5.25	19.0	27.0	67.0
11/84-DD/DF	240	50	1	4.2	650	2218	6-15R		[13.3]	[48.2]	[68.6]	[30.5]
11/84-EC/EE	120	60	1	15.0	1100	3750	5-20R		10.5	19.0	27.0	70.3
11/84-ED/EF	240	50	1	7.5	1100	3750	6-15R		[26.6]	[48.2]	[71.0]	[32.0]
11X84-EC/EE	120	60	1	24.0	1100*	3750	L5-30R		41.7	21.3	31.5	279.0
11X84-ED/EF	240	50	1	12.0	1100*	3750	6-15R		[106.6]	[54.1]	[80.0]	[127.0]
11W84-EC/EE	120	60	1	24.0	1100*	3750	L5-30R		41.7	29.0	31.5	336.0
11W84-ED/EF	240	50	1	12.0	1100*	3750	6-15R		[106.6]	[73.6]	[80.0]	[153.0]
11Y84-EC/EE	120	208/120	3	24.0	1100*	3750	L21-30R		60.5	29.0	31.5	490.0
11Y84-ED/EF	240	415/240	3	16.0	1100*	3750	IEC 390-16A		[153.6]	[73.6]	[80.0]	[223.0]
SK-JX200-EC/EE	120	60	1	24.0	1100*	3750	L5-30R		41.7	21.3	31.5	279.0
SK-JX200-ED/EF	240	50	1	12.0	1100*	3750	6-15R		[106.6]	[54.1]	[60.0]	[127.0]
SK-JX300-EC/EE	120	60	1	24.0	1100*	3750	L5-30R		41.7	29.0	31.5	336.0
SK-JX300-ED/EF	240	50	1	12.0	1100*	3750	6-15R		[106.6]	[73.6]	[80.0]	[153.0]
SK-JX400-EC/EE	208/120	60	3	24.0	1100*	3750	L5-30R		60.5	29.0	31.5	490.0
SK-JX400-ED/EF	415/240	50	3	16.0	1100*	3750	IEC 390-16A		[153.6]	[73.6]	[80.0]	[223.0]

*These figures are based on kernel systems containing fully loaded CPU box only.

Industrial Systems

Industrial Family of Products

Introduction

Digital's Industrial Family of Products consists of standard PDP-11/83 computers packaged in Digital's newest enclosure, the BA200-series. The BA200 is suitable for use in harsh factory environments. Functions of the Industrial Family include supervisory control, factory data collection, process control, shop floor information management, and cell or area control. Because they are all based upon Digital computer platforms, the Industrial Family systems and services can also perform general purpose computing in manufacturing. Digital also offers the E-series IPDP packaged in a rugged enclosure and sealed to NEMA-12 standards to withstand tough manufacturing environments. For a complete description of the E-series IPDP, refer to Chapter 8.

The Industrial Family can withstand higher temperatures, greater shocks, and more vibration than standard computers. The large box (12 slots) withstands 40 degrees C. The relative humidity range is as follows: from 20 to 80% with a disk, and 10 to 95% without a disk. The Industrial Family can also withstand greater shocks than standard equipment. During operation, the system with disks and tape can withstand 8g for 10ms. When not operating, the system can withstand 20g for 30ms. The systems are protected against greater vibration, power surges, and power spikes with a three-cycle power loss ride through. These features make them well-suited for typical factory environments.

These specifications apply to the factory systems' metal chassis only. When mounted in a cabinet, any degradation of these specifications cannot exceed the stated range. For more information on environmental requirements for installing these systems into user enclosures, please see the *Factory Systems Site Preparation Guide* (order number EK-074AA-SP).

The mounting styles are flexible because the factory systems' module slots are accessible from the front of the system. Customers can mount the metal chassis into any 19-inch EIA cabinet, or on the wall of a cabinet. The metal chassis systems include hardware for rack and wall mounting. Custom packaging is available upon request.

The Industrial PDP (IPDP) systems support RSX-11M-PLUS. Most factory systems offer expanded memory and disk storage options, and a variety of communications options including DEC423, RS-422, and RS-232. See the individual system menus and the Industrial PDP Common Options section beginning on page III.9 for further information.

All systems are backed by Digital's support services groups including Field Service, Educational Services and Software Services. All systems carry a one-year hardware warranty.

Systems Matrix Table – Unsealed Systems

System Name	CPU Type	Slots	Operating Software
Industrial PDP-11/83 Hardware Only	PDP-11/83	12	Purchased separately; system supports most PDP-11 Operating Systems
Industrial PDP-11/83 Complete System	PDP-11/83	12	RSX-11M-PLUS

Product Description

The General Purpose IPDP (Hardware Only) is a standard PDP-11/83 packaged for an industrial environment. It does not include any operating system or license.

Customers can purchase the IPDP (Hardware Only) for use with existing PDP-11 applications. Both discrete manufacturing industries and process manufacturing industries will find the IPDP (Hardware Only) suitable for such typical applications as machine automation, process control, supervisory/cell control, data-acquisition control, transfer of information to MRP and plant host systems.

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Base Hardware				Includes PDP-11/83 CPU in 12-slot metal chassis, FPU, MSVII-JE 2-Mbyte memory, RD53 71-Mbyte disk drive and RQDX3 disk controller, TK50 95-Mbyte tape and TQK50 tape controller, 16 DEC423 serial lines, (CXA16), 2 H3104 distribution units, 2 BC16D-25 cables, 1 EIA 423-A serial line, BC16E-10 null modem cable, H8571-A (25 pin D-sub to MMJ) adapter, rack and wall mount kit. U.S. 120-V power cord.	
	☐	1	**DH-183H1-AA**	IPDP hardware, U.S. power cord, 120 V, English-language documentation and installation diagnostics	Choose one. – AA model recommended for US.
	☐	1	**DH-183H1-A4**	Same as DH-183H1-AA except 240 V, no power cord, diagnostics, or documentation – see Steps 2 and 3 to order separately	
2 Power Cords	☐	1	**BN20B-2E**	U.S./Japan – 208-240 V	Required only for -A4 configuration. DH-183H1-AA includes US 120-V power cord.
	☐	1	**BN20C-2E**	Australia/New Zealand – 240/230 V	
	☐	1	**BN20D-2E**	Central Europe – 220 V	
	☐	1	**BN20E-2E**	UK/Ireland – 240 V	Central European countries include Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Portugal, Spain, and Sweden.
	☐	1	**BN20F-2E**	Switzerland – 220 V	
	☐	1	**BN20H-2E**	Denmark – 240 V	
	☐	1	**.BN20J-2E**	Italy – 220 V	
	☐	1	**BN20K-2E**	India/South Africa	
	☐	1	**BN20L-2E**	Israel – 230 V	All cord lengths are 2.5 m, 10 A.
3 Diagnostics and Documentation	☐	1	**ZYAHH-P5**	English-language diagnostics/documentation on TK50 media	ZYAHH-P5 is optional for DH-183H1-A4. It is included in DH-183H1-AA.
	☐	1	**ZY*HH-P5**	*-language diagnostics/documentation on TK50 media	

Note: Selection from Steps 4 through 8 is *optional* for a functioning system.

Seven slots are available for expansion.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
4 Additional Memory	☐	1	MSV11-JE	2-Mbyte PMI memory	Maximum of two memory modules per system. Base Hardware System includes one, so at most select one additional module.
	☐	1	MSV11-JD	1-Mbyte PMI memory	

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Additional Mass Storage	☐ ☐	– –	RD53A-SA RD54A-SA	71-Mbyte fixed disk 159-Mbyte fixed disk	Maximum of three disks per system. Hardware System includes one, so at most order two additional drives. RD53 and RD54 may be mixed in the same system.
6 Additional Asynchronous Serial Lines	☐	–	CXA16-AA	16 lines, DEC423	Includes 2 BC16D-25 (25-ft) cables and 2 H3104 8-line distribution units.
	☐	–	CXB16-AA	16 lines, RS-422	Includes 2 BC16D-25 (25-ft) cables and 2 H3104 8-line distribution units.
	☐ ☐ ☐ ☐	– – – –	DRQ3B-SA IEQ11-SA DPV11-SA DRV11-SA	2-port 16-bit DMA parallel interface IEEE 488 interface 1-line synchronous RS-232 w/modem control 16-bit parallel interface	Customer must supply device – specific drivers for the DRQ3B, IEQ11, DPV11, and DRV11.
	☐	–	CXY08-AA	8 lines, RS-232 w/full modem	Includes 2 BC19N-12 (12-ft) cables.
	☐ ☐ ☐	– – –	DZQ11-SA BC23H-06 BC23H-25	4 lines, RS-232 6-ft cable 25-ft cable	Choose 1 cable minimum; 4 cables per module max. BC23H cable for use with modems, PLCs. DZQ11 should not be used for terminal support.
7 Networking Options	☐	1	DEQNA-SA	Ethernet communications controller	Maximum of one DEQNA per system.
	☐ ☐	1 1	BNE3K-xx BNE3M-xx	PVC cable with right angle bend Teflon cable w/right angle bend	Select PVC or Teflon cable in appropriate length.
8 Base Software	☐ ☐	1 1	QR500-UZ QR500-H5	RSX-11M-PLUS class-H license RSX-11M-PLUS TK50 distrib and documentation	All media/documentation kits come on TK50 cartridge tapes.

Note: For additional system options and field upgrade options see the Industrial PDP Common Options section beginning on page III.9. System includes installation and one year hardware warranty at the DEC Service level. System should be installed in an appropriate cabinet. See *Factory Systems Site Preparation Guide* (EK-074AA-SP) for more information.

Product Description

The General Purpose IPDP (Complete System) is a standard PDP-11/83 packaged for an industrial environment. It contains the RSX-11M-PLUS operating system and license.

Customers can purchase the IPDP (Complete System) for use with existing PDP-11 applications. Both discrete manufacturing industries and process manufacturing industries will find the IPDP (Complete System) suitable for such typical applications as machine automation, process control, supervisory/cell control, data acquisition control, transfer of information to MRP and plant host systems.

Note: The selection of Steps 1 through 3, plus the selection of one console terminal from the Terminals Step, is the minimum necessary for a fully functional system. Customer requests to sell or quote less than a fully functional system must be referred to the District Operations Manager.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Packaged System				Includes PDP-11/83 CPU in 12-slot metal chassis, FPU, MSV11-JE 2-Mbyte memory, RD53 71-Mbyte disk drive and RQDX3 disk controller, TK50 95-Mbyte tape and TQK50 tape controller, 16 DEC423 serial lines, (CXA16), 2 H3104 distribution units, 2 BC16D-25 cables, 1 DEC423 serial line, BC16E-10 null modem cable, H8571-A (25 pin D-sub to MMJ) adapter, rack and wall mount kit. RSX-11M-PLUS license (QR500-UZ) and RSX-11M-PLUS TK50 distribution (QR500-H5). U.S. 120-V power cord.	
	☐	1	**DJ-183H1-A2**	IPDP system, U.S. power cord, 120 V, English-language documentation and installation diagnostics	Choose one. – A2 model recommended for U.S.
	☐	1	**DJ-183H1-A3**	Same as DJ-183H1-A2 except 240 V, no power cord, diagnostics, or documentation – see Steps 2 and 4 to order separately	
2 Power Cords	☐	1	**BN20B-2E**	U.S./Japan – 208-240 V	Required only for -A3 configuration. DJ-183H1-A2 includes U.S. 120-V power cord.
	☐	1	**BN20C-2E**	Australia/New Zealand – 240/230 V	
	☐	1	**BN20D-2E**	Central Europe – 220 V	
	☐	1	**BN20E-2E**	UK/Ireland – 240 V	Central European countries include:
	☐	1	**BN20F-2E**	Switzerland – 220 V	Austria, Belgium, Finland, France,
	☐	1	**BN20H-2E**	Denmark – 240 V	Germany, Netherlands, Norway, Portugal,
	☐	1	**BN20J-2E**	Italy – 220 V	Spain, and Sweden.
	☐	1	**BN20K-2E**	India/South Africa	
	☐	1	**BN20L-2E**	Israel – 230 V	All cord lengths are 2.5 m, 10 A.
3 Diagnostics and Documentation	☐	1	**ZYAHH-P5**	English-language diagnostics/documentation on TK50 media	ZYAHH-P5 is optional for DJ-183H1-A3. It is included in DJ-183H1-A2.
	☐	1	**ZY*HH-P5**	*-language diagnostics/documentation on TK50 media	

Note: Selection from Steps 4 through 7 is *optional* for a functioning system.

Seven slots are available for expansion.

4 Additional Memory	☐	1	**MSV11-JE**	2-Mbyte PMI memory	Maximum of two memory modules per system. Packaged System includes one, so at most select one additional module.
	☐	1	**MSV11-JD**	1-Mbyte PMI memory	

Industrial Systems

Industrial PDP-11/83 (Complete System)

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
5 Additional Mass Storage	☐ ☐	– –	RD53A-SA RD54A-SA	71-Mbyte fixed disk 159-Mbyte fixed disk	Maximum of three disks per system. Packaged System includes one, so at most order two additional drives. RD53 and RD54 may be mixed in the same system.
6 Additional Asynchronous Serial Lines	☐	–	CXA16-AA	16 lines, DEC423	Includes 2 BC16D-25 (25-ft) cables and 2 H3104 8-line distribution units.
	☐	–	CXB16-AA	16 lines, RS-422	Includes 2 BC16D-25 (25-ft) cables and 2 H3104 8-line distribution units.
	☐	–	CXY08-AA	8 lines, RS-232 w/full modem	Includes 2 BC19N-12 (12-ft) cables.
	☐ ☐ ☐	– – –	DZQ11-SA BC23H-06 BC23H-25	4 lines, RS-232 6-ft cable 25-ft cable	Choose 1 cable minimum; 4 cables per module max. BC23H cable for use with modems, PLCs. DZQ11 should not be used for terminal support.
7 Networking Options	☐	1	DEQNA-SA	Ethernet communications controller	Maximum of one DEQNA per system.
	☐ ☐	1 1	BC23H-06 BC23H-25	PVC cable w/right-angle bend Teflon cable w/right-angle bend	Select PVC or Teflon cable in appropriate length.

Note: For additional system options and field upgrade options see the Industrial PDP Common Options section beginning on page III.9. System includes installation and one year hardware warranty at the DEC Service level. System should be installed in an appropriate cabinet. See *Factory Systems Site Preparation Guide* (EK-074AA-SP) for more information.

Note: All keyboard kits and most models in Steps 1 and 2 below are 120 V/U.S. Refer to Tables III.1 and III.2 for Non-120 V alternate language kits and models.

Step	Check	Qty	Part Number	Product Description	Product/Order Limitations or Remarks
1 Terminals			One terminal (video, hardcopy, or graphics) is necessary as a console for a system to function.		
Hardcopy	☐	–	**LA100-BA**	Tabletop printing term., 120 V	LA100-BB includes European Keycap set
	☐	–	**LA100-BB**	Tabletop printing term., 240 V	and serial cable.
	☐	–	**LA120-DA**	Floor stand print term., 120/240 V	
	☐	–	**LA12X-SL**	European Char set keycaps, ROM	European Keycap set is required for Europe.
Video	☐	–	**DL-VT320-A___**	Black/white video terminal	Terminals include keyboard.
	☐	–	**DL-VT320-B___**	Green video terminal	
	☐	–	**DL-VT320-C___**	Amber video terminal	See Table III.2 for country variations.
	☐	–	**DL-VT320-F___**	WPS amber video terminal	
Graphics	☐	–	**VT330-A___**	Black/white graphics terminal	
	☐	–	**VT330-B___**	Green graphics terminal	
	☐	–	**VT330-C___**	Amber graphics terminal	
	☐	–	**VT330-D___**	WPS white graphics terminal	
	☐	–	**VT340-A___**	Color graphics terminal	
	☐	–	**VT340-D___**	WPS color graphics terminal	
Ruggedized			(See Section on Ruggedized Terminals in Chapter 8.)		
2 Printers LA75	☐	–	**LA75-___**	250 CPS Companion printer BC16E MMJ cable	Choose appropriate printers and accessories. LA75 includes modified
	☐	–	**LA75P-___**	Parallel model	modular jack (MMJ) cable.
LA210	☐	–	**LA210-AA**	240 CPS matrix printer	LA75 includes parallel interface cable. LA75 requires a separate adapter if
	☐	–	**LA21X-BT**	Bi-dir forms trctr for LA210	connected to a host/video with other than
	☐	–	**LA21X-SF**	Sngl-tray sht fdr, LA210, 8.5x11	DEC423 (MMJ) printer port. Select from
	☐	–	**LA21X-SH**	Sngl-tray sht fdr, LA210, A4 size	the following: H8571-A for VT100 family
LN03	☐	–	**LN03-___**	8 pp/min laser printer	H8571-B for VT200/DECmate/Pro family
	☐	–	**LN03S-___**	8 pp/min graphic laser printer	
					Other printers designed for 25-pin or 9-pin RS-232-D cables.
					Base system (part 1, 2 or 3 – step 1) includes 3 25-pin to-MMJ adapters and 3 MMJ cables.
					See Table III.1 for country variations.

Industrial Systems

Industrial PDP Common Options: Terminals and Printers

Table III.1 – Multinational Order Codes for Printers

Country/ Region	Language	LA75* Printer	LJ250† Printer	LA210 Printer	LN03 Printer	LN03S Printer
United States	English	LA75-CA	LJ250-CA	LA210-AA	LN03-AA	LN03S-AA
Belgium	Flemish	LA75-AB	LJ250-AB	LA210-AB	LN03-AB	LN03S-AB
Canada	French	LA75-CA	LJ250-CA	LA210-AC	LN03-AC	LN03S-AC
Denmark	Danish	LA75-AD	LJ250-AD	LA210-AD	LN03-AD	LN03S-AD
UK/Ireland	English	LA75-AE	LJ250-AE	LA210-AE	LN03-AE	LN03S-AE
Finland	Finnish	LA75-CC	LJ250-CC	LA210-AF	LN03-AF	LN03S-AF
W. Germany/Austria	German	LA75-AG	LJ250-AG	LA210-AG	LN03-AG	LN03S-AG
Holland	Dutch	LA75-AH	LJ250AH	LA210-AH	LN03-AH	LN03S-AH
Italy	Italian	LA75-AI	LJ250-AI	LA210-AI	LN03-AI	LN03S-AI
Japan	Katakana	LA75-AJ		LA210-AJ	LN03-AJ	LN03S-AJ
Switzerland	French	LA75-CB	LJ250-CB	LA210-AK	LN03-AK	LN03S-AK
Switzerland	German	LA75-CB	LJ250-CB	LA210-AL	LN03-AL	LN03S-AL
Sweden	Swedish	LA75-CC	LJ250-CC	LA210-AM	LN03-AM	LN03S-AM
Norway	Norwegian	LA75-CC	LJ250-CC	LA210-AN	LN03-AN	LN03S-AN
France	French	LA75-AP	LJ250-AP	LA210-AP	LN03-AP	LN03S-AP
Canada	English	LA75-CA	LJ250-CA	LA210-AQ	LN03-AQ	LN03S-AQ
South America	Spanish	LA75-CA		LA210-AR	LN03-AR	LN03S-AR
Spain	Spanish	LA75-AS	LJ250-AS	LA210-AS	LN03-AS	LN03S-AS
Israel	Hebrew	LA75-AT	LJ250-AT	LA210-AT	LN03-AT	LN03S-AT
South America	Portuguese	LA75-CA		LA210-AU	LN03-AU	LN03S-AU
Portugal	Portuguese	LA75-CC	LJ250-CC	LA210-AV	LN03-AV	LN03S-AV
Switzerland	Italian	LA75-CB	LJ250-CB	LA210-AW	LN03-AW	LN03S-AW
Japan	Hiragana				LN03-AY	LN03S-AY
Australia/ New Zealand	English	LA75-AZ	LJ250-AZ	LA210-AZ	LN03-AZ	LN03S-AZ
Mexico	Spanish		LJ250-CA			

*To order the parallel version of the LA75, use LA75P with the respective suffix for country variation.
†To order the parallel version of the LJ250, use LJ252 with the respective suffix for country variation.

Table III.2 – Video Terminal Selection Chart
Refer to this table for ordering any VT300-family terminal.

VT320		VT330		VT340	
USA (North American Model)					
VT320-AA	white text terminal w/standard keyboard, 120 V	**VT330-AA**	white graphics terminal w/standard keyboard, 120 V	**VT340-AA**	color graphics terminal w/standard keyboard, 120 V
VT320-BA	green text terminal w/standard keyboard, 120 V	**VT330-BA**	green graphics terminal w/standard keyboard, 120 V	**VT340-DA**	color graphics terminal w/WPS keyboard, 120 V
VT320-CA	amber text terminal w/standard keyboard, 120 V	**VT330-CA**	amber graphics terminal w/standard keyboard, 120 V		
VT320-DA	white text terminal w/WPS keyboard, 120 V	**VT330-DA**	white graphics terminal w/WPS keyboard, 120 V		
VT320-EA	green text terminal w/WPS keyboard, 120 V	**VT330-EA**	green graphics terminal w/WPS keyboard, 120 V		
VT320-FA	amber text terminal w/WPS keyboard, 120 V	**VT330-FA**	amber graphics terminal w/WPS keyboard, 120 V		
USA (International Model)					
VT320-GA	white text terminal w/standard keyboard, 120 V				
VT320-HA	green text terminal w/standard keyboard, 120 V				
VT320-JA	amber text terminal w/standard keyboard, 120 V				
VT320-NA	white text terminal w/WPS keyboard, 120 V				
VT320-PA	green text terminal w/WPS keyboard, 120 V				
VT320-RA	amber text terminal w/WPS keyboard, 120 V				
Belgium					
VT320-AB	white text terminal w/standard keyboard, 240 V	**VT330-AB**	white graphics terminal w/standard keyboard, 240 V	**VT340-AB**	color graphics terminal w/standard keyboard, 240 V
VT320-BB	green text terminal w/standard keyboard, 240 V	**VT330-BB**	green graphics terminal w/standard keyboard, 240 V	**VT340-DB**	color graphics terminal w/English keyboard, 240 V
VT320-CB	amber text terminal w/standard keyboard, 240 V	**VT330-CB**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DB	white text terminal w/WPS keyboard, 240 V	**VT330-FB**	amber graphics terminal w/English keyboard, 240 V		
VT320-FB	amber text terminal w/WPS keyboard, 240 V				
Canada					
VT320-AC	white text terminal w/standard keyboard, 120 V	**VT330-AC**	white graphics terminal w/standard keyboard, 120 V	**VT340-AC**	color graphics terminal w/standard keyboard, 120 V
VT320-BC	green text terminal w/standard keyboard, 120 V	**VT330-BC**	green graphics terminal w/standard keyboard, 120 V	**VT340-DC**	color graphics terminal w/English WPS keyboard, 120 V
VT320-CC	amber text terminal w/standard keyboard, 120 V	**VT330-CC**	amber graphics terminal w/standard keyboard, 120 V		
VT320-DC	white text terminal w/WPS keyboard, 120 V	**VT330-FC**	amber graphics terminal w/English WPS keyboard, 120 V		
VT320-FC	amber text terminal w/WPS keyboard, 120 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Table III.2 – Video Terminal Selection Chart *(Continued)*

VT320		VT330		VT340	
Denmark					
VT320-AD	white text terminal w/standard keyboard, 240 V	VT330-AD	white graphics terminal w/standard keyboard, 240 V	VT340-AD	color graphics terminal w/standard keyboard, 240 V
VT320-BD	green text terminal w/standard keyboard, 240 V	VT330-BD	green graphics terminal w/standard keyboard, 240 V	VT340-DD	color graphics terminal w/English keyboard, 240 V
VT320-CD	amber text terminal w/standard keyboard, 240 V	VT330-CD	amber graphics terminal w/standard keyboard, 240 V		
VT320-DD	white text terminal w/WPS keyboard, 240 V	VT330-FD	amber graphics terminal w/English keyboard, 240 V		
VT320-FD	amber text terminal w/WPS keyboard, 240 V				
UK/Ireland					
VT320-AE	white text terminal w/standard keyboard, 240 V	VT330-AE	white graphics terminal w/standard keyboard, 240 V	VT340-AE	color graphics terminal w/standard keyboard, 240 V
VT320-BE	green text terminal w/standard keyboard, 240 V	VT330-BE	green graphics terminal w/standard keyboard, 240 V	VT340-DE	color graphics terminal w/WPS keyboard, 240 V
VT320-CE	amber text terminal w/standard keyboard, 240 V	VT330-CE	amber graphics terminal w/standard keyboard, 240 V		
VT320-DE	white text terminal w/WPS keyboard, 240 V	VT330-DE	white graphics terminal w/WPS keyboard, 240 V		
VT320-EE	green text terminal w/WPS keyboard, 240 V	VT330-EE	green graphics terminal w/WPS keyboard, 240 V		
VT320-FE	amber text terminal w/WPS keyboard, 240 V	VT330-FE	amber graphics terminal w/WPS keyboard, 240 V		
Finland					
VT320-AF	white text terminal w/standard keyboard, 240 V	VT330-AF	white graphics terminal w/standard keyboard, 240 V	VT340-AF	color graphics terminal w/standard keyboard, 240 V
VT320-BF	green text terminal w/standard keyboard, 240 V	VT330-BF	green graphics terminal w/standard keyboard, 240 V	VT340-DF	color graphics terminal w/English keyboard, 240 V
VT320-CF	amber text terminal w/standard keyboard, 240 V	VT330-CF	amber graphics terminal w/standard keyboard, 240 V		
VT320-DF	white text terminal w/WPS keyboard, 240 V	VT330-FF	amber graphics terminal w/English keyboard, 240 V		
VT320-FF	amber text terminal w/WPS keyboard, 240 V				
West Germany/Austria					
VT320-AG	white text terminal w/standard keyboard, 240 V	VT330-AG	white graphics terminal w/standard keyboard, 240 V	VT340-AG	color graphics terminal w/standard keyboard, 240 V
VT320-BG	green text terminal w/standard keyboard, 240 V	VT330-BG	green graphics terminal w/standard keyboard, 240 V	VT340-DG	color graphics terminal w/English keyboard, 240 V
VT320-CG	amber text terminal w/standard keyboard, 240 V	VT330-CG	amber graphics terminal w/standard keyboard, 240 V		
VT320-DG	white text terminal w/WPS keyboard, 240 V	VT330-FG	amber graphics terminal w/English keyboard, 240 V		
VT320-FG	amber text terminal w/WPS keyboard, 240 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Table III.2 – Video Terminal Selection Chart *(Continued)*

VT320		VT330		VT340	
Holland					
VT320-AH	white text terminal w/standard keyboard, 240 V	VT330-AH	white graphics terminal w/standard keyboard, 240 V	VT340-AH	color graphics terminal w/standard keyboard, 240 V
VT320-BH	green text terminal w/standard keyboard, 240 V	VT330-BH	green graphics terminal w/standard keyboard, 240 V	VT340-DH	color graphics terminal w/English keyboard, 240 V
VT320-CH	amber text terminal w/standard keyboard, 240 V	VT330-CH	amber graphics terminal w/standard keyboard, 240 V		
VT320-DH	white text terminal w/WPS keyboard, 240 V	VT330-FH	amber graphics terminal w/English keyboard, 240 V		
VT320-FH	amber text terminal w/WPS keyboard, 240 V				
Italy					
VT320-AI	white text terminal w/standard keyboard, 240 V	VT330-AI	white graphics terminal w/standard keyboard, 240 V	VT340-AI	color graphics terminal w/standard keyboard, 240 V
VT320-BI	green text terminal w/standard keyboard, 240 V	VT330-BI	green graphics terminal w/standard keyboard, 240 V	VT340-DI	color graphics terminal w/English keyboard, 240 V
VT320-CI	amber text terminal w/standard keyboard, 240 V	VT330-CI	amber graphics terminal w/standard keyboard, 240 V		
VT320-DI	white text terminal w/WPS keyboard, 240 V	VT330-FI	amber graphics terminal w/English keyboard, 240 V		
VT320-FI	amber text terminal w/WPS keyboard, 240 V				
Switzerland (French)					
VT320-AK	white text terminal w/standard keyboard, 240 V	VT330-AK	white graphics terminal w/standard keyboard, 240 V	VT340-AK	color graphics terminal w/standard keyboard, 240 V
VT320-BK	green text terminal w/standard keyboard, 240 V	VT330-BK	green graphics terminal w/standard keyboard, 240 V	VT340-DK	color graphics terminal w/English keyboard, 240 V
VT320-CK	amber text terminal w/standard keyboard, 240 V	VT330-CK	amber graphics terminal w/standard keyboard, 240 V		
VT320-DK	white text terminal w/WPS keyboard, 240 V	VT330-FK	amber graphics terminal w/English keyboard, 240 V		
VT320-FK	amber text terminal w/WPS keyboard, 240 V				
Switzerland (German)					
VT320-AL	white text terminal w/standard keyboard, 240 V	VT330-AL	white graphics terminal w/standard keyboard, 240 V	VT340-AL	color graphics terminal w/standard keyboard, 240 V
VT320-BL	green text terminal w/standard keyboard, 240 V	VT330-BL	green graphics terminal w/standard keyboard, 240 V	VT340-DL	color graphics terminal w/English keyboard, 240 V
VT320-CL	amber text terminal w/standard keyboard, 240 V	VT330-CL	amber graphics terminal w/standard keyboard, 240 V		
VT320-DL	white text terminal w/WPS keyboard, 240 V	VT330-FL	amber graphics terminal w/English keyboard, 240 V		
VT320-FL	amber text terminal w/WPS keyboard, 240 V				
Sweden					
VT320-AM	white text terminal w/standard keyboard, 240 V	VT330-AM	white graphics terminal w/standard keyboard, 240 V	VT340-AM	color graphics terminal w/standard keyboard, 240 V
VT320-BM	green text terminal w/standard keyboard, 240 V	VT330-BM	green graphics terminal w/standard keyboard, 240 V	VT340-DM	color graphics terminal w/English keyboard, 240 V
VT320-CM	amber text terminal w/standard keyboard, 240 V	VT330-CM	amber graphics terminal w/standard keyboard, 240 V		
VT320-DM	white text terminal w/WPS keyboard, 240 V	VT330-FM	amber graphics terminal w/English keyboard, 240 V		
VT320-FM	amber text terminal w/WPS keyboard, 240 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Table III.2 – Video Terminal Selection Chart *(Continued)*

VT320		VT330		VT340	
Norway					
VT320-AN	white text terminal w/standard keyboard, 240 V	**VT330-AN**	white graphics terminal w/standard keyboard, 240 V	**VT340-AN**	color graphics terminal w/standard keyboard, 240 V
VT320-BN	green text terminal w/standard keyboard, 240 V	**VT330-BN**	green graphics terminal w/standard keyboard, 240 V	**VT340-DN**	color graphics terminal w/English keyboard, 240 V
VT320-CN	amber text terminal w/standard keyboard, 240 V	**VT330-CN**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DN	white text terminal w/WPS keyboard, 240 V	**VT330-FN**	amber graphics terminal w/English keyboard, 240 V		
VT320-FN	amber text terminal w/WPS keyboard, 240 V				
France					
VT320-AP	white text terminal w/standard keyboard, 240 V	**VT330-AP**	white graphics terminal w/standard keyboard, 240 V	**VT340-AP**	color graphics terminal w/standard keyboard, 240 V
VT320-BP	green text terminal w/standard keyboard, 240 V	**VT330-BP**	green graphics terminal w/standard keyboard, 240 V	**VT340-DP**	color graphics terminal w/English keyboard, 240 V
VT320-CP	amber text terminal w/standard keyboard, 240 V	**VT330-CP**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DP	white text terminal w/WPS keyboard, 240 V	**VT330-FP**	amber graphics terminal w/English keyboard, 240 V		
VT320-FP	amber text terminal w/WPS keyboard, 240 V				
Spain					
VT320-AS	white text terminal w/standard keyboard, 240 V	**VT330-AS**	white graphics terminal w/standard keyboard, 240 V	**VT340-AS**	color graphics terminal w/standard keyboard, 240 V
VT320-BS	green text terminal w/standard keyboard, 240 V	**VT330-BS**	green graphics terminal w/standard keyboard, 240 V	**VT340-DS**	color graphics terminal w/English keyboard, 240 V
VT320-CS	amber text terminal w/standard keyboard, 240 V	**VT330-CS**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DS	white text terminal w/WPS keyboard, 240 V	**VT330-FS**	green graphics terminal w/English keyboard, 240 V		
VT320-FS	amber text terminal w/WPS keyboard, 240 V				
Portugal					
VT320-AV	white text terminal w/standard keyboard, 240 V	**VT330-AV**	white graphics terminal w/standard keyboard, 240 V	**VT340-AV**	color graphics terminal w/standard keyboard, 240 V
VT320-BV	green text terminal w/standard keyboard, 240 V	**VT330-BV**	green graphics terminal w/standard keyboard, 240 V	**VT340-DV**	color graphics terminal w/English keyboard, 240 V
VT320-CV	amber text terminal w/standard keyboard, 240 V	**VT330-CV**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DV	white text terminal w/WPS keyboard, 240 V	**VT330-FV**	amber graphics terminal w/English keyboard, 240 V		
VT320-FV	amber text terminal w/WPS keyboard, 240 V				
Australia/New Zealand					
VT320-AZ	white text terminal w/standard keyboard, 240 V	**VT330-AZ**	white graphics terminal w/standard keyboard, 240 V	**VT340-AZ**	color graphics terminal w/standard keyboard, 240 V
VT320-BZ	green text terminal w/standard keyboard, 240 V	**VT330-BZ**	green graphics terminal w/standard keyboard, 240 V	**VT340-DZ**	color graphics terminal w/WPS keyboard, 240 V
VT320-CZ	amber text terminal w/standard keyboard, 240 V	**VT330-CZ**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DZ	white text terminal w/WPS keyboard, 240 V	**VT330-FZ**	amber graphics terminal w/WPS keyboard, 240 V		
VT320-EZ	green text terminal w/WPS keyboard, 240 V				
VT320-FZ	amber text terminal w/WPS keyboard, 240 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Step	Check	Qty	Part Number Factory Upgrade	Part Number Field Upgrade	Product Description	Product/Order Limitations or Remarks
Note: Field upgrade options cannot be imbedded in a standard system order by the manufacturing facility. Field upgrade options include all necessary installation hardware, plus the appropriate installation manual.						
3 Additional Memory	☐ ☐	1 1	MSV11-JE MSV11-JD	MSV11-JF MSV11-JH	2-Mbyte PMI memory 1-Mbyte PMI memory	Maximum of two memory modules per system.
4 Additional Mass Storage	☐ ☐	– –	RD53A-SA RD53A-SA	RD53A-SF RD54A-SF	71-Mbyte fixed disk 159-Mbyte fixed disk	Maximum of three disks per system. RD53/RD54 can be mixed in the same system.
5 Additional Asynchronous Serial Lines	☐	1	CXA16-AA	CXA16-AF	16 lines, DEC423	2 BC16D-25 (25-ft) cables and 2 H3104 8-line distribution units.
	☐	1	CXB16-AA	CXB16-AF	16 lines, RS-422	Includes 2 BC16D-25 (25-ft) cables and H3104 8-line distribution units.
	☐	1	CXY08-AA	CXY08-AF	8 lines, RS-232-D w/full modem	Includes 2 BC19N-12 (12-ft) cables.
	☐	–	DZQ11-SA	DZQ11-SF	4 lines, RS-232-D with limited-modem control (U.S. only)	Choose 1 cable minimum; 4 cables per module maximum.
	☐ ☐	– –	BC23H-06 BC23H-25	BC23H-06 BC23H-25	6-ft cable 25-ft cable	BC23H cable for use with modems, PLCs. DZQ11s should not be used for terminal support.
6 Networking Options	☐	1	DEQNA-SA	DEQNA-SF	Ethernet communications controller	
	☐ ☐	1 1	BNE3K-xx BNE3M-xx	BNE3K-xx BNE3M-xx	PVC cable with right-angle bend Teflon cable w/right-angle bend	Select PVC or Teflon cable in appropriate length.

Product Description

A MIRA system (Microcomputer Implementation of a Reliable Architecture) provides backup I/O capability for MicroPDP users. A MIRA system is comprised of dual MicroPDP-11/83 computers, each supplied from its own power source and mounted in a single cabinet, or in two cabinets for larger configurations. The configuration (e.g. I/O devices, tape, disk) of each computer is normally identical, so that one computer is a backup for the other in the event of failure.

The computers are linked via Ethernet and MIRA-unique hardware (a watchdog timer and switching modules). The software controls the status of each computer, being either Master, Standby or Idle; it detects a computer failure and changes the status of the system accordingly.

I/O devices which were previously connected to a failed Master computer will be connected to the Standby computer, the status of which changes to Master. The user can then restart the applications on the new Master and continue operation.

The two computers operate independently; process and volume shadowing are not currently features of MIRA. A MIRA system provides the hardware and software environment required for the development of high availability control applications.

The Ethernet link can be utilized by the application programs to exchange status information and to back up critical data on the Standby computer. Each computer has a unique Ethernet address and node name.

Switched Devices

Switched Devices are those which are configured such that they can be connected to either computer. The devices are connected to the MIRA system via a common I/O distribution panel and the hardware and software controls to which they are assigned at any time.

The operator specifies whether a device should be connected to the Master or Standby computer via a utility which creates the Switch Map File.

The MIRA switch control hardware and software exchange status messages via a watchdog. If the Master computer fails to send its message then a system Failover will occur.

In the event of a system Failover, the switched devices on the Standby are disconnected, and the Master Devices are connected to the Standby processor.

The MIRA base system is comprised of two MicroPDP-11/83s, each one with the following:

- MicroPDP-11/83 CPU
- 2 Mbytes main memory
- RD54 Winchester disk
- TK50 (tape cartridge) load device
- DEQNA (Ethernet interface)

Ordering Information

To simplify the ordering of MIRA systems, special "DS" packaged systems and options have been created. This means a MIRA system is configured and ordered in the same way as a standard MicroVAX II system; all MIRA special hardware is then configured and automatically included.

DS-183Q1-A2	MIRA Dual MicroPDP-11/83 small configuration, 120 V
DS-183Q2-A2	MIRA Dual MicroPDP-11/83 large configuration, 120 V in two cabinets
DSKIT-XX	MIRA country kit (includes 2 power cords) – only applicable in Europe XX:AE = UK/Ireland AI = Italy AT = Israel AD = Denmark CA = Central European CB = Switzerland
DS-UPGRD-A2	Upgrade kit: DS-183Q1 to DS-183Q2 MIRA 120-V (cabinet with expansion BA23s and extended switching capacity)

Options Supported			
DSDHV-AB	MIRA	DHV11	8 lines asynch MUX
DSDHQ-AB	MIRA	DHQ11	8 lines asynch MUX
DSDMV-AW	MIRA	DMV11	Multi-Pt RS-232
DSDMV-BB	MIRA	DMV11	Multi-Pt V.35
DSDMV-CB	MIRA	DMV11	Multi-Pt COAX
DSDMV-FB	MIRA	DMV11	Multi-Pt RS-423
DSDPV-AB	MIRA	DPV11	1 line synch
DSDZQ-DB	MIRA	DZQ11	4 lines asynch MUX
DSKMV-AB	MIRA	KMV1A	1 line synch RS-232
DSKMV-EB	MIRA	KMV1A	1 line synch RS-422
DSKMV-FB	MIRA	KMV1A	1 line synch RS-423
DSNET-Q1	ETHERNET KIT		Minimum length Ethernet kit; H4000s for private interprocessor link
DSNET-Q2	ETHERNET KIT		Thinwire Ethernet Kit

Software	
QJZDM-UZ	RSX MIRA switch control software license
QYZDM-UZ	MicroRSX switch control software license
QJZDM-*5	RSX MIRA software distribution (TK50) and documentation
QYZDN-*5	MicroRSX software distribution (TK50) and documentation
ZNJAA-C5	MIRA Diagnostic/Installation kit

Notes: 1. Two MicroRSX (or RSX) licenses are required for each MIRA system.

2. As there are two MicroPDPs per system, all layered software requires two licenses.

PDP
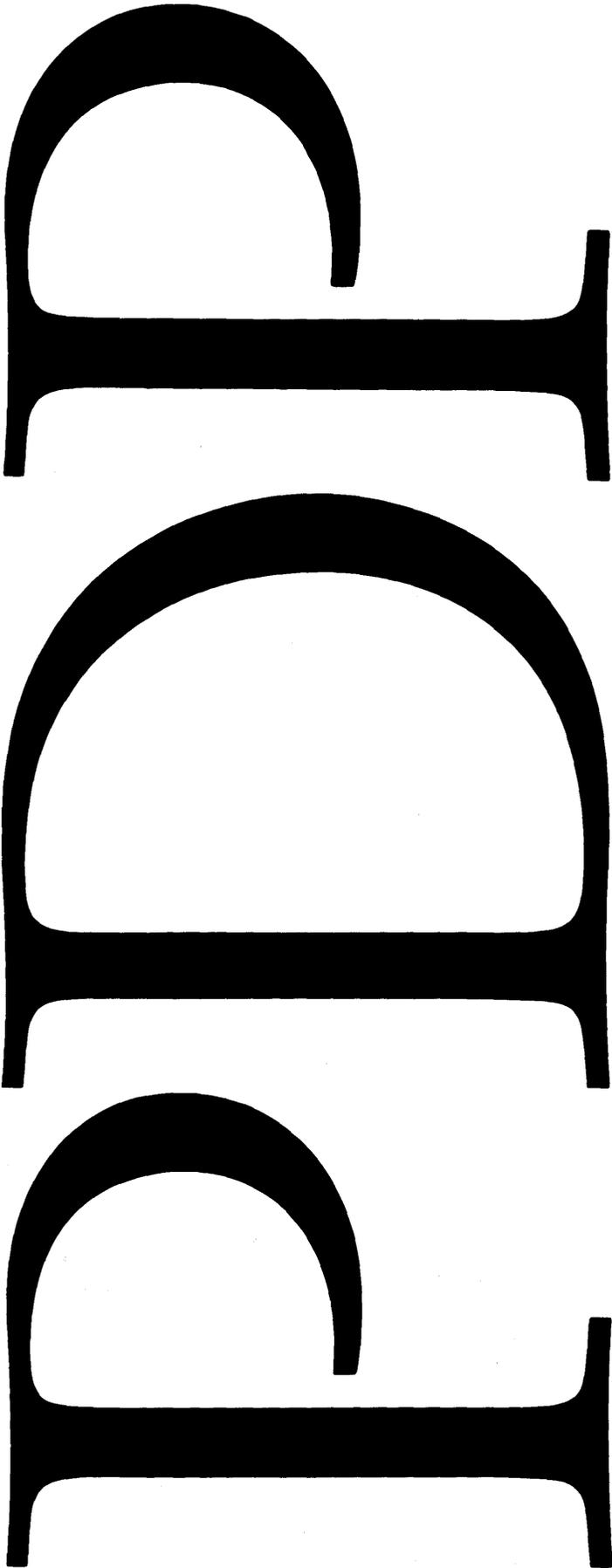
BA200-Series Enclosures

The BA200-series Q-bus system enclosures, now used by the MicroVAX 3500/3600, VAXserver 3500/3600, VAXstation 3500, IVAX and IPDP systems, are designed to meet the rigors of today's business and factory floor operations. Their innovative features minimize the effects of the environmental hazards inherent in those operating environments. These system enclosures are FCC- and VDE-compliant, with or without skins and in or out of racks. Further, their increased tolerance for higher temperature and humidity and noisy electronic and high-vibration environments, as well as their front panel access, provide for implementation of system solutions in geographical markets and environments not open to other packaging.

The packaging, sufficiently versatile to be equally at home in the office and on the factory floor, provides quiet operation and shock and vibration resistance that surpass those of previous designs.

Comparison between BA200-Series and Other Enclosures

System Enclosure Type	BA213	BA123
Typical Systems	MicroVAX 3500/3600, VAXserver 3500/3600, VAXstation 3500, IVAX and IPDP	MicroVAX II, VAXstation II/GPX
Rackmount Capability	Yes	No
Wallmount (NEMA)	Yes	No
Floor (pedestal)	Yes	Yes
Vibration Spec	0.5 G	0.25 G
Noise Level	5.3 decibels	5.6 decibels
Number of Quad Slots	12	12
Maintainability	Excellent (front access)	Moderate
Requires Adaption of Existing Modules	Usually	No

Implications of Newer Bulkhead Assemblies

To improve access, indicator visibility and cabling, the space between backplane rows and hence modules is 0.95 inches, an increase from the 0.5-inch space used in previous enclosures. This increase allows for the attachment of an integral I/O bulkhead, which provides filtering, if required, and improves module rigidity, thereby improving tolerance to vibration and shock.

Operation of equipment without using the bulkheads is not recommended because the cooling of internal components could be adversely affected. Compliance with electromagnetic interference regulations, such as FCC and VDE, requires the use of bulkheads.

Digital offers a series of kits to assist in evaluating adaptation options and provide a source of finished and semi-finished parts for production use. The kits enable customers who opt to purchase third-party modules or design their own to incorporate those modules into the newer BA213 enclosure.

No Module Change Needed
Any module such as memories, array processors and transform engines, that connects only to the backplane, is not affected.

Change Needed
For modules with external connections, such as communications controllers and lineprinter controllers, a module handle type should be selected and adapted to the particular module design.

Bulkhead Design Kits

To help determine which handle kits are appropriate, Digital offers a Design Evaluation Kit (H3650), which contains a sample of each handle, cover, and bulkhead, as well as a copy of the *BA200 Series Module Design Guide*. After evaluation is completed, it is possible to order the required bulkhead (H3651-H3657).

Ordering Information

H3650	Evaluation kit – contains the design guide for the four bulkhead types and one of each of the parts listed below. (Each part may also be ordered separately.)
H3651	Recessed bulkhead kit – fully assembled handle with two 50-pin "D-type" cut-outs and adapter plates for popular connector sizes
H3652	Recessed blank bulkhead kit – ready for drilling and assembly
H3653	Flush blank bulkhead kit – ready for drilling and assembly
H3654	Double-width cover kit – blank
H3655	Single-width cover kit – blank
H3656	Plastic filler panel for use with dual modules
H3657	Gap filler kit

BA200 Series Module Design Guide

EK-BA200-DG	Included in H3650 above, or may be ordered separately here. Includes case studies of Digital's experience in adapting existing Q-bus modules to BA200 packaging.

System Expansion

Q-bus System Expansion
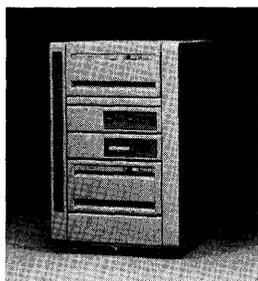
Product Description	Three enclosure options that provide upgrade paths for BA23-based systems are available. They allow for additional mass-storage devices, backplane expansion up to 14 usable slots, and additional I/O connectivity.
H9642-JA/JB	The MicroSystems Cabinet used for the MicroPDP-11/83 standard system (DH-183Q3) and system building block (183QE) is now available for customer system integration. Modifications, which were necessary to accommodate rack-mounting dual BA23s in the midsection, include the addition of vented side panels for cooling and the H3490-A I/O distribution panel for FCC compliance and additional I/O connectivity.

The H9642-JA/JB cabinets do not include the dual BA23s. However, they do include one set of BA23 mounting brackets as well as a rackmount BA23 front bezel, power cord (-JA variant only), the H3490-A, and an installation guide, (EK-H964J-IN). A country -specific power cord is required on 240-V variation. |

Site Preparation Specifications

- Height: 106 cm (41.7 in)
- Width: 65.6 cm (25.7 in)
- Depth: 91.4 cm (36 in)
- Weight: 163 to 311 kg (358 to 685 lb), depending on mass storage selected

Ordering Information

H9642-JA	40-in MicroSystem cabinet, 120 V
H9642-JB	40-in MicroSystem cabinet, 240 V

BA23-CC/CD

The BA23-CC/CD, when used in conjunction with a BA23 system, creates a dual BA23 configuration offering backplane expansion (total of 14 slots) and additional 5.25-inch mass-storage devices. The dual BA23 combination can then be mounted in the H9642-JA/JB or a customer's own rack to create a system with space for two RA-series disks.

The BA23-CC/CD includes a rackmount BA23 with front bezel and power cord, brackets for mounting in the H9642-JA/JB, BCV2D-03 backplane expansion cable assembly, plus an installation guide, EK-BA23C-IN.

Ordering Information

BA23-CC	BA23 expansion box, 120 V
BA23-CD	BA23 expansion box, 240 V

H3490-A

The FCC-compliant H3490-A is bundled in the H9642-JA/JB, so it should be purchased only by dual BA23 customers planning to rackmount in a cabinet other than the H9642-JA/JB. It features six A-type inserts (1-inch by 4-inches) and eleven B-type (2-inches by 3-inches). An installation guide, EK-H9642JA-IN, is included.

Ordering Information

H3490-A	System distribution panel for dual BA23

Product Description

UNIBUS CPU cabinets are available for integrating the PDP-11/84, 11/44, and 11/24 CPU boxes with Digital mass-storage devices or non-Digital mounting boxes.

Because of its depth, the RA60 disk subsystem cannot be mounted in this cabinet. It requires its own deep H9642-AP/AR cabinet. BA11 expander boxes cannot be mounted in the CPU cabinet. The I/O is routed to the connection panel that provides 12 panel units of mounting space.

Power controllers capable of furnishing 24 amperes of 120 Vac or 12 amperes of 240 Vac are supplied with the CPU cabinets.

Site Preparation Specifications
H9642-EA/EB

- Height: 106 cm (41.7 in)
- Width: 53.9 cm (21.2 in)
- Depth: 80 cm (31.5 in)
- Weight: 91.7 kg (202 lb) as configured
- Receptacles: NEMA #L5-30R (120 Vac/60 Hz);
  NEMA #6-15R (240 Vac/50 Hz)

Ordering Information

H9642-EA/EB	CPU cabinet includes mounting space for a 26.6-cm (10.5-in) or 13.3-cm (5.25-in) CPU, one additional 26.6-cm (10.5-in) or 13.3-cm (5.25-in) device, and a battery backup unit. The I/O connection panel is included. This cabinet is included with kernels and standard building block systems and can accommodate *one* TU58-DA, RL211-AK, RUA81-AA(AD), RUC25, or RX211- BK(BN).

Site Preparation Specifications
H9645-EA/EB

- Height: 106 cm (41.7 in)
- Width: 73.6 cm (29 in)
- Depth: 80 cm (31.5 in)
- Weight: 117 kg (258 lb) as configured
- Receptacles: NEMA #L5-30R (120 Vac/60 Hz)
              NEMA #6-15R (240 Vac/50 Hz)

Ordering Information

H9645-EA/EB	Wide CPU cabinet provides mounting space for a 26.6-cm (10.5-in) CPU and two additional 26.6-cm (10.5-in) or 13.3-cm (5.25-in) devices. Side mounting space is provided for the battery backup unit. The I/O connection panel is included. This cabinet is included with widebody building block systems and can accommodate any combination of *two* TU58s, RL02s, RUC25s, RX02s or RA81s, but *not* two RA81s.
H9544-EX	I/O bulkhead expansion kit for H9645 cabinets. Converts the bottom 10.5-inch bay of an H9645 cabinet to a shielded area with 16 additional I/O panel units. For I/O intensive applications, this kit raises the total I/O panel units of the H9645 cabinet to 28.

System Expansion

UNIBUS Expander Cabinets
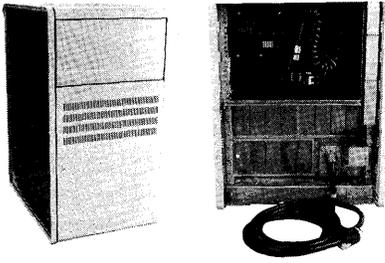
Product Description

Expander cabinets are bolted to the right end of H9642 or H9645 CPU cabinets; they do not have side panels. The existing right side panel of the CPU cabinet is then used as the right side panel of the expander cabinet. A UNIBUS cable passes through a shielded port between the cabinets. I/O connection panel inserts for all options must be located in the same cabinet that contains the associated device controller interface. Expander cabinets are supplied with power controllers capable of furnishing 24 amperes of 120 Vac or 12 amperes of 240 Vac.

Site Preparation Specifications

- Height: 106 cm (41.8 in)
- Width: 53 cm (21 in)
- Depth: 80 cm (31.5 in)
- Weight: 91.7 kg (202 lb) as configured
- Receptacles: NEMA #L5-30R (120 Vac/60 Hz)
              NEMA #6-15R (240 Vac/50 Hz)

Ordering Information

H9642-FA/FB Partitioned expander cabinet provides mounting space for a BA11A-EX (EY) or BA11-KU (KV) UNIBUS expander box and one 26.6-cm (10.5-in) disk or tape. The expander box mounts in the RFI shielded central position, and together with a shielded cable duct and an I/O connection panel (13 panel units of space) provides an expansion enclosure for Digital options. The top 26.6-cm (10.5-in) mounting space is unshielded and can be used to mount any of the Digital disk subsystems listed for the UNIBUS CPU cabinets.
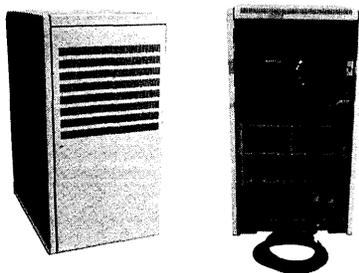
Site Preparation Specifications

- Height: 106 cm (41.8 in)
- Width: 53 cm (21 in)
- Depth: 80 cm (31.5 in)
- Weight: 79.5 kg (175 lb)
- Receptacles: NEMA #L5-30R (120 Vac/60 Hz)
  NEMA #6-15R (240 Vac/50 Hz)

Ordering Information

H9642-FC/FD	Unpartitioned expander cabinet provides mounting space for a BA11A-EX/EY or BA11-KU(KV) UNIBUS expander box and two I/O connection panels, for a total of 29 panel units of I/O connection space. No disk/tape options can be mounted in this cabinet.

Product Description

The H9647-EX/EY is a 153.6-cm (60.5-in) high, UNIBUS CPU cabinet developed to provide an economical, high-density EMI/RFI shielded building block expressly for OEM system development. It utilizes Digital extensive cabinet shielding technology, which provides the OEM with broad configuration latitude. Designed with large systems in mind, this cabinet features two shielded 10.5-inch bays in the bottom half of the cabinet. These two shielded bays allow in-the-cabinet system expansion from the CPU to UNIBUS expansion box.

Features

- EMI/RFI shielding
- 24 vertical I/O panel space allows easy cable management
- Compatible with other H9646 and H9647 cabinets
- Pull-out stabilizer leg
- Integral mechanical shock isolating castor assemblies
- More system packaging density
- Two unshielded 10.5-inch bays in top half of cabinet
- Shielded lower half of cabinet designed for CPU and BA11A-EX/EY expansion chassis
- Three-phase power controller

Site Preparation Specifications
(Outside dimensions)

- Height: 153.6 cm (60.5 in)
- Width: 73.6 cm (29.0 in)
- Depth: 80 cm (31.5 in)

(Internal dimensions)

- Height: 131.3 cm (52.5 in)
- Width (total): 67.3 cm (26.5-in – 19-in rackmount space plus 7.5-in cable mounting)
- Depth: 67.9 cm (26.75 in)

Ordering Information

H9647-EX	60-inch-high CPU cabinet assembly with 120-V 3-phase power controller
H9647-EY	60-inch-high CPU cabinet assembly with 240-V 3-phase power controller

UNIBUS Expansion Backplanes

DD11-CK	Four-slot expansion backplane mounting unit for BA11- KU/KV and BA11A-EX/EY boxes or in PDP-11/84, 11/44, and 11/24 CPU boxes. Provides space for two hex and two quad slot modules. Mounts in one SU.
DD11-DK	Nine-slot expansion backplane mounting unit for BA11-KU/KV and BA11A-EX/EY boxes or in PDP-11/84, 11/44, and 11/24 CPU boxes. Provides space for seven hex and two quad modules. Mounts in two SUs.

The DD11-CK backplane allows a maximum 5 V current of 16 A.
The DD11-DK backplane allows a maximum 5 V current equal to 28 A.

DD11-CK BACKPLANE

	A	B	C	D	E	F
1	UNIBUS		QUAD SLOT			
2			HEX OR QUAD SLOT			
3			HEX OR QUAD SLOT			
4	UNIBUS		QUAD SLOT			

DD11-DK BACKPLANE

	A	B	C	D	E	F
1	UNIBUS		QUAD SLOT			
2			HEX OR QUAD SLOT			
3			HEX OR QUAD SLOT			
4			HEX OR QUAD SLOT			
5			HEX OR QUAD SLOT			
6			HEX OR QUAD SLOT			
7			HEX OR QUAD SLOT			
8			HEX OR QUAD SLOT			
9	UNIBUS		QUAD SLOT			

Product Description

BA11A-EX/EY   Standard 10.5-in × 19-in (26.6-cm × 48.3-cm) rackmountable expansion box with slides for use in expander cabinets. This box uses an H7204 power supply and is rated at 100 A at 5 V, 5 A at + 15 V, and 6 A at –15 V. It provides six system units (SUs) of mounting space and is compatible with the DD11-CK/DK expansion backplanes. These backplanes are rated at 28 A at 5 V for SU1-2, 28 A at 5 V for SU3-4, 28 A at 5 V for SU5-6, 5 A at + 15 V for SU1-6, and 6 A at –15 V for SU1-6. A BC11A-10 UNIBUS cable is included for connecting to the CPU box. Fans located between the power supply and modules produce front-to-back cooling.

This expansion box must be mounted in a shielded enclosure such as the H9647-EX/EY in order to meet RF emission regulations. It is recommended for use in H9642-FA/FB, FC/FD expander cabinets. Backplanes are not included.

Ordering Information

BA11A-EX	10.5-inch-high, 6-system unit UNIBUS expansion box, 120 V
BA11A-EY	10.5-inch-high, 6-system unit UNIBUS expansion box, 240 V

SU 1	
SU 2	} 28 amps at + 5V
SU 3	
SU 4	} 28 amps at + 5V } 5 amps at + 15V, 6 amps at – 15V
SU 5	
SU 6	} 28 amps at + 5V

UNIBUS Expansion Worksheet (BA11A-EX/EY)

OPTION	DC POWER						PANEL INSERTS		BUS LOADS	
	5V		15V		−15V					
	USED	AVAIL-ABLE	USED	AVAIL-ABLE	USED	AVAIL-ABLE	USED	AVAIL-ABLE	USED	AVAIL-ABLE
OPTIONAL EXPANSION CABINET								★		
OPTIONAL EXPANSION BOX BA11A-EX/EY		100		5.0		6.0				
OPTIONAL EXPANSION BACKPLANE DD11-DK		28.0								

1. UNIBUS (2 SU)

2.

| OPTIONAL EXPANSION BACKPLANE DD11-DK | | 28.0 | | ↓ | | ↓ | | ↓ | | ↓ |

3. (2 SU)

4.

| OPTIONAL EXPANSION BACKPLANE DD11-CK | | 28.0 | | ↓ | | ↓ | | ↓ | | ↓ |

5. (2 SU)

6.

CARRY TO NEXT EXPANSION BOX ▶ | † |

BA11A-E ___ # ___ SHEET ___ OF ___

Notes:

*Panel inserts available; is cabinet dependent.

†Carry over only if next box is in same cabinet.

System Expansion

General Purpose System Cabinets
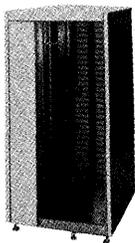
Product Description

The 153.6-cm (60.5-in)-high, general purpose, widebody system cabinet has been developed to provide an economical, high-density EMI/RFI shielded building block expressly for OEM system development. It utilizes Digital's extensive cabinet shielding technology, which provides the OEM with broad configuration latitude. The H9647 cabinet family is available in three specific configurations, each with its own unique possibilities.

Features

- EMI/RFI shielding
- 52.5 inches of vertical rackmounting space
- 20 vertical I/O panel space allows easy cable management
- Expandable for multibay configurations
- Pull-out stabilizer leg
- Integral mechanical shock isolating castor assemblies
- More packaging density

Site Preparation Specifications (Outside dimensions)

- Height: 153.6 cm (60.5 in)
- Width: 73.6 cm (29.0 in)
- Depth: 80 cm (31.5 in)

(Internal dimensions)

- Height: 131.3 cm (52.5 in)
- Width (total): 67.3 cm (26.5-to-19-in rackmount space plus 7.5-in cable mounting)
- Depth: 67.9 cm (26.75 in)

H9647-A

This kernel or 60-in CPU cabinet assembly was developed for the OEM who requires a high degree of latitude in configuring a system. This particular configuration is a 5.5-sided EMI/RFI shielded cabinet assembly that allows the OEMs to tailor their requirements utilizing a wide range of accessories. There are two cabinet versions in this family.

Ordering Information*

H9647-AA	Cabinet assembly, no power controller
H9647-AB	Cabinet assembly with 877-D 120-Vac, 24-A power controller Receptacles: NEMA #L5-30R NEMA #5-20R

*Consult your DECdirect technical sales assistance representative at 1-800-343-4040 for additional ordering information.

H9647-EA

The H9647-EA is a kernel, 60-in CPU cabinet assembly. This configuration has several options installed in it, which lends it to the development of high-packaging-density systems. The basic configuration is set up to accept 21 inches of class-A devices mounted at the top (i.e., two RA81s), plus space to mount one CPU (i.e., PDP-11/84, 11/44), a 5.25-in high system device or blank. A lower front door to house device requiring shielding can be added (not included).

Ordering Information

H9647-EA	Cabinet assembly with 877-D 120-Vac, 24-A power controller
	Receptacle: NEMA #L5-30R
	NEMA #5-20R

H9647-FA

The H9647-FA is a universal 60-in expander cabinet shielded on all six sides. The front of the cabinet includes a front door that covers the entire 19-in rackmounting section, from top to bottom. The door is extensively slotted for optimum cooling.

Ordering Information

H9647-FA	Cabinet assembly with 877-D 120-Vac, 24-A power controller
	Receptacle: NEMA #L5-30R
	NEMA #5-20R

Optional Hardware
End Panels

| H9544-AC | Side panels for use with the H9647 System Cabinet. These panels have light gray rollform edges, with contrasting charcoal brown inserts. Two H9544-AC end panels are included with the H9647-AA. |

H9642-CA/CC
Product Description

The H9642-CA/CC cabinets are general purpose, front-loading, unshielded cabinets. These cabinets are designed to house devices that do not require shielding to meet FCC regulations for EMI/RFI. Both versions are stand-alone cabinets. The H9642-CC includes a full front door, which is slotted for proper cooling.

These cabinets can be used to rackmount BA23 boxed systems but are restricted to one BA23 device per cabinet due to cooling. These cabinets offer a full line of optional hardware to complete the cabinet configuration. (This cabinet is to be used only with box-level-compliant devices.)

Site Preparation Specifications
(Outside dimensions)

- Height: 105.7 cm (41.64 in)
- Width: 53.9 cm (21.25 in)
- Depth: 76.2 cm (30 in)
- Load capacity: 450 lb maximum

(Internal dimensions)

- Height: 88.9 cm (35 in)
- Width: 48.3 cm (19 in)
- Depth: 67.9 cm (26.75 in)
- Load capacity: 450 lb maximum

Ordering Information*

H9642-CA	42-in stand-alone front-load cabinet
H9642-CC	42-in stand-alone front-load cabinet with full front door
H9642-DA	42-in stand-alone front-load cabinet with no end panels

Optional Hardware

H9504-UC	10.5-in filler panel
H9504-SC	5.25-in filler panel
00874-**	Power controllers

*Consult your DECdirect technical sales assistance representative at 1-800-343-4040 for additional ordering information.
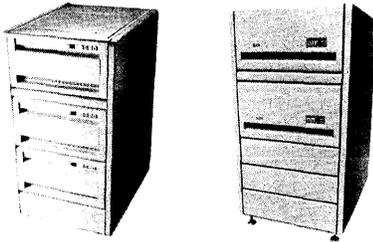
Product Description

There are a series of mass-storage cabinets that are used to rackmount Digital disk products. They are not suitable for mounting BA11 expander boxes or devices that require shielded cabinets.

Site Preparation Specifications

- Height: 106 cm (41.7 in)
- Width: 54.1 cm (21.3 in)
- Depth: 91.4 cm (36 in)
- Weight: 90.7 kg (200 lb) as configured
- Receptacles: NEMA #L5-30R (120 Vac/ 60 Hz)
  NEMA #6-15R (240 Vac/ 50 Hz)

Ordering Information

H9642-AD/AE	Top-loading stand-alone cabinet for the RL02. Provides 53-cm (21-in) mounting space beneath the RL02. Comes equipped with filler panels for mounting space below top mounted disk.
H9642-AP/AR	Top-loading 36-inch deep cabinet for the RA60 removable disk. Allows mounting of any combination of three RA60s, RA80s, RA81s, and RA82s in the middle and bottom cabinet bays. The first RA60, however, must be mounted in the top bay.
H9642-AS/AT	Same as H9642-AP except top mounted device must be an RA81.
H9642-BD/BE	Top-loading expansion cabinet for 5.25-in. and 10.5-in. devices such as the RL02, RC25, RA81, RA82, and TS05. Provides 53.3-cm (21-in) mounting space beneath the storage devices.
H9642-DB/DC	Standard 42-inch high, general purpose system/storage expansion cabinet. Accommodates three 10.5-inch mass-storage devices including RL02, RA81, RA82, RC25, and TS05. No RA60s can be mounted in this cabinet.
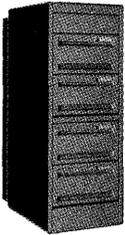
| Product Description | The H9646-AH/AJ is a four-high deep storage cabinet that was specifically designed to mount RA60s and RA81s. It offers a higher load capacity and greater extended depth than the standard 60-inch cabinet. |

Site Preparation Specifications

- Height: 156 cm (61.5 in)
- Width: 55.9 cm (22 in)
- Depth: 91.4 cm (36 in)
- Weight: 135 kg (300 lb) as configured
- Receptacles: IEC 309 type

Ordering Information

H9646-AH/AJ   Four-high disk cabinet with 881 three-phase power controller. The H9646-AH/AJ will house up to four RA60s, RA81s, or RA82s.

Product Description

The H9646-CA/CD cabinets were designed specifically to house communications options. These cabinets are configured with a full-length smoked gray transparent front door which allows visual access to displays, meters, switches or front access to devices mounted in the cabinet. The front door is magnetically latched. The bottom of the rear door provides 48 square inches of cable entry space and has a cable management bracket to secure cables.

This cabinet is ideally suited for housing the DF series rackmount modems, DFM series statistical multiplexers (requires H9544-MK shelf assembly), and remote DMZ32 distribution panels. The H9646 also has an optional shelf assembly that allows nonrackmount devices to be stored in a cabinet.

Site Preparation Specifications
(Outside dimensions)

- Height: 156.2 cm (61.5 in)
- Width: 53.9 cm (21.25 in)
- Depth: 76.2 cm (30 in)
- Load capacity: 450 lb maximum

(Internal dimensions)

- Height: 133.3 cm (52.5 in)
- Width: 48.3 cm (19 in)
- Depth: 67.9 cm (26.75 in)
- Load capacity: 450 lb maximum

Ordering Information*

H9646-CA	60-in stand-alone communications cabinet
H9646-DA	60-in expansion communications cabinet (no end panels included)

Optional Hardware

H9544-MK	Shelf assembly for H9646 cabinet
H9544-JD	60-in to 40-in joiner panel to mount H9642
H9544-MM	Power strip (6 outlets, 15-ft power cord)

*Consult your DECdirect technical sales assistance representative at 1-800-343-4040 for additional ordering information.

877 Product Description

The 877 series power controllers are general purpose, single-phase devices. They are intended to be used in shielded cabinets in conjunction with the H9544-S primary bulkhead assemblies.

Features

- Rackmountable using H9544-SK bulkhead assembly
- Local and remote switching
- Four switched and two unswitched outlets
- Convection cooled

874 Product Description

The 874 series power controllers are general purpose, single-phase devices. The 874 distributes ac power in packaged systems. It is designed for use with nonshielded cabinets where box level devices are used.

Features

- 48.3-cm (19-in) rackmount
- Local and remote switching
- Six switched and two unswitched outlets
- Filtered output
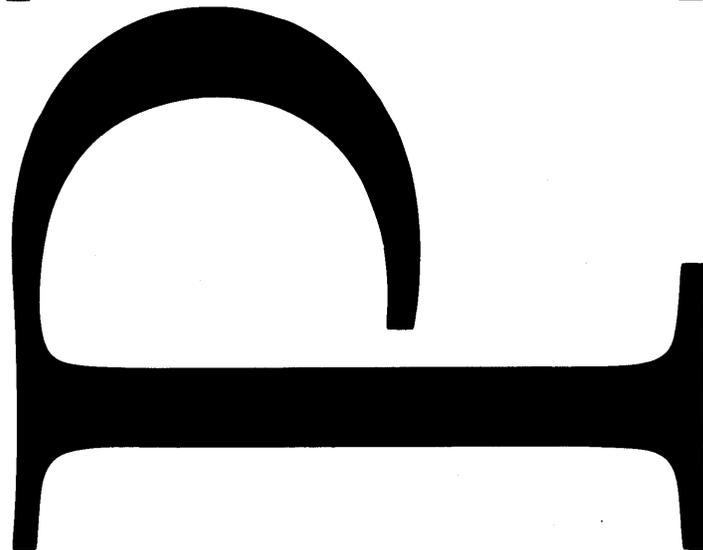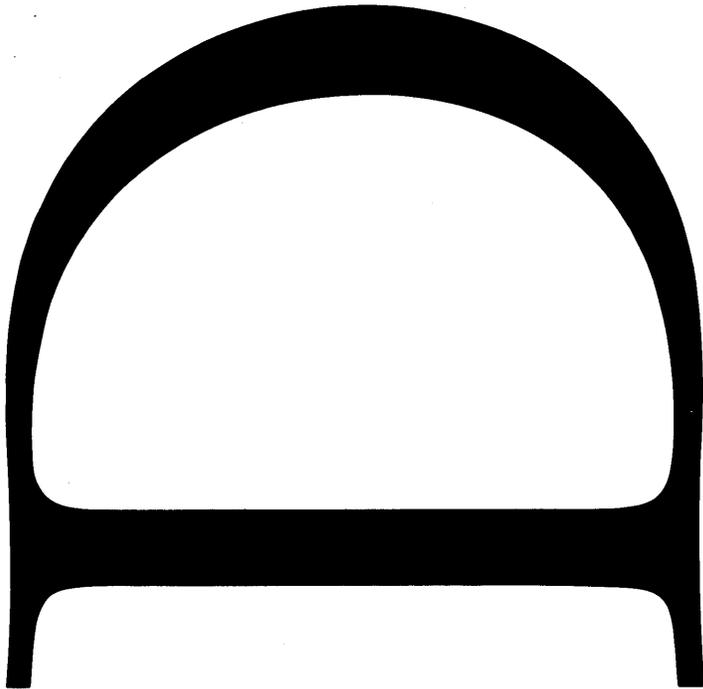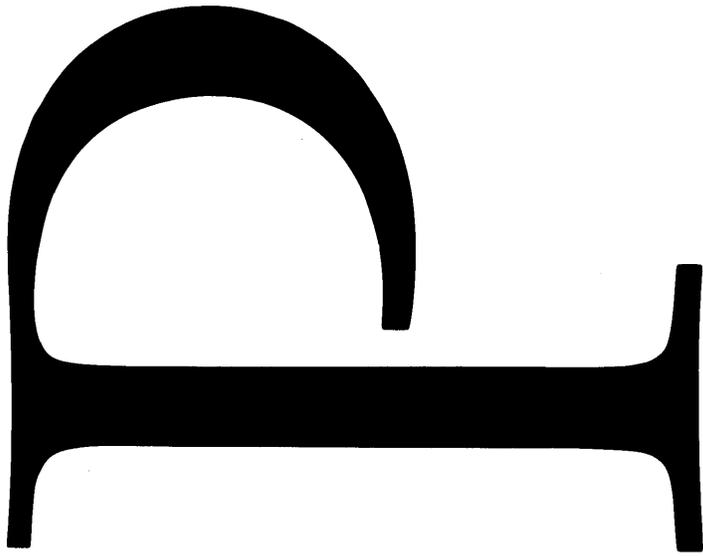
Options

Q-bus Processor Options Ordering Information

KEF11-AA — Single- and double-precision floating-point option. The microcode to implement this option resides on two chips in one 40-pin package. Performs microcode operations on 32-bit and 64-bit floating-point numbers. Provides up to 17 digits of precision. Provides integer-to-floating-point conversions. Mounts on the CPU board.

Q-bus Memories Ordering Information

MCV11-DC — 32-Kbyte CMOS static random access memory with onboard battery backup. This battery backup provides minimum data retention time of 50 days.

MSV11-MB — 1-Mbyte dual-height parity MOS memory (field installation only)

MSV11-QA — 1-Mbyte parity MOS memory

MSV11-QB — 2-Mbyte parity MOS memory

MSV11-QC — 4-Mbyte parity MOS memory (field installation only)

MSV11-JD — 1-Mbyte ECC PMI MOS memory (MicroPDP-11/83 or 11/84)

MSV11-JE — 2-Mbyte ECC PMI MOS memory (MicroPDP-11/83 or 11/84)

MSV11-SA — 2-Mbyte dual-height parity MOS memory

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
MSV11-MB	1 dual slot	2.2	0.0	11.0	2.0	1.0	N/A
MSV11-QA	1 quad slot	2.4	0.0	12.0	2.0	1.0	N/A
MSV11-QB	1 quad slot	2.3	0.0	11.5	2.0	1.0	N/A
MSV11-QC	1 quad slot	2.5	0.0	12.5	2.0	1.0	N/A
MSV11-JD	1 quad slot*	1.5	0.0	18.7	2.5	0.5	N/A
MSV11-JE	1 quad slot*	1.7	0.0	20.5	2.5	0.5	N/A
MSV11-SA	1 dual slot	2.5	0.0	12.5	2.0	1.0	N/A

*Q22/CD only. Insertion into Q22/Q22 may cause system damage.

PDP-11/84 PMI Memory Ordering Information

MSV11-JD	1-Mbyte ECC PMI MOS memory for the PDP-11/84.
MSV11-JE	2-Mbyte ECC PMI MOS memory for the PDP-11/84.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
MSV11-JD	1 quad slot	1.5	0.0	18.7	2.5	0.5	N/A
MSV11-JE	1 quad slot	1.7	0.0	20.5	2.5	0.5	N/A

DEQNA

This Ethernet-to-Q-bus high-performance, synchronous communications controller connects Q-bus systems to Ethernet local area networks. The DEQNA complies fully with the Ethernet specification, and operates at 10 Mbits per second. The DEQNA provides Ethernet datalink layer functions and a portion of the physical-channel functions. The DEQNA is supported under DECnet Phase IV software. The DEQNA allows communication with up to 1,023 addressable devices on an Ethernet. It connects physically and electrically to the Ethernet coaxial cable via transceiver cables (BNE3 series) and an H4000 transceiver or a local network interconnect (DELNI). The transceiver cable can be a maximum of 45 meters (148 feet) in length for BNE3X series transceiver cable.

Ordering Information

DEQNA-M	Ethernet-to-Q-bus single-line communications controller. Includes base module only.

For system installation, select one of the following cabinet kits:

CK-DEQNA-KA	For use with MicroPDP-11/83 BA123 enclosure. Cable length is 21 inches.
CK-DEQNA-KB	For use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DEQNA-KF	For use with MicroPDP-11/83 H9642-JA/JB cabinet. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn @		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
DEQNA	1 dual slot	3.5	0.5	23.5	2.2	0.5	A

DELQA

The DELQA is an Ethernet-to-Q-bus communications controller that connects MicroPDP-11 and MicroVAX II systems to an Ethernet V2.0 or IEEE 802.3 local area network. It provides the firmware capability to support Maintenance Operation Protocol (MOP), which offers enhanced network management features, including remote circuit loopback, system identification messages, remote booting of diskless systems, maintenance of data link counters, and IEEE 802.2 XID and Test. The DELQA physically and electrically connects to the Ethernet coaxial cable by means of a CK-DELQA-xx cabinet kit, transceiver cable (BNE3C or BNE3A series), and an H4000 Ethernet transceiver or a Local Network Interconnect (DELNI). The DELQA also connects to ThinWire Ethernet via a DESTA station adapter.

Ordering Information

DELQA-M	Ethernet-to-Q-bus single-line communications controller. Includes base module only.
DELQA-SA	Factory-installed Ethernet-to-Q-bus communications controller for systems in BA200-series enclosures. No cabinet kit required.
DELQA-SF	Field-installed Ethernet-to-Q-bus communications controller for systems in BA200-series enclosures. No cabinet kit required.

For system installation of the DELQA-M only, select one of the following cabinet kits:

CK-DELQA-YA For BA123 and BA11-M enclosures. Cable length is 21 inches.

CK-DELQA-YB For MicroPDP-11 BA23 enclosure. Cable length is 12 inches.

CK-DELQA-YF For H9642 cabinet. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
DELQA	1 dual slot	2.5	0.5	18.5	2.2	0.5	A

DELUA

DELUA

This Ethernet/IEEE 802.3-to-UNIBUS high-performance, synchronous communications controller connects VAX and PDP-11 UNIBUS systems to both Ethernet V2.0 and IEEE 802.3 local area networks. The DELUA is microprocessor-based, operates at 10 Mbits per second, and has 4 Mbits per second throughput capability. The DELUA is the replacement product for the DEUNA. The DELUA microcode ensures maximum throughput with minimum processor intervention. It provides significant network maintainability features including remote loopback of data from other stations, resident microdiagnostics, and system identification.

Ordering Information

DELUA-M   Ethernet/IEEE 802.3-to-UNIBUS single-line communications controller. Includes base module only.

For system installation of the DELUA-M, select the following cabinet kit:

CK-DELUA-KL   For use in the PDP-11/84 OEM enclosure. Cable length is 4 feet.

CK-DELUA-KM   For use with shielded UNIBUS cabinets and the PDP-11/84. Cable length is 8 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	–15 V	ac	dc	
DELUA-M	1 hex slot	8.0	1.0	0.0	4.0	1.0	2

H4000

The Ethernet transceiver (H4000) provides the functional interface between network nodes and the Ethernet coaxial cable. It sends signals over the cable, receives signals from the cable, and detects message collisions that occur. The H4000 uses a unique tapping mechanism for the physical connection to the cable so that cutting the cable (and interrupting traffic on the network) is not required. The H4000 can be customer installed using the Ethernet transceiver Installation Tool Kit. This transceiver is used in conjunction with an Ethernet communications controller at the host system. The transceiver cables must be ordered separately.

Ordering Information

H4000	Ethernet transceiver.
H4000-BA	Ethernet transceiver (for use with a ThinWire DELNI/DEMPR combination).

H4000 Transceiver Installation Tool Kit

Self-installation of an H4000 transceiver requires the Ethernet Transceiver Tool Kit (12-24664-02). The kit includes all the components necessary to install H4000 transceivers.

12-19817-01	Ethernet coaxial cable barrel connector.
12-19816-01	Ethernet coaxial cable terminator.
H4080	Ethernet turnaround connector.
H4054-00	Ethernet transceiver cable straight angle connector kit.
H4055-00	Ethernet transceiver cable right angle connector kit.
DEXJK	Etherjack.
DEXAR	Physical address ROM.
12-24664-02	Transceiver installation tool kit.

DHQ11

The DHQ11 Q-bus communications controller provides eight asynchronous DMA communications lines on one dual-size module. It supports RS-232 signalling with modem control and DEC423 (RS-423) signalling without modem control. The DHQ11 is the logical choice for connecting local terminals to MicroVax II and MicroPDP-11 systems. It features eight asynchronous DMA communications lines with software-programmable line speeds to 38.4 Kbits per second, character lengths, XON/XOFF flow control, split receive and transmit speeds and full modem control (actual line speed depends on operating system and user application); a 256-character input FIFO buffer that provides improved system performance by supporting data-intensive input; and full modem control with the RS-232 cabinet kit supporting full and half duplex, and point-to-point modem communications.

The DEC423 cabinet kit supports local RS-232-compatible terminals at 9.6 Kbits per second at up to 250 foot distances with the H8571-A passive adapter. The H3105-A active adapter and H8571-A passive adapter provide support at distances up to 1000 feet. The DEC423 cabinet kit also reduces cable clutter in the back of the CPU cabinet and significantly reduces the chances of damage from static discharge, lightning, or ac-power impulses.

The DHQ11 is supported by the RSX, Micro/RSX, RSTS/E, Micro/RSTS, MicroVMS, ULTRIX-32m, and VAXELN operating systems.

Ordering Information

DHQ11-M   Asynchronous Q-bus communications controller.
Includes base module only.

Cabinet kits for RS-232 connection contain two B-size slot bulkhead distribution panels with 25-pin male connectors and associated cabling to connect the module to the distribution panels. Data cables are not included.

CK-DHQ11-AA   21-inch cable for BA123 box

CK-DHQ11-AB   12-inch cable for BA23 box

CK-DHQ11-AF   36-inch cable for H9642 cabinet

Cabinet kits for DEC423 connection contain one B-size slot bulkhead distribution panel with a 36-conductor cable, compact remote terminal concentrator and associated cabling to connect the control module to the distribution panel. Data cables are not included.

CK-DHQ11-WA   21-inch cable for BA123 box

CK-DHQ11-WB   12-inch cable for BA23 box

CK-DHQ11-WF   36-inch cable for H9642 cabinet

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V	ac	dc	
DHQ11-M (RS-232)	1 dual slot	1.4	0.23	3.2	0.5	(2)B
DHQ11-M (DEC-423)	1 dual slot	2.0				(1)B

CX Communications Controllers

The CX communications controllers provide asynchronous communications for Q-bus systems that utilize the BA200-series system enclosures. The controllers operate at speeds up to 38.4 Kbytes/s per line, and transmit data using either Direct Memory Access (DMA) or programmed input.

Three CX communications controllers are available: the CXY08, CXA16, and CXB16. The CXY08 provides 8 RS-232-C communications lines to terminals, modems, or serial printers. All lines support full modem control, which permits point-to-point dial-up or leased-line operation. The CXA16 provides 16 DEC423 lines for data-only connections (no modem control) using the DECconnect modular plug connectors. The CXB16 provides 16 RS-422 communications lines for data-only connections (no modem control). Cabinet kits are not required with these options.

Ordering Information

CXY08-AA	Factory-installed 8-line RS-232-C asynchronous controller with modem control.
CXY08-AF	Field-installed 8-line RS-232-C asynchronous controller with modem control.
CXA16-AA	Factory-installed 16-line DEC423 asynchronous controller, data only.
CXA16-AF	Field-installed 16-line DEC423 asynchronous controller, data only.
CXB16-AA	Factory-installed 16-line RS-422 asynchronous controller, data only.
CXB16-AF	Field-installed 16-line RS-422 asynchronous controller, data only.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V	ac	dc	
CXY08	1 quad slot	1.5	0.22	3.0	0.5	
CXA16	1 quad slot	1.4	0.0	3.0	0.5	
CXB16	1 quad slot	1.6	0.0	3.0	0.5	

DHF11

The DHF11 is a fiber optic terminal interface that provides a maximum of 32 full-duplex, asynchronous, serial data channels on Q-bus systems. The DHF11, base on LSI technology, multiplexes 16 data lines onto one fiber optic cable.

The fiber optic terminal interface provides asynchronous connections to Digital's Q-bus products where the environment prevents the use of copper connections between the devices and the host system. The DHF11 also provides the ability to connect remote (up to one kilometer) clusters of terminals to a Q-bus host where an Ethernet connection is not available. Therefore, the DHF11 can be used in many applications including data concentration, near or remote terminal interfacing, factory floor cell control, and terminal cluster control. The fiber optic terminal Q-bus controller is fully compatible with existing software drivers, so new system software drivers are not required.

The DHF11 is a quad-height module that supports one or two 16-line ports. Each 16-line port connects, via a dual fiber optic cable, to an active terminal concentrator (H3132) that handles 16 full-duplex, asynchronous DEC423 serial data lines.

The DHF11 is Q-bus compatible, so it can be used with any 16-, 18-, and 22-bit address system (not supported on Q-bus processors that use the BA200-series enclosure).

Ordering Information

DHF11-AA	16-line fiber optic terminal controller, 120 V. Includes power cords for use in the U.S., Canada, Mexico, and Japan.
DHF11-AB	16-line fiber optic terminal controller, 240 V. Requires power cord.
DHF11-BA	32-line fiber optic terminal controller, 120 V. Includes power cords for use in the U.S., Canada, Mexico, and Japan.
DHF11-BB	32-line fiber optic terminal controller, 240 V. Requires power cord.
H3123-B2	16-line terminal concentrator upgrade for DHF11-AA, 120 V. Includes power cord for use in the U.S., Canada, Mexico, and Japan.
H3123-B3	16-line terminal concentrator upgrade for DHF11-AB, 240 V. Requires power cord.

Power Cords

BN19H-2E	Australia	BN19U-2E	Israel
BN19C-2E	Central Europe	BN19E-2E	Switzerland
BN19K-2E	Denmark	BN19A-2E	United Kingdom
BN19M-2E	Italy	BN19P-1K	U.S./Canada (not required)
BN19S-2E	India		

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V	-12 V	ac	dc	
DHF11	1 quad slot	5.0	0.0	0.0	3.7	1.0	1(A)

DZQ11

The DZQ11 is a four-line, asynchronous multiplexer that provides local or remote interconnection between MicroPDP-11 or MicroVAX systems and RS-232-C/CCITT V.28 and EIA RS-423-A/CCITT V.10 terminals or other systems. The DZQ11 operates at program-selectable speeds of up to 9600 bits per second in full duplex, with limited modem control on each line. The DZQ11 is compatible with Digital's family of modems and with Bell 100 and 200 series modems and their equivalents.

Ordering Information

DZQ11-M	EIA RS-232-C/CCITT V.28 or EIA RS-423-A/CCITT V.10. Includes base module only.

For system installation of the DZQ11-M only, select one of the following cabinet kits:

CK-DZQ11-DA	For use with MicroPDP-11/83 BA123 enclosure. Cable length is 21 inches.
CK-DZQ11-DB	For use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DZQ11-DF	For use with MicroPDP-11/83 H9642-JA/JB cabinet. Cable length is 3 feet.
DZQ11-SA	Factory-installed controller for BA200-series enclosures. Includes base module only; no cabinet kit required.
DZQ11-SF	Field-installed controller for BA200-series enclosures. Includes base module only; no cabinet kit required.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
DZQ11-M	1 dual slot	1.1	0.24	8.38	1.5	1.0	B
DZQ11-SA	1 dual slot	1.1	0.24	8.38	1.5	1.0	N/A
DZQ11-SB	1 dual slot	1.1	0.24	8.38	1.5	1.0	N/A

DLVJ1

The DLVJ1 is a four-line, asynchronous interface that provides local or remote interconnection between Q-bus systems and EIA RS-232-C/CCITT V.28, EIA RS-422/CCITT V.11, and EIA RS-423/CCITT V.10 terminals. The DLVJ1 acts as four separate devices, making program operations more convenient than they are with a multiplexer. The DLVJ1 operates at program or jumper-selectable speeds from 150 to 38,400 bits per second in full duplex. Actual device speed depends on current Digital operating systems and system configuration. Limited modem control is included. Split-speed transmit and receive rates are supported on each line, making more efficient use of communications facilities by reducing the software demand for the receive line. The DLVJ1 is compatible with Digital's family of modems and with Bell 100 and 200 series modems and their equivalents.

Ordering Information

DLVJ1-M	EIA RS-232-C/CCITT V.28 or EIA RS-423-A/CCITT V.10 interface. Includes base module only.

For system installation, select one of the following cabinet kits:

CK-DLVJ1-LA	RS-232 cabinet kit for use with MicroPDP-11 BA123 enclosure. Cable length is 21 inches.
CK-DLVJ1-LB	RS-232 cabinet kit for use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DLVJ1-LF	RS-232 cabinet kit for use with MicroPDP-11 H9642-JA/JB cabinet. Cable length is 3 feet.
DLVJ1-M	EIA RS-422-C/CCITT V.11 interface. Includes base module only.
CK-DLVJ1-EA	RS-422 cabinet kit for use with MicroPDP-11 BA123 enclosure. Cable length is 21 inches.
CK-DLVJ1-EB	RS-422 cabinet kit for use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DLVJ1-EF	RS-422 cabinet kit for use with MicroPDP-11 H9642 cabinet. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
DLVJ1-M	1 dual slot	1.0	0.15	6.8	1.0	1.0	B

DPV11

The DPV11 low-cost, single-line, synchronous, programmable interface provides local or remote interconnection between Q-bus systems and other computer systems with EIA RS-232-C/CCITT V.28 or EIA RS-232-C/CCITT V.11 interfaces. It operates at speeds to 56,000 bits per second in half- or full-duplex with full modem control. Actual device speed depends on current Digital operating systems and system configuration. The DPV11 is programmable for either byte-oriented protocols (DDCMP or BISYNC) or bit-oriented protocols (SDLC or HDLC). It is suited for interfacing to medium-speed synchronous lines for remote batch and remote job entry applications. The DPV11 is compatible with Digital's family of modems and with the Bell 200 series modems and their equivalents.

Ordering Information

DPV11-M	EIA RS-232-C/CCITT V.28 or EIA RS-232-C/CCITT V.11 interface. Includes base module only.

For system installation of the DPV11-M only, select the following cabinet kits:

CK-DPV11-AA	For use with MicroPDP-11/83 BA123 enclosure. Cable length is 21 inches.
CK-DPV11-AB	For use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DPV11-AF	For use with MicroPDP-11/83 H9642-JA/JB cabinet. Cable length is 3 feet.
DPV11-SA	Factory-installed controller for BA200-series enclosures. No cabinet kit required.
DPV11-SF	Field-installed controller for BA200-series enclosures. No cabinet kit required.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	**12 V**		**ac**	**dc**	
DPV11-M	1 dual slot	1.2	0.3	9.6	1.0	1.0	A
DPV11-SA	1 dual slot	1.2	0.3	9.6	1.0	1.0	N/A
DPV11-SF	1 dual slot	1.2	0.3	9.6	1.0	1.0	N/A

DMV11

The DMV11 is a microprocessor-controlled, single-line, synchronous interface that provides local or remote interconnection between Q-bus systems and other computer systems with EIA RS-232-C/CCITT V.28, CCITT V.35, or EIA RS-423/EIA 449 interfaces. It operates at speeds from 2,400 bits per second to 56,000 bits per second (depending on the version selected) in half duplex or full duplex. Actual device speed depends on current Digital operating systems and system configuration. (19,200 bits per second is the maximum speed for RS-232 connection.) Depending on the operating system and layered software, the DMV11 can support up to 12 tributaries. In point-to-point configurations, the DMV11 can communicate with other DMV11s, DMC11s, DUP11s, DPV11s, or DMR11s. The DMV11 is compatible with Digital's family of modems and with Bell 200 series modems and their equivalents.

Ordering Information

DMV11-M	EIA RS-232-C/CCITT V.28 or EIA RS-423/RS-449 interface. Includes base module only.
CK-DMV11-AA	For use with MicroPDP-11 BA123 enclosure. Cable length is 21 inches.
CK-DMV11-AB	For use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DMV11-AF	For use with H9642-JA/JB cabinet. Cable length is 3 feet.
DMV11-M	CCITT V.35 interface. Includes base module only.
CK-DMV11-BA	For use with MicroPDP-11 BA123 enclosure. Includes a BC17E cable for connection to modem. Cable length is 21 inches.
CK-DMV11-BB	For use with MicroPDP-11 BA23 enclosure. Includes a BC17E cable for connection to modem. Cable length is 12 inches.
CK-DMV11-BF	For use with H9642-JA/JB cabinet. Includes a BC17E cable for connection to modem. Cable length is 3 feet.
DMV11-M	EIA RS-423/RS-449 or CCITT V.10 interface. Includes base module only.
CK-DMV11-FA	For use with MicroPDP-11 BA123 enclosure. Cable length is 21 inches.
CK-DMV11-FB	For use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DMV11-FF	For use with H9642-JA/JB cabinet. Cable length is 3 feet.
DMV11-N	Integral modem interface. Includes base module only.
CK-DMV11-CA	For use with MicroPDP-11 BA123 enclosure. Cable length is 21 inches.
CK-DMV11-CB	For use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-DMV11-CF	For use with H9642-JA/JB cabinet. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Units
		5 V	12 V		ac	dc	
DMV11-M(-B*)	1 quad slot	3.4	0.38	21.56	2.0	1.0	A
DMV11-M(-A*,-F*)	1 quad slot	3.4	0.38	21.56	2.0	1.0	B
DMV11-N(-C*)	1 quad slot	3.4	0.26	20.12	2.0	1.0	A

KMV1A

The KMV1A is a high-performance, direct memory access, single-line, programmable communications controller that provides interconnection between Q-bus systems with EIA RS-232/CCITT V. 28, EIA RS-422/CCITT V. 11, and EIA RS-423/CCITT V. 10 interfaces. It is capable of communications speeds of up to 64,000 bits per second. Used on the MicroPDP-11 systems, it utilizes the Micro/T-11 processor to perform user-defined communications functions, thereby freeing the host to do more application computations. The KMV1A can be programmed in synchronous or asynchronous modes. It also provides full modem support for Digital's family of modems, for the Bell 200 Series or equivalent, and for European PPT-approved modems. KMV1A supports Software Development Tools X.25 Link Level, HDLC Framing Software, and VAX P.S.I. software. (See *Software* chapter for software ordering information.) (VAX P.S.I. is limited to 19,200 bits per second.)

Ordering Information

KMV1A-M	EIA RS-232-C/CCITT V.28, EIA RS-422/CCITT V.11, or EIA RS-423/CCITT V.10 interface. Includes controller module only.

For system installation of the KMV1A-M only, select one of the following cabinet kits:

CK-KMV1A-AA	EIA RS-232 for MicroPDP-11/83 BA123 enclosure. Cable length is 21 inches.
CK-KMV1A-AB	EIA RS-232 for MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-KMV1A-AC	RS-232 for PDP-11/23-PLUS cabinet. Cable length is 30 inches.
CK-KMV1A-AF	EIA RS-232 for MicroPDP-11/83 H9642-JA/JB cabinet. Cable length is 3 feet.
CK-KMV1A-EA	EIA RS-422 for MicroPDP-11/83 BA123 enclosure. Cable length is 21 inches.
CK-KMV1A-EB	EIA RS-422 for MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-KMV1A-EC	RS-422 for PDP-11/23-PLUS cabinet. Cable length is 30 inches.
CK-KMV1A-EF	EIA RS-422 for MicroPDP-11/83 H9642-JA/JB cabinet. Cable · length is 3 feet.
CK-KMV1A-FA	EIA RS-423 for MicroPDP-11/83 BA123 enclosure. Cable length is 21 inches.
CK-KMV1A-FB	EIA RS-423 for MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-KMV1A-FC	RS-423 for PDP-11/23-PLUS cabinet. Cable length is 30 inches.
CK-KMV1A-FF	EIA RS-423 for MicroPDP-11/83 H9642-JA/JB cabinet. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	**12 V**		**ac**	**dc**	
KMV1A-M	1 quad slot	2.6	0.2	15.4	3.0	1.0	B

DHU11

DHU11

The DHU11 16-line, asynchronous multiplexer with direct memory access provides local and remote interconnection between UNIBUS PDP-11 and VAX systems and EIA RS-232-C/CCITT V.28 or EIA RS-423-A/CCIT V.10 terminals. The DHU11 operates at program-selectable speeds of up to 38,400 bits per second in half- or full-duplex. Actual device speed depends on current Digital operating systems and system configuration. Full modem control is available on all 16 lines. Split-second transmit and receive rates are supported on each line, making for more efficient use of communications facilities by reducing the software demand for the receive lines.

Ordering Information

DHU11-M	EIA RS-232-C/CCITT V.28 or EIA RS-423-A/CCIT V.10 interface with full modem control and DMA. Includes base module only.

For system installation of the new 11/84-E Series, select one of the following cabinet kits:

CK-DHU11-AD For general purpose use in shielded UNIBUS cabinet with the entire PDP-11/84 E series. Cable length is 10 feet.

CK-DHU11-VD Remote distribution cabinet kit for DHU11. Requires only two I/O distribution panels for shielded interconnect to two 8-connector distribution panels. Each distribution panel has full international modem control signals for four of the eight serial lines. Internal cable length is ten feet.

For system installation of the 11/84-A Series, select one of the following cabinet kits:

CK-DHU11-AE For kernel cab of PDP-11X84 (A series). Cable length is 7 feet.

CK-DHU11-AF For use with 10.5-inch PDP-11/84 (A series) OEM enclosure. Cable length is 3 feet.

CK-DHU11-VF Same as CK-DHU11-VD, except length of internal cable is 3 feet. For use with PDP-11/84-A 10.5-inch OEM enclosure.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	–15 V	ac	dc	
DHU11-M	1 hex slot	6.0	0.4	0.4	2.2	1.0	See below

Cabinet Kit	Use On	Internal Cable Length	External Cable Length	I/O Panel Units
CK-DHU11-AD	All PDP-11/84-E	10	–	8
CK-DHU11-VD	All PDP-11/84-E	10	10	2
CK-DHU11-AE	11X84 Kernel cab-A series	7	–	8
CK-DHU11-AF	11/84-A 10.5-in OEM box	3	–	8
CK-DHU11-VF	11/84-A 10.5-in OEM box	3	10	2

DMR11

The DMR11 is a high-performance, microprocessor-controlled, single-line, synchronous interface that provides local or remote interconnection between UNIBUS PDP-11 and VAX systems and other computer systems with EIA RS-232-C/CCITT V.28, CCITT V.35, EIA RS-423/RS-449, or EIA RS-422/RS-449 interfaces. The DMR11 implements DDCMP in hardware and supports direct memory access data transfers, DECnet point-to-point configurations, and full modem control. It operates at speeds of up to 1 Mbyte per second in half- or full-duplex. Actual device speed depends on current Digital operating systems and system configuration. The DMR11 can communicate with another DMR11, a DMV11, or any other synchronous interface that implements DDCMP Version 3.1 or 4.0. Depending on the version selected, the DMR11 is compatible with Digital's family of modems and with Bell 200 series and Bell 500a 11/5 modems and their equivalents.

Ordering Information

DMR11-M	Includes base module only.

For system installation, select the appropriate external cable and one of the following cabinet kits:

CK-DMR11-AD	EIA RS-232-C cabinet kit. For use with shielded UNIBUS cabinets and the PDP-11X84. Cable length is 10 feet.
CK-DMR11-AL	EIA RS-232-C cabinet kit for use in the PDP-11/84 (A series only) 10.5-inch OEM enclosure. Cable length is 4 feet.
CK-DMR11-BD	V.35 cabinet kit. For use with shielded UNIBUS cabinets and the PDP-11X84. Cable length is 10 feet.
CK-DMR11-BL	V.35 cabinet kit for use in the PDP-11/84 (A series only) 10.5-inch OEM enclosure. Cable length is 4 feet.
CK-DMR11-CD	Integral modem cabinet kit. For use with shielded UNIBUS cabinets and the PDP-11X84. Cable length is 10 feet.
CK-DMR11-CL	Integral modem cabinet kit for use in the PDP-11/84 (A series only) 10.5-inch OEM enclosure. Cable length is 4 feet.
CK-DMR11-ED	EIA RS-422/RS-449 cabinet kit. For use with shielded UNIBUS cabinets and the PDP-11X84. Cable length is 10 feet.
CK-DMR11-EL	EIA RS-422/RS-449 cabinet kit for use in the PDP-11/84 (A series only) 10.5-inch OEM enclosure. Cable length is 4 feet.
CK-DMR11-FD	EIA RS-423/RS-449 cabinet kit. For use with shielded UNIBUS cabinets and the PDP-11X84. Cable length is 10 feet.
CK-DMR11-FL	EIA RS-423/RS-449 cabinet kit for use in the PDP-11/84 (A series only) 10.5-inch OEM enclosure. Cable length is 4 feet.

The following cables are used for direct connect of CPUs with the CK-DMR11-C* cabinet kits only (integral modem):

Cable	Frequency	Distance
BC55S	1 Mbyte	6,000 ft (1,830 m)
BC55S	500 Kbytes	7,000 ft (2,135 m)
BC55S	250 Kbytes	8,000 ft (2,440 m)
BC55T	56 Kbytes	16,000 ft (4,800 m)

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	– 15 V		
DMR11-M (-A*,-C*)	2 hex slots	12.0	0.08	0.19	1.0	1
DMR11-M (-B*,-E*)	2 hex slots	12.0	0.11	0.20	1.0	1
DMR11-M (-F*)	2 hex slots	12.0	0.11	0.20	1.0	2

DUP11

The DUP11 high-performance, single-line, synchronous, programmable interface provides remote interconnection between UNIBUS PDP-11 and VAX systems and other computer systems with EIA RS-232-C/CCITT V.28 interface. It operates at speeds of up to 9600 bits per second in half- or full-duplex with full modem control. Actual device speed depends on current Digital operating systems and system configuration. The DUP11 is programmable for either byte-oriented protocols (DDCMP or BISYNC) or bit-oriented protocols (SDLC or HDLC). It is suited for interfacing to a medium-speed synchronous line for remote batch and remote job entry applications. The DUP11 is compatible with Digital's family of modems and with the Bell 200 series and their equivalents.

Ordering Information

DUP11-M EIA RS-232-C/CCITT V.28 interface. Includes base module only.

For system installation, select the following cabinet kit:

CK-DUP11-AD For use with shielded UNIBUS cabinets and the PDP-11X84.

CK-DUP11-AF For use with PDP-11/84 (A series only) 10.5-inch OEM enclosure. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	− 15 V		
DUP11-M	1 hex slot	3.6	0.08	0.08	1.0	1

KMS11-BD/BE

The KMS11-BD/BE eight-line, synchronous, intelligent front end provides up to eight lines of interconnection between UNIBUS PDP-11 or VAX systems and other devices with EIA RS-232-C/CCITT V.28 or CCITT V.35 (with optional hardware module) interfaces. The KMS11-BD/BE operates at speeds of up to 56,000 bits per second in half- or full-duplex with full modem control (V.35 is required for 56 Kbits per second). The KMS11-BD/BE supports direct memory access data transfers, VAX and RSX-11 X.25 Link Level, and VAX HDLC/BSC Framing Software (see *Software* chapter for software ordering information). Maximum line speed depends on the software application. The X.25 link level software is currently warranted for four lines at 56,000 bits per second (using V.35) or eight lines at 19,200 bits per second.

Ordering Information

KMS11-BD	Eight-line communications multiplexer including a KMC11-B auxiliary processor unit, line terminator, modem control unit, I/O connection panel, double system unit, and internal cables.
KMS11-BE	Same as KMS11-BD without the double system unit.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
KMS11-BD	2 SU	12.5	1.5	0.50	7.0	2.0	8
KMS11-BE	3 hex slots	12.5	1.5	0.50	7.0	2.0	8

KMS1P

The KMS1P single-line, synchronous, intelligent communications controller provides interconnection between UNIBUS PDP-11 and VAX systems with EIA RS-232-C/CCITT V.28, EIA RS-423-A/CCITT V.10, CCITT V.35, or RS-422--A/CCITT V.11 interfaces. The microprocessor-based device operates at speeds of up to 64,000 bits per second in half- or full-duplex with full modem control. The KMS1P supports direct memory access data transfers, the VAX and RSX-11 P.S.I. software package, and RSX X.25 link level software. (See *Software* chapter for software ordering information).

Ordering Information

KMS1P-M   Single-line programmable synchronous intelligent communications controller. Includes microprocessor and line unit modules.

For system installation, select one of the following cabinet kits. All cabinet kits include a 10-foot cable.

CK-KMS1P-AD   X.25 EIA RS-232-C/CCITT V.28 interface for shielded cabinets.

CK-KMS1P-BD   X.25 CCITT V.35 interface for shielded cabinets.

CK-KMS1P-ED   X.25 EIA RS-422/RS-449/CCITT V.11 interface for shielded cabinets.

CK-KMS1P-FD   X.25 EIA RS-423/RS-449/CCITT V.10 interface for shielded cabinets.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	-15 V	ac	dc	
KMS1P-M	2 hex slots	10.5	0.15	0.2	5.0	1.0	1

DRV11

DRV11	*Base option*. General purpose, program-controlled, parallel line interface unit. Permits program-controlled data transfers at rates up to 40 Kwords per second. External cables not included. BC04Z or BC07D are recommended. Includes only base option module. Requires the following cabinet kits:	
CK-DRV1B-KA	For use with MicroPDP-11 BA23 enclosure.	
CK-DRV1B-KB	For use with MicroPDP-11 BA123 enclosure.	
CK-DRV1B-KC	For use with H349.	
CK-DRV1B-KF	For use with H9642-JA/JB cabinets.	
DRV11-WA	*Base option*. General purpose direct memory access (DMA) 16-bit parallel interface unit with 22-bit addressing capability. It permits data transfers at rates up to 250 Kwords per second in a single cycle mode and up to 500 Kwords per second in burst mode. External cables are not included. BC08R or BC04Z cables are recommended. Includes only the base option module. Requires the following cabinet kits:	
CK-DRV1W-KA	For use with MicroPDP-11 BA23 enclosure.	
CK-DRV1W-KF	For use with MicroPDP-11 BA123 enclosure and H9642-JA/JB cabinets.	
DRV1W-SA	General purpose, 16-bit parallel DMA Q-22 interface module. Requires two BC08R or BC04Z cables to connect to user device. Includes base option module only. Factory-installed in BA213, BA214, and BA220. Cabinet kit not required.	
DRV1W-SF	General purpose, 16-bit parallel DMA Q-22 interface module. Requires two BC08R or BC04Z cables to connect to user device. Includes base option module only. Field-installed in BA213, BA214, and BA220. Cabinet kit not required.	
DRV11-J	*Base option*. General purpose program-controlled parallel line interface. Contains 64 bidirectional input/output lines configured as four 16-bit ports. Bit interruptible on up to 16 lines. Interrupt vectors may have fixed or rotating priorities. Includes cabinet kit. Includes only base option module. Requires the following cabinet kits:	
CK-DRV1J-KA	Cabinet kit for use with MicroPDP-11 BA23 enclosure.	
CK-DRV1J-KB	Cabinet kit for use with MicroPDP-11 BA123 enclosure.	
CK-DRV1J-KC	For use with H349.	
CK-DRV1J-KF	For use with H9642-JA/JB cabinets.	

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
DRV11	1 dual slot	0.9	0.0	4.5	2.8	1.0	(2)A
DRV11-WA	1 dual slot	1.8	0.0	9.0	2.0	1.0	B
DRV11-SA	1 dual slot	1.8	0.0	9.0	2.0	1.0	N/A
DRV11-SF	1 dual slot	1.8	0.0	9.0	2.0	1.0	N/A
DRV11-J	1 dual slot	1.8	0.0	9.0	2.0	1.0	(2)A

DR11 **Ordering Information**	**DR11-C**

DR11
Ordering Information

DR11-C General purpose digital interface. Permits bidirectional 16-bit parallel transfers between the user's device and the UNIBUS. Cable for connection to user device is not included. BC06R or equivalent is recommended. DR11 base option module.

Ordering Information

DR11-W *Base option.* General purpose DMA controller that interfaces user devices to the PDP-11 UNIBUS. In addition, the DR11-WP provides a half-duplex interprocessor link between UNIBUS, VAX, and Q-bus systems when connected to another DR11-W (for UNIBUS or VAX) or DRV11-B (for Q-bus). Features include transfer of up to 64K 16-bit words at up to 500,000 words per second; word or byte transfers; and burst data transfers. BC06R-xx or equivalent cables are required for interconnect, the maximum length being 15.2 m (50 ft). Includes only the DR11 base option module. Requires one of the following cabinet kits.

CK-DR11-LD DR11-W and DR11-C cabinet kit for use with UNIBUS shielded cabinets and the PDP-11X84. Required cables are included. Cable length is 10 feet.

CK-DR11-LF DR11-C and DR11-W cabinet kit. For use with the PDP-11/84 (A series) 10.5-inch OEM enclosure. Cable length is 3 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	**15 V**	**− 15 V**	**dc**	
DR11-C	1 quad slot	1.5	0.0	0.0	1.0	2
DR11-W	1 hex slot	3.7	0.0	0.0	1.0	2

DR11-WC/WD

The DR11-WC/WD is a long line version of the DR11-W general purpose inter-face. The DR11-WC/WD uses a differential adapter module along with the standard DR11-W module to provide for interconnection cables of up to 1000 feet. The interface can be used for connecting customer equipment to UNIBUS processors or for linking various combinations of PDP-11 and VAX processors. The DR11-WC/WD utilizes DMA data transfers, providing 16-bit parallel data transfers directly to and from memory. The DR11-WC/WD uses the standard DR11-W diagnostics and drivers to make the two products software compati-ble. Cables for connection to user device or link cables are not included. Available in the U.S. only.

Ordering Information

DR11-WC   DR11-W plus differential adapter module, interconnect cables, test connectors for use on the adapter module and an FCC com-pliant user I/O distribution panel.

DR11-WD   Long-line upgrade kit for DR11-W. Includes all the items in the DR11-WC except the DR11-W interface module.

CK-DR1WX-LE   DR11-WC and DR11-WD cabinet kit. For field upgrades in shielded UNIBUS cabinets. Cable length is 7 feet.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	– 15 V	dc	
DR11-WC	1 hex slot 1 quad slot	5.2	0.0	0.0	1.0	2
DR11-WD	1 quad slot	1.5	0.0	0.0	N/A	2

IEEE Interfaces

The IEU11, IEQ11, and IEC11 interfaces conform to the IEEE STD. 488-1978 for compliant test equipment. The IEU11 and IEC11 are for UNIBUS based systems, and the IEQ11 is designed for Q-bus systems. The IEU11 and IEQ11 incorporate two independent general purpose interface bus (GPIB) controllers. Each controller is capable of supporting up to 15 instruments, including the controller itself. This gives the user the ability to connect up to 28 instruments to a single module. The IEC11 is a single controller that connects up to 15 instruments, including the controller itself. The IEU11, IEQ11, and IEC11 are bit-parallel byte-serial controllers that can perform transfers in either program interrupt or DMA mode. DMA is standard with the IEU11 and the IEQ11 It is optional with the IEC11. Each independent bus provides system controller, controller-in-charge, talker, and listener capabilities. Termination of data transfers are by E.O.I. or byte count. The IEU11 and the IEQ11 also offer termination of data transfers by match characters.

Ordering Information

IEU11-AB	Bit-parallel, byte-serial DMA UNIBUS interface controller for IEEE-488-1978 instruments. Includes interface module, test cable, bulkhead/cable assembly for connecting to one of the two IEEE controllers on the module. See the cable chart below.
IEQ11-AD	Bit-parallel, byte-serial DMA Q-bus interface controllers for IEEE-488-1978 instruments. Includes interface module, test cable, bulkhead/cable assembly for connecting to one IEEE STD 488 controller. For BA23 system packaging.
IEQ11-AF	IEQ11 for BA123 and H9642 cabinet.
IEQ11-SA	IEQ11 for Q-bus systems. Factory-installed in BA213, BA214, and BA220.
IEQ11-SF	IEQ11 for Q-bus systems. Field-installed in BA213, BA214, and BA220.
QJS37-X*	RSX-11M/M-PLUS driver, sources (IEU11 or IEQ11).
QJS37-DZ	RSX-11M/M-PLUS driver, license to copy.
QJS02-X*	RSX-11M/M-PLUS driver, sources (IEC11).

*Designates media. Driver must be ordered separately.

**Cable Information
for IEEE Interfaces**

Option	Cable to 1st Controller	Cable to 2nd Controller	Cable to User Device
IEU11-AB	Included	BN11D-02	BN01A-02
IEC11-AB	Included	N/A	BN01A-02
IEC11-CA	Included	N/A	BN01A-02
IEQ11-AD	Included	BN11L-0C	BN01A-02
IEQ11-AF	Included	70-20161-01	BN01A-02
IEQ11-SA	Included	N/A	BN01A-02
IEQ11-SF	Included	N/A	BN01A-02

UNIBUS Realtime Options

IEEE Interfaces/Realtime Clocks

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	– 15 V	dc	
IEU11-AB	1 hex slot	3.5	0.0	0.0	1.0	1

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	15 V		ac	dc	
IEQ11-AD	1 quad slot	3.5	0.0	17.5	2.0	1.0	B
IEQ11-AF	1 quad slot	3.5	0.0	17.5	2.0	1.0	B
IEQ11-SA	1 quad slot	3.5	0.0	17.5	2.0	1.0	N/A
IEQ11-SF	1 quad slot	3.5	0.0	17.5	2.0	1.0	N/A

Realtime Clocks Ordering Information

KW11-P	UNIBUS programmable realtime clock. Program-selectable interrupts of 100 kHz, 10 kHz, line frequency or external signal, counted down by 16-bit counters with automatic reload.
KWV11-C	Q-bus 16-bit programmable realtime clock. Four programmable modes and five crystal-controlled frequencies are user-selectable.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	– 15 V	dc	
KW11-P	1 quad slot	1.0	0.0	0.0	1.0	N/A
KWV11-C	1 dual slot	2.0	0.0	0.0	1.0	N/A

Introduction

Proper site planning and preparation can simplify the overall installation process for efficient, reliable system operation. Digital's environmental power products help solve power-related problems in two ways: they protect individual circuits and control the power flowing into the system. Our power-related solutions let you control the quality of electrical power flowing into your computer. Use the following checklist to help evaluate your site prior to installation to ensure maximum system efficiency.

- Consider the space available for system components with adequate area for operation, maintenance, and ventilation. (Digital recommends a one-meter (39-inch) front, side, and rear service area for cabinets).
- Be sure to have an adequate power source for your system that is free from electrical disturbances.
- Install a dedicated power distribution panel for the system.
- Install and operate peripheral devices within recommended distance requirements.
- Check all construction requirements, including raised floors, floor loading and grounding, and cable locations.
- Be sure of proper fire and safety precautions, including emergency shutdown capability.
- Ensure the availability of additional space and power service for future system expansion.

Remember, the computer area environment (temperature and humidity) has a substantial effect on overall system reliability and should be evaluated by a Digital Field Service Engineer. For configuration and ordering or more detailed information on these products, refer to the *Environmental Products Reference Guide and Price List*, or call 603-884-5000, or write to

Digital Equipment Corporation
Environmental Products Group
Continental Boulevard, MK01/W83
Merrimack, NH 03054

**Power Conditioning System Plus/
Power Distribution System Plus**

The Power Conditioning System Plus (PCS +) offers comprehensive power conditioning, distribution, and environmental monitoring for medium-to-large-sized (15 to 100 kVA) Digital computer systems. The PCS Plus offers a dependable solution to every power-related problem except a power outage. It corrects electrical variations including sags, surges, brownouts, and spikes, and it is offered in five electrical variations.

For owners of medium-to-large computer systems who do not need voltage regulation or surge suppression, Digital offers five different sizes of Power Distribution Systems Plus. (PDS +). The PDS Plus offers advanced power monitoring and distribution. The Power Distribution System Plus, like the Power Conditioning System Plus, replaces conventional wiring and monitors electrical power.

PCS Plus/PDS Plus Options

The Remote Interface Alarm option (H7227-KB) allows interconnection with building systems such as smoke and water detectors, halon and air conditioning systems, and security setups.

Environmental Monitor/Repo Stations (H7227-KD/KE/KF) are now offered for the Power Distribution and Power Conditioning systems. They feature quick-read LCD temperature and humidity monitoring options, with an audible alarm silence and reset button, and automatic poweroff for high ambient temperature conditions.

Constant Voltage Conditioner

The Constant Voltage Conditioner (CVC) products are available in two series: the portable H7225 and the medium-sized system H7226. Each of these series consists of self-contained, integrated power conditioning systems designed specifically for use with single-phase Digital products. The CVC products were developed to correct input voltage fluctuations as well as low-voltage "brownout" conditions often encountered during peak power usage situations. Protection from the effects of electrical noise, impulses, and "spikes" is also provided by the CVC products. The H7225 series is available in sizes from 0.5-kVA to 3.0 kVA single phase. The H7226 series is offered in 5.0- to 10.0-kVA single-phase sizes.

Transient Voltage Surge Suppressors

High-energy impulses can damage your computer system. These energy transients can enter the system through the ac power lines or through the data communication lines. The H7007 family of Transient Voltage Surge Suppressor products are specifically designed to prevent this type of damage. The H7007-A series, for ac power, provides fast-acting, high-energy power-line transient protection regardless of the cause. The H7007-B and C series offer single and multiple data line suppression for both RS-232 EIA and 20-mA configurations. The H7007-D series provide complete terminal protection by combining H7007-A and H7007-B in one package. The new H7007-P series features a low-profile outline with a three-outlet distribution capability, ac power transient suppression, and a selection of data line suppressors in a wall hugging package that plugs directly into a standard wall receptacle. This new design is also available without the data line suppressor in the H7007-LB model. The H7007-M series offer suppression for up to 24 data lines in one package, with the ability to combine protection for RS-232, RS-422, and RS-423 standards.

Standby Uninterruptable Power System

The Standby Uninterruptable Power System provides battery backup for critical applications for up to twelve minutes at full-rated load. It provides attenuation of impulses, receptacle panel distribution, and casters for ease of installation. It is available in three sizes: 500 VA, 1,000 Va, and 1,440 VA (120 VAC At 60 Hertz).

Ordering Information

KDF11-AA	PDP-11/23 single board with memory management unit (MMU). This 16-bit dual-height central processor features 4-Mbyte addressing, four-level vectored interrupts for fast response without device polling, and 87 standard PDP-11 instructions including EIS.
KDF11-AC	PDP-11/23 single-board (without MMU), 16-bit central processing unit. This dual-height module features 64-Kbyte addressing, four-level vectored interrupts for fast response without device polling, 87 standard PDP-11 instructions including EIS, and 46 optional floating-point instructions.
KDF11-BA	PDP-11/23-PLUS quad-height single-board CPU. Designed for use in moderate-speed realtime applications, it includes all features of the KDF11-AA plus two serial lines, diagnostics, bootstrap ROM, and program-controlled line clock.
CK-KDF1B-KA	Cabinet kit for use with BA23 enclosure (includes selectable baud switch). Cable length is 15 inches.
CK-KDF1B-KC	Cabinet kit for use with H349 I/O distributon panel (includes selectable baud switch). Cable length is 30 inches.
KDJ11-AB	High-performance, dual-height PDP-11 processor with 8-Kbyte cache memory, floating-point, memory management, and system registers. It includes Q-bus 18- or 22-bit addressing, four jumper selectable powerup options, and onboard diagnostics with four microdiagnostic LEDs. A floating-point unit instructs arithmetic, logical, and conversion operations, and the MMU allows the processor to operate in kernel, supervisory, or user processor mode.
KDJ11-AC	Same as KDJ11-AB except the FPJ11-AA is installed on the module.
KXJ11-CA	A 16-bit, quad-height peripheral processor designed to enhance the performance of a Q-bus system acting as a data aquisition/control processor, co-processor or I/O communications processor which will run in either 16- or 32-bit environments. The module is powered by the DCJ11 which supports the full PDP-11 instruction set. Memory features include 512 Kbytes of DRAM, with dual-ported access that can be shared between the local J11 bus and the Q-bus, and 64 Kbytes of PROM. A 16-bit DMA controller facilitates data transfers to or from the local I/O devices, local memory and Q-bus addresses. I/O structures provided include dual channel synch/asynch SLU ports (one with modem control), DL compatible asynch console SLU port and a 20 line parallel port with three programmable interval times. MicroPower/Pascal (MP/P) is the supported application and development software for the KXJ11-CA. Peripheral Processor tool kits are available for RSX11-CA. Peripheral Processor tool kits are available for RSX-11M, RSX-11M-PLUS, Micro/RSX, RT-11 and MicroVMS operating systems.

KXT11-AB	Single-board, 16-bit dual-height central processor. Its features include 16 Kbytes of static RAM, 64 Kbytes of direct addressing capability, Q-bus interface, PDP-11 base-level instruction set, and 50, 60, or 800 Hz realtime clock. The KXT11-AB also includes 24-line parallel I/O, two asynchronous serial I/O ports, four 28-pin memory sockets for up to 16 Kbytes of additional RAM and 16 Kbytes of ROM, or an extra 32 Kbytes of RAM or 32 Kbytes of ROM.
KXT11-CA	A 16-bit peripheral processor powered by the DCT11 microprocessor which executes the base level PDP-11 instruction set. Memory includes 32 Kbytes of SRAM and 32 Kbytes of ROM. The module has two DMA channels, two programmable synch/asynch SLU ports, one console SLU port and one 20 line parallel port. This product is fully supported by MicroPower/Pascal and associated peripheral processor tool kits.

Configuring Information

Option	Amps 5V	Amps 12V	Max Watts	Bus Loads Drawn ac	dc	Form Factor	System Size	Address Range
KXT11-AB (FALCON-PLUS)	2.5	60mA	13.2	2.7	0.5	DUAL	N/A	64 Kbyte
KXJ11-CA (I/O Processor)	6.0	2.0	54.0	3.0	0.5	QUAD	Q18/Q22	512 Kbyte programmable
KXT11-CA (I/O Processor)	3.5	60mA	18.2	2.7	1.0	QUAD	Q18/Q22	64 Kbyte
KDF11-AC (LSI-11/23)	2.0	0.2	12.4	2.0	1.0	DUAL	Q18/Q22	64 Kbyte
KDF11-AA (LSI-11/23)	2.0	0.2	12.4	2.0	1.0	DUAL	Q18/Q22	4 Kbyte
KDJ11-A (LSI-11/73)	4.5	0.0	22.5	3.4	1.0	DUAL	Q18/Q22	4 Kbyte

Processor Options

Processor	Option	
KXT11-AB	KXT11-A5	– Macro ODT ROMs
KDF11-AA	KEF11-AA	– Floating Point Chip; FPF11-AA – Floating-Point Accelerator
KDJ11-AB	FPJ11-AA	– Floating-Point Coprocessor Chip

Ordering Information

KEF11-AA	Single- and double-precision floating-point option for use with the KDF11-AA. The KEF11-AA performs hardware operations on 32-bit and 64-bit floating-point numbers, provides up to 17 digits of precision as well as integer-to-floating-point conversions. It has 40-pin DIP IC. The KEF11-AA mounts on the KDF11 CPU board and requires a KTF11.
FPJ11-AA	Floating-point coprocessor option for use with the KDJ11-AB/AC modules. This single-chip option is designed to significantly improve the performance three or four times of computation-intensive applications. The FPJ11 is compatible with other PDP-11 systems with floating point. The 40-pin package is installed on the CPU board.
KTF11-AA	Memory management chip for use with the KDF11- AC. It features 4 Mbytes of 22-bit addressing, memory segmentation, built-in memory protection, and 40-pin DIP IC.
KXT11-A5	This two-chip EPROM set provides a number of special utilities used for developing, debugging, and downline-loading software to the KXT11-AB using MicroPower/Pascal.
KDF11-B3	Bootstrap ROM upgrade kit for use with KDF11- BA/-BF. Provides bootstrap capability for RD52, RQC25, TK50, and TSV05, in addition to RX50/RD51, and RX01/RX02, and DECnet devices.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn	
		5 V	**12 V**		**ac**	**dc**
KEF11-AA	KDF11 module	N/A	N/A	N/A	N/A	N/A
FPJ11-AA	KDF11-AC module	N/A	N/A	N/A	N/A	N/A

Components

Single-board Processor Options

Ordering Information

AAV11-C	12-bit, 4-channel digital-to-analog converter and CRT control. Provides an output signal that meets the needs of many industrial and laboratory applications.
CK-AAV1C-KA	Cabinet kit for use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-AAV1C-KC	BA123 and deep cabinet (H9642-JA/JB).
ADV11-C	12-bit, 16-channel analog-to-digital converter with program-controlled sampling rates to 25 kHz and external realtime clock, input for A/D trigger. Provides input capability for many industrial and laboratory applications.
CK-ADV1C-KA	Cabinet kit for use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-ADV1C-KC	BA123 and deep cabinet (H9642-JA/JB).
AXV11-C	Combination 16-channel analog input and 2-channel analog output interface board. Features two analog output channels with ranges identical to the input channels.
CK-AXV1C-KA	Cabinet kit for use with MicroPDP-11 BA23 enclosure. Cable length is 12 inches.
CK-AXV1C-KC	BA123 and deep cabinet (H9642-JA/JB).

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn	
		5 V	12 V		ac	dc
AAV11-C	1 dual slot	2.5	0.0	12.5	N/A	N/A
ADV11-C	1 dual slot	2.0	0.0	10.0	N/A	N/A
AXV11-C	1 dual slot	2.0	0.0	10.0	N/A	N/A

RAM Memories
Ordering Information

MCV11 modules provide CMOS static Random Access Memory with onboard battery backup.

MCV11-DC	32-Kbyte dual-height module with minimum data retention of 1,180 hours (50 days).

MSV11 memory modules are complete dynamic MOS memory subsystems.

MSV11-MB	1-Mbyte dual-height module with 256K MOS RAM chips. (Field installable only.)
MSV11-QA	1 Mbyte quad-height 64K MOS memory.
MSV11-QB	2-Mbyte quad-height 256K RAM MOS memory.
MSV11-QC	4-Mbyte quad-height 256K RAM MOS memory. (Field installable only.)
MSV11-JD	1-Mbyte quad-height ECC PMI memory (11/83, 11/84).
MSV11-JE	2-Mbyte quad-height ECC PMI memory (11/83, 11/84).

ROM Memories
Ordering Information

MRV11 PROM/ROM module with 16 sockets that accept customer-supplied, erasable UVPROM, fusible link PROM, or masked ROM devices. It also accepts several densities of ROM chips. The MRV11 can operate in window mapping address mode, and provides bootstrapping capability.

MRV11-C	Accommodates 24-pin devices up to and including 4K by 8 chips for a total capacity of 64 Kbytes of 18-bit addressing.
MRV11-D	Accommodates 24-pin and 28-pin devices including 8K by 8 static RAMs, and 32K by 8 chips for a maximum of 512 Kbytes of 22-bit addressing. Requires MXV11-B2 bootstrap ROM for bootstrapping capability.

Multifunction Modules Ordering Information

MXV11 multifunction module features dynamic MOS RAM with onboard refresh, user-configuration with PROM or system device bootstrap ROM option, acceptance of two 5.0-V, 24-pin UVPROM or fusible link PROM chips, two serial lines meeting RS-432 standard (backward compatible with RS-232-C), baud rates up to 38.4K, and 50/60-Hz crystal clock.

MXV11-BF	High-density multifunction module includes 128-Kbyte RAM, two 28-pin user ROM sockets, two independently configurable asynchronous serial lines compatible with RS-232-C and RS-423, and a realtime clock configurable at 50, 60, or 800 Hz. Supports 22-bit addressing. Requires MXV11-B2 bootstrap ROM for bootstrapping capability.
MXV11-B2	8-Kword bootstrap/diagnostic ROM set for use with the MXV11-BF or MRV11-D. Supports 22-bit addressing and provides bootstrap support for TU58, RL01, RL02, and RX02. Also supports RD51/RX50 and DECnet devices including DPV11, DUV11, DLV11-E, and DLV11-F.

IEEE Option Ordering Information

IBV11-A	Instrumentation bus interfaces that connects the Q-bus to the 16-line IEEE-488 bus.

Note: Analog options are available as *add-on options* for installation by technically experienced customers. They are compatible with the system backplane but are not installed in a Digital manufacturing facility. Analog options do not include I/O connection panel inserts, nor are they qualified for use in an FCC Class A system.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn	
		5 V	12 V		ac	dc
MSV11-MB	1 dual slot	2.2	0.0	11.0	2.0	1.0
MSV11-QA	1 quad slot	2.4	0.0	12.0	2.0	1.0
MSV11-QB	1 quad slot	2.3	0.0	11.5	2.0	1.0
MSV11-QC	1 quad slot	2.5	0.0	12.5	2.0	1.0
MSV11-JD	1 quad slot	1.5	0.0	18.7	2.5	0.5
MSV11-JE	1 quad slot	1.7	0.0	20.5	2.5	0.5
MXV11-BF	1 dual slot	3.4	0.1	18.2	2.3	0.5
IBV11-A	1 dual slot	0.8	0.0	4.0	1.9	1.0

System Enclosures
Ordering Information

These products are field add-on only:

BA11-SA(SB)	The BA11-SA master box contains a 4-by-9 slot backplane with 22-bit addressing on slots A/B only. The backplane accepts up to nine dual- or nine quad-height modules and is compatible with the RLV21 and the RLV22 options. Dimensions are 13.2 by 48.3 by 57.8 cm (5.2 by 19 by 22.7 in). The power supply comes with a master console and provides 36 amps at 5 V and 5 amps at 12 V.
BA11-SE	Same as BA11-SA but without a master console.
BA23-A	The BA23 master box contains a 4-by-8 22-bit address backplane. Slots one through three provide 22-bit addressing on slots A/B only and slots four through eight provide 22-bit addressing on slots A/B and C/D. Up to eight quad-height, or three quad-height and ten dual-height module, can be mounted. The BA23 has mounting space for one RD51/RD52 and/or one RX50 mass-storage device.
BA23A-AF	BA23-A tabletop/pedestal enclosure.
BA23A-AR	BA23-A rackmount enclosure.
BA23A-CC	BA23-A expansion enclosure.

Cables
Ordering Information

BCV1B-06	Jumper cable assembly used to expand the backplane from the first to second backplane or expansion box. It consists of two modules connected by two 1.8-m (6-ft), 40-conductor Berg-to-Berg connectors.

Components

Backplanes

Backplanes
Ordering Information

H9270-Q	4-by-4 slot 22-bit backplane with card guide is a Q-bus that will accept eight dual- or four quad-height boards on slots A/B and C/D. The H9270 is compatible with the RLV12 and RLV22 options.
H9273-A	4-by-9-slot backplane with card guide is a Q-bus that will accept up to nine dual- or quad-height boards on slots A/B and a special module interconnect bus on slots C/D. The H9273 is compatible with the RLV21 and RLV22 options.
H9275-A	The H9275 4-by-9-slot backplane with card guide is a nonexpandable backplane with 22-bit addressing and built-in bus terminators. It contains the 22-bit addressing on slots A/B and C/D and will accept 18 dual- or nine quad-height boards. It is compatible with the RLV12 and RLV22 options.
H9281	A family of three 18- or 22-bit backplanes with card guides.
H9281-QA	2 by 4 slot backplane where the Q-bus on slots A/B accepts up to four dual-height modules.
H9281-QB	2 by 8 slot backplane with built-in bus terminators, and the Q-bus on slots A/B accepts up to eight dual-height boards.
H9281-QC	2 by 12 slot backplane that includes bus terminators. The Q-bus on slots A/B accepts up to 12 dual-height boards.
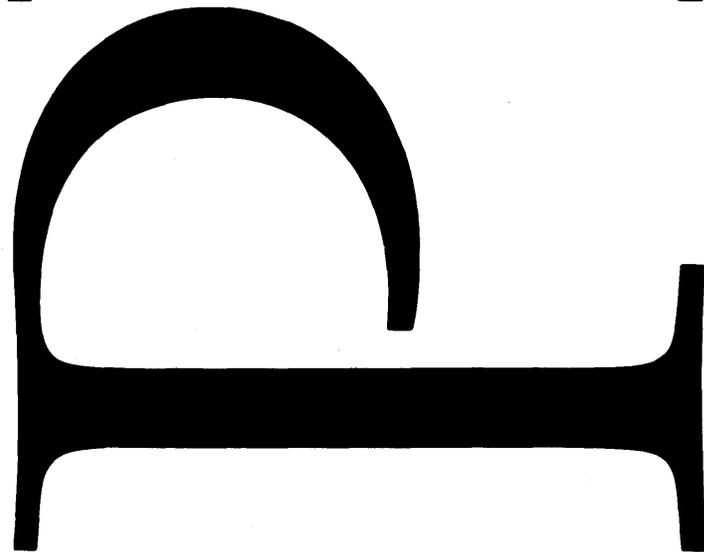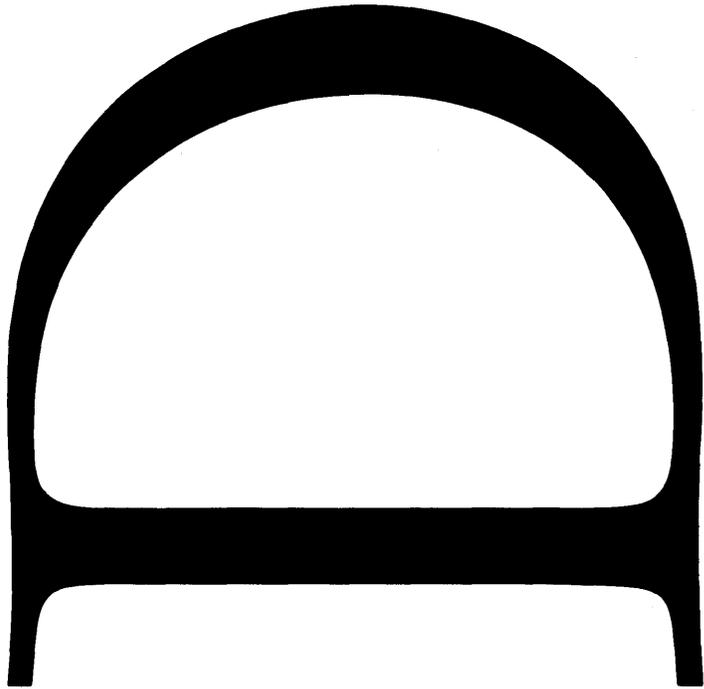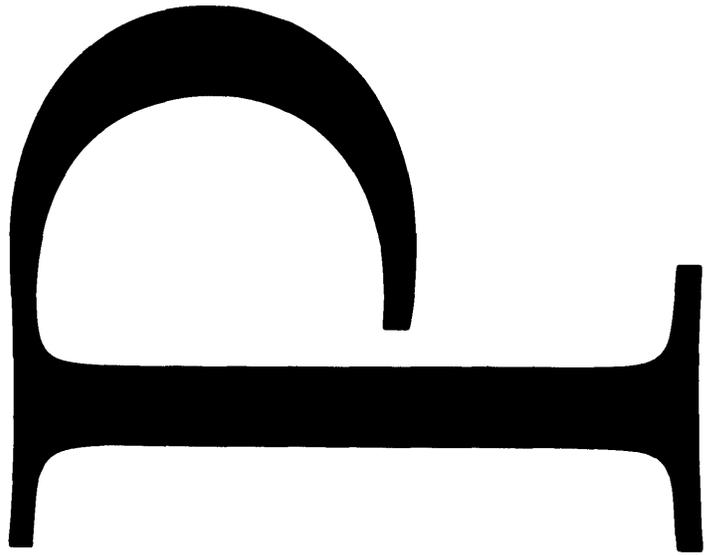
Cables

Coaxial Cables/Cable Assemblies

BNE2A/BNE2B

The BNE2A and BNE2B are the transmission mediums for the Ethernet system. These coaxial cables are designed to work with the H4000 Ethernet transceiver to provide complete network integrity.

Specifications

• Gauge: 11.5-AWG, 500HM

Connectors

• "N" type male coaxial connector, both ends

Ordering Information

BNE2A-MA	23.4 meters (76.8 feet) Teflon™ coaxial cable		BNE2B-MA	23.4 meters (76.8 feet) PVC jacketed coaxial cable
BNE2A-MB	70.2 meters (230.3 feet) Teflon coaxial cable		BNE2B-MB	230.3 meters (230.3 feet) PVC jacketed coaxial cable
BNE2A-MC	117.0 meters (383.9 feet) Teflon coaxial cable		BNE2B-MC	117.0 meters (383.9 feet) PVC jacketed coaxial cable
BNE2A-ME	500.0 meters (1640.4 feet) Teflon coaxial cable		BNE2B-ME	500.0 meters (1640.4 feet) PVC jacketed coaxial cable

BNE3H,K,L,M

The BNE3H, K, L, and M cable assemblies are used with the H4000 Ethernet.

Specifications

• Gauge: 20-AWG
• Straight (180°) or right-angled (90°) options

Connectors

• 15 pin "D" subminiature connectors, male and female

Ordering Information

Straight PVC		Straight Teflon	
BNE3H-05	5 meters (16.4 feet)	BNE3L-05	5 meters (16.4 feet)
BNE3H-10	10 meters (32.8 feet)	BNE3L-10	10 meters (32.8 feet)
BNE3H-20	20 meters (65.6 feet)	BNE3L-20	20 meters (65.6 feet)
BNE3H-40	40 meters (131.2 feet)	BNE3L-40	40 meters (131.2 feet)
Right-Angle PVC		**Right-Angle Teflon**	
BNE3K-05	5 meters (16.4 feet)	BNE3M-05	5 meters (16.4 feet)
BNE3K-10	10 meters (32.8 feet)	BNE3M-10	10 meters (32.8 feet)
BNE3K-20	20 meters (65.5 feet)	BNE3M-20	20 meters (65.6 feet)
BNE3K-40	40 meters (131.2 feet)	BNE3M-40	40 meters (131.2 feet)

BN25B

The BN25B is a dual channel two-conductor fiber optic cable assembly designed for use with the FOCFA/FOCMA-AA RS-232 to fiber optic converters.

Specifications

- Conductors: Two
- Wiring: Transmit and receive lines are indicated by arrows, i.e. $\rightarrow$ pointing away from connector = transmit opposite for receive.

Connectors

- SMA style (Amphenol 906 series) (4)

Ordering Information

BN25C-0E	0.5 meters (1.64 feet)	**BN25C-25**	25 meters (82.02 feet)
BN25C-03	3 meters (9.84 feet)	**BN25C-50**	50 meters (164.04 feet)
BN25C-10	10 meters (32.81 feet)	**BN25C-A0**	100 meters (328.08 feet)

FOCFA/FOCMA

The FOCFA/FOCMA is an RS-232-to-fiber-optic converter, which allows any asynchronous, serial line device to utilize a fiber optic link between the host CPU and a terminal or a serial printer and a terminal.

Specifications

- Features data security and maintains a bit error rate of 10^{-9}
- ac input voltage: 95-128 ac 60 Hz; dc output current: 80-to-130 mA

Connectors

- One female and one male RS-232.

Ordering Information

FOCFA-AA	Female RS-232 120 Vac	**FOCMA-AA**	Male RS-232 120 Vac

Cables

BC16D

The BC16D is a 36-conductor shielded cable assembly used as an extension cable in conjunction with the H3104 cable concentrator and a BC16C cable assembly.

Specifications

• Conductors: 36 (18 twp)

Connectors

• 36-position male right angle

Ordering Information

BC16D-50	15.2 meters (50 feet)	**BC16D-A0**	30.5 meters (100 feet)

BC17C

The BC17C is a fully shielded modem cable designed for use with the DECSA Ethernet communication server, and high-speed synchronous modems. This cable can also be used with any other RS-232 synchronous or asynchronous modem products.

Specifications

• Conductors: 17
• Gauge: 28-AWG; Shield: 36-AWG tinned copper braid
• Wiring: Point-to-point

Connectors

• One male and one female RS-232 25-position

Ordering Information

BC17C-10	3 meters (10 feet)	**BC17C-A0**	30.5 meters (100 feet)
BC17C-25	7.6 meters (25 feet)	**BC17C-B0**	60.9 meters (200 feet)
BC17C-50	15.2 meters (50 feet)	**BC17C-B5**	76.2 meters (250 feet)

BC17E

The BC17E is a 26-conductor (13 twp) fully shielded V.35 modem cable assembly designed for high-speed V.35 modem applications on the DESCA Ethernet communications server, but could also be used with a DMR11 and a DMV11 with the appropriate cabinet kit.

Specifications

- Conductors: 26 (13 twp)
- Gauge — Conductors: 24-AWG; Shield: 36-AWG tinned copper braid
- Wiring: Null modem

Connectors

- 34-position male; 37-position female D-subminiature

Ordering Information

BC17E-25	7.6 meters (25 feet)	BC17E-50	15.2 meters (50 feet)

BC17N

The BC17N is a 54-conductor (27 twp) fully shielded cable designed to interconnect a TU80 tape with a host CPU. Two cables are required per tape drive.

Specifications

- Conductors: 54 (27 twp)
- Gauge — Conductors: 26-AWG; Shield: 36-AWG tinned copper braid

Connectors

- One female and one male 50-position D-subminiature

Ordering Information

BC17N-12	3.7 meters (12 feet)	BC17N-24	7.3 meters (24 feet)
BC17N-20	6.27 meters (20 feet)		

BC22D

The BC22D is a fully shielded null modem cable designed to be used in asynchronous applications including DMF32, or in place of BC03M or any RS-232 communications option/bulkhead.

Specifications

- Conductors: 6
- Gauge: 24-AWG; Shield: 36-AWG tinned copper braid
- Wiring: Null modem

Connectors

- Two RS-232 female D-subminiature

Ordering Information

BC22D-10	3.0 meters (10 feet)	BC22D-A0	30.5 meters (100 feet)
BC22D-25	7.6 meters (25 feet)	BC22D-B0	60.9 meters (200 feet)
BC22D-50	15.2 meters (50 feet)	BC22D-B5	76.2 meters (250 feet)

Cables

Communications Cables

BC22E

The BC22E is a fully shielded asynchronous modem cable designed to be used with DMF32, or in place of BC22B or any RS-232 communications option/bulkhead.

Specifications

- Connectors: 16
- Gauge: 24-AWG; Shield: 36-AWG tinned copper braid
- Wiring: Point-to-point

Connectors

- One male and one female 25-position D-subminiature

Ordering Information

BC22E-02	0.6 meters (2 feet)	BC22E-A0	30.5 meters (100 feet)
BC22E-10	3.0 meters (10 feet)	BC22E-B0	60.9 meters (200 feet)
BC22E-25	7.6 meters (25 feet)	BC22E-B5	76.2 meters (250 feet)
BC22E-50	15.2 meters (50 feet)		

BC22F

The BC22F is a fully shielded, 25-conductor EIA cable used as a replacement in traditional BC05D asynchronous applications. It was also designed as the synchronous cable for use on the DMF32 sychronous port and synchronous modems.

Specifications

- Conductors: 25
- Gauge: 24-AWG; Shield: 36-AWG tinned copper braid
- Wiring: Point-to-point

Connectors

- One male and one female 25-position D-subminiature

Ordering Information

BC22F-10	3.0 meters (10 feet)	BC22F-A0	30.5 meters (100 feet)
BC22F-25	7.6 meters (25 feet)	BC22F-B0	60.9 meters (200 feet)
BC22F-50	15.2 meters (50 feet)	BC22F-B5	76.2 meters (250 feet)

BC55S/BC55T

The BC55S is triaxial RG59/U cable, and the BC55T is a twinaxial (1twp) cable. These fully shielded cables were designed for use with the integral modem option available on the DMR11 and the DMV11. Two cables are required for full-duplex operation.

Specifications

- Conductors: 1
- Gauge — Conductor: 20-AWG solid; Shield: 34-AWG bare copper braid
- Impedance: 75 ± 3 ohms

Connectors

- Two BNC male

Ordering Information

BC55S-25	7.6 meters (25 feet)		BC55T-25	7.6 meters (25 feet)
BC55S-50	15.2 meters (50 feet)		BC55T-50	15.2 meters (50 feet)
BC55S-A0	30.5 meters (100 feet)		BC55T-A0	30.5 meters (100 feet)
BC55S-B5	76.2 meters (250 feet)		BC55T-B5	76.2 meters (250 feet)
BC55S-E0	152.4 meters (500 feet)		BC55T-E0	152.4 meters (500 feet)
BC55S-L0	304.8 meters (1,000 feet)		BC55T-L0	304.8 meters (1,000 feet)

Cables

Interconnection Cables

BC26V

The BC26V is designed as the interface cable between controllers and storage interconnect (SI) type storage devices. This cable is used with the RA60, RA81, RA82, TA78, and TA81 (SI devices only).

Specifications

- Conductors: 4
- Gauge: Conductors — 30-AWG drains — 28-AWG Stress member — 16-AWG

Connectors

- Two 8-position, 2 by 4 (four signal, four ground)

Ordering Information

BC26V-12	3.7 meters (12 feet)	BC26V-50	15.2 meters (50 feet)
BC26V-25	7.6 meters (25 feet)	BC26V-80	24.4 meters (80 feet)

BC22M

The BC22M is a 16-conductor fully shielded cable designed for use with the DFM series of multiplexing products. The cable is used to either interconnect DFM to DFM channel to channel or to connect the tail circuit to a modem. Not for use with the external modem.

Specifications

- Conductors: 16
- Gauge: Conductors: 24-AWG; Shield: 36-AWG tinned copper braid

Connectors

- Two 25-position male

Ordering Information

BC22M-10	3 meters (10 feet)	BC22M-25	7.6 meters (25 feet)

BCC03/BCC17

The BCC03/BCC17 are cables that are used with the VT241 color monitor option. The BCC17 is used exclusively on the PC100 with a VT241 color monitor, and the BCC03 is used on all other VT241 applications.

Specifications

- Conductors: four — stranded, three — coaxial
- Gauge: Conductors: 20-AWG, stranded; 30-AWG, coaxial; Shield: 38-AWG tinned copper braid

Connectors

- One 15-position female and 3 BNC male

Ordering Information

BCC03-06	1.8 meters (6 feet)

BCC17-06	1.8 meters (6 feet)

BCC04/BCC14

The BCC04 is the modem cable designed for use with the personal computer product family and the VT200 series of products. This fully shielded cable is used to connect any personal computer with a modem, and it is used as a printer cable for Rainbow 100s.

Specifications

- Conductors: 25—BCC04, 16—BCC14
- Gauge: 26-AWG
- Wiring: Point-to-point

Connectors

- One male and one female 25-position D-subminiature

Ordering Information

BCC04-10	3 meters (10 feet)
BCC04-25	7.6 meters (25 feet)

BCC04-50	15.2 meters (50 feet)
BCC14-10	3 meters (10 feet)

BCC05

The BCC05 is the printer cable designed for the DECmate II, Professional 380 and VT200 series of products. This fully shielded cable is used to connect these personal computers with any of the specified Digital printers (LA100).

Specifications

- Conductors: 7
- Gauge: 26-AWG
- Wiring: Null modem

Connectors

- One 9-position female D-subminiature and one 25-position female D-subminiature

Ordering Information

BCC05-10	3.0 meters (10 feet)
BCC05-25	7.6 meters (25 feet)

BCC05-50	15.2 meters (50 feet)
BCC05-A0	30.5 meters (100 feet)

Cables

BC16E

The BC16E (DEC DATALINE) is an unshielded 6-conductor flat cable. The MMP is the DEC423 standard connector. To connect MMPs into existing terminals, passive physical adapters are required that allow both RS-232 and RS-423 signaling to pass through. This cable supports data only connections. Modems must still be used via RS-232 connections.

Connectors

25-pin D-subminiature (for terminal connection); 9-pin D-subminiature (for printer connection)

Ordering Information

BC16E-10	3 meters (10 feet)	BC16E-50	15.2 meters (50 feet)
BC16E-25	7.6 meters (25 feet)		

BC16M

The BC16M is a Thinwire office cable used to connect the DECconnect wallplate or faceplate to a ThinWire tranceiver (DESTA).

Specifications

- Conductors: 1
- Gauge: 20-AWG, coaxial tinned copper braid

Connectors

- Male BNC

Ordering Information

BC16M-06	1.8 meters (6 feet)	BC16M-30	9.0 meters (30 feet)
BC16M-15	4.5 meters (15 feet)		

DECconnect Terminal Interconnect Cable

The DECconnect Terminal Interconnect Cable is an 8-conductor, 4-twisted pair cable used to connect the faceplate or wallplate to the SER. This cable is available in PVC or FEP (for environmental airspace) on unterminated reels.

Ordering Information

H8245-A	1,000-foot reel PVC	H8246-A	1,000-foot reel FEP

ThinWire Ethernet Coaxial Cable

The ThinWire Ethernet cable is a thin, flexible, and easy-to-install coaxial cable, making it very suitable for work area installation. Thirty devices may be connected to a single segment. When a Multiport Repeater (DEMPR) is used, 29 stations may be connected to a single segment ThinWire cable. Current Ethernet devices may be connected to ThinWire using a ThinWire Station Adapter (DESTA). A maximum of eight ThinWire segments may be connected to a ThinWire Multiport Repeater (DEMPR) to form a network of up to 232 stations. A local network interconnect (DELNI) may be used to concentrate up to eight DEMPRs. For more information on ThinWire Ethernet Products, consult the *Networks and Communications Buyer's Guide*.

Ordering Information

H8243-A	1,000 foot reel, PVC	H8244-A	1,000 foot reel, Teflon

Communications

Device from	Cable needed	Device to
DELNI	BCC06	DECNA
	BNE3H-M	DELNI
H4000	BCC06, BNE3A-D	DECNA
	BNE2A-B, H-M	H4000
	BNE3H-M	DEQNA, DSRVA, DELNI, DECSA, DELUA
DMF32	BC22D	VT Series
	BC22E	DF100-200 Series Asynchronous Modems
	BC22F	DF100-200 Series Synchronous Modems (2400 baud or less)
	BC17C	DF100 Series Synchronous Modems (over 2400 baud)
	BC27A	LP25, LP26, LP27, LN01, LG01 and LG02 (except – DA versions)
	BC27B	LP04-14
DMR11, DMP11, DMV11	BC55D	RS-422/423 Modem Applications
	BC55S or BC55T	DMR11, DMP11, DMV11 (integral modem)
	BC17C	DF100 Series Synchronous Modems (over 2400 baud)
	BC17E	V.35 Modems
	BC22F	DF100-200 Series Synchronous Modems (2400 baud or less)
DFM04-16	BCC04 or BCC14	VT200 Series
	BC22E	LA12-210, VT100-180
	BC22M	DF100-200 Series Modems (from channel ports only)
DHU11, DZQ11, DHV11, DMB32 DHQ11	BC22D	VT Series
	BC22E	DF100-200 Series Asynchronous Modems
	BC22F	DF100-200 Series Synchronous Modems (2400 baud or less)
DSRVA-AA	BC22D	VT Series
DSRVB-AA	BC22D	VT Series
	BC22E	DF100-200 Asynchronous Modems
DSRVA-BA, DSRVB-BA	BC16E	H8751 and VT Series
DMZ32-M	BC18L BC18M (Plenum)	DMZ32 Distribution Panel (H3014)
DMZ32-M Distribution Panel	BC22D	VT Series
	BC22E	DF100-200 Series Asynchronous Modems
	BC22F	DF100-200 Series Synchronous Modems (2400 baud or less)

Cables

Cable Application Table

Tapes

Device from	Cable needed	Device to
TU78	BC17M (FCC)	TU78
TU80, TU81	BC17N	UNIBUS Controller

Controllers

Device from	Cable needed	Device to
Controllers		
UDA50, HSC50	BC26V	TA78, RA60, RA81, TA81
	BNCIA	CI750, CI780

PC Products

Device from	Cable needed	Device to
PC100	BCC14	LA12-210, LQP, LN03
	BC16E	LA75
	BCC17	VT241
	BCC19	LVP16
PC100/278/350	BCC04 or BCC14 and BC22D	DMF32 DLVJ1
	BCC04 or BCC14	DF100-200 Series Asynchronous and Synchronous Modems (2400 baud or less)
PC278 PC27-BA	BCC13	RL02
PC278/350	BCC03	VT241
	BCC05	LA12-210, LQP, LN03
	BC16E	LA75
	BCC20	LVP16

Fiber Optics

Device from	Cable needed	Device to
RF-FOAFB-AA	BN25B	RF-FOAFB-AA
RF-FOAMB-AA	BN25B	RF-FOAMB-AA
FOCFA, FOCMA	BN25B	FOCFA, FOCMA

Printers/Hardcopy Devices

Device from	Cable needed	Device to
LA12-210 LG01-DA LG02-DA	BC22D	VT100 Series
		DMF32, DLVJ1
	BC22E	DF100-200 Series Asynchronous Modems
LN03	BC22F	DF100-200 Series Asynchronous Modems (2400 baud or less)
	BCC04/BCC14	PC100
	BCC05	PC278/PC350, VT200 Series
LA75	BC16E	VT100/200 Series, PC Series
Non-compliant Systems		
LP11	70-11212	LP04-14
	70-16560	LP25, LP26
LP25 LP26 LP27 LN01 LG01-AA/BA/CA LG02-AA/BA/CA	BC27A	DMF32, DMB32
		LP11
		LPV11
Non-compliant Systems		
LQP	BC22D	DMF32, DLVJ1
	BC22E	DF100-200 Series Asynchronous Modems
LVP16	BCC19	PC100
	BCC20	PC278/PC350, VT200 Series
	BCC24	LA Series, LN Serial Printers

Video Terminals/Workstations

Device from	Cable needed	Device to
VT200 Series	BC22F	DF100-200 Synchronous Modems (2400 baud or less)
	BCC04 or BCC14	DF100-200 Series Asynchronous and Synchronous Modems (2400 baud or less)
	BCC05	LA12-210, LQP, LN03
	BC22D	DMF32, DLVJ1
VT278	BC26R	DF100-200 Series Asynchronous Modems
	BC26S	LA12-210, LQP, LN03, DMF32, DLVJ1
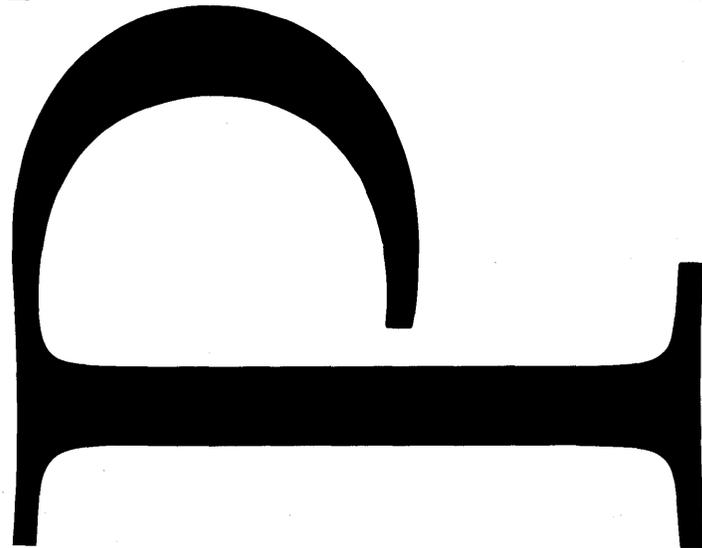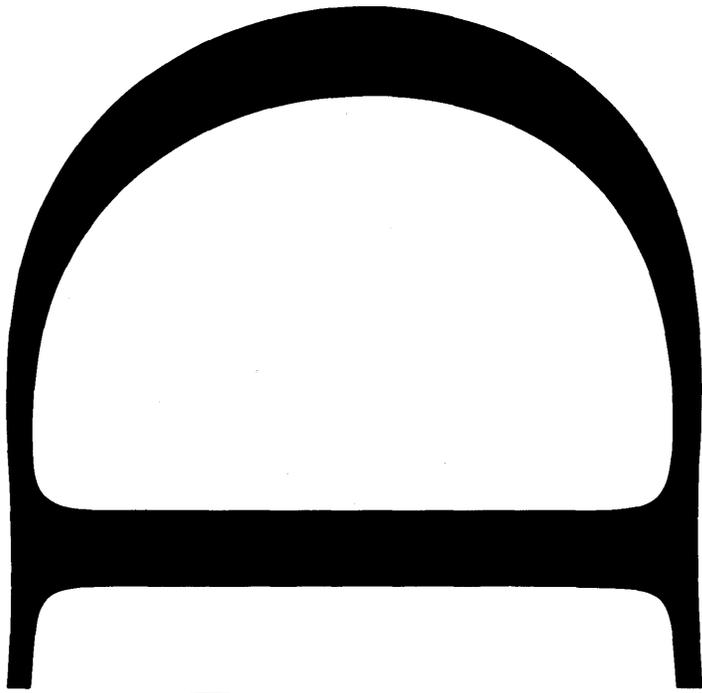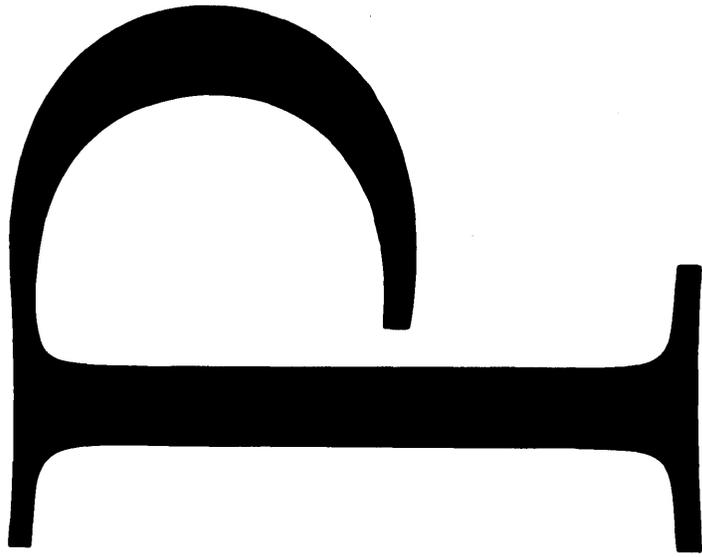
**Digital Storage
Architecture**

Long established as a leader in the manufacture of computer systems, Digital also sets the standard for the design and manufacture of storage systems with our Digital Storage Architecture (DSA). DSA is a framework for an expanding family of disk devices, storage arrays, tape drives, optical products, and controllers and I/O servers.

This carefully planned framework of standardized interfaces governs the interactions of all Digital host systems and storage subsystems. Today, virtually all of Digital's storage subsystems – whether for the smallest PDP-11 or for the largest VAXcluster – are based on DSA.

DSA protects your investment in Digital subsystems. With DSA, you can add new storage products and incorporate new technologies without the need to develop additional software drivers or modify applications software.

DSA includes several families of products, each of which is compatible within itself, but not with other families.

Features

- The Standard Device Interconnect (SDI) family includes RA-series disk drives; TA-series tape drives; HSC70 and HSC50 I/O servers; and KDB50, KDA50, and UDA50 board controllers.
- The midrange TU81-Plus tape drive has its own controller and complements RA-series disk drives for nonclustered systems.
- The low-end family includes RD-series Winchester disk drives, RX-series flexible disk drives, and the RQDX3 disk controller. It is complemented by the TK-series cartridge tape drives, which have their own controllers.
- DSA provides high standards of software compatibility for all of Digital's storage subsystems.
- Software written for one Digital system can be easily migrated to any other DSA-supported system without affecting the way it works with a specific DSA storage device.
- DSA allows new technologies to be incorporated in state-of-the-art storage products that are fully compatible with existing storage devices.
- Subsystem-based intelligence offloads many of the functions that are normally host-associated, thus providing more usable CPU power.

SDI Family

The architecture definition provides standards for data integrity that are incorporated into each of the DSA components and subsystems. Standard Device Interconnect (SDI) storage devices include the 2.5-Gbyte SA482 storage array, the 280-Mbyte 5.25-inch RA70 Winchester fixed disk, the 622-Mbyte RA82 Winchester fixed disk, the 456-Mbyte RA81 Winchester fixed disk, and the 205-Mbyte RA60 removable-media disk. Any drive or storage array can be connected to any controller port and can be mixed on the same controller. The drives and storage array are dual-ported and can be connected to the HSC70, HSC50, KDB50, KDA50, and UDA50.

Features

- Seek ordering — Reorders I/O requests, thereby improving effective I/O access time
- Overlapped seeking — Transfers data from one disk while seeking on any other disks with outstanding I/O requests
- Rotational optimization — Selects the disk nearest the beginning sector when more than one disk is positioned on cylinder
- Express queue — Provides immediate servicing of I/O requests, if required (architectural)
- Speed matching buffers — Use high-speed RAM to smooth the disk data burst rates to host CPU I/O bus (architectural)
- 170-bit error correction code (ECC) — Detects and corrects up to eight independent 10-bit error bursts per section, reducing the possibility of uncorrectable data errors that result from media degradation
- Redundant header addresses — Records disk block header information four times for more reliable sector location
- Automatic sector relocation — Automatically removes defective blocks from service and replaces them with others, without causing shrinkage in usable space
- Error detection code — Checks controller memory and data path errors as well as ECC hardware operation
- Error reporting — Reports all significant errors to the host system, enabling detection and preventive action before subsystem failure or data loss (architectural)

Product Description

The KDA50 implements the Digital Storage Architecture (DSA) and allows SDI disk drives to be used with a variety of Q-bus system configurations. The KDA50 is an intelligent controller containing two high-speed microprocessors for host-disk communication and data routing through the KDA50's onboard memory buffer. The KDA50's advanced design allows for the controller to handle disk drives with sustained data transfer rates of up to 880 Kbytes/second. The controller consists of two quad modules that can be mounted in adjacent Q-bus backplane slots. Each controller can attach up to four RA-series disk drives or up to four RA component drives in a storage array. This enhanced microcode typically provides a ten-percent performance improvement for transfer sizes in the 4- to 8-Kbyte range seen in most VMS applications. Applications optimized for maximum bandwidth can see an average improvement of fifty percent.

Features

- Stores up to 20 host I/O requests for disk optimization
- Provides for buffering of up to 41 disk sectors in order to smooth the data rates between the high-speed disks and the host Q-bus port
- Direct controller-host memory transfers
- Indicates fault conditions on LED displays and in a hardware register that is readable by the host
- Aids subsystem troubleshooting by logging the last fault in an error registry
- One-year onsite hardware warranty

Ordering Information

KDA50-QA   Q-bus controller for SDI disk drives.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
KDA50-QA	2 quad slots	13.5	0.04	67.9	3.0	0.5	(2)B

Product Description

The UDA50 controller implements the Digital Storage Architecture (DSA) and allows SDI disk drives to be used with a variety of UNIBUS system configurations. The UDA50 is an intelligent controller containing two high-speed microprocessors for host and disk communication as well as data routing in and out of the onboard memory buffers. The UDA50's advanced design permits the controller to handle disk data rates up to 3 Mbytes per second. The controller consists of two hex modules that can be mounted in any two adjacent UNIBUS slots. Each controller can attach up to four RA-series disk drives or up to four RA component drives in a storage array.

Features

- Stores up to 20 host I/O requests for disk seek optimization
- Provides for buffering of up to 52 disk sectors in order to smooth the data rates between the high-speed disks and the host UNIBUS port
- Allows direct controller-host memory transfers
- Indicates fault conditions on LED displays and in a hardware register that is readable by the host
- Aids subsystem troubleshooting by logging the last fault in an error register
- One-year onsite hardware warranty

Ordering Information

UDA50-A	UNIBUS controller for SDI disk drives.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
UDA50-A	2 hex slots	12.0	0.04	1.4	4.3	1.0	1

Disks

SA482 2.5-Gbyte Storage Array
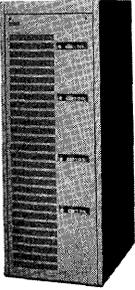
Product Description

The SA482 storage array is a high-performance, high-capacity storage device designed for high-end systems. It has a formatted capacity of 2.5 Gbytes (3.4 Gbytes unformatted*) with a footprint of 452 Mbytes/square foot formatted. Consisting of four independent, parallel disk drives connected through the SDI, the SA482 offers multipath, multi-disk drive throughput capabilities that include four Winchester spindles, four disk drives, and 60 data heads. The SA482 is designed for large PDP-11/84 configurations where high-performance, high-capacity storage is required. It is connected to the PDP-11/84 via the UDA50 controller, which supports full DSA/SDI functionality. Two building-block variations of the SA482 are also available for mid-range and entry-level configurations.

Features

- Capacity (formatted): 2.5 Gbytes
- Capacity (unformatted*): 3.4 Gbytes
- Peak transfer rate: 2.4 Mbytes/s/disk drive
- Average access time: 32.3 ms/disk drive
- Single-track seek: 6 ms[†]
- Average latency time: 8.33 ms/disk drive[†]
- Dual access: Standard
- Media surfaces: 7 data, 1 servo/disk drive
- Sectors per track: 57
- Bytes per sector: 512
- Rotational speed: 3600 rpm
- Maximum spindles per UDA50: 4
- Disk drives per array: 2-4
- One-year onsite hardware warranty

*Unformatted capacity provided for comparison purposes; only formatted capacity is user accessible in any disk device.
[†]Hardware capability only; does not reflect DSA optimization.

Ordering Information

SA482-AA/AD	2.488-Gbyte storage array building block. (4 RA82 component drives and a storage array). *Prerequisite:* Any SDI controller or I/O server.
SA482-LA/LD	1.866-Gbyte storage array building block. (3 RA82 component drives and a storage array). *Prerequisite:* Any SDI controller or I/O server.
SA482-HA/HD	1.244-Gbyte storage array building block. (2 RA82 component drives and a storage array). *Prerequisite:* Any SDI controller or I/O server.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
UDA50-A	2 hex slots	12.0	.04	1.4	4.3	1.0	1

Cables

Option	Length	Where Used
BC26V-12	3.7 m (12 ft)	Connects one SDI disk
BC26V-25	7.6 m (25 ft)	drive to an SDI controller.
BC26V-50	15.2 m (50 ft)	
BC26V-80	24.4 m (80 ft)	

Note: Each SA482 is shipped with four BC26V-12 cables as a standard part of the package. Cables of different lengths can be ordered. See cable options above. If dual porting is desired, a duplicate set of cables must be ordered separately.

Disks

RA82 622-Mbyte Fixed Disk
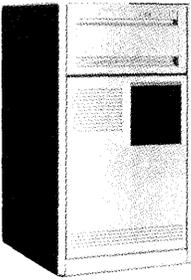
Product Description

The RA82 is a 14-inch, 622-Mbyte (855-Mbyte unformatted*) fixed Winchester disk drive featuring full DSA/SDI functionality, dual port, high reliability, high performance, and high capacity. The read/write system employs an encoding/decoding scheme that yields over one-third more storage capacity than drives using conventional encoding. Position information on a dedicated servo surface enables high-speed seeking. Additional position information is embedded between sectors on every track for high-precision positioning. The RA82 features outstanding data reliability characteristics, including an industry-leading 170-bit error correction code (ECC) and over 21,000 spare sectors for dynamic defect compensation.

The RA82's size, capacity, and price range provide ideal, large Winchester disk storage for the PDP-11/84 in computer room and laboratory environments. It is available only in the 42-inch RA82-EA/ED (three-drive) cabinet configuration. Customers also may purchase either one, two or three RA82 disk drives in an H9642 (3 HI) cabinet for MicroVAX II, MicroVAX 3600, VAXBI, VAXcluster CI, and PDP-11/84 systems.

As a member of the Digital Storage Architecture (DSA) family, the RA82 uses the Standard Device Interconnect (SDI), and is fully compatible with the other DSA/SDI products. On the PDP-11/84, it is supported by the DSA/SDI UDA50 controller with four ports for four RA-series drives.

Features

- Capacity (formatted): 622 Mbytes
- Capacity (unformatted*): 855 Mbytes
- Peak transfer rate: 2.4 Mbytes/s
- Average access time: 32.3 ms
- Average seek time: 24 ms[†]
- Average latency time: 8.3 ms[††]
- Track-to-track seek time: 6 ms[†††]
- Maximum seek time (1435 tracks): 35 ms[†]

- Sectors per track: 57
- Bytes per sector: 512
- Rotational speed: 3600 rpm
- Dual access: Standard
- Number of data heads: 15
- Number of disk drives: 1
- Media surfaces: 7 data, 1 servo
- One-year onsite hardware warranty

*Unformatted capacity provided for comparison purposes; only formatted capacity is accessible to the user in any disk device.
[†]Measured from the receipt of Motion command from the controller until Ready command is sent to the controller.
[††]Hardware capability only; does not reflect DSA optimizations.

Ordering Information	**RA82-AA**	622-Mbyte rackmountable 120 V/60 Hz disk drive with one BC26V-12 cable.
		Prerequisite: Existing SDI controller.
	RA82-AD	622-Mbyte rackmountable 240 V/50 Hz disk drive with one BC26V-12 cable.
		Prerequisite: Existing SDI controller.
	RA82-AE	622-Mbyte rackmountable 120 V/60 Hz disk drive without cable.
		Prerequisite: Existing SDI controller and a BC26V-6D cable.
	RA82-DA	Two 622-Mbyte 120 V/60 Hz disk drives mounted in an H9642 (3 HI) cabinet with two BC26V-12 cables.
		Prerequisite: Existing SDI controller.
	RA82-DD	Two 622-Mbyte 240 V/50 Hz disk drives mounted in an H9642 (3 HI) cabinet with two BC26V-12 cables.
		Prerequisite: Existing SDI controller.
	RA82-EA	Three 622-Mbyte 120 V/60 Hz disk drives mounted in an H9642 (3 HI) cabinet with three BC26V-12 cables.
		Prerequisite: Existing SDI controller.
	RA82-ED	Three 622-Mbyte 240 V/50 Hz disk drives mounted in an H9642 (3HI) cabinet with three BC26V-12 cables.
		Prerequisite: Existing SDI controller.

Note: Each RA82 disk drive comes with its own BC26V-12 cable with the exception of the RA82-AE. Cables of different lengths can be ordered. See cable options below. If dual porting is desired, a duplicate set of cables must be ordered separately.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	**15 V**	**−15 V**	**ac**	**dc**	
UDA50-A	2 hex slots	12.0	.04	1.4	4.3	1.0	1

Cables

Option	Length	Where Used
BC26V-12	3.7 m (12 ft)	Connects one RA82 disk
BC26V-25	7.6 m (25 ft)	drive to an existing SDI
BC26V-50	15.2 m (50 ft)	controller.
BC26V-80	24.4 m (80 ft)	

Disks

RA81 456-Mbyte Fixed Disk
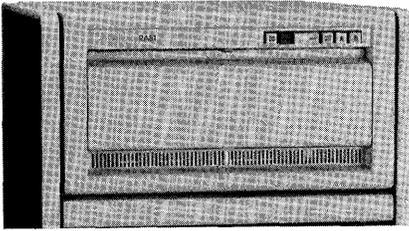
Product Description

The RA81 is a high-capacity, rackmounted Winchester disk drive with a recording density of over 11 Mbits per square inch, providing a formatted capacity of 456 Mbytes (627 Mbytes unformatted).* The read/write system employs an encoding/decoding scheme that yields one-third more storage capacity than drives using conventional encoding. Position information on a dedicated servo surface enables high-speed seeking. Additional position information is embedded between sectors on every track for high-precision positioning. The RA81 operates with any member of the high-performance SDI controller family.

The RA81 features outstanding data reliability characteristics, including an industry-leading 170-bit error correction code (ECC) and over 17,000 spare sectors for dynamic defect compensation. Low-cost three- and four-drive configurations provide almost 1.4 gigabytes and over 1.8 gigabytes of formatted storage, respectively, in only 1.68 square meters (5.5 square feet) of floor space. The RA81-CA/CD stand-alone unit comes in the top bay of a 91.4-centimeter (36-inch) deep cabinet. Two additional drives (RA82s, RA81s, or RA60s in any combination) can be mounted in the middle and bottom cabinet bays. The RA81-FA/FD comes in a 154-centimeter (60.5-inch) high H9646 cabinet with four mounting bays. Three additional drives (any combination of RA82s, RA81s, RA80s, or RA60s) can be mounted in the H9646. The RA81-HA/HD is available as part of an integrated MicroPDP-11/83 system using the H9642-JA/JB cabinet. The RA81-AA/AD rackmountable drive can be added to the older H9642-BM/BN shallow cabinet, as well as to newer H9642-A and H9646 cabinets. One BC26V 3.7-meter (12-foot) cable is included with every drive or subsystem to connect the RA81 to any SDI controller.

*Unformatted capacity provided for comparison purposes; only formatted capacity is user-accessible in any disk device.

Features

- Peak transfer rate: 2.2 Mbytes/s
- Average access time: 36.3 ms
- Average seek time: 28 ms[†]
- Average latency time: 8.33 ms
- Dual access: Standard
- Media surfaces: 7 data, 1 servo
- Tracks per surface: 2,496

- Sectors per track: 51
- Bytes per sector: 512
- Track-to-track seek time: 6.5 ms[†]
- Maximum seek time (1248 tracks): 52 ms[†]
- Rotational speed: 3,600 rpm
- One-year onsite hardware warranty

[†]Measured from the receipt of Motion command from the controller until Ready command is sent to the controller.

Expansion Specifications

- Drives per UDA50 or KDA50 controller: 4
- Drives per H9642 stand-alone cabinet: 3
- Drives per cabinet: 1-4

Ordering Information

Disk Drives

RA81-AA/AD	RA81 rackmountable disk drive with one BC26V-12 cable.
	Prerequisite: Any SDI controller and a cabinet for mounting.
RQA81-AA/AD	RA81-HA/HD with KDA50 controller and BC26V-6D cable.
RA81-CA/CD	RA81-AA disk drive mounted in a H9642-AP/AR cabinet.
	Prerequisite: Any SDI controller.
RQA81-CA/CD	RA81-CA/CD with KDA50 controller.
RA81-EA/ED	Three RA81-AA disk drives mounted in an H9642 (3-HI) cabinet.
	Prerequisite: Any SDI controller.
RA81-FA/FD	One RA81-AA disk drive mounted in an H9646 (4-HI) cabinet.
	Prerequisite: Any SDI controller.
RA81-HA/HD	RA81-AA rackmountable disk drive without cable. Primarily used on MicroPDP-11/83 system building blocks.
	Prerequisite: Any SDI controller and a BC26V-6D cable.
RA81-JA/JD	Four RA81-AA disk drives mounted in an H9646 (4-HI) cabinet.
	Prerequisite: Any SDI controller.
RA81-UA	RA81 reconfiguration kit. Required for remounting RA81s originally configured in an H9642 (3-HI) cabinet. Not required for RA81-AA.

Additional Controllers

UDA50-A	DSA UNIBUS controller for 1–4 SDI drives.
	Prerequisite: UNIBUS system and 1–4 SDI drives.
KDA50-QA	DSA Q-bus disk controller for 1–4 SDI drives.
	Prerequisite: Q-bus system and 1–4 SDI drives.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
UDA50-A	2 hex slots	12.00	0.04	1.4	4.3	1.0	1

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
KDA50-QA	2 quad slots	13.5	0.04	67.9	3.0	0.5	(2)B

Cables

Option	Length	Where Used
BC26V-6D	2.0 m (6.4 ft)	Connects one RA81 or RA60
BC26V-12	3.7 m (12 ft)	disk drive to an existing SDI
BC26V-25	7.6 m (25 ft)	controller (KDA50 or UDA50)
BC26V-50	15.2 m (50 ft)	
BC26V-80	24.4 m (80 ft)	

Note: Each RA-series disk drive except the RA60-AF and RA81-HA is shipped with a BC26V-12 (12-foot) cable as a standard part of the package. Cables of different lengths can also be ordered. See the cable options above. If dual porting is desired, a duplicate set of cables must be purchased.

Disks

RA60 205-Mbyte Removable-media Disk

Product Description

The RA60 is a rackmountable, removable-media disk providing 205 Mbytes of formatted capacity. The recording density is three times that of removable disks with similar capacity. The RA60 disk drive uses advanced embedded servotechnology to eliminate the need for alignment altogether. It also incorporates new recording methods, microprocessor-controlled diagnostics, a 170-bit error-correction code, and modular design for easy maintenance.

RA60 stand-alone units come in either the top bay of a 91.4-centimeter (36-in) deep cabinet or in the 154-centimeter (60.5-in) high H9646 4-HI cabinet or as part of an integrated MicroPDP-11/83 system using the H9642-JA/JB cabinet. Two additional drives (RA82s, RA81s and RA60s in any combination) can be mounted in the middle and bottom cabinet bays of the 3-HI cabinet; three additional drives in any combination can be mounted in the 4-HI cabinet's remaining bays. One BC26V 3.7-meter (12-foot) cable is included with every drive or subsystem to connect the RA60 to any SDI controller.

Features

- Peak transfer rate: 1.98 Mbytes/s
- Average access time: 50 ms
- Average seek time: 41.7 ms
- Average latency time: 8.33 ms
- Dual-port option: standard
- Media surfaces: 10 (6 data, 4 protective)
- Tracks per surface: 1,600
- Sectors per track: 42 (16-bit words)
- Bytes per sector: 512
- Single-track seek: 6.7 ms
- Rotational speed: 3,600 rpm
- One-year onsite hardware warranty

Expansion Specifications

- Drives per UDA50 or KDA50 controller: 4
- Drives per H9642-AP(AR) stand-alone cabinet: 3
- Drives per H9646 cabinet: 4

Ordering Information

Disk Drives

RA60-AA	RA60 rackmountable disk drive with one BC26V-12 cable. *Prerequisite:* Any SDI controller and a cabinet for mounting.
RQA60-AA	RA60-AF with KDA50 controller. 50/60 Hz and BC26V-6D cable.
RA60-AF	RA60-AA rackmountable disk for use on MicroPDP-11/83 systems. *Prerequisite:* H9544-CD top RA60 trim kit, BC26V-6D 6-ft cable, and KDA50 controller.
RA60-CA/CD	RA60-AA disk drive mounted in an H9642-AP/AR cabinet. *Prerequisite:* Any SDI controller.
RQA60-CA/CD	RA60-CA/CD with KDA50 controller.
RA60-EA/ED	Three RA60-AA disk drives mounted in 3-HI cabinet. *Prerequisite:* Any SDI controller.
RA60-JA/JD	Four RA60-AA disk drives mounted in a 4-HI cabinet. *Prerequisite:* Any SDI controller.
RA60-FA/FD	RA60-AA disk drive mounted in a 4-HI disk cabinet. *Prerequisite:* Any SDI controller.
RA60-UA	RA60 reconfiguration kit. Required for remounting RA60s originally configured in 3-HI H9642 cabinet in H946 cabinet. Not required for mounting newly ordered RA60-AA in either cabinet.

Additional Controllers

UDA50-A	DSA UNIBUS disk controller for 1–4 SDI drives. *Prerequisite:* UNIBUS system and 1-4 SDI drives.
KDA50-QA	DSA Q-bus disk controller for 1–4 SDI drives. *Prerequisite:* Q-bus system and 1-4 SDI drives.

Cartridge

RA60-P	Removable 205-Mbyte cartridge.

Note: When ordering a combination of removable and fixed drives in a 3- or 4-HI cabinet, order the removable drive in the cabinet (i.e., RA60-CA and RA60-FA).

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
UDA50-A	2 hex slots	12.0	0.04	1.4	4.3	1.0	1

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
KDA50-QA	2 quad slots	13.5	0.04	67.9	3.0	0.5	(2)B

Cables

Option	Length	Where Used
BC26V-6D	2.0 m (6.4 ft)	Four cables connect one
BC26V-12	3.7 m (12 ft)	SA482 storage array, and one
BC26V-25	7.6 m (25 ft)	cable connects one RA81 or
BC26V-50	15.2 m (50 ft)	RA60 disk drive to an existing
BC26V-80	24.4 m (80 ft)	SDI I/O server or controller.

Note: Each RA-series disk drive except the RA60-AF and RA81-HA is shipped with a BC26V-12 (12-foot) cable as a standard part of the package. Cables of different lengths can also be ordered. See the cable options above. If dual porting is desired, a duplicate set of cables must be purchased.

Disks

RC25 Fixed/Removable Disk
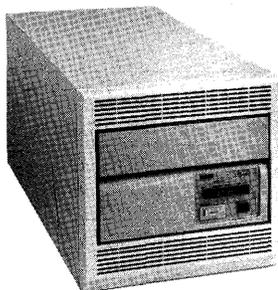
Product Description

The RC25 has 52 Mbytes of formatted user data (26 Mbytes fixed/26 Mbytes removable). Its 26-Mbyte sealed removable cartridge provides one-to-one backup ratio and an attractive alternative to disk/tape configurations where user productivity is most important.

The RC25 is compatible with other Digital Storage Architecture disk subsystems. Exceptional data reliability and integrity features include a powerful 170-bit error detection and correction code, automatic retry and revectoring, embedded servos, and bad-block replacement.

Features

- Peak transfer rate: 1.25 Mbytes/s
- Seek time: 10 ms
- Track-to-track: 10 ms
- Average seek time: 35 ms
- Maximum seek time: 55 ms
- Average access time: 45.5 ms
- Subsystems per controller: 2
- One-year onsite hardware warranty

Ordering Information

UNIBUS Subsystems

RUC25-AA/AB	Tabletop RC25 with UNIBUS adapter.
RUC25-BA/BB	Rackmountable RC25 with UNIBUS adapter. Mounts in H9642-F and H9642-M UNIBUS expansion cabinets.

Q-bus Systems

RQC25-AA/AB	Tabletop RC25 with Q-bus controller.
RQC25-BA/BB	Rackmountable add-on RC25.

Disk Drives

RC25-DA/DB	Tabletop add-on RC25.
RC25-EA/EB	Rackmountable add-on RC25. Mounts in H9642-F and H9642-M UNIBUS expansion cabinets.

Cartridge

RC25K-DC	Removable 26-Mbyte RC25 cartridge.

The dual drive RC25 options have been removed from the price list. Customers should order both a master and add-on as separate items to obtain a dual drive. For example, RQC25-BA master and RC25-EA add-on drive represent the same configuration that was the former RQC25-CA.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
RUC25-AA/AB	1 quad slot	4.3	0.0	0.0	5.0	1.5	1
RUC25-BA/BB	1 quad slot	4.3	0.0	0.0	5.0	1.5	1
Dual RC25	1 quad slot	4.3	0.0	0.0	5.0	1.5	1

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
RQC25-AA/AB	1 dual slot	3.0	0.0	15.0	2.3	1.0	A
RQC25-BA/BB	1 dual slot	3.0	0.0	15.0	2.3	1.0	A
Dual RC25	1 dual slot	3.0	0.0	15.0	2.3	1.0	A

The RD family of fixed, hard disks includes a wide range of products that satisfy system requirements, ranging from the 20-Mbyte RD31 to the 159-Mbyte RD54. The RD disk drives are used with the small and midrange systems in this book, as well as with other Digital computer families. These drives are built to quality standards significantly higher than the industry expectation and appropriate to highly reliable multiuser systems. Digital tests its drives to ensure that they meet shock, vibration, thermal, and other reliability requirements, not only at the introduction but also throughout the life of the products. We ensure that disks are compatible with storage controllers, enclosures, and systems software. When used in Digital's systems, the RD family of disk drives complies fully with the requirements of FCC, UL, CSA and numerous other national and international regulatory agencies.

When many 5.25-inch disk drives fail, they must be completely replaced. All RD drives shipped by Digital contain two field-replaceable units (FRUs). These consist of the head disk assembly (HDA) and a printed circuit disk controller board. In the event of a controller failure, repair is possible without replacing the HDA, thereby enabling users to retain their recorded data.

The RD53, RD54, and RX50 are available in an external storage enclosure for use with BA23 systems. Two of these external drives may be used with a BA23, in either rackmounted or desktop units. When configuring these drives, order the "A" variation for 120-V power (e.g., RD53-DA), or the "B" variation for 240-V power (e.g., RD53-DB). The rackmounted variations require the H9302 kit (one kit for two drives), and all external drives will require the RQDXE driver (one for two drives).

Except for the RD31 and RD32, which can be used only in the BA23, any of the RD disk drives can be used in the current small and midrange system enclosures (the BA23, BA123, and H9642/BA23 cabinet). Variations of these drives are available with cables and mounting hardware for use in each enclosure. Two RD31 or RD32 disks can be mounted in each BA23 system storage slot when models with the appropriate hardware are ordered. In all MicroVAX and PDP systems, except the MicroVAX 2000, all of these disks use the RQDX3 controller. The MicroVAX2000 disk controller is embedded in the base system.

The RQDX3 disk controller is used to interface the RD-family of Winchester disk drives and the RX50 and RX33 diskette drives to the Q-bus. The RQDX3 is an intelligent peripheral controller that relieves the host processor of low-level control and realtime response requirements of disks attached to the system. System software communicates with the controller and the drives using Digital Storage Architecture's Mass Storage Control Protocol (MSCP).

Product Description

The RQDX3 disk controller is required when using the newer model Winchester disk drives, such as the RD54 and RD32, and the RX33 diskette drive. The RQDX3 will support all drives supported by the older RQDX1 and RQDX2. When replacing the RQDX1 or RQDX2 with the RQDX3, existing Winchester disk drives must be reformatted as a result of the more efficient interleave scheme employed by the RQDX3. Digital Field Service can perform the reformatting.

The RQDX3 can interface up to four peripheral storage devices to the Q-bus. These devices include the RX50 and RX33 diskette drives and any of the RD family of Winchester disk drives. One RX50 counts as two devices. Thanks to the combination of the RQDX3 intelligent controller and Digital's Mass Storage Control Protocol, Winchester disks ranging from the original RD50 to the new RD54 and RD32 can be mixed in a system.

The RQDXE is required when adding external disks, such as the RD54-DA/RA, to BA23-based systems. The RQDXE will support up to two peripheral storage devices external to the BA23 system enclosure.

Features

- Overlapped seeking
- Error correction code generation and checking
- Elevator seek algorithm for seek reordering
- Block mode DMA transfers
- Automatic bad block replacement
- Less power used by dual-size module than by previous controllers
- One-year onsite hardware warranty

Disk Controllers

RQDX3

Ordering Information

RQDX3-AA	Q-bus controller and cables for use in BA23 enclosure.
RQDX3-BA	Q-bus controller, cables, and distribution panel for use in BA123 enclosure.
RQDX3-M	Q-bus controller module with no cables for use when replacing existing RQDX1 or RQDX2 controllers. (Cables from existing BA23 and BA123 system are reused.)
RQDX3-SA	Factory-installed Q-bus controller and cables for use in BA213 enclosure.
RQDX3-SF	Field-service-installed Q-bus controller and cables for use in BA213 enclosure.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	**12 V**	**ac**	**dc**	
RQDX3-AA	1 dual slot	2.48	0.06	1.9	0.5	N/A
RQDX3-BA	1 dual slot	2.48	0.06	1.9	0.5	N/A
RQDX3-M	1 dual slot	2.48	0.06	1.9	0.5	N/A
RQDX3-SA/SF	1 quad slot	2.48	0.06	1.9	0.5	N/A

Product Description

The RD53, RD54, and RX50 can be added externally to the BA23 enclosure using the RQDXE-AA. A maximum of two rackmounted or desktop units can be connected for a total of four storage devices. See the individual storage product description for additional information. The RQDXE-FA is supplied with cables to support devices in a second BA23 for applications such as the H9642-JA/JB. The RQDXE is used for all other supported external disks.

Ordering Information

RQDXE-AA	Dual-height disk drive bus extender module for use with the RQDX2 or RQDX3 disk controller in a BA23 enclosure and external disk.
RQDXE-FA	Dual-height disk drive bus extender for use with RQDX2 or RQDX3 controller and disk in the dual BA23 configuration.

Use the BC17Y-1J (20-inch external cable) to connect a second external RD and/or RX disk drives.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V	ac	dc	
RQDXE-AA	1 dual slot	0.5	0.00	0.0	1.0	A
RQDXE-FA	1 dual slot	0.5	0.0	0.0	1.0	N/A

Product Description

The RUX50 is a quad-size UNIBUS single-board controller that will interface to as many as two 0.8-Mbyte RX50-D/R dual-diskette drives. Data is transferred to the host system via DMA. The RUX50 is an intelligent controller with an on-board T-11 microprocessor. Programs in the host system communicate with the controller and drives using the Mass Storage Control Protocol (MSCP) of the Digital Storage Architecture. MSCP and the RUX50 include features to enhance system throughput, ensure data integrity, and increase subsystem availability. An RUX50 can be added to a PDP-11 UNIBUS system in conjunction with other mass-storage devices.

Ordering Information

RUX50-YA	UNIBUS controller with 2.7-meter (9-foot) I/O cable, field-installable.
RUX50-YP	Factory-installed variation.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn		I/O Panel Units
		5 V	15 V	– 15 V	ac	dc	
RUX50-YA	1 quad slot	3.0	0.7	0.0	N/A	N/A	1
RUX50-YP	1 quad slot	3.0	0.7	0.0	N/A	N/A	1
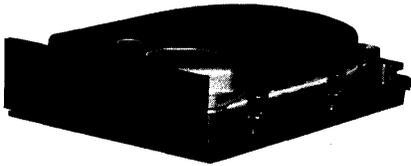
Product Description

The RD31 is a 20-Mbyte half-height Winchester disk drive that is an ideal entry-level disk drive for small systems and personal computers.

Features

- Formatted capacity: 20 Mbytes
- Average access time: 73.3 ms
- Transfer rate: 5 Mbytes/s (625 Kbytes/s)
- Power – Maximum startup: 38.8 W
- Power – Maximum seeking: 14.5 W
- Heat dissipation: 52.9 kJ/h (50.1 Btu/h)
- Temperature: 10-50 degrees C (50-122 degrees F)
- Relative humidity: 25 degrees C (77 degrees F)
- Maximum altitude: 3.0 km (10,000 ft)
- Height: 41.4 mm (1.63 in)
- Width: 14.6 cm (5.75 in)
- Depth: 20.32 cm (8.00 in)
- Weight: 1.59 kg (3.5 lb)
- Requires an RQDX3 controller
- One-year onsite hardware warranty

Ordering Information

RD31A-AA	20-Mbyte Winchester disk for BA23 enclosure (for the first drive). Includes cables and mounting hardware.
RD31A-AB	20-Mbyte Winchester disk for BA23 enclosure (for the second drive). Includes cables and stacking hardware.
RCD31-A	20-Mbyte Winchester disk subsystem for PRO 380.
RCD31-CA	20-Mbyte Winchester disk subsystem for DECmate III.
RCD31-FA	VAXmate expansion box with 20-Mbyte Winchester disk subsystem.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V	ac	dc	
RD31	Dedicated space	0.9	0.9	N/A	N/A	N/A

Disks

RD32 42-Mbyte Disk Drive
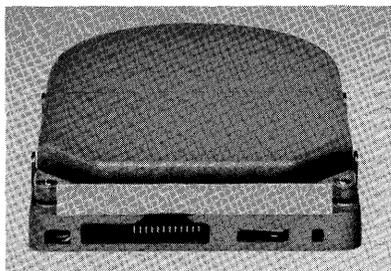
Product Description

The RD32 is a 42-Mbyte half-height Winchester technology disk drive that offers high capacity and reliability in a compact format.

Features

- Formatted capacity: 42 Mbytes
- Average access time: 48.3 ms
- Transfer rate: 5 Mbytes/s (625 Kbytes/s)
- Power – Maximum startup: 32.0 W
- Power – Maximum seeking: 13.0 W
- Heat dissipation: 47.4 kJ/h (44.9 Btu/h)
- Temperature: 10-50 degrees C (50-122 degrees F)
- Relative humidity: 25 degrees C (77 degrees F)
- Maximum altitude: 3.0 km (10,000 ft)
- Height: 41.4 mm (1.63 in)
- Width: 14.6 cm (5.75 in)
- Depth: 20.32 cm (8.00 in)
- Weight: 1.59 kg (3.5 lb)
- Requires an RQDX3 controller
- One-year onsite hardware warranty

Ordering Information

RD32A-AA	42-Mbyte Winchester disk for BA23 enclosure (for the first drive). Includes cables and mounting hardware.
RD32A-AB	42-Mbyte Winchester disk for BA23 enclosure (for the second drive). Includes cables and stacking hardware.
RCD32-FA	42-Mbyte Winchester disk for VAXmate.
RCD32-AA	42-Mbyte Winchester disk for PRO 380.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V	ac	dc	
RD32	Dedicated space	0.9	0.6	N/A	N/A	N/A
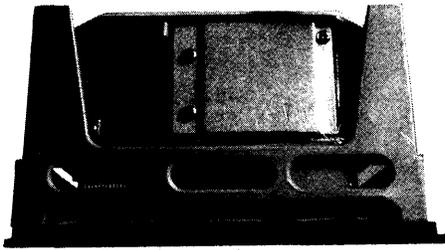
Product Description

The RD53 is a full-height 71-Mbyte fixed-disk drive that uses state-of-the-art Winchester technology.

Features

- Formatted capacity: 71 Mbytes
- Average access time: 38.3 ms
- Transfer rate: 5 Mbytes/s (625 Kbytes/s)
- Power – Maximum startup: 64.0 W
- Power – Maximum seeking: 36.0 W
- Heat dissipation: 129 kJ/h (122 Btu/h)
- Temperature: 10-50 degrees C (50-122 degrees F)

- Relative humidity: 25 degrees C (77 degrees F)
- Maximum altitude: 3.0 km (10,000 ft)
- Height: 8.25 cm (3.25 in)
- Width: 14.6 cm (5.75 in)
- Depth: 20.32 cm (8 in)
- Weight: 3.18 kg (7 lb)
- One-year onsite hardware warranty

Ordering Information

RD53A-AA	71-Mbyte fixed-disk drive with cables for BA23 enclosure.
RD53A-BA	71-Mbyte fixed-disk drive with cables for BA123 enclosure.
RD53A-SA	71-Mbyte fixed-disk drive with cables, ordered with an Industrial PDP-11.
RD53A-SF	71-Mbyte fixed-disk drive with cables for addition to an Industrial PDP-11.
RD53-DA/DB	71-Mbyte fixed-disk drive mounted in desktop enclosure with I/O cable. *Prerequisite:* RQDXE-AA extender module.
RD53-RA/RB	71-Mbyte fixed-disk drive in 19-inch standard equipment rack. Requires H9302 enclosure. *Prerequisite:* RQDXE-AA extender module.
RCD53-A	71-Mbyte Winchester for use with PRO 380.
H9302	Rackmount chassis for use with as many as two 5.25-inch mass storage devices in any combination.
BC17Y-1J	Daisychain cable required for second external drive.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	**12 V**	**ac**	**dc**	
RD53	Dedicated space	0.9	2.5	0.0	0.0	N/A

Disks

RD54 159-Mbyte Disk Drive
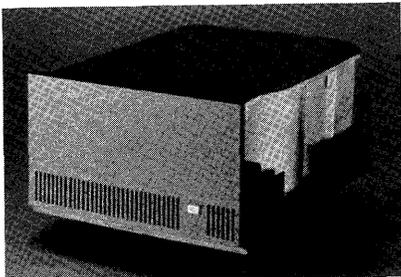
Product Description

The RD54 is a 159-Mbyte fixed-disk drive employing state-of-the-art Winchester technology. The drive is ideally suited for applications requiring high performance and capacity.

Features

- Formatted capacity: 159 Mbytes
- Average access time: 38.3 ms
- Transfer rate: 5 Mb/s (625 Kbytes/s)
- Power – Maximum startup: 66.0 W
- Power – Maximum seeking: 24.0 W
- Heat dissipation: 100 kJ/h (95 Btu/h)
- Temperature: 10-50 degrees C (50-122 degrees F)
- Relative humidity: 25 degrees C (77 degrees F)
- Maximum altitude: 3.0 km (10,000 ft)
- Height: 8.25 mm (3.25 in)
- Width: 14.6 cm (5.75 in)
- Depth: 20.32 cm (8 in)
- Weight: 3.30 kg (7.3 lb)
- Size: 5.75 by 3.25 by 8.2 inches
- Weight: 7.0 lbs
- Power: 5 Vdc ± 5%
        12 Vdc ± 5%
- Requires an RQDX3 controller
- One-year onsite hardware warranty

Ordering Information

RD54A-AA	159-Mbyte fixed-disk drive with cables for BA23 enclosure.
RD54A-BA	159-Mbyte fixed-disk drive with cables for BA123 enclosure.
RD54A-SA	159-Mbyte fixed-disk drive with cables, ordered with an Industrial PDP-11.
RD54A-SF	159-Mbyte fixed-disk drive with cables for addition to an Industrial PDP-11.
RD54-DA/DB	159-Mbyte fixed-disk drive mounted in desktop enclosure with cable. *Prerequisite:* RQDXE-AA extender module.
RD54-RA/RB	159-Mbyte fixed-disk drive for mounting in 19-inch standard equipment rack. Requires H9302 enclosure. *Prerequisite:* RQDXE-AA extender module.
H9302	Rackmount chassis for use with up to two 5.25-inch mass-storage devices.
BC17Y-1J	Daisychain cable required for second external drive.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Insert Size
		5 V	**12 V**	**ac**	**dc**	
RD54	Dedicated space	1.3	1.34	N/A	N/A	N/A
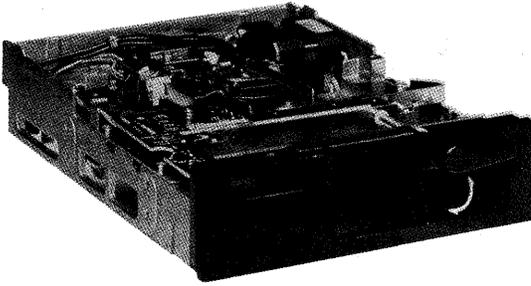
Product Description

The RX33 is a half-height, 5.25-inch 1.2-Mbyte diskette drive. In high-density mode, the drive provides industry-standard compatibility utilizing double-sided, high-density diskettes. In standard-density mode, the RX33 can read and write RX50-type standard-density diskettes on a single side. This dual-mode capability allows Digital customers to access a vast software base without sacrificing RX50 software compatibility.

The RX33 provides three times the capacity per diskette of the RX50, while its half-height form factor means that it takes only half the space. This increased diskette capacity, along with its low power requirements and low heat generation, make the RX33 inexpensive and easy to operate.

Features (high-density mode)

- Formatted capacity per diskette: 1.2 Mbytes
- Peak transfer rate: 500 Kbits/s
- Average seek time: 92 ms
- Average rotational latency: 83 ms
- Bytes per sector: 512
- Sectors per track: 15
- Tracks per diskette: 160
- Brushless direct drive dc motor
- Dynamic media clamping
- Diskette ejection mechanism
- "Diskette changed" detection device
- One-year onsite hardware warranty

Ordering Information

RX33A-AA	1.2-Mbyte diskette drive, with cables, for use in BA23 enclosure (drive 1).
RX33A-AB	1.2-Mbyte diskette drive, with cables and stacking hardware, for use in BA23 (drive 2).
RX33A-BA	1.2-Mbyte diskette drive, with cables, for use in BA123 enclosure.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
RX33	Dedicated space	0.35	0.22	4.40	N/A	N/A	N/A
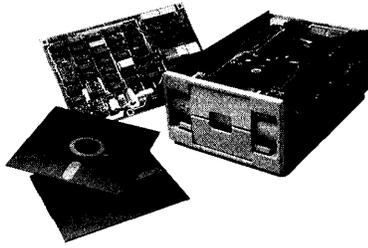
Product Description

The RX50 dual diskette drive can accommodate two disks simultaneously; one diskette can be used for system programs; and the other, allocated as a file device. The RX50 stores data in fixed-length blocks on two 5.25-inch flexible diskettes using preformatted industry-standard headers. It has a peak transfer rate of 250,000 bits per second, an average seek time of 164 milliseconds, and a rotation latency (average) of 100 milliseconds.

Features

- Peak transfer rate: 250 Kbits/s
- Average seek time: 164 ms
- Formatted capacity per diskette: 409 Kbytes (818 Kbytes total)
- Diskettes per drive: 2
- Recording surfaces per diskette: 1

- Bytes per sector: 512
- Sectors per track: 10
- Tracks per diskette: 80
- Requires an RQDX3 or RUX50 controller

Ordering Information

RX50A-AA	0.8-Mbyte dual-diskette drive (only) for use in BA23 enclosure.
RX50A-BA	0.8-Mbyte dual-diskette drive (only) for use in BA123 enclosure.
RX50-D	0.8-Mbyte dual-diskette drive mounted in desktop enclosure with I/O cable. 120/240 Vac. *Prerequisite:* RQDXE-AA extender module.
RX50-R	0.8-Mbyte dual-diskette drive for mounting in 19-inch standard equipment rack. 120/240 Vac. Requires H9302 enclosure. *Prerequisite:* RQDXE-AA extender module.
RUX50-YA	RX50 controller with 2.7-meter cable.
H9302*	Rackmount chassis for use with up to two 5.25-inch mass-storage devices, in any combination. Required on UNIBUS systems.
H9504-SC	5.25-inch blank front panel. Required when ordering H9302 for installation in UNIBUS CPU cabinets.

*When ordering an H9302 5.25-inch kit for UNIBUS cabinets, you may also need to order an H9504-SC 5.25-inch blank panel to be installed beneath (or above) the H9302. When adding a TK50 desktop or rackmount unit to a cabinet-based PDP-11 UNIBUS system, you must also order a TUK50-AB controller. On a PDP-11 UNIBUS system, the RX50 unit requires an RUX50-YA controller with 2.7-meter cable.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Watts Drawn	Bus Loads Drawn		I/O Panel Insert Size
		5 V	12 V		ac	dc	
RX50	Dedicated space	0.85	1.8	25.9	0.0	0.0	N/A
RUX50-YA	1 quad slot	0.85	1.8	25.9	0.0	0.0	N/A

Tapes

TU81-Plus Magnetic Tape
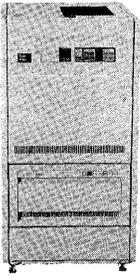
Product Description

The TU81-Plus replaces the TU81 as Digital's high-density industry-compatible magnetic tape subsystem for PDP-11 systems with high-capacity disks. It includes a UNIBUS compatible controller. An entry-level group coded recording (GCR) drive, the TU81 offers the lowest cost of ownership and highest reliability of any Digital-supported GCR tape drive. Efficient design allows the TU81 and the 456-Mbyte RA81, or the 121-Mbyte RA80 to be packaged in a single, waist-high cabinet for a fully integrated disk and tape subsystem. This minimal use of floorspace and the drive's exceptionally quiet operation make the TU81 well suited for today's open office environments.

When ordered as part of a system or field add-on, a rackmountable RA80 or RA81 disk drive will be configured in the bottom of the TU81 cabinet if no space is available in a dedicated disk cabinet on that order. Any desired exception to these guidelines should be noted on the order. *Note:* TU81-Plus support was phased in to the PDP-11 operating systems as of July 1, 1986. Check with your sales representative to determine when your software will support the TU81-Plus.

Features

- Read/write speed: 75 and 25 in/s (streaming), 25 in/s (start/stop)
- Maximum data transfer speed: 468 Kbytes/s
- Rewind speed: 192 in/s
- Rewind time: 2.5 minutes per 731.5-m (2,400-ft) reel
- Number of tracks: 9 on 0.5-inch magnetic tape
- Recording method: Group Code Recording to ANSI X3.54-1976 and Phase Encoded to ANSI X3.39-1973
- Record density: 6,250 b/in (GCR), and 1600 b/in (PE)
- Capacity: 145 Mbytes (GCR), 40 Mbytes (PE)
- Transports per controller: 1
- One RA80 or RA81 disk can be mounted in cabinet

Ordering Information

TU81E-AA/AB   TU81-Plus magnetic tape subsystem, UNIBUS interface.

TU81E-DA   TU81-Plus magnetic tape subsystem, Q-bus interface.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Watts Drawn	Bus Loads Drawn	I/O Panel Units
		5 V	15 V	− 15V			
TU81E-AA/AB	1 quad slot	4.0	0.0	0.0	20.0	1.0	1
		5 V	12 V				
TU81E-DA	1 quad slot	3.0	0.0		15.0	1.0	1A
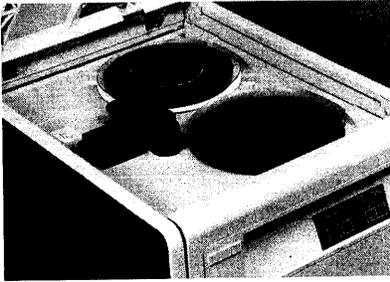
Product Description

The TU80 is Digital's entry-level industry-compatible magnetic tape subsystem. As the low-cost complement to Digital's midrange systems and disks, the TU80 offers the lowest cost of ownership and the highest reliability of any Digital-supported nine-track tape drive.

With its streaming tape technology, the TU80 is ideal for applications such as disk backup. Yet it also uses traditional start/stop technology for shorter data transfers of the type associated with journaling and classical data processing. The controller automatically selects the speed to optimize the drive's performance for a particular application. TU80 subsystems include a horizontally mounted TU80 drive in its own 105.7-centimeter (41.6-inch) high H9642-style cabinet, power controller, UNIBUS adapter module, and a 7.6-meter (24-foot) shielded intercabinet cable to connect the TU80 to a CPU cabinet.

Efficient design allows the TU80 and the 121-Mbyte RA80 or 456-Mbyte RA81 to be packaged in a single waist-high cabinet for a fully integrated disk and tape subsystem. When ordered as part of a system or a field add-on, a rack-mountable RA80 or RA81 disk drive will be configured in the bottom of the TU80 cabinet if no space is available in a dedicated disk cabinet on that order. Any desired exceptions to these guidelines should be noted on the order.

Features

- Read/write speed: 25 and 100 in/s (streaming), 25 in/s (start/stop)
- Maximum data transfer speed: 160 Kbytes/s
- Rewind speed: 192 in/s
- Rewind time: 2.5 minutes per 2,400-ft reel
- Number of tracks: 9 on 0.5-in magnetic tape
- Recording method: Phase encoded to ANSI standard X3.39-1973
- Record density: 1,600 b/in
- Capacity: 40 Mbytes (8-Kbyte block size)

Expansion Specifications

- Transports per controller: 1
- One RA80 or RA81 disk can be mounted in cabinet

Ordering Information

TU80-AA/AB	TU80 magnetic tape subsystem in a cabinet with controller.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	−15 V dc		
TU80-AA/AB	1 quad slot	4.0	0.0	0.0	1.0	1

Tapes

TS05 Magnetic Tape
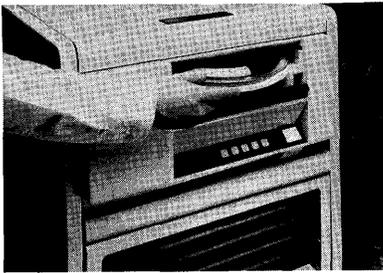
Product Description

The TS05 magnetic tape subsystems are compact, autoloading 1600 b/in streaming drives, available with either Q-bus or UNIBUS controllers. The TSV05 is Digital's most compact 9-track industry standard tape drive for Q-bus systems. The TSU05 is intended for UNIBUS systems that require the smaller size and do not need the greater performance enhancements of the TU81E.

The tape transport occupies only 22 centimeters (8.7 inches) in a H9642-type 106-centimeter (41.7-inch) high cabinet, thus allowing ample room for expansion. It is also available for rackmounting.

Prerequisite for TS05 Q-bus magnetic tape subsystem is any PDP-11/23, 53, 73, or 83 system. Prerequisite for TS05 UNIBUS magnetic tape subsystem is any PDP-11/24, 44, or 84 system.

For more information, call the Sales Support Team at 1-800-832-6277.

Features

- Recording density: 1,600 b/in
- Read/write speed: 25/100 in/s (depending upon operating system and CPU)
- Capacity per 2,400-ft reel:
  — 40 Mbytes with 8-Kbyte blocks at 1,600 b/in
- Maximum data transfer speed: 40 or 160 Kbytes/s
- Rewind speed: 180 in/s (max)
- Rewind time: 2.8 minutes per 2,400-ft reel
- Number of tracks: 9 on 0.5 inch magnetic tape

Expansion Specifications

- Transports per controller: 1

Ordering Information

Q-bus Systems for BA23 Enclosures

TSV05-AA/AB	Q-bus TS05 magnetic tape system with hardware for rack-mounting and control module. Select cables from chart below.
TSV05-ZA/ZB	Q-bus TS05 magnetic tape system with hardware for rack-mounting, control module, cables, and top access cover for PDP-11/83 deep cabinet systems only.
TSV05-BA/BB	Q-bus TS05 magnetic tape system mounted in a 106-cm (41.7-in) H9642-type cabinet with controller module and 53.3-cm (21-in) of expansion space. Includes side panels. Select cables from chart below.

Q-bus Systems for BA200 Series Enclosures

TSV05-SA/SB	Q-bus TS05 magnetic tape system with hardware for rack-mounting, and control module. Includes cables.
TSV05-SE/SF	Q-bus TS05 magnetic tape system mounted in a 106-cm (41.7-in) H9642-type cabinet with controller module and 53.3-cm (21-in) of expansion space. Includes side panels and cables.
TSV05-BC,-SH	Same as TSV05-BA/BB,-SE/SF except 100 Vac system.
TSV05-BD,-SJ	Same as TSV05-BA/BB,-SE/SF except 220 Vac system.
TSV05-AC,-SC	Same as TSV05-AA/AB,-SA/SB except 100 Vac system.
TSV05-AD,-SD	Same as TSV05-AA/AB,-SA/SB except 220 Vac system.
TSV05-ZC	Same as TSV05-ZA/ZB except 100 Vac system.
TSV05-ZD	Same as TSV05-ZA/ZB except 220 Vac system.

CPU Enclosures/Cable Chart (BA23 Enclosures only)

TSV05 System	BA23	BA123	H9642 STD CAB	OEM Configuration
TSV05-AA,AB,AC,AD	CK-TS05-14	CK-TS05-11	N/A	CK-TS05-12
TSV05*-BA,BB,BC,BD	CK-TS05-14	CK-TS05-11	CK-TS05-14	CK-TS05-12
TSV05-ZA,ZB,ZC,ZD	N/A	N/A	N/A	N/A

*When ordering a TSV05-B(X), the following parts may also be required:

Model No.	Description
H9544-DD	One 5.25-inch shielded front cover (required only when mounting a BA23 enclosure in a TSU05-B(X) cab or TSV05-B(X) cab.)

UNIBUS Subsystems

TSU05-AA/AB	UNIBUS TS05 magnetic tape system with hardware for rack-mounting, control module, and cables. Cabinet not included.
TSU05-AC	Same as TSU05-AA/AB except 100-Vac system. Cabinet not included.
TSU05-AD	Same as TSU05-AA/AB except 220-Vac system. Cabinet not included.
H9544-DA	Required on UNIBUS cabinets. 1.75-inch blank front bezel. (Also required with H9642-BD storage cabinets).

Tapes

TS05 Magnetic Tape

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at		Bus Loads Drawn		I/O Panel Inserts
		5 V	12 V	ac	dc	
Q-bus						
TSV05-AA/AB	1 quad slot	6.5	0.0	3.0	1.0	(2)A
TSV05-BA/BB	1 quad slot	6.5	0.0	3.0	1.0	(2)A
TSV05-ZA/ZB	1 quad slot	6.5	0.0	3.0	1.0	(2)A
TSV05-SA/SB	1 quad slot	6.5	0.0	3.0	1.0	N/A
TSV05-SE/SF	1 quad slot	6.5	0.0	3.0	1.0	N/A
UNIBUS						
TSU05-AA/AB	1 hex slot	6.5	0.0	3.0	1.0	1
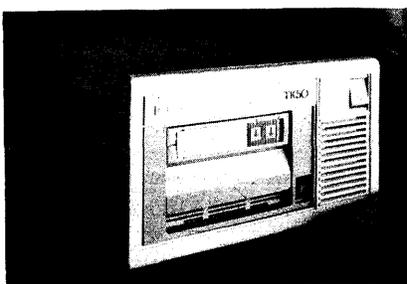
Product Description

The TK50 is Digital's industry–leadership cartridge tape subsystem for Q-bus and UNIBUS PDP-11 systems. The TK50 combines high reliability, high data integrity, and high performance with innovative, simplified streaming design. The CompacTape cartridge is a distribution medium for Digital's VAX and PDP-11 software products. The cartridge's capacity, small size, and ruggedness make it ideal for OEMs and end users who wish to transport their own software or data. Its 95-Mbyte capacity makes it an ideal backup device for any of Digital's mini-Winchester disks. It is small enough to fit into the same size slot as a minifloppy drive (such as an RX50) in a MicroPDP-11 system box, or to be mounted in small tabletop or rackmountable enclosures designed for 5.25-inch form factor storage devices.

Features

- Peak data transfer rate: Total – 62.5 Kbytes/s, user data – 45 Kbytes/s
- Recording method: Serial, serpentine pattern
- Record size: Variable to 64 Kbytes – 1 byte
- Recording medium: 182.9-m (600-ft) length, 1.3-cm (0.5-in) width magnetic tape
- Read/Write speed: 75 in/s streaming
- Number of tracks: 22
- Recording density: 6,667 b/in

Ordering Information

In ordering a TK50 subsystem, order the appropriate TK50-xx package and one of the TQK50-xx or TUK50-xx controller option numbers, depending on system configuration.

Drives (All include a TK50-K cartridge)

TK50-AA	TK50 5.25-inch tape drive.
TK50E-SA	TK50 5.25-inch tape drive for the BA213.
TK50-DA	TK50 in desktop unit, 120 V
TK50-DB	TK50 in desktop unit, 240 V
TK50-RA	TK50 in rackmount unit, 120 V
TK50-RB	TK50 in rackmount unit, 240 V

Note: TK50-Dx and -Rx units include a 9-foot cable to connect the drive to the CPU bulkhead.

Q-bus Controllers

TQK50-AA	Q22-bus TMSCP controller for TK50-AA tape drive. Includes 30-in cable for installation with TK50-AA in BA23-A box.
TQK50-BA	Q22-bus TMSCP controller for TK50-AA tape drive. Includes 30-in cable for installation with TK50-AA in BA123-A box.
TQK50-SA	Q22-bus TMSCP controller for TK50E-SA tape drive. Includes 30-in cable for installation with TK50-AA in BA213.
TQK50-AB	Q22-bus TMSCP controller for TK50-D/R tape drive. Includes 14-in cable and distribution insert for installation of TQK50 in BA23-A box.
TQK50-BB	Q22-bus TMSCP controller for TK50-D/R tape drive. Includes 21-in cable and distribution insert for installation of TQK50 in BA123-A box or BA11-M (1123S).
TQK50-CB	Q22-bus TMSCP controller for TK50-D/R tape drive. Includes 36-in cable and bulkhead plate used in H349 cab (11/23-PLUS system).
TQK50-PB	Q22-bus TMSCP controller for TK50-D/R tape drive. Includes 30-in cable and bulkhead plate used in H349 cab (11/23-PLUS system).
TQK50-RB	Q22-bus TMSCP controller for TK50-D/R tape drive, includes 120-in cable and bulkhead plate used in non-FCC-compliant cabinet installation.

UNIBUS Controllers

TUK50-AB	UNIBUS TMSCP controller for TK50-D/R on PDP-11/84 cabinet variation; includes cable and bulkhead plate used on all 16- and 32-bit systems except PDP-11/84 A series 10.5 inch-high OEM enclosure. For TK50 rackmount on all systems, two additional items also must be ordered: H9302 (rackmount installation kit) and H9504-SC (filler panel for rackmount package).
TUK50-BB	UNIBUS TMSCP controller for TK50-D/R on PDP-11/84 box variation; includes cable and bulkhead plate used on PDP-11/84 A series 10.5-inch-high OEM enclosure.

Cartridge

TK50-K	CompacTape cartridge, 95-Mbyte capacity. Available from PSG Supplies.

Additional components needed for UNIBUS TK50 subsystems:

Component/CPU	11/24	11/34	11/44	11/70	11/84	11/84
MR11-FA (Boot ROM chipset for insertion in M9312)*	X	X[1]	X	X[1]		
M9312 (Boot ROM board)[†]		X[2]		X[2]		
74-27292-01 (I/O cable bracket for unshielded compliant cabinets)		X		X		

*Boot ROM chipset for an existing M9312 module.
[†]If the system doesn't have an M9312 module, you must order one.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Watts Drawn	Bus Loads		I/O Panel Units
		5 V	15 V	12 V		ac	dc	
TK50-AA	Dedicated space	1.4	N/A	2.4	35.55			
TK50-DA	N/A							
TK50-RA	H9302							
TK50E-SA	Dedicated space	1.4	N/A	2.4	35.55			N/A
TQK50	Dual module	3.0	N/A	0.0		2.0	1.0	1A
TQK50-SA	Quad module	3.0	N/A	0.0		2.0	1.0	N/A
TUK50	Quad module	3.0	0.0	N/A		4.2	0.5	1

Disks

DSA Disk Site Preparation

Model	Voltage Nominal V	Freq Nominal Hz	Current Startup*	State Steady	Thermal Dissipation Watts	Btu/h [kJ/h]	ac Plug	PCS/ PDS Cable Type†	Physical Characteristics Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]	Number of Phases
SA482-AA	120/208	60	35	7/14**	2,600	8,873	NEMA L21-30P	BC24W	61.5	22.0	36.0	970	3
SA482-AD	240/416	50	18	3.5/7**	2,600	[9,360]	309 IEC	BN29X	[156.0]	[55.9]	[91.4]	[441]	3
SA482-LA	120/208	60	35	7††	2,000	6,826	NEMA L21-30P	BC24W	61.5	22.0	36.0	790	3
SA482-LD	240/416	50	18	3.5††	2,000	[7,200]	309 IEC	BN29X	[156.0]	[55.9]	[91.4]	[359]	3
SA482-HA	120/208	60	35	7***	1,300	3,413	NEMA L21-30P	BC24W	61.5	22.0	36.0	626	3
SA482-HD	240/416	50	18	3.5***	1,300	[4,680]	309 IEC	BN29X	[156.0]	[55.9]	[91.4]	[285]	3
RA70E-SF†††	Note 1	Note 1	5	3.3	54	194	Note 1		3.52 [8.9]	5.77 [14.7]	8.80 [22.4]	10.50 [4.76]	Note 1
RA82-AA	120	60	35	7	600	2,048	NEMA L5-30P	BC24S	10.4	17.5	26.5	172	1
RA82-AD	240	50	18	3.5	600	[2,165]	NEMA L6-20P	BN29F	[26.4]	[44.5]	[67.3]	[72.2]	1
RA82-AE	120	60	35	7	600	2,048	NEMA L5-30P	BC26V	10.4	17.5	26.5	172	1
RA82-EA	120	60	35	21	1,850	6,314	NEMA L5-30P	BC24S	41.8	21.3	36.0	714	1
RA82-ED	240	50	18	10.5	1,850	[6,660]	NEMA L6-20P	BN29F	[106.0]	[54.2]	[91.4]	[325]	1
RA82-DA	120	60	35	14	1,250	4,266	NEMA L5-30P	BC24S	41.8	21.3	36.0	542	1
RA82-DD	240	50	18	7	1,250	[4,500]	NEMA L6-20P	BN29F	[106.0]	[54.2]	[91.4]	[246]	1
RA81-AA	120	60	35	7	600	2,048	NEMA L5-15P IEC 320 C14	Note 2	10.4	17.5	26.5	150	1
RA81-AD	240	50	18	3.5	600	[2,160]	NEMA L6-15P	BN29K	[26.5]	[44.5]	[67.3]	[68]	1
RA81-CA	120	60	35	7	600	2,048	NEMA L5-30P	BC24S	41.8	21.3	36.0	350	1
RA81-CD	240	50	18	3.5	600	[2,160]	NEMA L6-20P	BN29F	[54.2]	[91.4]	[150.0]	[159]	1
RA81-EA	120	60	35	21	1,800	6,143	NEMA L5-30P	BC24S	41.8	21.3	36.0	650	1
RA81-ED	240	50	18	10.5	1,800	[6,480]	NEMA L6-20P	BN29F	[54.2]	[91.4]	[286.4]	[295]	3
RA81-FA	120	60	35	7	650	2,218	NEMA L21-30P	BC24W	61.5	22	36.0	495	3
RA81-FD	240	50	18	3.5	650	[2,340]	309 IEC	BN29X	[156.0]	[55.9]	[91.4]	[224]	3
RA81-HA	120	60	35	7	600	2,048	NEMA L5-15P IEC 320 C14	BC26V	10.4	17.5	26.5	150	1
RA81-JA	120	60	35	28	2,600	8,873	NEMA L21-30P	BC24W	61.5	22	36.0	945	3
RA81-JD	240	50	18	14	2,600	[9,360]	309 IEC	BC24K	[156]	[55.9]	[91.4]	[429]	3

*Drives start up sequentially.

†For additional KVA and cable information, see the *Environmental Products* Catalog.

**Two phases 7A (3.5A) each; one phase is 14A (7A).

††Three phases are 7A (3.5A) each.

***Two phases are 7A (3.5A) each; one phase draws no current.

†††Field add-on for MicroVAX 3500 and MicroVAX computers.

When installing one or two disk drives in a 3-HI cabient, start with the topmost mounting location. When installing one, two, or three drives in a 4-HI cabinet, start with the second mounting location from the top.

[1]DC power does not plug directly into main power. The RA70 disk drive requires external power and packaging (reference Power Specifications for MicroVAX 3500 pedestal and MicroVAX 3600 cabinet.)

[2]Identify appropriate disk cabinet.

Model	Voltage Nominal V	Freq Nominal Hz	Current Startup*	Current State Steady	Thermal Dissipation Watts	Thermal Dissipation Btu/h [kJ/h]	ac Plug	PCS/ PDS Cable Type†	Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]	Number of Phases
RA60-AA	120	60	50	6.5	510	1,741	NEMA L5-15P IEC 320 C14	Note 2	10.4	19.0	33.8	152	1
RA60-AD	240	50	20	3.25	510	[1,836]	NEMA L6-20P	Note 2	10.4	19.0	33.8	[69.1]	1
RA60-AF	120	60	50	6.5	510	1,741	NEMA L5-15P IEC 320 C14	BC26V	10.4	19.0	33.8	152	1
RA60-CA	120	60	50	6.5	510	1,741	NEMA L5-30P	BC24S	41.8	21.3	36.0	352	1
RA60-CD	240	50	20	3.25	510	[1,836]	NEMA L6-20P	BN29F	[106.0]	[54.2]	[91.4]	159.65	1
RA60-EA	120	60	50	19.5	1,630	5,563	NEMA L5-30P	BC24S	41.8	21.3	36.0	656	1
RA60-ED	240	50	20	9.75	1,630	[5,868]	NEMA L6-20P	BN29F	[106.0]	[54.2]	[91.4]	[297.55]	1
RA60-FA	120	60	50	26	2,140	7,303	NEMA L21-30P	BC24W	61.5	22.0	36.0	495	3
RA60-FD	240	50	20	13	2,140	[7,704]	309 IEC	BN29X	[156.0]	[55.9]	[91.4]	[224]	3
RA60-JA	120	60	50	26	2,140	7,303	NEMA L21-30P	BC24W	61.5	22.0	36.0	945	3
RA60-JD	240	50	20	13	2,140	[7,704]	309 IEC	BC24K	[156.0]	[55.9]	[91.4]	[429]	3

*Drives start up sequentially.

†For additional KVA and cable information, see the *Environmental Products* Catalog.

**Two phases 7A (3.5A) each; one phase is 14A (7A).

††Three phases are 7A (3.5A) each.

***Two phases are 7A (3.5A) each; one phase draws no current.

†††Field add-on for MicroVAX 3500 and MicroVAX computers.

When installing one or two disk drives in a 3-HI cabient, start with the topmost mounting location. When installing one, two, or three drives in a 4-HI cabinet, start with the second mounting location from the top.

[1]DC power does not plug directly into main power. The RA70 disk drive requires external power and packaging (reference Power Specifications for MicroVAX 3500 pedestal and MicroVAX 3600 cabinet.)

[2]Identify appropriate disk cabinet.

Disks

Disk Site Preparation

Q-bus Disk Site Preparation

Model	Voltage Nominal V	Freq Nominal Hz	Number of Phases	Current ac Amps	Thermal Dissipation		NEMA Rec Type	Physical Characteristics			
					Watts	Btu/h [kJ/h]		Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
RX50-AA					18	61.4		3.25	5.75	8.5	3.8
					18	61.4		[8.33]	[14.74]	[21.53]	[1.72]
RX50-D					37	127		5.25	9.0	11.9	14.0
					37	127		[13.3]	[22.9]	[30.2]	[6.3]
RX50-R					37	127		5.25	9.0	11.9	11.0
					37	127		[13.3]	[22.9]	[30.2]	[5.0]

UNIBUS Disk Site Preparation

Model	Voltage Nominal V	Freq Nominal Hz	Number of Phases	Current ac Amps	Thermal Dissipation		NEMA Rec Type	*PCS/PDS Cable Type	Physical Characteristics			
					Watts	Btu/h [kJ]			Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
RUC25-AA	120	60	1	5.5	200	720	5-15R	BC24K	10.1	10.0	20.0	50.0
RUC25-AB	240	50	1	3.5	200	[683]	6-15R	BC29K	[25.6]	[25.4]	[52]	[22.7]

¹For product variations which include a UNIBUS Controller, e.g., RL211-AK with RL11 controller, the power and cooling requirements of the controller are allowed for in the expansion backplane/box data.

Tapes

Model	Voltage Nominal V	Freq Nominal Hz	Number of Phases	Current ac Amps	Thermal Dissipation		NEMA Rec Type	PCS + /PDS + Cable Type*	Physical Characteristics			
					Watts	Btu/h [kJ/h]			Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
TU80-AA	120	60	1		500	1800	5-30R	BC24S	41.7	21.3	30.0	102.2
TU80-AB	240	50	1		500	[1706]	6-15R	BN29K	[105.9]	[54.0]	[76.2]	[225.0]
TU81E-AA	120	60	1		500	1024	5-30	BC24S	41.6	21.3	30.0	235
TU81E-AB	240	50	1		500	[ ]	Schuko CEE7-7	BN29H	[106.0]	[54.0]	[76.2]	[106.0]
TK50-AA	5/12 dc			1.2/2.1	36/15			N/A	3.25	5.75	8.44	5
TK50-DA	120	50	1					N/A	3.25	5.75	8.44	5
TK50-DB	240	60	1					N/A	[8.3]	[14.6]	[21.4]	[2.3]
TK50-RA	120	50	1	.55				N/A	3.25	5.75	8.44	5
TK50-RB	240	60	1	.35				N/A	[8.3]	[14.6]	[21.4]	[2.3]
TSV05-BA	120	60	1	2.25	270	1100	L5-30R	BC24S	43.75	23.5	33.0	265.0
TSV05-BB	240	50	1	1.13	270	[ ]	6-15R	BN29K	[111.1]	[60.0]	[84.0]	[121.0]
TSV05-BC	100	60	1	2.70	270	1100	L5-30R	BC24S	43.75	23.5	33.0	265.0
TSV05-BD	220	50	1	1.23	270	[ ]	6-15R	BN29K	[111.1]	[60.0]	[84.0]	[121.0]

*For additional kVA and cable information, see the Environmental Products Catalog.
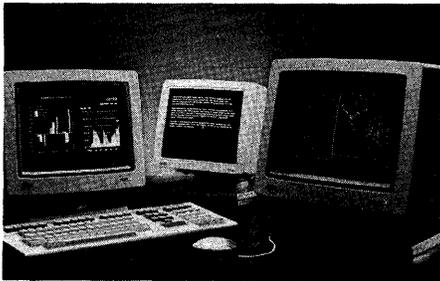
Product Descriptions

The VT300-family of video terminals consists of the VT320 text-only monochrome terminal, the VT330 monochrome graphics terminal, and the VT340 color graphics terminal.

The VT300-family terminals are fully compatible with the VT52, VT100 and VT200 families of video terminals. The displays on these new terminals have been greatly enhanced to provide higher resolution with very high-quality, fully-formed characters. The VT320 and VT330 sport a 14-inch flat video display screen in a choice of amber, green, or new "paper white" phosphor. The VT340's 13-inch CRT is capable of displaying up to 16 colors out of a palette of 4096.

The VT300-family terminals feature a 25th host/terminal status line. All electronics for the terminals are housed in the same enclosures as the monitors. To improve operator viewing comfort, the VT330 and VT340 monitors include a pedestal with built-in tilt-and-swivel capabilities. The VT320 features a standard tilt base; a height pedestal base, which provides tilt and swivel capabilities, is optional.

The VT300-family terminals use the same high-quality keyboard as the VT200-family, with appropriate legend strips and keycaps.

The VT300-family terminals have other new features, such as a bidirectional printer port for connecting a local printer or an alternate input device. These new models don't have cooling fans, which makes them even quieter. And, again with the office in mind, the rear of the VT330 and VT340 terminal has a cover that hides all cables, to provide a clean appearance in both closed and open office environments.

An MMJ connector is provided on the VT330/VT340 terminals to connect an optional mouse or tablet, which is supported in both ReGIS and Tektronix 4010/4014 graphics modes.

One of the major new features of the VT330 and VT340 terminals is the ability to connect to more than one host over a single wire and concurrently interact and view information from different host systems.

The VT330 and VT340 offer improved graphics presentation speeds, up to five times faster than previous Digital graphics terminals. Key to this greatly improved performance is Digital's proprietary graphics chip set. This is the same graphics processor used in Digital's high-end workstations. Both the VT330 and VT340 offer full text and graphics capabilities, including enhanced support for the ReGIS and Tektronix 4010/4014 graphics protocols.

Ordering Information

Please refer to the Video Terminal Selection Chart on page 6.5 of this chapter for ordering information.

Accessories and Supplies

VT2XX-AA	VT200/VT300 Family System Stand
VT3XX-CA	VT320 Tilt/Swivel Base (VT320 only)
VSXXX-AA	Mouse (VT330/VT340 only)
VSXXX-AB	Graphics Tablet (VT330/VT340 only)

Industrial Terminals

Digital also offers the IT330 and the IT340, industrial versions of the VT330 and VT340 Video Terminals for applications that require terminals on the factory floor. Each of these terminals is packaged in a rugged enclosure and sealed to NEMA-12 standards so that it can withstand tough manufacturing environments.

For complete descriptions and ordering information for the IT330 and IT340, please refer to the *Industrial Systems* chapter.

Terminal Communication Processors and Servers

Digital's terminal servers provide a flexible and cost-effective approach for connecting terminals to systems. Terminal servers are Ethernet-based communication servers designed to logically connect asynchronous devices such as terminals, printers, modems, and personal computers to one or more hosts on an Ethernet LAN. Among the features of terminal servers are: multiple session support, which allows users to establish multiple sessions on one or several hosts, resulting in greater user productivity; and printer support for VAX and MicroVAX systems, which provides the capability of sharing printers among multiple users.

For more information on terminal servers, please refer to the *Options* chapter.

VT300-family At-A-Glance
A Full Family of High Quality Terminals to Precisely Meet Your Every Need.

Feature	VT320 North American	VT320 International	VT330	VT340
Common Family Attributes				
VT220 Compatibility (Text)	X	X	X	X
Bidirectional Printer Port	X	X	X	X
2-Piece, Convection Cooled Design	X	X	X	X
25th Status Line	X	X	X	X
Digital LK201 Keyboard	X	X	X	X
Programmable Function Keys (15)	X	X	X	X
Modem Support	X	X	X	X
DEC423 Port	X	X	X	X
Tilt and Swivel Capability	X	X	X	X
Extended Performance Attributes				
14-inch Flat Screen	X	X	X	
Paper White, Amber, Green Display	X	X	X	
National Replacement Character Set		X	X	X
RS-232 Port		X	X	X
Full RS-232 Modem Control		X	X	X
10-foot Cable and 25-Pin Adapter (RS-232)	X			
2 DEC423 Ports			X	X
Dual Sessions			X	X
Vertical and Horizontal Split Screen			X	X
Text Memory Screens			X	X
Pedestal Base with Tilt and Swivel			X	X
Block-Mode Operation			X	X
120-Voltage Capability Only	X			
120- or 240-Voltage Capability		X	X	X
FCC Class A Certification	X		X	X
FCC Class B Certification		X		
Graphics Attributes				
VT240 Compatibility (Text and Graphics)			X	X
VT241 Compatibility (Color Text and Graphics)				X
Graphics Memory, 2 Screens			X	X
Mouse/Tablet Support			X	X
4 Shades of "Gray"			X	
16 Colors, 16 Shades of "Gray," 13-inch Screen				X

Video Terminal Selection Chart
Refer to this table for ordering any VT300-family terminal.

VT320		VT330		VT340	
USA (North American Model)					
VT320-AA	white text terminal w/standard keyboard, 120 V	VT330-AA	white graphics terminal w/standard keyboard, 120 V	VT340-AA	color graphics terminal w/standard keyboard, 120 V
VT320-BA	green text terminal w/standard keyboard, 120 V	VT330-BA	green graphics terminal w/standard keyboard, 120 V	VT340-DA	color graphics terminal w/WPS keyboard, 120 V
VT320-CA	amber text terminal w/standard keyboard, 120 V	VT330-CA	amber graphics terminal w/standard keyboard, 120 V		
VT320-DA	white text terminal w/WPS keyboard, 120 V	VT330-DA	white graphics terminal w/WPS keyboard, 120 V		
VT320-EA	green text terminal w/WPS keyboard, 120 V	VT330-EA	green graphics terminal w/WPS keyboard, 120 V		
VT320-FA	amber text terminal w/WPS keyboard, 120 V	VT330-FA	amber graphics terminal w/WPS keyboard, 120 V		
USA (International Model)					
VT320-GA	white text terminal w/standard keyboard, 120 V				
VT320-HA	green text terminal w/standard keyboard, 120 V				
VT320-JA	amber text terminal w/standard keyboard, 120 V				
VT320-NA	white text terminal w/WPS keyboard, 120 V				
VT320-PA	green text terminal w/WPS keyboard, 120 V				
VT320-RA	amber text terminal w/WPS keyboard, 120 V				
Belgium					
VT320-AB	white text terminal w/standard keyboard, 240 V	VT330-AB	white graphics terminal w/standard keyboard, 240 V	VT340-AB	color graphics terminal w/standard keyboard, 240 V
VT320-BB	green text terminal w/standard keyboard, 240 V	VT330-BB	green graphics terminal w/standard keyboard, 240 V	VT340-DB	color graphics terminal w/English keyboard, 240 V
VT320-CB	amber text terminal w/standard keyboard, 240 V	VT330-CB	amber graphics terminal w/standard keyboard, 240 V		
VT320-DB	white text terminal w/WPS keyboard, 240 V	VT330-FB	amber graphics terminal w/English keyboard, 240 V		
VT320-FB	amber text terminal w/WPS keyboard, 240 V				
Canada					
VT320-AC	white text terminal w/standard keyboard, 120 V	VT330-AC	white graphics terminal w/standard keyboard, 120 V	VT340-AC	color graphics terminal w/standard keyboard, 120 V
VT320-BC	green text terminal w/standard keyboard, 120 V	VT330-BC	green graphics terminal w/standard keyboard, 120 V	VT340-DC	color graphics terminal w/English WPS keyboard, 120 V
VT320-CC	amber text terminal w/standard keyboard, 120 V	VT330-CC	amber graphics terminal w/standard keyboard, 120 V		
VT320-DC	white text terminal w/WPS keyboard, 120 V	VT330-FC	amber graphics terminal w/English WPS keyboard, 120 V		
VT320-FC	amber text terminal w/WPS keyboard, 120 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Video Terminal Selection Chart *(Continued)*

	VT320		VT330		VT340

Denmark

VT320-AD	white text terminal w/standard keyboard, 240 V	**VT330-AD**	white graphics terminal w/standard keyboard, 240 V	**VT340-AD**	color graphics terminal w/standard keyboard, 240 V
VT320-BD	green text terminal w/standard keyboard, 240 V	**VT330-BD**	green graphics terminal w/standard keyboard, 240 V	**VT340-DD**	color graphics terminal w/English keyboard, 240 V
VT320-CD	amber text terminal w/standard keyboard, 240 V	**VT330-CD**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DD	white text terminal w/WPS keyboard, 240 V	**VT330-FD**	amber graphics terminal w/English keyboard, 240 V		
VT320-FD	amber text terminal w/WPS keyboard, 240 V				

UK/Ireland

VT320-AE	white text terminal w/standard keyboard, 240 V	**VT330-AE**	white graphics terminal w/standard keyboard, 240 V	**VT340-AE**	color graphics terminal w/standard keyboard, 240 V
VT320-BE	green text terminal w/standard keyboard, 240 V	**VT330-BE**	green graphics terminal w/standard keyboard, 240 V	**VT340-DE**	color graphics terminal w/WPS keyboard, 240 V
VT320-CE	amber text terminal w/standard keyboard, 240 V	**VT330-CE**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DE	white text terminal w/WPS keyboard, 240 V	**VT330-DE**	white graphics terminal w/WPS keyboard, 240 V		
VT320-EE	green text terminal w/WPS keyboard, 240 V	**VT330-EE**	green graphics terminal w/WPS keyboard, 240 V		
VT320-FE	amber text terminal w/WPS keyboard, 240 V	**VT330-FE**	amber graphics terminal w/WPS keyboard, 240 V		

Finland

VT320-AF	white text terminal w/standard keyboard, 240 V	**VT330-AF**	white graphics terminal w/standard keyboard, 240 V	**VT340-AF**	color graphics terminal w/standard keyboard, 240 V
VT320-BF	green text terminal w/standard keyboard, 240 V	**VT330-BF**	green graphics terminal w/standard keyboard, 240 V	**VT340-DF**	color graphics terminal w/English keyboard, 240 V
VT320-CF	amber text terminal w/standard keyboard, 240 V	**VT330-CF**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DF	white text terminal w/WPS keyboard, 240 V	**VT330-FF**	amber graphics terminal w/English keyboard, 240 V		
VT320-FF	amber text terminal w/WPS keyboard, 240 V				

West Germany/Austria

VT320-AG	white text terminal w/standard keyboard, 240 V	**VT330-AG**	white graphics terminal w/standard keyboard, 240 V	**VT340-AG**	color graphics terminal w/standard keyboard, 240 V
VT320-BG	green text terminal w/standard keyboard, 240 V	**VT330-BG**	green graphics terminal w/standard keyboard, 240 V	**VT340-DG**	color graphics terminal w/English keyboard, 240 V
VT320-CG	amber text terminal w/standard keyboard, 240 V	**VT330-CG**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DG	white text terminal w/WPS keyboard, 240 V	**VT330-FG**	amber graphics terminal w/English keyboard, 240 V		
VT320-FG	amber text terminal w/WPS keyboard, 240 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Video Terminal Selection Chart *(Continued)*

VT320		VT330		VT340	
Holland					
VT320-AH	white text terminal w/standard keyboard, 240 V	**VT330-AH**	white graphics terminal w/standard keyboard, 240 V	**VT340-AH**	color graphics terminal w/standard keyboard, 240 V
VT320-BH	green text terminal w/standard keyboard, 240 V	**VT330-BH**	green graphics terminal w/standard keyboard, 240 V	**VT340-DH**	color graphics terminal w/English keyboard, 240 V
VT320-CH	amber text terminal w/standard keyboard, 240 V	**VT330-CH**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DH	white text terminal w/WPS keyboard, 240 V	**VT330-FH**	amber graphics terminal w/English keyboard, 240 V		
VT320-FH	amber text terminal w/WPS keyboard, 240 V				
Italy					
VT320-AI	white text terminal w/standard keyboard, 240 V	**VT330-AI**	white graphics terminal w/standard keyboard, 240 V	**VT340-AI**	color graphics terminal w/standard keyboard, 240 V
VT320-BI	green text terminal w/standard keyboard, 240 V	**VT330-BI**	green graphics terminal w/standard keyboard, 240 V	**VT340-DI**	color graphics terminal w/English keyboard, 240 V
VT320-CI	amber text terminal w/standard keyboard, 240 V	**VT330-CI**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DI	white text terminal w/WPS keyboard, 240 V	**VT330-FI**	amber graphics terminal w/English keyboard, 240 V		
VT320-FI	amber text terminal w/WPS keyboard, 240 V				
Switzerland (French)					
VT320-AK	white text terminal w/standard keyboard, 240 V	**VT330-AK**	white graphics terminal w/standard keyboard, 240 V	**VT340-AK**	color graphics terminal w/standard keyboard, 240 V
VT320-BK	green text terminal w/standard keyboard, 240 V	**VT330-BK**	green graphics terminal w/standard keyboard, 240 V	**VT340-DK**	color graphics terminal w/English keyboard, 240 V
VT320-CK	amber text terminal w/standard keyboard, 240 V	**VT330-CK**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DK	white text terminal w/WPS keyboard, 240 V	**VT330-FK**	amber graphics terminal w/English keyboard, 240 V		
VT320-FK	amber text terminal w/WPS keyboard, 240 V				
Switzerland (German)					
VT320-AL	white text terminal w/standard keyboard, 240 V	**VT330-AL**	white graphics terminal w/standard keyboard, 240 V	**VT340-AL**	color graphics terminal w/standard keyboard, 240 V
VT320-BL	green text terminal w/standard keyboard, 240 V	**VT330-BL**	green graphics terminal w/standard keyboard, 240 V	**VT340-DL**	color graphics terminal w/English keyboard, 240 V
VT320-CL	amber text terminal w/standard keyboard, 240 V	**VT330-CL**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DL	white text terminal w/WPS keyboard, 240 V	**VT330-FL**	amber graphics terminal w/English keyboard, 240 V		
VT320-FL	amber text terminal w/WPS keyboard, 240 V				
Sweden					
VT320-AM	white text terminal w/standard keyboard, 240 V	**VT330-AM**	white graphics terminal w/standard keyboard, 240 V	**VT340-AM**	color graphics terminal w/standard keyboard, 240 V
VT320-BM	green text terminal w/standard keyboard, 240 V	**VT330-BM**	green graphics terminal w/standard keyboard, 240 V	**VT340-DM**	color graphics terminal w/English keyboard, 240 V
VT320-CM	amber text terminal w/standard keyboard, 240 V	**VT330-CM**	amber graphics terminal w/standard keyboard, 240 V		
VT320-DM	white text terminal w/WPS keyboard, 240 V	**VT330-FM**	amber graphics terminal w/English keyboard, 240 V		
VT320-FM	amber text terminal w/WPS keyboard, 240 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Video Terminal Selection Chart *(Continued)*

VT320		VT330		VT340	
Norway					
VT320-AN	white text terminal w/standard keyboard, 240 V	VT330-AN	white graphics terminal w/standard keyboard, 240 V	VT340-AN	color graphics terminal w/standard keyboard, 240 V
VT320-BN	green text terminal w/standard keyboard, 240 V	VT330-BN	green graphics terminal w/standard keyboard, 240 V	VT340-DN	color graphics terminal w/English keyboard, 240 V
VT320-CN	amber text terminal w/standard keyboard, 240 V	VT330-CN	amber graphics terminal w/standard keyboard, 240 V		
VT320-DN	white text terminal w/WPS keyboard, 240 V	VT330-FN	amber graphics terminal w/English keyboard, 240 V		
VT320-FN	amber text terminal w/WPS keyboard, 240 V				
France					
VT320-AP	white text terminal w/standard keyboard, 240 V	VT330-AP	white graphics terminal w/standard keyboard, 240 V	VT340-AP	color graphics terminal w/standard keyboard, 240 V
VT320-BP	green text terminal w/standard keyboard, 240 V	VT330-BP	green graphics terminal w/standard keyboard, 240 V	VT340-DP	color graphics terminal w/English keyboard, 240 V
VT320-CP	amber text terminal w/standard keyboard, 240 V	VT330-CP	amber graphics terminal w/standard keyboard, 240 V		
VT320-DP	white text terminal w/WPS keyboard, 240 V	VT330-FP	amber graphics terminal w/English keyboard, 240 V		
VT320-FP	amber text terminal w/WPS keyboard, 240 V				
Spain					
VT320-AS	white text terminal w/standard keyboard, 240 V	VT330-AS	white graphics terminal w/standard keyboard, 240 V	VT340-AS	color graphics terminal w/standard keyboard, 240 V
VT320-BS	green text terminal w/standard keyboard, 240 V	VT330-BS	green graphics terminal w/standard keyboard, 240 V	VT340-DS	color graphics terminal w/English keyboard, 240 V
VT320-CS	amber text terminal w/standard keyboard, 240 V	VT330-CS	amber graphics terminal w/standard keyboard, 240 V		
VT320-DS	white text terminal w/WPS keyboard, 240 V	VT330-FS	green graphics terminal w/English keyboard, 240 V		
VT320-FS	amber text terminal w/WPS keyboard, 240 V				
Portugal					
VT320-AV	white text terminal w/standard keyboard, 240 V	VT330-AV	white graphics terminal w/standard keyboard, 240 V	VT340-AV	color graphics terminal w/standard keyboard, 240 V
VT320-BV	green text terminal w/standard keyboard, 240 V	VT330-BV	green graphics terminal w/standard keyboard, 240 V	VT340-DV	color graphics terminal w/English keyboard, 240 V
VT320-CV	amber text terminal w/standard keyboard, 240 V	VT330-CV	amber graphics terminal w/standard keyboard, 240 V		
VT320-DV	white text terminal w/WPS keyboard, 240 V	VT330-FV	amber graphics terminal w/English keyboard, 240 V		
VT320-FV	amber text terminal w/WPS keyboard, 240 V				
Australia/New Zealand					
VT320-AZ	white text terminal w/standard keyboard, 240 V	VT330-AZ	white graphics terminal w/standard keyboard, 240 V	VT340-AZ	color graphics terminal w/standard keyboard, 240 V
VT320-BZ	green text terminal w/standard keyboard, 240 V	VT330-BZ	green graphics terminal w/standard keyboard, 240 V	VT340-DZ	color graphics terminal w/WPS keyboard, 240 V
VT320-CZ	amber text terminal w/standard keyboard, 240 V	VT330-CZ	amber graphics terminal w/standard keyboard, 240 V		
VT320-DZ	white text terminal w/WPS keyboard, 240 V	VT330-FZ	amber graphics terminal w/WPS keyboard, 240 V		
VT320-EZ	green text terminal w/WPS keyboard, 240 V				
VT320-FZ	amber text terminal w/WPS keyboard, 240 V				

Note: When ordering 100 or more VT320s (must be of same variant), add DB- prefix. For example: DB-VT320-AA for 100 or more VT320-AA.

When ordering VT320s with system, upgrade, or server, add DL- prefix. For example, DL-VT320-AA for VT320-AA ordered with system, upgrade, or server.

Video Terminal Site Preparation

Model	Voltage V	Freq Hz	Phases	Current ac amps	Thermal Dissipation		NEMA Rec Type	PCS+/PDS+ Cable Type*	Physical Characteristics			
					Watts	Btu/hr			Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
VT320-_2	120	50-60	N/A	N/A	30		N/A	BC24K††	9.87	12.25	12.59	15.4
VT320-_3	240	50-60	N/A	N/A	30		N/A	†	[25.1]	[31.1]	[17.1]	[6.9]
VT330-_2	120	50-60	N/A	N/A	60		N/A	BC24K††	13	13.75	14.5	23
VT330-_3	240	50-60	N/A	N/A	60		N/A	†	[33]	[35]	[36.8]	[10.4]
VT340-_2	120	50-60	N/A	N/A	60		N/A	BC24K††	14.5	15.5	16.9	34
VT340-_3	240	50-60	N/A	N/A	60		N/A	†	[36.83]	[39.4]	[42.9]	[15.4]

*For environmental kVA and cable information, see the *Environmental Products Reference Guide and Price List.*

†Typical Line Cord	Where Used	DEC PDS Cable
BN04A-2E	Switzerland	BN29A-xx
BN02A-2E	UK/Ireland	BN29D-xx
BN03A-2E	Continental Europe	BN29H(J)-xx

††60-Hz cable.

VSV21 Color Graphics Controller
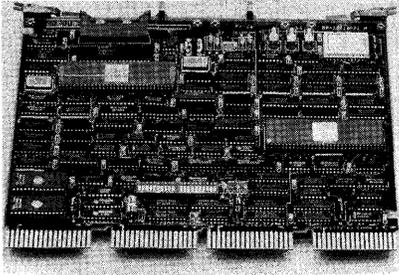
Product Description

The VSV21 Color Graphics Controller is a single-board color raster graphics module that is used on Q22-bus processors. It is a medium-resolution device that can be used by OEMs as a building block to create multiple workstations/ CPUs for the process control industry, low-end CAD/CAM and scientific/ engineering applications.

The VSV21 contains an advanced graphics controller chip and an onboard microprocessor. This combination gives the device high performance, high functionality, and fast screen updating.

System software is supplied separately for the VSV21 to run on MicroRSX, RSX-11M-PLUS, and MicroVMS. Additional applications, such as third-party display management software/editors and graphics industry standards, can be layered.

Features

- Single quad-height Q-bus board with two powerful onboard processors
- A Direct Memory Access (DMA) link to the host processor's Q22-bus for the fast transfer of data and rapid bit-mapped display updates
- Four switch-selectable, 60-Hz noninterlaced screen resolutions for flicker-free high-picture-quality (640 by 480, 640 by 240, 512 by 512, 512 by 256)
- 16-color simultaneous display from a palette of 4,096 colors
- Four RS-232-C serial ports for connecting keyboard, printer, and pointing devices
- VT220 emulation firmware for host interface

Ordering Information

VSV21-AA	VSV21 module.
VSV21-AB	BA23 distribution kit.
VSV21-ACA	BA123 distribution kit.
VSV21-AD	BA11-S distribution kit.
VSV21-AE	25-foot video cable.
VSV21-AF	14-foot keyboard cable.
VSV21-AG	Host cable — PDP.
VSV21-AH	25-foot printer cable.
VSV21-AJ	Loopback kit.
VSV21-AK	Host cable — MicroVAX II.
VSV21-AL	Data tablet adapter.
VSV21-BB	VSV21-AA plus VSV21-AB.
VSV21-BC	VSV21-AA plus VSV21-AC.
VSV21-BD	VSV21-AA plus VSV21-AD.

Note: You must initially purchase a license/warranty, a -GZ documentation kit, and an H kit for the appropriate operating system. System planning should include 7 A (max.) on the 5-Vdc bus and 0.01 A on the 12-Vdc bus.

Printers

Printer Feature Chart

Model	Print Speed Maximum & Quality	Graphics	Parts/ Form	Paper Feed	Special Features	Interface
LA75/ LA75P	250-ch/s draft 125-ch/s memo 42-ch/s NLQ 32-ch/s LQ	Sixel processing	4	Friction Low Tear-off Tractor Cutsheet OPT Bottom feed Single-sheet autopack	DEC and IBM PC-compatible Plug-in fonts Graphics	Serial RS-423: LA75 Parallel: LA75P
LA210	240-ch/s draft 40-ch/s letter 80-ch/s OPT	Sixel processing	4	Friction Bidirectional Tractor OPT Sheet OPT Bottom feed	Acoustic tractor STD IBM PC-compatible 2 plug-in fonts	RS-232-C IBM Parallel OPT
LA100	240-ch/s draft 80-ch/s memo 30-ch/s NLQ	Bit-mapped graphics	4	Friction	Multiple fonts Wide carriage Multimode	RS-232-C
LA120	180-ch/s draft	No	Up to 9	Tractor only Low-tear Tractor OPT	For high-duty cycle environment	RS-232-C
LJ250/ LJ252	167-ch/s NLQ	ReGIS with RETOS ANSI/Color Sixels	NA	Friction Tractor	255 colors text and graphics transparency printing	Serial RS-232-C: LJ250 Parallel: LJ252
LCG01	2-pp/min	ReGIS, GIDIS, and NAPLPS Color sixels Protocol processing	1	Cutsheet, paper, and transparencies	Color ink-jet printer and protocol processing graphics Offloads host	RS-232-C 20 mA RS-422
LN03 PLUS (LN03S)	8-pp/min letter	Full bit-mapped graphics Tektronix 4010/4014	1	Cutsheet	Collated output Plug-in RAM and font cartridges	RS-232-C
LN03	8-pp/min letter	Business graphics with sixels	1	Cutsheet	Collated output Plug-in RAM and font cartridges	RS-232-C
LQP45	45 ch/s LQ	No	5	Friction Tractor OPT Cutsheet (dual-tray plus envelope feed) OPT	Multinational print-wheels Excellent letter-quality Flexible paper handling	RS-232-C
LP27	64-char 1200-li/min 96-char 800-li/min	No	6	Tractor only	High-duty cycle	Short-line parallel long-line parallel
LP25	64-char 300-li/min 96-char 215-li/min	No	6	Tractor only	Band printer	Short-line parallel long-line parallel
LXY12	300-li/min	Yes	6	Tractor only	Text and graphics	RS-232-C Parallel
LG01	600-li/min uppercase dp 480-li/min lowercase dp	No	6	Tractor only	Line matrix extended text features High reliability	RS-232-C Parallel
LG02	600-li/min uppercase dp 480-li/min lowercase dp	Sixel processing	6	Tractor only	Line matrix text/graphics Bar codes Landscape printing High reliability Superscripts/subscripts	RS-232-C Parallel

To connect with IBM Personal Computers, PC-compatibles, and other hosts supporting parallel communications, the BC19M-10, shipped with the LJ252 and LA75P parallel models, will be used.
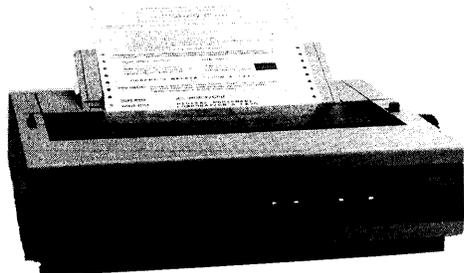
Product Description

The quiet, compact Companion Printers set new standards of quality, performance, and versatility for low-cost, desktop printers. Available in both serial (LA75) and parallel (LA75P) interface models, they are fully compatible with software written for Digital printers and for the IBM Proprinter. Fast print speed, flexible paper handling, and easy operation make the Companion Printers superb choices for anyone requiring high-quality "personal" text and graphics printing capabilities. They are the ideal printing solution for most Digital computing environments including those with VAXmates, IBM personal computers and PC-compatibles, VT-family video terminals, and workstations.

For a wide range of computing applications, the Companion Printers' unique combination of performance, convenience, and compatibility can help you get the most out of your system.

Features

- Available in a serial interface model (LA75), compatible with Digital systems
- Available in a parallel interface model (LA75P), compatible with IBM Personal Computers, PC-compatibles, PS/2, or equivalent
- Built-in LA50, LA100, LA210, and IBM Proprinter emulation offers complete text/graphics compatibility with Digital systems and industry-standard personal computers
- Print speeds, and other printer attributes selectable with front-panel switches or under software control
- Text printing at 250 ch/s, 125 ch/s, 42 ch/s, and 32 ch/s burst speeds; plus full bit-mapped graphics printing at 180-by-144-dot-per-inch resolution
- Quiet operation for busy office environments
- Versatile paper handling for printing on formfed paper, labels, multipart forms, single-sheets, and envelopes
- Pivoting tractor allows choice of top or bottom paper feeding
- Optional single-bin cutsheet feeder holds 100 pages
- 9 built-in character sets: U.S. ASCII, National Replacement (NRC), ISO 8-bit Supplemental, DEC Supplemental, DEC Technical, VT100 Special Graphic ("Line Drawing"), plus IBM Proprinter Line Drawing, Chart Drawing, and Symbol Drawing sets
- Economically priced, user-installable
- Compact desktop size (4.8-in high by 16.8-in wide by 13.6-in deep)
- Built-in self-testing, front-panel status indicators
- Full range of accessories/consumables available from Digital
- Requires no periodic maintenance other than normal cleaning
- 2,047-character input buffer

Printers

LA75/LA75P Companion Printers

Ordering Information

Please refer to the Printer Selection Chart on page 6.47 of this chapter for ordering information.

Accessories and Supplies

LAXXA-AA	Acoustic cover
LA75X-SF	Single-bin sheetfeeder
LA75X-AA	Letter Gothic font cartridge
LA75X-AB	Orator font cartridge (limited character set)
H9850-HP	Dust cover
PCXXF-CF	Desk Stand
LA50X-FF	Paper catcher
LA50R-06	Ribbon cartridges (6/box)
H9850-PH	Paper (2700 9.5 by 11)

Adapters

To connect to any Digital host except VAXmate and VT300 series, an adapter must be ordered:

Host	Host Printer Port	Required MMJ Adapter
VT100	25-pin male	H8571-A
VT101	25-pin male	H8571-A
VT102	25-pin male	H8571-A
VT125	25-pin male	H8571-A
VT131	25-pin male	H8571-A
VT180	25-pin male	H8571-A
VT220	9-pin male	H8571-B
VT240	9-pin male	H8571-B
VT241	9-pin male	H8571-B
DECmate II, III	9-pin male	H8571-B
Professional 325/350/380	9-pin male	H8571-B
Rainbow 100 Series	25-pin female	H8571-D
MicroVAX family	9-pin male	H8571-B
VAXstation family	9-pin male	H8571-B

(For any other host with an RS-232 serial 25-pin male printer port, use the H8571-A adapter. For any other host with an RS-232 serial 9-pin male printer port, use the H8571-B connector. To connect with IBM Personal Computers, PC-compatibles, and other hosts supporting parallel communications, select the LA75P parallel model, which features Centronics-type parallel interface.)

LA210 Letterprinter
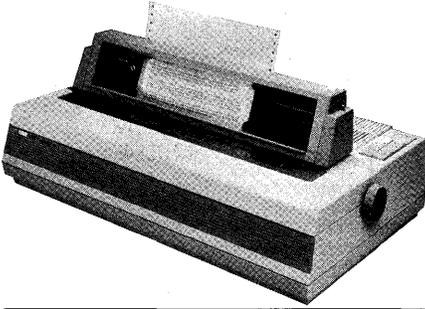
Product Description

The LA210 Letterprinter is a desktop, dot-matrix text and graphics printer offering 40-ch/s near-letter quality and 240-ch/s (burst speed) draft modes, plus full bit-mapped graphics with 132-by-72-dot-per-inch resolution and an optional 80-ch/s memo-quality mode. In addition to the numerous standard resident typefaces, optional plug-in font cartridges and field-installed ROM chips are also available. The LA210 can print on office stationery, multipart forms, labels, roll and fanfold paper up to 14.9 inches wide (bidirectional tractors are optional). With an optional parallel interface and font cartridges, the LA210 can work with IBM-compatible personal computers.

Features

- 240-ch/s maximum mode for high-speed draft style printing
- 40-ch/s maximum mode for high-density, near-letter-quality printing
- Full bit-mapped graphics mode for plotting graphs and charts
- Connects to standard RS-232 serial host printer ports
- Optional plug-in IBM/Centronics type parallel interface supports communication with IBM personal computers and PC-compatibles
- With parallel interface and optional cartridges, emulates Epson MX80, Epson MX80 with Graftrax Plus, and IBM Graphics Printers
- Optional 80-ch/s maximum mode for medium-density, memo quality printing
- Throughput: 90 lines/minute in draft mode at 132 columns
- Standard acoustically shrouded unidirectional forms tractors; optional bidirectional forms tractors and sheetfeeder
- Compatibility with Digital software, hardware
- Large library of available font styles and character sets
- Line-drawing graphic characters and international characters
- Built-in self-diagnostics and printer tests
- Reliable 9-wire "logic seeking" printhead
- Variable character widths and line spacing for versatility
- User-installable and maintainable, with quick-change printhead and ribbon cartridge features
- 2,000-character input buffer
- Universal (110/220-V) power supply

Ordering Information

Please refer to the Printer Selection Chart on page 6.47 of this chapter for ordering information.

Accessories and Supplies

LA21X-BT	Bidirectional tractor
LA10X-EP	External parallel interface
LA21X-SF	Single-tray sheetfeeder (A-size paper)
LA21X-SH	Single-tray sheetfeeder (A-4 size paper)
LAXXS-AB	Printer stand
LA10X-SP	Paper catcher
LA10X-SQ	Paper shelf
LA21X-SW	Paper tray
LA10R-06	Ribbon cartridges (6/box)
LA21X-AC	Acoustic cover

ROM Cartridges

	Courier 10	Courier 12	Gothic 10	Gothic 12	Orator 10	Courier Italics 10	Courier 10 80/240 ch/s (Max.)	Orator 10 80/240 ch/s (Max.)	Special 10	Special 12	Special 10 80/240 ch/s (Max.)
US/UK	-AA	-AB	-AF	-AC	-AD	-AP	-AH	-AJ			
Foreign Overlay	-BA	-BB	-BF	-BC	-BD		-BH	-BJ			
Multinational Overlay	-JA	-JB	-JF	-JC	-JB		-JH	-JJ			
US/UK & Multinational	-MA	-MB	-MF	-MC	-MD		-MH	-MJ			
APL	-BN										
DEC Technical									-AR	-AM	
Symbols									-AE	-AN	
VT100 Line Drawing									-JN	-JP	-JR

IBM-PC Compatible ROM Cartridges (LA210 only)

Emulation Node	IBM Line Drawing	IBM Mosaic	IBM Graftrax	IBM Foreign	IBM-Compatible Kit
Epson MX80		LB			LH
Epson MX80 with Graftrax			LC		
IBM Graphics Printer	LA			LD	

LH = EP + LE
EP = Parallel Interface
LE = LA + LD

Printers

LA100 Letterwriter
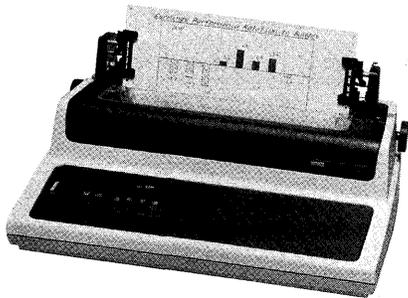
Product Description

The LA100 Letterwriter is a desktop hardcopy keyboard send/receive (KSR) terminal that communicates with host computers using a standard serial EIA RS-232 or optional 20-mA interface, or remotely over telephone lines through a modem. LA100s offer 40-ch/s near-letter-quality and 240-ch/s draft modes (burst speeds), plus full bit-mapped graphics with 132-by-72-dot-per-inch resolution and an optional 80-ch/s maximum memo-quality mode. In addition to the numerous standard resident typefaces, optional plug-in font cartridges and field-installed ROM chips are also available. The LA100 prints on office stationery, multipart forms, labels, roll and fanfold paper up to 14.9 inches wide. (Bidirectional tractors are optional.)

Features

- 240-ch/s maximum mode for high-speed draft style printing
- 40-ch/s maximum mode for high-density, near-letter-quality printing
- Optional 80-ch/s maximum mode for medium-density, memo-quality printing
- Full bit-mapped graphics mode for plotting graphs and charts
- Throughput: 90 lines/minute in draft mode at 132 columns
- Standard unidirectional forms tractors; optional bidirectional forms tractors
- Compatibility with Digital software, hardware
- Built-in self-diagnostics and printer tests
- Connects to standard RS-232 host printer ports
- Character set: 7-bit 94-displayable ASCII character set for 11 countries, ANSI-compatible escape sequences
- Print columns: 40 to 217
- Reliable 9-wire "logic seeking" printhead
- Variable character widths and line spacing for versatility
- 250 printable characters, including line-drawing graphic characters and international characters
- User-installable and maintainable, with quick-change printhead and ribbon cartridge features
- Baud rates: 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600
- 400-character input buffer standard; 4,000-character buffer optional
- Universal (110/220-V) power supply

Ordering Information

LA100-BA	KSR hardcopy terminal with keyboard, numeric keypad, tractors, BC22D-10 cable, ribbon cartridge, one package of paper, and Courier-10/Orator-10 fonts in the US/UK character sets only.
LA100-BB	KSR hardcopy terminal with keyboard, numeric keypad, tractors, BC22D-10 cable, ribbon cartridge, one package of paper, Courier-10 font, international overlay, and VT100 line drawing set and international key caps.
LA100-CA	KSR hardcopy terminal with keyboard, tractors, BC22D-10 cable, ribbon cartridge, one package of paper, Courier-10/ Orator-10 fonts in the US/UK character sets only, and multiple font option.
LA100-CB	KSR hardcopy terminal with keyboard, tractors, BC22D-10 cable, ribbon cartridge, one package of paper, Courier-10 font, international overlay, VT100 line drawing set, and multiple font option and international key caps.

To order LA100 ROM cartridges, use part number LA10X plus the appropriate variant. For example, to order US/UK in Courier 10 cartridge, use part number LA10X-AA. Use LA10X-AK to order blank ROM cartridge. ROM cartridges are customer-installed.

Options

LA10X-EB	4-K buffer option
LA10X-CL	20-mA interface option
LA10X-SF	Sheetfeeder option
LA10X-FL	Multifont adapter option

ROM Cartridges

	Courier 10	Courier 12	Gothic 10	Gothic 12	Orator 10	Courier Italics 10	Courier 10 80/240 ch/s (Max.)	Orator 10 80/240 ch/s (Max.)	Special 10	Special 12	Special 10 80/240 ch/s (Max.)
US/UK	-AA	-AB	-AF	-AC	-AD	-AP	-AH	-AJ			
Foreign Overlay	-BA	-BB	-BF	-BC	-BD		-BH	-BJ			
Multinational Overlay	-JA	-JB	-JF	-JC	-JB		-JH	-JJ			
US/UK & Multinational	-MA	-MB	-MF	-MC	-MD		-MH	-MJ			
APL	-BN										
DEC Technical									-AR	-AM	
Symbols									-AE	-AN	
VT100 Line Drawing									-JN	-JP	-JR

Printers

LA120 DECwriter
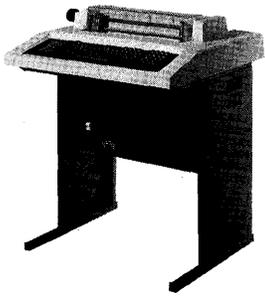
Product Description

The LA120 DECwriter III (a keyboard send/receive, KSR, terminal) is a sturdy device designed for use in high-duty-cycle environments. It is a pedestal-based, stand-alone, dot-matrix text printer that can print on 1–6 and 4–9 part forms at up to 180-ch/s (burst speed). The LA120 is optimized for 1200-baud communications, but can operate at a dozen rates ranging from 50 to 9600 baud. It features bidirectional "smart" printing, a 7-by-7 dot matrix, and 1,000-character print buffer. Forty-five setup features are easily selectable, and a new low-tear tractor option is available to reduce paper usage and lower to operating costs.

Features

- 180-ch/s maximum (bidirectional) high-speed draft style printing
- Optional low-tear forms tractor option
- Top, bottom, left, and right margins as well as horizontal and vertical tabs are easily adjustable.
- Eight different horizontal pitches and six different line spacings provide flexible printed output.
- Line spacing: 2, 3, 4, 6, 8, and 12 lines per inch
- Optional national character sets include Finnish, Danish, Swedish, German, Norwegian, and French. An APL set is also available.
- Nonvolatile memory stores feature settings so they can be recalled at any time
- Compatibility with Digital software, hardware
- Built-in self-diagnostics and printer tests
- Connects to standard RS-232 host printer ports
- Character set: 7-bit 94-displayable ASCII character set, and ANSI-compatible escape sequences
- Print density: 7-by-7 dots (draft)
- Variable character widths and line spacing for versatility
- Baud rates: 50, 75, 110, 134, 134.5, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600
- 400-character input buffer standard; 4,000-character buffer optional
- Universal (110/220-V) power supply

Ordering Information

LA120-DA	KSR hardcopy terminal, 1–6 part forms.	

Accessories and Supplies

LA12X-AL	20-mA interface
LA12X-LT	Low tear tractor
LAXX-FD	Acoustic cover
LAXX-KC	Work surface shelf
LAXX-NC	Paper basket
LAXX-KD	Wire shelf
LAXXR-12	Ribbon (12/box)
LAXX-KB	Casters

Printers

Companion Color Printers (LJ250/LJ252)
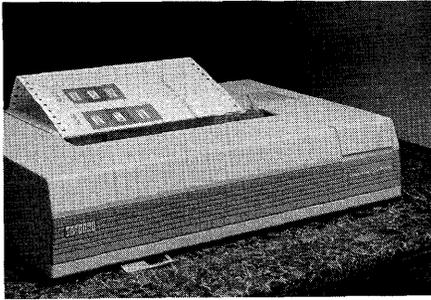
Product Description

Digital's Companion Color Printers are quiet, compact, desktop printers that can help users create professional-looking documents, combining high-quality color graphics with high-quality text, quickly and economically. The Companion Color Printers are available in two models: the LJ250, with DEC423 and RS-232 serial interfaces, and the LJ252, with a Centronics-type parallel interface.

The Companion Color Printers employ the latest disposable cartridge technology, (which consists of a printhead and ink supply), for high-quality text and graphics printing with easy operation and no user maintenance. This technology allows the Companion Color Printers to print up to seven pure colors, including plain black, and hundreds of mixed colors, all on a single page.

The Companion Color Printers print text and graphics on paper and transparencies in the A (8.5-by-11-inch) and the European equivalent A4 (8.3-by-11-inch) sizes, using single-sheet (friction) feeding or fanfold (sprocket) paper feeding. Specially treated paper and transparencies from Digital provide optimum print quality and reliability from the Companion Color Printer's disposable ink cartridge technology.

Features

- Print high-quality color graphics and high-quality text on paper and transparencies
- Fast (167 ch/s burst, 90 ch/s throughput)
- Quiet (less than 45 dBA)
- Reliable (10,000 hours MTBF)
- Available in serial (LJ250) and parallel (LJ252) interface models to connect to Digital terminals, workstations, or hosts or to IBM personal computers and compatibles
- Support Digital systems through ANSI/sixels and color sixels protocols; print ReGIS graphics files using host-resident VAX ReGIS to Sixels Converter (RETOS) software or the print screen function on many of Digital's graphics terminals
- Support many software applications on IBM personal computers and compatibles through the Hewlett-Packard PCL protocol
- State-of-the-art technology, (disposable-cartridge thermal inkjet), provides up to seven colors at 180-by-180-dot-per-inch resolution and up to 255 colors at 90-by-90-dot-per-inch resolution
- Compact and lightweight (less than 10 pounds), with attractive office styling to complement Digital desktop systems
- Easy-to-use; no routine maintenance required
- Full DECsupport, with one-year carry-in service warranty and a variety of service options

Ordering Information

Please refer to the Printer Selection Chart on page 6.47 of this chapter for ordering information.

Accessories and Supplies

LJ25X-AA	Color ink cartridge
LJ25X-AB	Black ink cartridge
LJ25X-AC	8.5-by-11-inch continuous form paper, 250 sheets
LJ25X-AD	A4-size continuous form paper, 250 sheets
LJ25X-AE	8.5-by-11-inch cutsheet transparencies, 50 sheets
LJ25X-AF	A4-size cutsheet transparencies, 50 sheets
LJ25X-DC	Dust cover
LJ25X-DS	Desk stand
LJ25X-SW	Paper catcher

Adapters

To connect to any Digital host except VAXmate and VT300 series, an adapter must be ordered:

Host	**Host Printer Port**	**Required MMJ Adapter**
VT100	25-pin male	H8571-A
VT101	25-pin male	H8571-A
VT102	25-pin male	H8571-A
VT125	25-pin male	H8571-A
VT131	25-pin male	H8571-A
VT180	25-pin male	H8571-A
VT220	9-pin male	H8571-B
VT240	9-pin male	H8571-B
VT241	9-pin male	H8571-B
DECmate II, III	9-pin male	H8571-B
Professional 325/350/380	9-pin male	H8571-B
Rainbow 100 Series	25-pin female	H8571-D
MicroVAX family	9-pin male	H8571-B
VAXstation family	9-pin male	H8571-B

(For any other host with an RS-232 serial 25-pin male printer port, use the H8571-A adapter. For any other host with an RS-232 serial 9-pin male printer port, use the H8571-B connector. To connect with IBM Personal Computers, PC-compatibles, and other hosts supporting parallel communications, select the LJ252 parallel model, which features Centronics-type parallel interface.)

LCG01 Color Printer
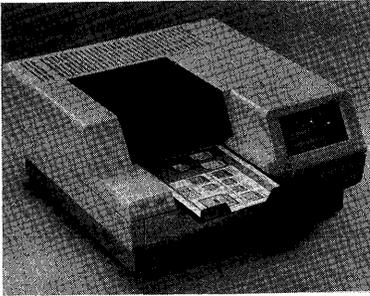
Product Description

The LCG01 is an intelligent desktop ink-jet printer that contains its own graphics processor to offload host systems for other tasks. The LCG01 produces output on paper and transparencies, storing five fonts in local memory and offering more than 200 colors/shades. The LCG01 supports the ReGIS, GIDIS, NAPLPS, and BIT MAP IMAGE (Color Sixel format) graphics protocols. Resolution is 154 dots per inch, with up to 1536 by 1152 dots in an A-size image. The LCG01 holds 100 sheets of paper and 50 transparencies. The LCG01 can serve as a shared printing device for a number of users, whether they're working at a VAXstation II/GPX color workstation or at a VT241/VT340 color graphics terminal.

Features

- Serial-line interface supports shared-resource printing
- 154-dot-per-inch resolution
- Eight true colors (yellow, magenta, cyan, red, blue, green, black, and white) per page, selectable from 216 combinations and shades
- Large reservoirs of each ink cartridge
- Self-dispensing maintenance fluid
- Self-purging heads
- Compatible with DECslide, DECgraph, DATATRIEVE office software, VTX, PRO/GIDIS, and numerous third-party graphics generation packages available for Digital systems
- Automatically sheetfeeds paper or transparencies
- Processes ReGIS, GIDIS, NAPLPS, and Color Sixel display files
- Downline-loadable character fonts and software
- Prints text and graphics in portrait and landscape modes
- Scales graphics images to printer coordinates
- Image sizes: A (7.5 by 9.95 inches) and A4 (7.27 by 9.95 inches)
- Full page memory buffer
- Print speed: approximately 2 minutes per page
- RS-232-C, RS-422, and 20-mA system interfaces
- Built-in self-test diagnostics
- Minimal operator involvement
- No disposable media, making the LCG01 an excellent output device for classified applications requiring tight security

Ordering Information

LCG01-AA	Ink-jet color printer with graphics processor (includes RS-232 interface)

LCG01 Software is included with the LCG Color Printing System; the software identification numbers below are used to indicate the appropriate distribution media when ordering the system.

AS-FB11E-BE	RX01 Floppy Diskette (1/3) (VMS)
AS-FB12E-BE	RX01 Floppy Diskette (2/3) (VMS)
AS-KY92A-BE	RX01 Floppy Diskette (3/3) (VMS)
BL-FY51E-BN	RX50 Floppy Diskette (1/2) (MicroVMS)
BL-FY52E-BN	RX50 Floppy Diskette (2/2) (MicroVMS)
BB-FB15E-BC	9-track 1600 b/in Magtape (RSX)
BB-FC64E-BE	9-track 1600 b/in Magtape (VMS)
BE-FB13E-BE	TU58 DECtape II Cartridge (1/2) (VMS)
BE-FB14E-BE	TU58 DECtape II Cartridge (2/2) (VMS)
AQ-FY50E-BE	TK50 Streaming Tape (1/2) (MicroVMS)

Country Kits

LCG01-KE	United Kingdom
LCG01-KG	Continental Europe
LCG01-KK	Switzerland
LCG01-KZ	Australia

Supplies

LCGX1-JY	Yellow ink cartridge
LCGX1-JM	Magenta ink cartridge
LCGX1-JC	Cyan ink cartridge
LCGX1-JB	Black ink cartridge
LCGX1-JW	Maintenance cartridge
LCGX1-PA	Paper (A size), 500 sheets
LCGX1-PE	Paper (A4 size), 500 sheets
LCGX1-AA	Transparencies (A) 100 sheets
LCGX1-AE	Transparencies (A4) 100 sheets
LCGX1-PT	Paper tray

All questions and requests for additional information should be directed to 1-800-832-6277.

Printers

LN03 PLUS Laser Printer (LN03S)
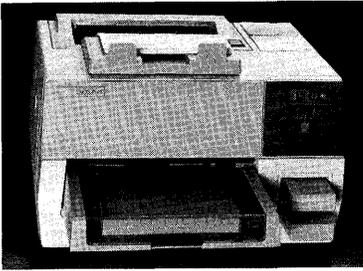
Product Description

The LN03 PLUS is a desktop graphics laser printer offering full-page, 300-dot-per-inch, bit-mapped graphics compatible with Digital (sixels) and Tektronix™ (4010/4014 vector graphics) software. The LN03 PLUS comes with 1-Mbyte RAM and an additional 14-point monospaced Modern Gothic type font. Other features are identical to those of the LN03, with text printing at eight pages per minute; a 250-sheet tray for collated output; and an adjustable 250-sheet input tray for standard and European-size paper, label sets, or transparencies. Optional font and RAM cartridges can be inserted into the two slots on the front panel. A standard RS-232 serial interface is provided for connection to stand-alone or networked systems.

Features

- Full-page, bit-mapped graphics compatible with Digital's sixels and Tektronix 4010/4014 graphics protocols
- Rapid 8-page-per-minute (approximately 333-ch/s) text-printing speed
- Typographic-quality 300-by-300-dot-per-inch character formation with even density and accurate alignment
- 1-Mbyte on-board RAM for text/graphics applications
- 17 resident fonts in three typefaces, including ASCII, multinational, and technical character sets
- Prints in both portrait and landscape modes
- Accepts optional plug-in type font cartridges and RAM cartridges
- Type fonts may be downline-loaded from host systems
- Built-in LA100 compatibility mode
- Optional IBM Proprinter Compatibility Cartridge
- Supported by most major Digital operating systems and applications software for text and graphics printing
- 250-sheet input and output paper cassettes accept standard 16–24 lb paper (and transparencies) in 8.5-by-11-inch and European (A4) sizes
- Automatic page sequencing for collated output
- Compact size: 15-inches high by 21-inches wide by 23.5-inches deep
- Quiet operation (under 54 decibels)
- Low cost-per-user; simple user-performed maintenance
- Built-in self-diagnostics and status indicators

Ordering Information

Please refer to the Printer Selection Chart on page 6.47 of this chapter for ordering information.

The LN03 PLUS laser printer includes two toner cartridges, one OPC cartridge, an ac power cord, one toner collection bottle, one package (250 sheets) of paper, documentation, 1 Mbyte of RAM, and 14-point Modern Gothic typeface.

Font Cartridges

LN03X-CS	Letter Gothic: 10-point Normal; 10-point Bold; 14-point Normal; U.S. Legal characters
LN03X-CM	OCR-A/OCR-B: 10 point, 10 pitch
LN03X-CP	English 116 Embassy: (Script Text)
LN03X-IC	LN03 PLUS ISO/PC Cartridge
LN03X-CT	U.S. Legal: 10-point Courier; 10-point Courier Italics; 10-point Elite; 10-point Elite Italics; 10- and 14-point Gothic; 10- and 14-point Symbols; Large Gothic
LN03X-CZ	CG Triumvirate Large: 24-point
LN03X-CW	CG Times Presentation: 18-point Normal; 18-point Bold; 14-point Normal
LN03X-CX	CG Times Large: 24-point
LN03X-CL	ITC Souvenir: 10-point Normal; 10-point Bold; 10-point Italics; 12-point Normal; 12-point Bold; 8-point Normal
LN03X-CJ	CG Triumvirate Presentation: 18-point Normal; 18-point Bold; 14-point Normal
LN03X-CY	CG Triumvirate: 10-point Normal; 10-point Italics; 8-point Normal; 12-point Normal; 12-point Bold
LN03X-CB	CG Times: 10-point Normal; 10-point Bold; 10-point Italics; 8-point Normal; 12-point Normal; 12-point Bold
LN03X-DA	VT100/200 Screen Extended Courier font

Accessories and Supplies

LN03X-CR	RAM Cartridge
LN03-AD	User maintenance kit
LN01X-AB	Cutsheet paper (5000 8.5 by 11)
LN03X-AJ	Transparencies (50 8.5 by 11)
LN03X-AC	Toner cartridge kit
LN03X-AE	LN03 mobile cabinet stand
LN03R-UA	LN03 PLUS to ScriptPrinter upgrade kit
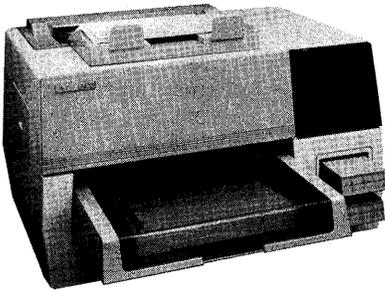
LN03 Laser Printer

Product Description

The LN03 laser printer is a desktop unit that employs electrophotographic imaging and xerographic printing to produce eight pages of text per minute. The LN03 comes with three character sets in 16 fonts for both portrait and landscape orientation. Print resolution is 300 by 300 dots per inch. Precoded ROM font cartridges or programmable RAM cartridges can be inserted into one of two option slots on the front panel. The LN03 has a 250-sheet output tray and an adjustable 250-sheet input tray for standard and European size paper, label sets, or transparencies. A standard RS-232 serial interface is provided for connection to stand-alone or networked Digital systems.

Features

- Rapid 8-page-per-minute (approximately 333-ch/s) print speed
- Typographic-quality 300-by-300-dots-per-inch character formation with even density and accurate alignment
- 250-sheet input and output paper cassettes accept standard 16–24 lb paper (and transparencies) in 8.5-by-11-inch and European (A4) sizes
- Automatic paging sequencing
- 16 resident fonts in two typefaces, including ASCII, multinational and technical character sets
- Prints in both portrait and landscape modes
- Accepts precoded ROM font cartridges or programmable RAM cartridges
- Font information may be downline-loaded from host systems
- Built-in LA100 compatibility mode
- Supported by most major Digital operating systems and applications software
- Compact size: 15-inches high by 21-inches wide by 23.5-inches deep
- Quiet operation (under 54 decibels)
- Low cost-per-user; simple user-performed maintenance
- Built-in self-diagnostics and status indicators

Ordering Information

Please refer to the Printer Selection Chart on page 6.47 of this chapter for ordering information.

The LN03 Laser Printer includes two toner cartridges, one OPC cartridge, an ac power cord, one toner collection bottle, one package (250 sheets) of paper, and documentation.

Font Cartridges

LN03X-CS	Letter Gothic: 10-point Normal; 10-point Bold; 14-point Normal and U.S. Legal characters
LN03X-CM	OCR-A/OCR-B: 10 point, 10 pitch
LN03X-CP	English 116 Embassy: (Script Text)
LN03X-CT	U.S. Legal: 10-point Courier; 10-point Courier Italics; 10-point Elite; 10-point Elite Italics; 10- and 14-point Gothic; 10- and 14-point Symbols; Large Gothic
LN03X-CZ	CG Triumvirate Large: 24-point
LN03X-CW	CG Times Presentation: 18-point Normal; 18-point Bold; 14-point Normal
LN03X-CX	CG Times Large: 24-point
LN03X-CL	ITC Souvenir: 10-point Normal; 10-point Bold; 10-point Italics; 12-point Normal; 12-point Bold; 8-point Normal
LN03X-CJ	CG Triumvirate Presentation: 18-point Normal; 18-point Bold; 14-point Normal
LN03X-CY	CG Triumvirate: 10-point Normal; 10-point Italics; 8-point Normal; 12-point Normal; 12-point Bold
LN03X-CB	CG Times: 10-point Normal; 10-point Bold; 10-point Italics; 8-point Normal; 12-point Normal; 12-point Bold
LN03X-DA	VT100/200 Screen Extended Courier font

Accessories and Supplies

LN03X-CR	RAM Cartridge
LN03-AD	User maintenance kit
LN01X-AB	Cutsheet paper (5000 8.5 by 11)
LN03X-AJ	Transparencies (50 8.5 by 11)
LN03X-AC	Toner cartridge kit
LN03X-AE	LN03 mobile cabinet stand
LN03S-UA	LN03 to LN03 PLUS upgrade kit

LQP45 Letter-quality Office Printer
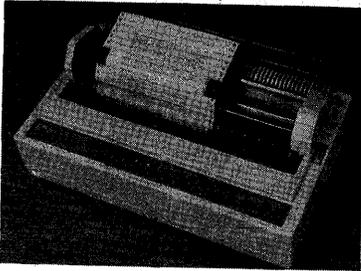
Product Description

The LQP45, Digital's fastest daisywheel printer, prints up to 45 characters per second in true letter-quality text. It is a replacement for the LQP02 daisywheel printer and supports the RS-232 serial interface.

The LQP45's specially-engineered printwheel and character generator produce ASCII, DEC Multinational, and National Replacement character sets with a single printwheel.

The optional dual-bin cutsheet feeder with envelope feed allows selective feeding from two bins for use with cutsheet paper and preprinted forms; a third bin handles envelopes. This customer-installable option holds up to 220 sheets of 20-pound paper and up to 50 letter-size business envelopes.

The LQP45 can print on multipart forms (an original plus four copies) using an optional customer-installable bidirectional forms tractor. With this forms tractor, the LQP45 can scroll paper forward or backward for superscript, subscript, and multicolumn printing.

Both Mylar and Nylon multistrike ribbon cartridges are available for the LQP45. The ribbon cartridges snap into place easily, without adjustment or alignment. LQP45 printwheels drop into place without regard to orientation. Printwheels are available in a range of typestyles, each with a lifetime of approximately 10 million impressions.

Features

- Fully formed letter-quality type in a variety of typefaces
- Print speeds to 45 ch/s in 10-pitch Shannon text
- Bold, shadow, underline, overstrike, subscript and superscript printing
- Optional automatic dual-bin cutsheet paper and envelope feeder
- Optional bidirectional continuous forms tractor
- Prints on multipart forms (original plus four copies)
- Easy-to-change ribbons and printwheels
- No user-maintenance; built-in self-tests

Ordering Information

Please refer to the Printer Selection Chart on page 6.47 of this chapter for ordering information.

The LQP45 letter-quality printer includes ribbon cartridge and Courier-10 multinational printwheel.

Options

LQP4X-S3	Dual-bin cutsheet feeder with envelope feed
LQP25-TR	Bidirectional forms tractor

Accessories and Supplies

Printwheels	
LQP4X-CA	International Courier 10, box of 4
LQP4X-CE	International Letter Gothic 12, box of 4
LQP4X-CF	International Prestige Elite 12, box of 4
LQP4X-CH	International Mikron 15, box of 4
LQP4X-CN	OCR-B, box of 4
LQP4X-CM	Orator, box of 4
Ribbons	
LQP25-KA	Mylar ribbon cartridge
LQP25-KB	Nylon ribbon cartridge

LP29 Impact Printer
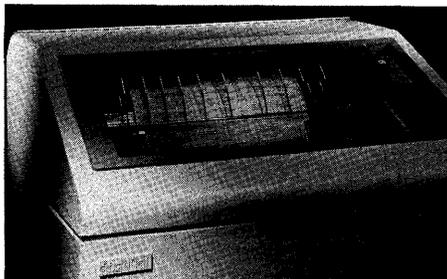
Product Description

The LP29 system printer is Digital's fastest line printer. The LP29 can operate at speeds up to 2000 lines per minute, through the use of a Digital-unique interface and "optimized" character band. The Digital-unique interface allows the LP29 to accept continuous input from the CPU at the same time that it is printing. The proprietary "optimized" character band is a special arrangement of 64 uppercase characters that permits great speed without sacrificing print quality or character selection. The LP29 is the ideal printer for Digital's high performance systems.

The LP29's rugged design makes it capable of withstanding continuous impact at very high speeds. It is designed for Digital's UNIBUS, Q-bus, and VAX BI-bus systems in central data processing environments. The LP29 comes with a universal power supply and prints at speeds up to 2000-li/min using the proprietary "optimized" 64-character uppercase ASCII set, or at 1150 li/min using the 96-character uppercase and lowercase ASCII set. Character bands, paper handlng, and ribbon handling are all easy for the operator. Self-test diagnostic capabilities are built in. Power stacker is standard.

Features

- Digital-unique interface
- Proprietary "optimized" character band
- Front paper handling
- 300,000 pages per month
- High slew speed
- Accepts pinfeed, continuous fanfold paper
- Accepts up to 6-part forms in a variety of widths and thicknesses, including carbons
- 132-column printouts
- 132-character buffer capacity

Ordering Information

LP29-UA/U3	Shortline LP29 UNIBUS system option with LP11 controller, BC05L-10 10-ft internal cable, bulkhead, and BC27A-30 30-ft (9.5-m) data cable. Includes powered paper stacker.
LP29-SA/S3	Shortline LP29 system printer with LPV11-SA controller, BC27L-30 30-ft (9.5-m) data cable and powered paper stacker. For use on BA213 enclosures only.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	–15 V		
LP29-UA/U3	1 quad slot	1.5	0.0	0.0	1.0	1
LP29-SA/S3	1 quad slot	2.4	N/A	N/A	1.0	N/A

Printers

LP27 System Printer
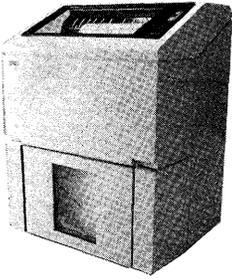
Product Description

The LP27 system printer is a fully formed character lineprinter that accepts up to 6 part fanfold edge-perforated forms. The LP27, designed for use on larger UNIBUS and Q-bus systems in standard computer room environments, comes with a universal power supply and prints at speeds as fast as 1,200 lines per minute using a 64-character uppercase ASCII set and speeds as fast as 800 lines per minute using the 96-character uppercase ASCII set. Character bands are easy to change and replace. Built-in 3-mode self-test capability. Available in shortline or longline version. Optional cables, bands, and paper caddies are available for the LP27.

Features

- Printing speed: 64-character set at 1,200 lines per minute; 96-character set at 800 lines per minute
- Easy-to-change, user-replaceable character bands
- Accepts pin-feed, continuous fanfold, and up to 6 part forms in a variety of widths and thicknesses, including carbons
- Available in shortline or longline version for maximum flexibility
- 132-column printouts
- 132-character buffer capacity
- Built-in 3-mode self-test capability

Ordering Information

LP27-UA/UB	Shortline LP27 UNIBUS system option with LP11 controller, BC05L-10 10-ft. internal cable, bulkhead, and BC27A-30 30-ft (9.5-m) data cable.
LP27-DA/DB	Longline LP27 UNIBUS system option with 15.2-m (50-ft) data cable and long-line controller. The longline controller permits operation up to 304.7 m (1,000 ft) from the host processor with optional cables.
LP27-QA/QB	LP27 Q-bus system option with LPV11 controller and BC27A-30 30-ft (9.5-m) data cable. (Cabinet kit components included.)

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	– 15 V		
LP27-UA/UB	1 quad slot	1.5	0.0	0.0	1.0	1
LP27-DA/DB	1 hex slot	2.0	0.0	0.0	1.0	1
LP27-QA/QB	1 quad slot	1.5	0.0	0.0	0.0	1(A)

Printers

LP25 System Printer
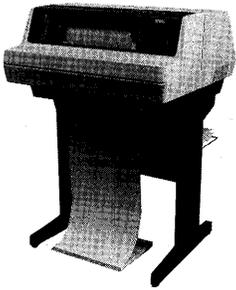
Product Description

Standard LP25 system printer is a band printer that accepts 1–6 part fanfold edge-perforated forms. The LP25 comes with a universal power supply and prints at speeds as fast as 300 lines per minute using a 64-character uppercase ASCII set. Models using the 96-character uppercase and lowercase ASCII set print 215 lines per minute. Font bands are user-replaceable. LP25s with single quad-slot LP11 controllers come with a 9.2-meter (30-foot) cable. Models with a 15.3-meter (50-foot) cable and longline control kit come with an LP20, or controller. Optional cables, bands, and paper caddies are available for the LP25.

Features

- Printing speed — 64-character set: 300 lines per minute; 96-character set: 215 lines per minute
- Easy-to-change, user replaceable font bands
- Supports compressed printing mode in European and Japanese character sets
- Offers a variety of horizontal and vertical spacing choices
- Numerous optional character bands are available
- Universal power supply
- Program status display
- 132-column printouts
- 132-character buffer capacity
- Self-test capability

Ordering Information

LP11-AA	LP25 UNIBUS system option, 300 li/min for 64-character set.
LP11-BA	LP25 UNIBUS system option, 300 li/min for 64-character set, or 215 li/min for 96-character set.
LPV11-A	LP25 Q-bus upgrade option, 300 li/min for 64-character set. Select one of the cabinet kits listed below.
LPV11-B	LP25 Q-bus upgrade option, 300 li/min for 64-character set. Select one of the cabinet kits listed below.
LSP25-CA	LP25 UNIBUS lineprinter (longline version), U.S. prom set, 300 li/min for 64-character set, or 215 li/min for 96-character set; US/UK bands, universal power supply; 50-ft cable included.

Cabinet Kits

CK-LPV1A-KA	Cabinet kit for MicroPDP-11 (BA23 enclosure).
CK-LPV1A-KF	Cabinet kit for H9642-JA.
CK-LPV1A-KB	Cabinet kit for MicroPDP-11 (BA123 enclosure).

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
UNIBUS		5 V	15 V	– 15 V		
LP11-AA	1 quad slot	1.5	0.0	0.0	1.0	1
LP11-BA	1 quad slot	1.5	0.0	0.0	1.0	1
LSP25-CA	1 hex slot	2.0	0.0	0.0	1.0	1
Q-bus		5 V	12 V			
LPV11-A	1 dual slot	1.5	0.0		1.0	1A
LPV11-B	1 dual slot	1.5	0.0		1.0	1A
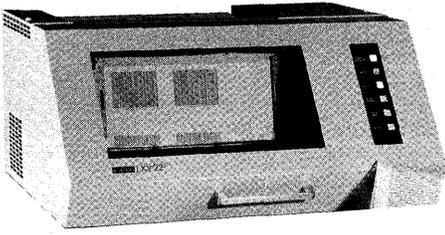
Product Description

The LXY12 graphics lineprinter is a versatile dot-matrix printer that combines the benefits of a lineprinter and a plotter in one product. This printer is compatible with all of Digital's lineprinters, requiring no special software for use as a lineprinter. PLXY and Bar Code/Block Character graphics software is available. This printer can be connected using an LP11 controller, or a serial RS-232 port. The LP11 controller offers faster parallel throughput and full data transfer speeds. The RS-232-C interface provides remote connection to the host via a serial line interface and modems or standard null modem cables.

Features

- Printing speed with parallel interface: 300 lines per minute (64 uppercase characters), 240 lines per minute (underlines, uppercase/lowercase characters with descenders), 170 lines per minute (double-height characters)
- Plotting speed: 42.4 cm/min (16.7 in/min)
- 96-character ASCII set standard
- 192-character expanded set optional
- 132-character buffer capacity

Ordering Information

LXY12-CA/CB	UNIBUS 300-li/min dot-matrix graphics lineprinter with M7258 controller and BC27A-30 9.2-m (30-ft) cable.
LXY12-DA/DB	300-li/min dot-matrix graphics lineprinter with BC22D-25 25-ft cable for interfacing to an RS-232-C serial port. (RS-232-C serial port not included.)

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
		5 V	15 V	– 15 V		
LXY12-CA/CB	1 quad slot	1.5	N/A	N/A	1.0	1

Software must be specified when ordering hardware. The following is the PLXY Graphics Software and the BCP Bar Code/Block Character Graphics Software ordering information. Refer to the *Software Product Descriptions* for further details about these software packages.

BCP Bar Code/Block Character Graphics Software

Operating System	Media	Order Codes
RSX-11M	9-track magtape (800 b/in)	QJS05-AD
	9-track magtape (1,600 b/in)	QJS05-AM
	RL01	QJS05-AQ
	RX01	QJS05-AY
	RL02	QJS05-AH

PLXY Graphics Software

Operating System	Media	Order Codes
RSX-11M	9-track magtape (800 b/in)	QJS90-XD
	9-track magtape (1,600 b/in)	QJS90-XM
	RL01	QJS90-XQ
	RX01	QJS90-XY
RSX-11M-PLUS	9-track magtape (800 b/in)	QJS95-XD
	9-track magtape (1,600 b/in)	QJS95-XM
RSTS/E	9-track magtape (800 b/in)	QJS92-XD
	9-track magtape (1,600 b/in)	QJS92-XM
	RL01	QJS92-XQ
RT11	9-track magtape (800 b/in)	QJS91-XD
	9-track magtape (1,600 b/in)	QJS91-XM
	RL01	QJS91-XQ
	RX01	QJS91-XY

Printers

LG31 Dot Matrix Printer
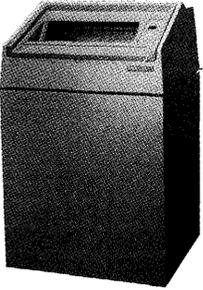
Product Description

The LG31 is a low-end distributed data processing system printer. It prints at speeds of 300 lines per minute in uppercase data processing mode, and provides extended text, bar code, and sixel processing capabilities. With its target the open office environment, the LG31 has an appropriate acoustic level of 55 dBA. In the open office, this printer is ideal for use in small departments as a shared-user device where the daily output is approximately 1,100 pages per day, 25,000 pages per month, half a box of 15-inch fanfold computer paper per day, or nine boxes per month. The LG31 is connected to the host CPU, or DECserver 200, via an RS-232 serial interface.

Features

- Quiet operation at 55 dBA for use in open office environment
- Print volume typically 25,000 pages per month
- Compressed or expanded print
- Underlining, bolding, superscript, and subscript
- Multipart forms (1 to 6 parts)
- NRC and DEC Multinational character sets
- 7- or 8-bit character sets and addressing, ANSI/ISO-compatible
- OCR-A and OCR-B
- Sixel protocol processing
- RS-232-C serial interface
- Front control panel
- Universal power supply

LG31 Printer Speed Chart

Print Speeds in Lines Per Minute	Characters Per Inch Settings					
	5	10	12	13.3	15	16.7*
Data Processing Mode						
Uppercase	300	300	300	300	300	147
Uppercase and lowercase	240	240	240	240	240	105
Near Letter Quality Mode						
Uppercase	82	82	82	82	82	147
Uppercase and lowercase	65	65	65	65	65	105
OCR-A†			65			
OCR-B†			65			

*At the 16.7 character per inch setting a maximum of 220 characters per line can be achieved.

†Optical Character Recognition fonts

Note: To ensure the above print speeds the data transfer rate should be set to 9600 baud.

Ordering Information

LG31-A2	300 li/min enhanced text line dot matrix impact printer, with RS-232 serial interface and 25-ft cable, (BN22D-25).

Country Kits

For non-U.S. Customers the following Country Kits are available as a separate no-charge line item:

LGK31-AD	Denmark
LGK31-AE	UK/Ireland
LGK31-AG	Germany/Austria
LGK31-AI	Italy
LGK31-AJ	Japan
LGK31-AK	Switzerland
LGK31-AT	Israel
LGK31-AZ	Australia
LGK31-CA	Belgium/Finland/France/Netherlands/Norway/Portugal/Spain/Sweden
LGK31-BJ	India

(Includes power cord, serial cable (25-ft), installation/operator manual, and user guide)

For further information call the Sales Support Team at 1-800-832-6277.

Printers

LG01/LG02 Line Dot Matrix Printers
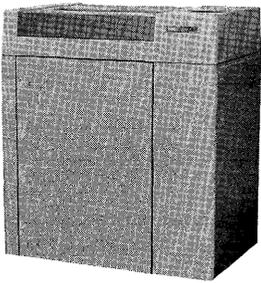
Product Description

The LG01 and LG02 are the most functional 600-line-per-minute impact printers ever offered by Digital.

The LG01 is a text printer that offers data processing and correspondence mode printing, multiple characters-per-inch print selections, and 7- or 8-bit character sets. The LG02 is a text and graphics printer that offers bar codes, custom forms creation, superscript and subscript, portrait and landscape mode, and many other graphic functions. In addition, the LG02 provides all of the text capabilities of the LG01. The LG01 text printer can be field-upgraded to an LG02 text and graphics printer via an upgrade kit.

Features

- Compressed or expanded print
- Underlining
- Strikethrough
- Bolding
- Multipart forms (1 – 6 parts)
- Multiple character sets
- 7- or 8-bit character sets and addressing, ANSI/ISO compatible
- Parallel or RS-232 interface
- Front control panel

The following additional features are available on the LG02 text and graphics printer

- Bar codes
- Subscripts and superscripts
- Rotation of text for spreadsheet applications
- Ability to create custom forms and logos
- Sixel protocol processing
- Parallel and serial interfaces standard

LG01/LG02 Printer Speed Chart

Draft Mode	LPM
Uppercase	600
Uppercase and Lowercase	480

Correspondence Mode	LPM
Uppercase	280
Uppercase and Lowercase	240

OCR-A	LPM
Uppercase	480
Uppercase and Lowercase	240

OCR-B	LPM
Uppercase	250
Uppercase and Lowercase	205

Ordering Information

LG01-AA	UNIBUS text printer with M7258 controller, BC05L-10 10-ft internal cable, bulkhead, and BC27A-30 30-ft data cable.
LG01-BA	Q-bus text printer with M8027 controller and BC27A-30 30-ft data cable. Cabinet kit included.
LG01-DA	Text printer with RS-232-C serial interface and 25-ft cable. Standard baud rates: 1200 to 19,200, selectable from printer control panel.
LG01-UG	Upgrade kit converts LG01 into LG02.
LG02-AA	UNIBUS text and graphics printer with M7258 controller, BC05L-10 10-ft internal cable, bulkhead, and BC27A-30 30-ft data cable.
LG02-BA	Q-bus text and graphics printer with M8027 controller and BC27A-30 30-ft data cable. Cabinet kit included.
LG02-DA	Text and graphics printer with RS-232-C serial interface and 25-ft cable. Standard baud rates: 1200 to 19,200, selectable from printer control panel.

Note: The LG01 includes either a serial or a parallel interface. The LG02 includes both serial and parallel interfaces, which are selectable from the printer control panel.

All questions and requests for additional information should be directed to 1-800-832-6277.

Configuring Information

Option	Mounting Requirements	dc Amps Drawn at			Bus Loads Drawn	I/O Panel Units
UNIBUS		5 V	15 V	– 15 V		
LG01-AA	1 quad slot	1.5	0.0	0.0	1.0	1
LG02-AA	1 quad slot	1.5	0.0	0.0	1.0	1
Q-bus		5 V	12 V			
LG01-BA	1 quad slot	1.5	0.0		1.0	1A
LG02-BA	1 quad slot	1.5	0.0		1.0	1A

Cabling Configuration Chart

The following chart will serve as a guide to connecting most video products to printers and modems. Please note, however, that cables and/or adaptors are shipped with most Digital printer products.

Video/ Workstation	To Connect LJ250*	To Connect LA75*	To Connect LA210	To Connect LA120	To Connect LA100	To Connect LN03 Family	To Connect Modems/ Couplers
VT100	H8571-A	H8571-A	BC22D	BC22D	BC22D	BC22D	BC22E
VT101	–	–	–	–	–	–	BC22E
VT102	H8571-A	H8571-A	BC22D	BC22D	BC22D	BC22D	BC22E
VT125	H8571-A	H8571-A	BC22D	BC22D	BC22D	BC22D	BC22E
VT131	H8571-A	H8571-A	BC22D	BC22D	BC22D	BC22D	BC22E
VT180	H8571-A	H8571-A	BC22D	BC22D	BC22D	BC22D	BC22E
VT220	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
VT240	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
VT241	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
VT320	BC16E*	BC16E*	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	BCC14
VT330	BC16E*	BC16E*	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	BCC14
VT340	BC16E*	BC16E*	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	BCC14
DECmate II	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
DECmate III	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
Pro 325	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
Pro 350	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
Pro 380	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
Rainbow	H8571-D	H8571-D	BCC14	BCC14	BCC14	BCC14	BCC14
VAXmate	BC16E*	BC16E*	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	BCC14
VAXstation 2000	H8571-B	H8571-B	BCC05	BCC05	BCC05	BCC05	BCC14
MicroVAX 2000	BC16E*	BC16E*	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	BCC14
DECserver 200/DL (DSRVB-BA)	BC16E*	BC16E*	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	H8571-A/BC16E	BCC14
DECserver 200 200/MC (DSRVB-AA)	H8571-A	H8571-A	BC22D	BC22D	BC22D	BC22D	BC22E

*BC16E included with LA75 and LJ250 and needed for these connections.

System Printer Interconnect Cabling

System Printer Interface	LP25	LP26	LP27	LP32	LXY12	LG01	LG02
LP11	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A
LPV11	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A
DMB32	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A
DMF32	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A	BC27A

Model	Voltage V	Freq Hz	Phases	Current ac Amps	Thermal Dissipation Watts	Btu/h	NEMA Rec Type	PCS+/PDS+ Cable Type*	Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
LA100-BA	120	50-60	1	1.04	100	341	5-15R	BC24K††	7.0	22.0	15.5	25.0
LA100-BA	240	50-60		.52	100	[360]	6-15R	†	[17.8]	[55.9]	[39.4]	[11.4]
LA100-BB	120	50-60	1	1.04	100	341		BC24K††	7.0	22.0	15.5	25.0
LA100-CA	120	50-60	1	.52	100	[360]	6-15R	†	[17.8]	[55.9]	[39.4]	[11.4]
LA100-CA	120	50-60	1	1.04	100	341	5-15R	BC24K††	7.0	22.0	15.5	25.0
LA100-CA	240	50-60	1	.52	100	[360]	6-15R	†	[17.8]	[55.9]	[39.4]	[11.4]
LA100-CB	120	50-60	1	1.04	100	341	5-15R	BC24K††	7.0	22.0	15.5	25.0
LA100-CB	240	50-60	1	.52	100	[360]	6-15R	†	[17.8]	[55.9]	[39.4]	[11.4]
LA120-DA	120	50-60	1	1.60	153	522	5-15R	BC24K††	33.5	27.5	24.0	102.0
LA120-DA	240	50-60	1	.80	153	[551]	6-15R	†	[85.1]	[69.9]	[61.0]	[46.4]
LA210-AA	120	50-60	1	.87	120		5-15R	BC24K††	5.0	21.5	13.5	25
LA210-AB	240	50-60	1	1.91	120		6-15R	†	[12.50]	[53.75]	[33.75]	[12.15]
LN03-AA	120	50-60	1	1.00	132	N/A	5-15R	BC24K††	13	21	16	66.0
LN03-A3	240	50-60	1	1.00	264	N/A	6-15R	†	[33.1]	[53.5]	[40.7]	[29.7]
LP11-AA	120	50-60	1		350		5-15P	BC24K††	43.8	30.3	33.6	195
LP11-AB	240	50-60	1		350		5-15P	†	[111]	[76]	[85]	[89]
LP27-UA	120	60		9	1100	3754		BC24S	43.8	35	38	567
LP27-UB	240	50			1100	3754		N/A	[111]	[88.9]	[96.5]	[257.2]
LP27-DA	120	60			1100	3754		BC24S	43.8	35	38	567
LP27-DB	240	50			1100	3754		N/A	[111]	[88.9]	[96.5]	[257.2]
LP32	120	50-60						BC24K††	43.8	30.3	33.6	195
LP32	240	50-60		0				†	[111]	[76]	[85]	[89]
LXY12-CA	120	60		4.0	450	1535		BC24K††	46.5	30	24.3	200
LXY12-CB	240	50			450			†	[118]	[76.2]	[61.6]	[90.7]
LXY12-DA	120	60			450	1535		BC24K††	46.5	30	24.3	200
LXY12-DB	240	50			450			†	[118]	[76.2]	[61.6]	[90.7]
LXY12-EA	120	60			450	1535		BC24K††	46.5	30	24.3	200
LXY12-EB	240	50			450	1535		†	[118]	[76.2]	[61.6]	[90.7]
LCG01-AA	120	50-60	1	5	600			BC24K††	8.5	24.0	24.25	96
LCG01-AA	240	50-60	1	5	600			†	[21.6]	[61.0]	[61.6]	[43.5]
LG01-AA	120	50-60	1	8	1,000	3,000		BC24K††	38.5	33.5	22.5	350
LG01-AA	240	50-60	1	4	1,000	3,000		†	[97.8]	[85.1]	[57.2]	[157.5]
LG01-BA	120	50-60	1	8	1,000	3,000		BC24K††	38.5	33.5	22.5	350
LG01-BA	240	50-60	1	4	1,000	3,000		†	[97.8]	[85.1]	[57.2]	[157.5]
LG01-DA	120	50-60	1	8	1,000	3,000		BC24K††	38.5	33.5	22.5	350
LG01-DA	240	50-60	1	4	1,000	3,000		†	[97.8]	[85.1]	[57.2]	[157.5]

*For environmental kVA and cable information, see the *Environmental Products Reference Guide and Price List*.

†Typical Line Cord	Where Used	DEC PDS Cable
BN04A-2E	Switzerland	BN29A-xx
BN02A-2E	UK/Ireland	BN29D-xx
BN03A-2E	Continental Europe	BN29H(J)-xx

††60-Hz cable.

Printer Site Preparation

Model	Voltage V	Freq Hz	Phases	Current ac Amps	Thermal Dissipation		NEMA Rec Type	PCS + /PDS + Cable Type*	Physical Characteristics			
					Watts	Btu/h			Height in [cm]	Width in [cm]	Depth in [cm]	Weight lb [kg]
LG02-AA	120	50-60	1	8	1,000	3,000		BC24K††	38.5	33.5	22.5	350
LG02-AA	240	50-60	1	4	1,000	3,000		†	[97.8]	[85.1]	[57.2]	[157.5]
LG02-BA	120	50-60	1	8	1,000	3,000		BC24K††	38.5	33.5	22.5	350
LG02-BA	240	50-60	1	4	1,000	3,000		†	[97.8]	[85.1]	[57.2]	[157.5]
LG02-DA	120	50-60	1	8	1,000	3,000		BC24K††	38.5	33.5	22.5	350
LG02-DA	240	50-60	1	4	1,000	3,000		†	[97.8]	[85.1]	[57.2]	[157.5]
LJ250/252-A6	120	59-61	1	0.17	20	188	N/A	BC24K††	3.5	16.7	10.2	10
LJ250/252-A6	220	49-51	1	0.091	20	188	N/A	†	[9.0]	[42.5]	[26]	[4.5]
LJ250/252-A6	240	49-51	1	0.083	20	188	N/A	†	[9.0]	[42.5]	[26]	[4.5]
LQP45-AA	120	59-61	1	0.58	58	198	5-15R	BC24K††	7.9	22.5	13	29.7
LQP45-B	240	49-51	1	0.315	58	198	6-15R	†	[20]	[55.0]	[33]	[13.5]
LG31-A2	100-240	50-60	1		400			BC24K††	46	29	46.6	285
LA75/LA75P-A2	120	50-60	1	0.58	52	188	5-15P	BC24K††	5.12	17.8	13.7	22.0
LA75/LA75P-A3	240	50-60	1	0.32	58.5	188	5-15P	†	[13.0]	[45.2]	[34.8]	[10.0]
LA75/LA75P-A4	220	50-60	1	0.33	58	188	5-15P	†	[13.0]	[45.2]	[34.8]	[10.0]
LA75/LA75P-A5	100	50-60	1	0.7	52.7	188	5-15P	BC24K††	5.12	17.8	13.7	22.0

*For environmental kVA and cable information, see the *Environmental Products Reference Guide and Price List.*

†Typical Line Cord	Where Used	DEC PDS Cable
BN04A-2E	Switzerland	BN29A-xx
BN02A-2E	UK/Ireland	BN29D-xx
BN03A-2E	Continental Europe	BN29H(J)-xx

††60-Hz cable.

Printer Selection Chart
Refer to this table for ordering any of the following printers.

Country/Region	Language	LA75*Printer	LJ250†Printer	LA210 Printer	LN03 Printer	LN03 PLUS Printer (LN03S)	LQP45 Printer
United States	English	LA75-CA	LJ250-CA	LA210-AA	LN03-AA	LN03S-AA	LQP45-AA
Belgium	Flemish	LA75-AB	LJ250-AB	LA210-AB	LN03-AB	LN03S-AB	LQP45-CD
Canada	French	LA75-CA	LJ250-CA	LA210-AC	LN03-AC	LN03S-AC	LQP45-AA
Denmark	Danish	LA75-AD	LJ250-AD	LA210-AD	LN03-AD	LN03S-AD	LQP45-AD
UK/Ireland	English	LA75-AE	LJ250-AE	LA210-AE	LN03-AE	LN03S-AE	LQP45-AE
Finland	Finnish	LA75-CC	LJ250-CC	LA210-AF	LN03-AF	LN03S-AF	LQP45-CC
W. Germany/Austria	German	LA75-AG	LJ250-AG	LA210-AG	LN03-AG	LN03S-AG	LQP45-CD
Holland	Dutch	LA75-AH	LJ250AH	LA210-AH	LN03-AH	LN03S-AH	LQP45-CD
Italy	Italian	LA75-AI	LJ250-AI	LA210-AI	LN03-AI	LN03S-AI	LQP45-AI
Japan	Katakana	LA75-AJ		LA210-AJ	LN03-AJ	LN03S-AJ	
Switzerland	French	LA75-CB	LJ250-CB	LA210-AK	LN03-AK	LN03S-AK	LQP45-CB
Switzerland	German	LA75-CB	LJ250-CB	LA210-AL	LN03-AL	LN03S-AL	LQP45-CB
Sweden	Swedish	LA75-CC	LJ250-CC	LA210-AM	LN03-AM	LN03S-AM	LQP45-CC
Norway	Norwegian	LA75-CC	LJ250-CC	LA210-AN	LN03-AN	LN03S-AN	LQP45-CC
France	French	LA75-AP	LJ250-AP	LA210-AP	LN03-AP	LN03S-AP	LQP45-CD
Canada	English	LA75-CA	LJ250-CA	LA210-AQ	LN03-AQ	LN03S-AQ	LQP45-AA
South America	Spanish	LA75-CA		LA210-AR	LN03-AR	LN03S-AR	
Spain	Spanish	LA75-AS	LJ250-AS	LA210-AS	LN03-AS	LN03S-AS	LQP45-CC
Israel	Hebrew	LA75-AT	LJ250-AT	LA210-AT	LN03-AT	LN03S-AT	
South America	Portuguese	LA75-CA		LA210-AU	LN03-AU	LN03S-AU	
Portugal	Portuguese	LA75-CC	LJ250-CC	LA210-AV	LN03-AV	LN03S-AV	LQP45-CC
Switzerland	Italian	LA75-CB	LJ250-CB	LA210-AW	LN03-AW	LN03S-AW	LQP45-CB
Japan	Hiragana				LN03-AY	LN03S-AY	
Australia/New Zealand	English	LA75-AZ	LJ250-AZ	LA210-AZ	LN03-AZ	LN03S-AZ	
Mexico	Spanish		LJ250-CA				

*To order the parallel version of the LA75, use LA75P with the respective suffix for country variation. For example, LA75P-CA for the U.S. parallel version of the LA75 Companion Printer.

†To order the parallel version of the LJ250, use LJ252 with the respective suffix for country variation. For example, LJ252-CA for the U.S. parallel version of the LJ250 Companion Color Printer.
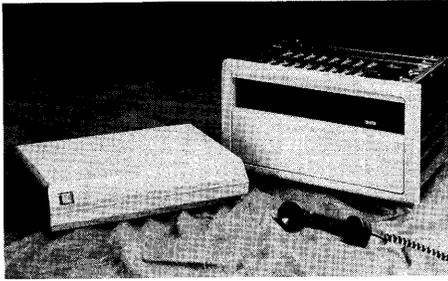
Product Description

The DECtalk family includes four products that cover a broad range of application and system requirements. **Singleline DECtalk** is a small, self-contained system, ideal for small-business applications and for use as system annunciators or "interactive" terminals and workstations. Singleline connects to a host computer, terminal, or telephone line. **Multiline DECtalk** is the most suitable model for large, multiuser, telephone-response systems. It is upwardly compatible with single-line DECtalk, and includes some enhancements for more sophisticated telephone handling and linguistic accuracy. Each Multiline DECtalk supports eight telephone lines and eight communication ports; another Multiline Unit can be added when more lines are required. Its 10.5-inch rackmount enclosure fits into an industry-standard, 19-inch computer cabinet. **Dual-line DECtalk** is a two-channel version of Multiline DECtalk, which is an entry-level product for telephone voice response applications. The **DECtalk module** is the DECtalk board, which enables system designers to integrate DECtalk into workstations or telephone response systems. The DECtalk module is also an add-on for Dual-line DECtalk.

Features

- With any Touch-Tone™ (a trademark of American Telephone & Telegraph Company) telephone, DECtalk and the telephone keypad function as a terminal keyboard to control a host computer and access information.
- Connects to your computer through a standard RS-232-C serial line.
- Ten different voices and unlimited vocabulary.
- Self-contained, onboard diagnostics.
- Sophisticated telephone-handling features.

Ordering Information

DTC01-AA	Single-line DECtalk text-to-speech unit. Cables included.
DTC03-AA	Multiline DECtalk 8 channel text-to-speech unit. Cables not included.
DTC03-AM	DECtalk module single-channel DECtalk board for system integrators and add-on for Dual-line DECtalk. User must supply power and mechanical mounting.
DTC03-SC	Dual-line DECtalk two channel text-to-speech unit. Cables not included.

Configuring Information

Connect DECtalk to a Digital or other vendor computer with a standard RS-232-C compatible line running from the host computer to DECtalk's communication port. The system must support full-duplex connections, standard XON/XOFF flow control, and be able to pass the full ASCII character set.

To connect DECtalk to the telephone system, order standard telephone service. For Multiline/Dual-line DECtalk installations, request RJ21X service (CA21A in Canada). Single-line, use RJ11X service or CA11A in Canada.

Product Description	The 16-bit Rainbow personal computer functions as a stand-alone desktop system as well as an extension of a larger system, such as an ALL-IN-1 office information system. Options and software are currently available for existing Digital Rainbow customers.

Rainbow 100A, 100B and 100 +
Hardware Options

Memory	PC1XX-AC	A 128-Kbyte base memory module.
	PC1XX-AD	A 256-Kbyte base memory module.
	PC1XX-AZ	A 256-Kbyte add-on memory chipset. Requires PC1XX-AC or PC1XX-AD.
	PC1XX-AK	Memory adapter module. Allows use of above memory options in PC100-A. Not needed if using 8087 coprocessor in PC100-A.

Storage	RCD31-BA	20-Mbyte half-height hard disk and controller for Rainbow 100B.
	RCD31-BB	20-Mbyte half-height hard disk and controller for PC100-A.
	RD31-BA	Drive-only replacement for any Rainbow system already equipped with an RD51 hard disk.

Note: Only one half-height drive is supported per system. CP/M cannot use more than 10 Mbytes of storage and therefore must be set up with a 10-Mbyte MS-DOS partition.

Graphics	PC1XX-BA	Graphics option. Graphics board that provides high-resolution, bit-mapped monochrome and color graphics depending on monitor.

Communications	PC1XX-FA	Technical character set for PC100-A (USA only).

Environmental Power Products	H7229-AA	Standby Uninterruptable Power System, providing battery backup for critical applications for up to twelve minutes at a full-rated load. Also provides attenuation of impulses, receptacle panel distribution, and casters for ease of installation. Available in three sizes up to 1.5 kVA in power rating. For more information, refer to the *Environmental Products Reference Guide and Price List.*

Character Set ROMs	**PC1XX-FB**	Technical character set for Rainbow 100B/ + . (USA only).
	QV099	Rainbow Athabascan kit. Modifies Rainbow for word processing in Navajo, Apache, and other Athabascan languages when used with SELECT.™

Coprocessor for Floating Point	**PC1XX-EA**	8087 numeric data processor. Coprocessor for 8088 CPU.

Rainbow 100 (PC100-A)
Hardware Options

Ordering Information	**RCD31-BB**	20-Mbyte Winchester disk drive options. Upgrade for floppy-based Rainbow 100A.
	RD31-BA	Drive-only replacement for Rainbow 100A already equipped with an RD51 hard disk.
	PC1XX-BA	Graphics option. Palette of 1,024 colors on PC100-A. Includes color signal cable (BCC17-06) and GSX-86 software, the graphics system extension to CP/M-86/80.
	PC1XX-FA	Technical character set. (For USA only.)
	QV099-A3	Rainbow Athabascan kit.
	PC1XX-EA	A 8087 numeric data processor. Includes memory adapter for PC100-A.
	PC1XX-AC	128-Kbyte base memory module. Requires PC1XX-AK or PC1XX-EA on PC100-A.
	PC1XX-AD	256-Kbyte base memory module. Requires PC1XX-AK or PC1XX-EA on PC100-A.

External Devices and Accessories for Rainbow Systems

External Devices	LQPX2-SW	Serial switch. Connects two printers to one Rainbow.
	PCXXF-CZ	Serial interface switch. Connects two communication lines to one Rainbow.
	DFMSA-AA	Mini exchange. Microprocessor port selection device.

Cables	BCC14-10	Modem/printer cable — 10-ft A 16-pin RS-232 peripheral cable. Connects LA100, LA210, DF03, or DF112-AA to Rainbow.
	BCC04-25	Modem/printer cable — 25-ft A 25-pin RS-232 peripheral cable. Connects LA100, LA210, DF03, or DF112-AA to Rainbow.
	BCC04-50	Modem/printer cable — 50-ft A 25-pin RS-232 peripheral cable. Connects LA100, LA210, LQP02, LQP03, DF03, or DF112-AA to Rainbow.
	BCC19-15	Pen plotter cable. Connects LVP16 or Hewlett-Packard pen plotter to Rainbow communication port.

Accessories	PCXXF-BA	System unit floorstand. Mounts system unit vertically so it fits under table or desk.

Operating Systems

MS-DOS™ V2.11 and CP/M®-86/80 V2.1	MS-DOS V2.11 and CP/M-86/80 V2.1 operating systems combined in one package. **QV066-A3**
	Rainbow's MS-DOS V2.11, an enhanced version of the Microsoft operating system, includes a RDCPM utility that reads CP/M diskettes so that users can transfer data stored in CP/M format to MS-DOS format. **QV062-A3**
	CP/M-86/80 V2.1, a combination of Digital Research 16-bit CP/M-86 and 8-bit CP/M-80 with additional utilities. **QV061-A3**
Trademarks	CP/M is a registered trademark of Digital Research, Inc. MS-DOS is a trademark of Microsoft Corporation.

| **Product Description** | The Professional 380 computer, with its advanced communications, high-resolution bit-mapped graphics, and PDP-11 processing, brings the power and versatility of a personal PDP-11 system to your desktop. The options listed below and the Professional 380 software described in Chapter 9 are currently available for existing Professional 380 customers. |

**Professional 380
Hardware Options**

Monitors	VR201-A	30.4-cm (12-in) white monochrome monitor
	VR201-B	30.4-cm (12-in) green monochrome monitor
	VR201-C	30.4-cm (12-in) amber monochrome monitor
	VR241-AA	33.0-cm (13-in) color monitor
	VRTS1-A	33.0-cm (13-in) color DECtouch monitor

| **Memory** | MSC11-CK | This option provides 256 Kbytes of additional memory. Each 256-Kbyte memory option occupies one option slot. |
| | MSC11-B | This daughter module resides on the system module, giving the Professional 380 1 Mbyte of memory without using an option slot. This option may also be used on the Professional 350. |

Hard-disk Drives	RCD31-A	20-Mbyte, 5.25-in half-height form factor hard-disk drive and controller for the Professional. Features a 5-Mbit/sec transfer rate and an average access time of 73 milliseconds. The controller module occupies one option slot.
	RCD32-AA	40-Mbyte, 5.25-in half-height form factor hard-disk drive and controller for the Professional. Features a 5-Mbit/sec transfer rate and an average access time of 48 milliseconds.
	RCD53-A	67-Mbyte, 5.25-in hard-disk drive and controller for the Professional. Features a 5-Mbit/sec transfer rate and an average access time of 38 milliseconds.

| **Extended Bit-mapped Module** | VC241-B | Extended bit-mapped module for the Professional 380. This single-daughter bit-mapped module plugs directly into the Professional 380 system module. It adds two bit-mapped planes to the standard video generator for a total of three planes. Each plane supports a display of either 960 by 240 pixels or 960 by 480 pixels interlaced. This option adds a color output map that can simultaneously display 8 colors from a palette of 4,096 on a color monitor. This option is not compatible with the Professional 350. |

Networking	DECNA-K	DECNA Ethernet controller. It allows Professional systems to tie into high-speed DECnet local area networks. It contains 128 Kbytes of memory, provides onboard self-diagnostics, and includes a 5-meter transceiver cable. *Prerequisites:* Professional with a hard disk, PRO/DECnet software, P/OS Hard Disk Version 2.0 or later, and either a DELNI local network interconnect or H4000 Ethernet transceiver.
	DELNI-AA (U.S.) DELNI-AB (Non-U.S.)	DELNI local network interconnect. This low-cost Ethernet device allows up to eight Professionals to be tied into a small local area network. The DELNI is a compact, tabletop unit with a self-contained power supply. PDP-11 and VAX systems also can be integrated into a DELNI network. To tie into a DELNI-based Ethernet, a Professional must be equipped with a hard disk, the DECNA controller, PRO/DECnet software, and P/OS Hard Disk Version 2.0 or later.
	H4000	H4000 Digital Ethernet Transceiver. This device provides the interface between an Ethernet coaxial cable and a DECNA-equipped Professional. The unit consists of a small printed-circuit board in a rugged plastic housing, with a nonintrusive cable tapping assembly. To connect a Professional into Ethernet, the system requires a hard-disk DECNA controller, PRO/DECnet software, and P/OS Hard Disk Version 2.0 or later.
	DESTA-AA	ThinWire Ethernet Station Adapter. It allows connection of a single Ethernet station (PRO 350/380) to ThinWire Ethernet cabling. The DESTA has one 15-pin connector port that allows it to be mounted in or near the Ethernet station and a second port for connection to the ThinWire Ethernet cable.
	DFMSA-AA	Mini-exchange is a simple, inexpensive communications link for up to eight asynchronous devices within a range of 200 feet. It provides facilities for file and document transfer among Professionals and other Digital personal computers, queuing and allocating for shared devices. Devices communicate at speeds ranging from 300 to 19,200 baud.
	DTC11-A	Telephone Management Modules. Include a controller board and telephone interface board for a wide variety of voice and data communications and telephone management.

Realtime Options	**PC3XX-AA**	Realtime Interface (RTI). I/O interface combines three widely used realtime functions on a single module for scientific/engineering applications. Includes an IEEE- 488 general-purpose interface bus for control of up to 15 compatible devices; a two-line RS-232-C/423 compatible serial asynchronous port with user-selectable baud rates (50 to 9600 baud); and a 24-line parallel port with 16 data lines and 8 control lines.
	PC3XX-AB	RTI connector pod. Connector box and cable for interfacing to RTI back-panel connector.
	ADMPC-AA	Analog to Digital converter option to the RT1. Performs 16-bit conversion on 1 of 8 channels. Programmable Gain Amplification, and simultaneous use if IEEE and 2 serial line ports are provided.
	BCC10-03	Y-Cable for serial I/O for RTI. Not needed if using RTI Connector Pod.
	BCC11-03	IEEE standard connector for RTI. Not needed if using RTI Connector Pod.
	BCC12-03	Parallel I/O cable for serial I/O for RTI. Not needed if using RTI Connector Pod.
Quad Serial Line Unit	**PC3XC-BA**	A single-slot option providing four additional RS-232 serial lines for the Professional. It can be used to connect any serial device supported by P/OS including terminals, printers, or plotters. Two SLU boards can be installed at once, for a potential total of eight additional RS-232 ports.
Floorstand	**PCXXF-AA**	Professional 380 enclosure allows for vertical mounting of the Professional system unit.

Product Description

The DECmate III and the DECmate III Plus make it easy to write, edit, communicate, report, and print information. With a superior combination of proven word processing software and a sophisticated engineering design, the DECmate provides the office solution for professionals whose primary task is word and document processing. A floppy-disk-based word processor, the DECmate III is Digital's most affordable system, and offers the advantages of DECmate/WPS V 2.3 word processing. The newest addition, the DECmate III Plus, combines the efficiency and cost-effectiveness of the DECmate III with the speed and convenience of a 20-Mbyte hard disk. With applications and documents resident on the system, the DECmate III Plus provides over 40 times the room of a diskette to store documents and files. The DECmate III system comes complete with keyboard, monochrome monitor, dual diskette drive, and DECmate/WPS V 2.3 software. The DECmate III Plus system comes complete with keyboard, monochrome monitor, one double-density disk drive, a 20-Mbyte hard disk, Master Menu, and WPS software. DECmate III and DECmate III Plus support CP/M-80 operating systems, and the LN03, LQP45, LA210, and LA75 printers.

Features

- 6120 microprocessor
- 96-Kbyte memory (64 Kwords)
- RS-232-C serial printer port
- Asynchronous/synchronous communications port to 9600 baud with full modem control
- Integral modem support (DECmate III)
- External modem support (DECmate III Plus)
- Monochrome character cell video output
- Built-in diagnostic firmware
- 5.25-inch 800-Kbyte dual-diskette drive and controller
- Graphics support
- Three option slots (two option slots on DECmate III Plus)

Ordering Information	**PC23P-XX**	DECmate III system unit, keyboard, 12-inch (13.3-cm) monochrome monitor, dual diskette drive, and WPS software.
	PC24P-XX	DECmate III Plus system unit, keyboard, monochrome monitor, one double-density disk drive, 20-Mbyte hard disk, Master Menu, and DECmate/WPS V 2.3 software.
	PC23X-AB	DECmate III and DECmate III Plus auxiliary processor unit with 64 Kbytes of memory.
	PC23X-CA	DECmate III and DECmate III Plus graphics option module.
	PC23X-DA	DECmate III integral modem.
	QWA01-A3	DECmate/WPS Version 2.3 is a single-user word processing package for DECmate III and DECmate III Plus. This menu-driven software lets users create and update documents on diskettes, storing as many as 200 documents or 150 pages on one 5.25-inch double-density document diskette or approximately 8,000 pages on the DECmate III Plus hard-disk system. DECmate/WPS features include responsive menu-driven operation, a special editing keypad, full editing features, printer controls in documents, 100 user-defined keys for repetitive operation, and user-definable widow-orphan control.
	QWA03-A3	DECmate/WPS DECspell checks for spelling errors, drawing on a master dictionary list of about 76,000 words with correct spelling and capitalization based on the *American Heritage Dictionary* published by Houghton Mifflin Company. In addition to its master dictionary, DECspell can accommodate a personal dictionary of approximately 1,500 words. Requires PC27X-AB option.
	QWA21	DECmate Master Menu Version 2.1 is an office automation application that allows the user the ability to organize and access various applications and operating systems from one general menu. Master Menu resides on a hard disk and consists of utilities that allow users to create their own menu and manage the hard disk. Master Menu is included with DECmate/WPS V 2.3 software.
	QWA25-A3	DECmate CP/M-80 2.2 Operating System is a single-user operating system specifically tailored for DECmate. Using a floppy disk and/or hard disk storage system, CP/M provides for program construction, storage and editing, along with assembly and program debugging facilities. CP/M includes a text editor, Z80-microprocessor-compatible assembler, debugger, and file utility programs.
Environmental Power Products	**H7229-AA**	Standby Uninterruptable Power System, providing battery backup for critical applications for up to twelve minutes at a full-rated load. Also provides attenuation of impulses, receptacle panel distribution, and casters for ease of installation. Available in three sizes up to 1.5 kVA in power rating. For more information, refer to the *Environmental Products Reference Guide and Price List.*

Information is highly critical to manufacturing operations. It must be right, it must be current, and it must be readily available regardless of local conditions.

To meet these demands, Digital Equipment Corporation has developed a family of industrialized products that combines superior performance with tolerance for manufacturing environments — from extremely harsh industrial to light industrial ruggedized hardware including terminals, keyboards, processors, air-conditioned computer cabinets, application software, and analog and digital I/O interfaces. Digital has the products to optimize manufacturing productivity in a number of ways.

Industrial Data Collection

- Terminals that simplify data entry and retrieval for workers and supervisors.
- Industrial terminals and systems that resist the effects of airborne particles, temperature, and humidity in most types of manufacturing environments.
- Full-screen terminals that support a wide range of forms transactions.
- Form factor that allows terminals to be installed on a bench, table, or shelf, forming the nucleus of plantwide workstations.
- Environmentally sealed keyboards that operate reliably at harsh worksites where there is a potential for high downtime with standard keyboards.
- Bar code options that make data entry faster and easier and reduce the margin for error.
- Industrial processors for numerical and machine control applications or for general purpose manufacturing computing.
- Industrial computer enclosure designed to house and protect 19-inch rack-mounted equipment for operation in hostile environments.
- Printers that can improve manufacturing productivity by creating and printing shipping and ID labels, forms signs and documents (see LXY12 in the *Terminals and Printers* chapter).

Packaged Automation Systems

- A family of stand-alone computer systems that combine industrial I/O analog and digital control capability and PDP-11 CPUs in a single cabinet.
- Ability to collect, manipulate, and transmit data from a local area to a business office.
- Optionally expandable to handle over 2,000 I/O points.

The E-Series is a specially packaged 6-slot IPDP-11 in a rugged NEMA-12 cabinet to protect it from hazardous conditions on the factory floor. It can be used for general purpose manufacturing applications or any application that requires systems on the factory floor.

The E-Series IPDP-11 is sealed to NEMA-12 standards to protect it from failures caused by dirt, dust, metal particles, and noncorrosive liquids. It can also withstand rough handling and vibration and survive greater power fluctuations, higher operating temperatures, and longer power losses than ordinary computers can. In addition, its unique passive cooling system dissipates heat quickly.

This industrial system supports all available RSX-11M industrial applications. Existing RSX-11M applications can be migrated to an E-Series system without programming changes.

Ordering Information

DH-183R1-A2/A3	PDP-11/83, NEMA-12 enclosure, 6-slot, 2 Mbytes memory (MSV11-JE), RD53, RX33, RQDX3 disk controller, NEMA-12 disk enclosure, 120/240 V
DH-183R1-B2/B3	PDP-11/83, NEMA-12 enclosure, 6-slot, 2 Mbytes memory (MSV11-JE), RD32, RX33, RQDX3 disk controller, NEMA-12 disk enclosure, 120/240 V

Specifications

Environmental:

Operating Temperature:	5°C to 50°C without disk 10°C to 40°C with disk
Relative Humidity:	10% to 95% without disk 10% to 90% with disk
Shock:	10 g, 10 ms
Vibration:	5 Hz to 500 Hz frequency range .02 dA – 1 g vibration level
Code Standards:	NEMA–12, FCC Class A
Dimensions (each box):	23.3 in high by 15.9 in wide by 15.5 in deep
Weight:	58 lbs (CPU box) 52 lbs (disk box)
Backplane:	6 slots

**IT330/340
Product Description**

These industrial terminals are VT330 and VT340 models packaged in rugged, sealed NEMA-12 enclosures. They provide the same text and graphics capabilities as the VT330 and VT340, which offer twice the resolution and five times the graphics speed of the VT200 family.

NEMA-12 sealing protects the terminals from failures caused by dirt, airborne particles, noncorrosive liquids and leaking oil and coolants. Their tough enclosures protect against vibration and rough handling, and a high-impact shield protects against breakage. A unique passive cooling design lets the terminals withstand higher operating temperatures than ordinary office terminals can.

IT330 and IT340 monitors provide 800-by-500 pixel resolution. The IT340 has a 4,096-color palette and can display graphics in 16 colors. The IT330 has a 14-inch monitor and can display graphics in four shades of gray. The IT3XX-AA membrane keyboard, also sealed to NEMA-12 standards, is available for both terminals.

Ordering Information

IT330-A2/A3	Graphics terminal, NEMA-12 enclosure, monochrome, white phosphor, VT330 functionality, 120/240 V
IT330-B2/B3	Graphics terminal, NEMA-12 enclosure, monochrome, green phosphor, VT330 functionality, 120/240 V
IT330-C2/C3	Graphics terminal, NEMA-12 enclosure, monochrome, amber phosphor, VT330 functionality, 120/240 V
IT340-A2/A3	Color graphics terminal, NEMA-12 enclosure, Northern Hemisphere version, VT340 functionality, 120/240 V
IT340-A5	Color graphics terminal, NEMA-12 enclosure, Southern Hemisphere version, VT340 functionality, 240 V
IT3XX-AA	NEMA-12 flat-membrane keyboard

Note: Terminal order numbers do not include a keyboard.

RT220
Product Description

The VT220 terminal is used for factory applications. It is packaged with a passive heat exchanger and housed in a NEMA-12 (dust-tight/splash-proof) enclosure. The RT2XX keyboard option is used with this terminal.

Ordering Information

RT220-DA	VT220-D, 120 V, NEMA-12 Enclosure, Printer Port, EIA
RT220-DB	VT220-D, 240 V, NEMA-12 Enclosure, Printer Port, EIA
RT220-EA	VT220-D, 120 V, NEMA-12 Enclosure, Printer Port, 20 mA
RT220-EB	VT220-D, 240 V, NEMA-12 Enclosure, Printer Port, 20 mA
RT2XX-AA	Flat panel NEMA-12 keyboard

PAS Family of Industrial I/O Solutions

Digital's specialized industrial control I/O offering is the Packaged Automation Systems (PAS) family of stand-alone computer systems combining analog and digital I/O capability and the PDP-11 computer in a single cabinet. Several application software packages are available from Digital's third-party and Cooperative Marketing Program suppliers. Indepth product description and configuration information, which is beyond the scope of this book, can be obtained by referring to the *Guide to Digital's Industrial and Scientific Products* (EB-28948-49) or by calling the Industrial Sales Support Hotline at 1-800-832-6277.

Q-bus and UNIBUS Systems

The PAS family members include the IPQS and IPUS packages. The IPQS packages utilize a standard Digital Q-bus MicroPDP-11, available in a MicroPDP-11/23, a MicroPDP-11/73, and a MicroPDP-11/83 PAS. IPUS packages contain a standard Digital UNIBUS PDP-11 system, including a PDP-11/24 or a PDP-11/84 CPU. These PAS provide a fully integrated configuration that can be used in a wide range of applications, as a stand-alone, dedicated, or distributed intelligent system. Typical applications are process control, machine control, data acquisition and control, engine testing, pipeline monitoring, and energy management.

Mass storage and realtime software are standard features with every PAS. Also included are a standard driver for the I/O control module and a FORTRAN interface compatible with ISA61.1. Features include online addressing, flexible interrupt handling, and direct addressing for the I/O modules.

Software support is available under Digital's RSX operating systems that are realtime multitasking systems programmable in MACRO-11, FORTRAN IV, and FORTRAN-77.

IPQS Standard Equipment

Each IPQS industrial I/O system contains
- IPV12 master chassis with I/O control, power supply, and mounting space for ten I/O modules
- Software load device RX50 dual-diskette drive on IPQSX-AA/AD; TK50 tape cartridge on IPQSX-BA/BD
- DHV11 eight-line asynchronous mux
- Modified H9647 cabinet
- IP11 driver software license, sources, and documentation
- License to use the Micro/RSX Operating System Base and Advanced Programmer Kits
- Hardware and software documentation
- FORTRAN license

Ordering Information	**IPQS2-AA/AD**	PAS with MicroPDP-11/73 CPU, 1 Mbyte memory, RD53 71-Mbyte Winchester disk, and RX50 dual diskette drive.
	IPQS2-BA/BD	PAS with MicroPDP-11/73 CPU, 1 Mbyte memory, RD53 71-Mbyte Winchester disk, and TK50 tape cartridge.
	IPQS3-AA/AD	PAS with MicroPDP-11/83 CPU, 2 Mbytes memory, and RD53 71-Mbyte Winchester disk, and RX50 dual diskette drive.
	IPQS3-BA/BD	PAS with MicroPDP-11/83 CPU, 2 Mbytes memory, RD53 71-Mbyte Winchester disk, and TK50 tape cartridge.

Note: IPQSX-AA/AD systems require Micro/RSX operating system software; IPQSX-BA/BD systems require RSX or Micro/RSX operating system software.

IPQS Optional Expansion

- Up to two additional H334 10-slot expansion chassis
- Up to three H332 ten-slot screw terminal mounting racks
- Up to 30 process I/O modules
- Up to 30 BC40x screw terminal strips
- Add-on cabinets to accommodate a total of eight H334 I/O chassis

IPUS Standard Equipment

Each IPUS industrial I/O system contains

- IP112-AA/AD industrial I/O subsystem master chassis, 120/240 V, and mounting space for ten I/O modules
- H9646 cabinet
- RC25 52-Mbyte disk
- IP11 driver software license, sources, and documentation
- General PDP-11 operating license

Ordering Information	**IPUS2-AA/AD**	PAS with PDP-11/84 CPU with 1 Mbyte memory

Note: IPUS systems require RSX-11M-PLUS software.

IPUS Optional Expansion

- One additional RC25 disk drive
- One TSU05 tape drive
- One H332 ten-slot screw terminal mounting rack
- Up to ten analog or digital I/O modules
- Up to ten BC40x screw terminal strips
- Add-on cabinets to accommodate up to a total of eight (per processor) H334-E/J I/O module chassis, up to eight H332 ten-slot screw terminal mounting racks, and associated I/O modules and termination strips

The IP I/O Subsystem Family

Digital's family of IP I/O subsystems is designed to handle applications that range from simple monitoring functions to the control of complex closed-loop systems. Built on a common architecture, I/O subsystems support a family of digital and analog interface modules. Each I/O subsystem is a cabinet or rack-mountable unit consisting of I/O interface modules and a master chassis that provides mounting space and power. These subsystems interface with Digital's LSI-11 or PDP-11 computer systems and offer the capacity for handling more than 2,000 I/O points plus associated field-wired terminals. An I/O subsystem and associated CPU can be connected to the DECdataway communications local area network or can function as a remote device accessed through public or private lines.

IP I/O Subsystems

The IP112 I/O subsystem is designed for local monitoring or control applications. It functions as a local peripheral to a UNIBUS PDP-11. A maximum of four IP112 subsystems can be connected to a single CPU. The IPV12 local I/O subsystem, similar to the IP112, interfaces to Q-bus PDP-11s — including the DECdataway intelligent subsystems.

Ordering Information

IP112-AA/AD — Industrial subsystems for local I/O monitoring and control by a UNIBUS PDP-11 host computer. Interfaces directly to the UNIBUS via software interface and operates under PDP-11 control. A total of four subsystems can be connected to a UNIBUS based PDP-11 system. The IP112 mounts in either a 48.3 cm (19 in) rack or H960 cabinet and includes an H334 I/O subsystem chassis, power supply, an I/O control module (IOCM), and module expansion space. A driver and FORTRAN interface compatible with ISA61.1 are supplied as part of the RSX-11 operating systems. IP112 tasking may be programmed in MACRO-11, FORTRAN IV, or FORTRAN-77 operating under RSX-11M-PLUS, RSX-11M, or RSX-11S.

Dimensions: 40 cm (15.5 in) high by 48.3 cm (19 in) wide by 27.2 cm (10.69 in) deep.

Mounting: Mountable in H960 and H9646 cabinets or NEMA enclosures.

IPV12-AA/AD — PDP-11 Q-bus version of the IP112 I/O subsystem. Provides local I/O monitoring and control by any standard LSI-11 based system (PDP-11/23-PLUS, PDP-11/23, or DYS50) in stand-alone mode or as part of a communications network. The IPV12 consists of an H334 chassis with power supply, an I/O control module (IOCM) to interface to the LSI-11 and extended LSI-11 bus, and mounting space for ten I/O modules. IPV12 tasking may be programmed in MACRO-11, FORTRAN IV, or FORTRAN-77 operating under RSX-11M-PLUS, RSX-11M, or RSX-11S.

Dimensions: 40 cm (15.5 in) high by 48.3 cm (19 in) wide by 27.2 cm (10.69 in) deep.

Mounting: Four mountable in H960 and H9646 cabinet or NEMA enclosures.

**IP I/O Subsystem
Hardware Options
Ordering Information**

H334-E/J   I/O expansion chassis and power supply that extends the D-bus beyond a fully configured IP112, IPV12, or DYS50 master chassis. Each H334 can accommodate up to ten I/O modules. No power restrictions limit the mix of I/O modules in the chassis, with the exception of A631 D/A converters in current mode. The D-bus is etched in the lower half of the H334 chassis backplane, which also includes cable connectors for extending the D-bus between multiple chassis. A maximum of seven H334 expansion chassis may be interconnected to a single master chassis.

Dimensions: 40 cm (15.75 in) high by 48.3 cm (19 in) wide by 27.2 cm (10.69 in) deep.

Mounting: Front- and rear-mountable in H960 and H9646 cabinet or in NEMA enclosures.

H332   Screw terminal mounting chassis that mounts in a H960 or H9646 cabinet or NEMA enclosure and holds the BC40 screw terminal assemblies leading to each of the I/O modules. Each chassis accommodates up to ten BC40 screw terminal assemblies.

Dimensions: 40 cm (15.75 in) high by 48.3 cm (19 in) wide by 27.2 cm (10.69 in) deep.

Mounting: Front- and rear-mountable in H960 and H9646 cabinets or in NEMA enclosures.

ATR16   Thermocouple temperature reference panel. Provides accurate reference (cold junction) compensation for a maximum of sixteen two-wire thermocouple inputs to the A157 multiplexer or A020 A/D converter. The unit consists of an isothermal screw terminal assembly which accepts sixteen thermocouple inputs from the field; the signals are connected to the A157 used in conjunction with the A014 or A020 input channels by a 10-foot plug-in cable.

Dimensions: 13.3 cm (5.25 in) high by 48.3 cm (19 in) wide by 11.4 cm (4.5 in) deep.

Prerequisites: An A020 A/D converter or a multiplexer must be ordered separately for each ATR16. An A157 multiplexer requires an A014 A/D converter as a prerequisite.

Mounting Requirements: The ATR16 mounts in a 48.3-cm (19-in) rack in a cabinet, in a NEMA enclosure, or directly against a wall. The ATR16 does not mount in an H332 or H334 chassis, and it does not require a BC40 screw terminal strip.

Screw Terminal Strip Assemblies

Screw terminal strip assemblies that connect the user's I/O lines to the I/O modules via screw strips. Each assembly consists of a 34 screw-terminal barrier strip and an I/O cable connector mounted on a printed circuit board. The assemblies mount in the H332 screw terminal chassis, one for each I/O module, and connect to them by preassembled cables supplied with the screw terminal assemblies.

Ordering Information	**BC40A**	Screw terminal strip and 14-inch cable for 16- and 32-bit modules (excludes M5013, M6012, and M6013 modules). Mounts in a H332 screw terminal chassis directly above or below a corresponding I/O subsystem master chassis or H334 I/O expansion chassis.
	BC40A-3D	BC40A with 40-inch cable.
	BC40B	Screw terminal strip and 14-inch cable for 8-bit modules. Mounts in a H332 screw terminal chassis directly above or below a corresponding I/O subsystem master chassis or H334 I/O expansion chassis.
	BC40B-3D	BC40B with 40-inch cable.
	BC40L	Screw terminal strip and 14-inch cable with attached printed circuit board used in place of BC40A cable for mounting customer-supplied signal conditioning components such as filters, RTD bridges, and high voltage clamps.
	BC40L-3D	BC40L with 40-inch cable.
Digital Input Modules **Ordering Information**	**M5010**	32-bit nonisolated dc input module. For monitoring a wide range of voltages or contact closures. No external power source is required when monitoring contact closures. Accepts up to 32 single-ended inputs, structured as four 8-bit bytes, and sends them under program control to the processor. M5010 module features address selection and input protection. All field signals pass through a conditioning network that enhances signal integrity. Not suitable where common mode voltages exist between field circuits and mounting chassis.
	M5011	16-bit, nonisolated dc interrupt module. Accepts up to sixteen single-ended, nonisolated inputs and provides change-of-state detection. The module interrupts on transition of any of the inputs and stores all transitions until cleared. The M5011 accepts a wide range of input voltages, features high input impedance, and operates at high speeds. Not suitable where common mode voltages exist between field circuits and mounting chassis.
	M5012	16-bit isolated dc input module. For monitoring voltages where noise immunity or common mode rejection is important. Accepts up to sixteen differential inputs (all optically isolated), structured as two 8-bit inputs, and sends them under program control to the D-bus. Interrupt capability is on a per-byte basis. Additional features include address and interrupt enable switches and individual input LED indicators.
	M5012-YA	16-bit isolated dc input module (TTL compatible). Isolated 16-input dc voltage sense module with TTL-compatible logic thresholds. Accepts up to sixteen differential inputs.

M5013	8-bit isolated ac input module. For monitoring ac voltage levels. Transformer isolated, it accepts up to eight differential inputs and monitors their states. Input is structured as a single 8-bit byte. The M5013 includes a switch-selectable change of state capability.
M5031	16-channel isolated dc interrupt module. Used for monitoring a wide range of voltages or contact closures. Accepts up to sixteen differential inputs. The M5031 module offers a change-of-state initiated interrupt capability through enable switches for each of the sixteen inputs. Features high input impedance and operates at high speeds.

Digital Output Modules Ordering Information

M6010	32-bit nonisolated dc output module. Provides 32 program-controlled current sink dc outputs for use with an external power supply. The outputs are single-wire, nonisolated, open collector Darlington switches used for controlling relays, solenoid values, indicators, heaters, and other devices. The outputs provide CMOS logic levels and feature a common output fuse. Also features Zener diode output protection from excessive supply voltages.
M6010-YA	32-bit nonisolated dc output module (TTL-compatible). Provides 32 TTL-compatible, program-controlled dc sink outputs that are single-wire, nonisolated, open collector switches for use with customer-supplied field power supplies and pull-up resistors. Protection against excessive field supply voltages is provided by Zener diodes across each output.
M6011	Nonisolated dc one-shot output module. Provides 16-program controlled current sink dc outputs for use with an external field power supply. Outputs are nonisolated, single-wire, one-shot, open collector Darlington switches used for operating devices that must be activated for only a short duration (i.e., solenoid, values, and relays). The outputs provide CMOS logic levels for noise immunity and reliability. Also features Zener diode output protection from excessive field voltage overloads.
M6012	8-bit isolated dc output module. Provides eight program-controlled current sink outputs for use with an external power supply. Outputs are isolated, three-wire, open collector Darlington switches used for controlling solenoid values, relays, indicators and heaters, where isolation from the controlled process must be maintained. The outputs provide CMOS logic levels and feature individual output indicators.
M6013	8-bit isolated ac output module. Provides eight program-controlled ac outputs. Outputs are transformer-isolated, three-wire switches used for switching ac line voltages to operate ac relays, solenoids, lamps, pumps, blowers, alarms, etc. Features include individual output status indicator and fuse protection for the circuit board etch.

Digital Output Modules
Ordering Information

M6015   16-bit retentive dc output module. Provides 16 program-
controlled retentive dc outputs for use with external power
supplies. Outputs are isolated, three-wire, power FET switches
that offer the same functionality in solid-state as latching-
relay outputs, but with higher reliability. The M6015 module
is used for controlling solenoid values, relays, indicators,
heaters, and the like where retention of existing output status
must be maintained during a computer power failure. Output
circuits are optically isolated from the I/O subsystem and
from each other in groups of four — each requires its own
field power supply if there is a common-mode voltage between
the group. The M6015 can also be used as an isolated dc
output module, such as an M6012.

Analog Modules

Digital does not recommend locating analog input modules within three
D-bus slots of any digital I/O module that is switching high voltages or cur-
rent, because of the potential for induced noise on the analog measurements.

Analog/Digital Converters
Ordering Information

A020   Isolated high common mode A/D converter. 14-bits plus
sign, selectable gain, wide-range analog-to-digital converter.
Provides high common mode isolation using a mercury-
wetted relay multiplexer for its 16 two-wire, or eight three-
wire field inputs. The A020 has 14 full-scale input ranges.
Via a switch you can select a single range for all channels, or
you may select two ranges and have one set of consecutive
channels operate on one range and the remainder on the
second. Features include a very high common mode re-
jection and voltage input protection. It also supports the
ATR16 Thermocouple Temperature Reference Panel for
applications requiring thermocouple sensing.

A014   Solid-state A/D converter. A high-speed converter with
16 single-ended or differential input channels, the A014
module provides successive approximation A/D conversion
of high-speed input signals and supports a maximum of
seven external multiplexer boards (A156, A157, or AM158)
in any combination. When used with multiplexers, the A014
can also accommodate up to 240 single-ended or 120 differ-
ential inputs. Features include over-voltage protection. A156,
A157, and AM158 multiplexers must be mounted contiguously
to their corresponding A014 A/D converter in the same master
or H334 expansion chassis.

**Analog Multiplexers
Ordering Information**

A156	High-level analog multiplexer. Multiplexer module that provides additional input channels to the A014 A/D converter. Each module features 32 single-ended or 16 differential channels of analog inputs. Seven A156 modules that provide up to 224 additional single-ended or 112 differential input channels can be added to the A014. Features include input protection and switches for selecting single-ended/differential mode and the number of multiplexers. A156, A157, and AM158 multiplexers must be mounted contiguously to their corresponding A014 A/D converter in the same master or H334 expansion chassis.
A157	Wide-range analog multiplexer. Multiplexer module that provides moderate speed multiplexing of high- and low-level analog input signals. The module accepts 16 differential inputs that can be independently programmed for any one of eight different gains. Seven A157 modules which provide up to 112 additional differential input channels can be supported by one A014. Features include voltage input protection and compatibility with ATR16 Thermocouple Temperature Reference Panel. Recommended for use with two-wire inputs, with common mode return path provided at the transducer end of the cable. A156, A157, and AM158 multiplexers must be mounted contiguously to their corresponding A014 A/D converter in the same master or H334 expansion chassis.
AM158	RMS to dc multiplexer. Provides true RMS conversion of low-level (± 10 V) ac signals of either the sine wave type or any other periodical type (such as SCR-controlled signals). The AM158 is a 16-channel differential multiplexer which multiplexes the inputs as pairs, thereby enabling two RMS readings to be taken simultaneously. A156, A157, and AM158 multiplexers must be mounted contiguously to their corresponding A014 A/D converter in the same master or H334 expansion chassis.

Note: Available only by special quote. |

Digital/Analog Converter Ordering Information	A631	12-bit isolated, four-channel D/A converter. Contains four group-isolated, 12-bit digital-to-analog converters. The module is optically isolated, offers a choice of current or voltage outputs, and is capable of retaining its output states during a power failure. The user must provide external ± 24 V power to the A631 module to operate in the retentive mode.

When the retentive feature is not implemented and the module is used in the current mode, the A631 should be configured in an IP112/IPV12 master chassis or H334E/J expander chassis.

If the entire chassis is to be filled with A631s, leave one slot unused; the remaining nine slots can then be filled with current-mode A631s. The unused slot should be filled with an M9019 continuity module unless it is the last slot in the subsystem. Or use five or fewer current-mode A631 modules per chassis; the remaining slots can be used for any other IP I/O module types, including voltage-mode A631s.

Counter Modules Ordering Information	M5014	Dual input counter. Contains two independent 16-bit counters, each of which is a presettable up-counter with internally generated frequency and time bases. The inputs may be isolated or nonisolated, low-level or high-level, or TTL. Each counter has switches that allow the selection of alternate time bases, input configurations, counting modes, and interrupt modes. Each counter also has an anticoincidence circuit that prevents the loss of an input signal while it is being read.
	M5016	Quad input counter/prescaler. Contains four independent 8-bit up-counters designed for prescaling and event counting applications. Each counter has a variable radix overflow detection and overflow-driven interrupt circuitry. The module can also accept both high-and low-level inputs, and is capable of operation in isolated or nonisolated input modes.
	M6014	Dual output counter. Dual 16-bit output pulse generator that contains two internal frequency sources (derived from the system clock), two independent program-controlled counters, and two one-shots for generation of pulse train outputs. The counters are arranged as 15-bit magnitude down-counters with one sign/direction bit. Each counter has three nonisolated dc current sink outputs that are TTL-compatible as open collector drivers and are also usable as high-level drivers. Output pulse rates and pulse widths are independently selectable.
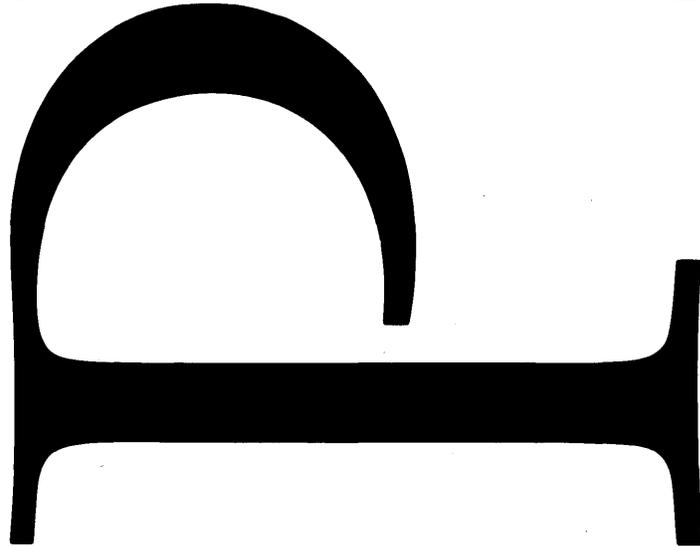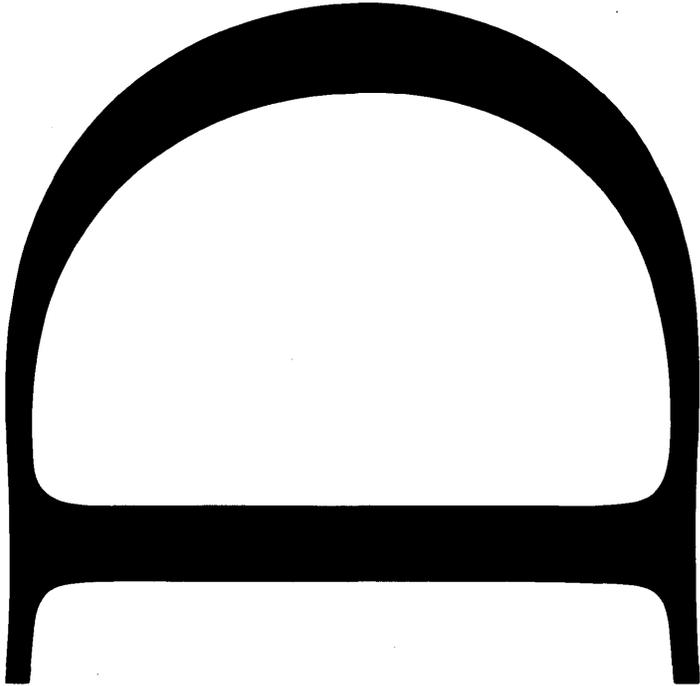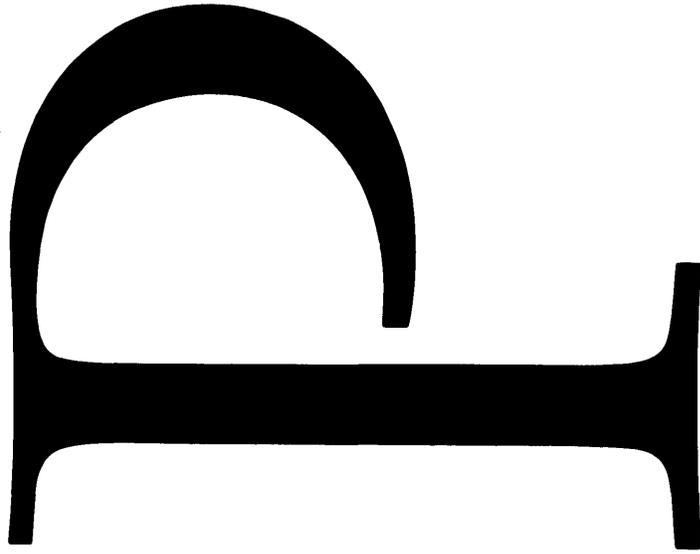
Software

Introduction

Software is the collection of written procedures and rules that control computer operations. The system software always includes an operating system, which is the "intelligence" of the computer system. Usually, the system software includes one or several language processors; it frequently includes specific applications as well.

The high degree of compatibility among PDP-11 programming languages, system programs, and information management services makes it easy to interconnect your organization's operations. Digital's network products can link together realtime, timesharing, and single-user systems. While a few of the characteristics of software may vary from application to application, compatibility helps guarantee that programs can move among systems with a minimum of trouble. For example, the FORTRAN-77 programming language runs on several operating systems. Consequently, a person who has learned it could, with little difficulty, write programs that would run in several operating-system environments. Likewise, a FORTRAN-77 application program can be readily transported to any Digital PDP-11 system that supports the FORTRAN-77 language.

A wealth of languages, utilities, and application software packages for PDP-11s is available, and the selection continues to grow. The *PDP-11 Software Source Book* lists thousands of application packages. These programs are available from Digital and from commercial developers who specialize in writing program packages for PDP-11 operating systems.

This chapter describes all of Digital's PDP-11 operating systems and software. Presented also are Digital application packages for data management, word processing, graphics, and applications development.

Software Ordering Information

This catalog contains extensive software ordering information in Chapter 1. Following each set of Chapter 1 menus is a set of tables, including one containing ordering information for Operating Systems and Layered Products. Use these tables or the *Software Product Descriptions* to find the order numbers you need.

Software Product Descriptions

Software Product Descriptions (SPDs) are the official defining documents for Digital-licensed software. An SPD describes all of the important functional characteristics of a product in clear, concise, easily understood language. The terms and conditions under which the corporation sells and licenses its software products identify SPDs as the documents that specify Digital's obligation under software warranty. They describe a software product's system environment, and identify required and optional hardware and software. SPDs also provide the ordering information and identify any additional services available.

Principles

Software is treated as proprietary information. Customers do not own it, but are licensed to use it under the terms and conditions of software license agreements. Key points of Digital's software binary license agreements are

- Customers must have a binary license to use any Digital binary software products.
- This license allows *one* customer to run *one* software product on the CPU on which it is first installed.
- Digital retains title and ownership.
- Digital's licensing agreement does not allow the transfer of software from one end user to another or from one CPU to another without prior permission from Digital. Software may be transferred to another party only with written permission from Digital.
- A customer may reproduce the software, if necessary, but for use only on the specific CPU licensed to use it.
- The use of an updated version of the software on the licensed CPU requires that the customer purchase a software update option, if not covered by a software service contract.
- The software may be used on another single CPU on a temporary basis during a malfunction of an original CPU that causes the software to be inoperable.
- Any modification to Digital-licensed software does not exempt the software product from Digital licensing or sublicensing terms, conditions, or fees. Only those modifications that are not part of the original software are the customer's property.

Software Ordering Options

This standard binary license includes a 90-day limited warranty.

Software Product Update Option

A customer with a binary license may order a product update for each licensed CPU. An additional fee is charged for each product update and for each one-time right to copy the update for each licensed CPU.

Introduction

An operating system is a collection of programs that manages a computer's hardware and software resources to provide efficient computer operation. The operating system organizes the central processor and its peripherals into useful tools for applications. Operating systems coordinate the execution of programs on the computer. They can also have a set of utilities and routines that manage such resources as printers and terminals, detect errors in programs, maintain user accounts, protect information, warn the operator of failures, and much more.

Each operating system acquires a unique set of characteristics reflecting the needs of its users. The basic distinction among PDP-11 operating systems is the processing method each system uses to execute tasks. The selection of an operating system will reflect the following processing options

- Single-user vs. multiuser
- Single-job vs. foreground/background
- Foreground/background vs. multiprogramming
- Timesharing vs. event-driven multiprogramming
- Realtime

Single-user systems do not require account numbers to access the system or data files. Nor do these systems usually provide protection for user programs. RT-11 is a single-user operating system.

A multiuser operating system receives demands for its resources from more than one individual and/or program. The system must manage its resources based on these demands. For example, several users may want sole control of a device at the same time. The system handles access to the device. In addition, because people may be using the system for different purposes, privacy must be an option. As a result, a multiuser system normally has an account system to manage different users' files. The RSTS/E, Micro/RSTS, DSM-11, RSX-11M, RSX-11M-PLUS, and Micro/RSX systems are multiuser systems.

It is important to consider which operating system(s) are required to use the desired applications. The operating systems that run on PDP-11s offer processing environments. These systems are described in the following section.

Product Description

CTS-300 is a disk-based, single-user or multiuser software system that supports commercial applications on PDP-11s. CTS-300 applications are written in DIBOL, the high-level Digital Business-Oriented Language. The system consists of the RT-11 operating system, a choice of three runtime systems, Single-User DIBOL (SUD), Timeshared DIBOL (TSD), Extended Memory TSD (XMTSD), and a number of utilities. Depending on the applications, program development can be done in a timesharing environment that supports a number of users or jobs simultaneously.

Some of the capabilities provided on CTS-300 are described below.

Runtime Systems (RTS)

Single-User DIBOL allows one DIBOL user or job to be run on a system. It is designed for an entry-level system running in 32 Kbytes of memory. SUD runs on all RT-11 monitors (SJ, FB, XM).

Timeshared DIBOL allows one or two DIBOL users or two to four jobs to run simultaneously. It is designed for a medium-sized system running in 56 Kbytes of memory. File sharing facilities at the record level permit users to share and update the same data files. TSD is an executive that is usually run on the SJ monitor generated for multiterminal support.

Extended Memory TSD allows up to twelve DIBOL users or up to sixteen DIBOL jobs to run simultaneously (up to twelve can be attached to terminals with the rest running in a detached environment). XMTSD is designed for larger systems running 128 to 700 Kbytes of memory on a Q-bus machine, and 128 to 248 Kbytes of memory on a UNIBUS machine. Using the XM monitor, XMTSD has the same features and capabilities found in TSD. In addition, XMTSD offers multiuser program development.

The CTS-300 programming editor, DKED, lets the user create and modify DIBOL programs online, allowing concurrent program development and application execution.

The DIBOL Debugging Technique (DDT) allows DIBOL programs to be easily debugged with symbolic interaction, breakpoint, and traceback features.

Data Management Services

Data Management Services (DMS) for CTS-300 provide capabilities for handling sequential, random, or indexed sequential access method (ISAM) structured files. Multivolume file support permits one file, extending over several disk drives, to be processed sequentially, randomly, or by indexed keyed access, without requiring special programming.

SPD 12.09

Product Description

The DSM-11 operating system is a multiuser data management system that consists of an interactive high-level programming language, (Digital Standard MUMPS), a data-management facility, and a timesharing executive. Digital Standard MUMPS (DSM) is an extended implementation of the ANSI X11.1 MUMPS Standard.

Many users can access DSM-11 simultaneously and be relatively unaffected by the activities of other users. Because DSM-11 is an online program development and data storage and retrieval system, a programmer can rapidly write, test, debug, and modify a program and have a working application quickly established.

Digital Standard MUMPS is a high-level language oriented toward solving database problems. It can be used by programmers with relatively little programming experience. Implementation of the Digital Standard MUMPS language as an interpreter facilitates program development by eliminating the need to load editors, assemblers, and linkers.

The language's text-handling capabilities allow the inspection of any data item for content or for format. These capabilities are useful for online data entry checking and correction. Other text-handling capabilities include the ability to link text strings and to segment text.

The DSM-11 hierarchical file structure allows users to design data file strategies to suit the needs of a particular processing environment. Dynamic file storage with variable-length string subscripts allows for easy modification or expansion of the database.

DSM-11 provides a symbolic debugger that aids in the development and maintenance of DSM applications. The debugger permits the user to set break points and watch points, and to examine the state of a running job.

Features

- High-performance database handler using memory-resident cache of disk data for sharing among users.
- Distributed database processing (DDP) implemented using multipoint Ethernet data links (DELUA, DEQNA) and/or point-to-point data links (DMC11/DMR11).
- Supports terminal connections from DECservers using Ethernet-based LAT Version 5.1 protocol.
- Online, high-speed database backup, disk media preparation and bad-block management (including bad block replacement for Digital Storage Architecture disks), and tape-to-tape copying.
- Automatic powerfail-restart capability.
- Hardware-device error reporting, system patching utility, and executive debugger for system maintenance.
- Journaling of database updates at the system level.
- A set of utilities to gather performance statistics to aid in both performance evaluation and application performance optimization.
- The capability to load or unload drivers dynamically while the system is running.
- Supports IBM compatible binary synchronous communication, provided as a complete software package of utilities.

SPD 12.18

Product Description

RSX-11M is a disk-based, realtime operating system that runs on any UNIBUS PDP-11 processor and on most Q-bus PDP-11 and MicroPDP-11 processors. It provides an environment for the development and execution of multiple realtime tasks (program images) using a priority-structured, event-driven scheduler. System generation on either a host PDP-11 or VAX processor running VMS with VAX-11 RSX allows the user to tailor the software for systems ranging in size from small 32-Kbyte systems to large 3,840-Kbyte systems. Program development and realtime tasks can execute concurrently in systems with at least 56 Kbytes of memory. The system's software priority levels enable the user to compile/assemble, debug, install, and execute tasks without affecting realtime task response.

The following information briefly summarizes other features offered on RSX-11M.

Choice of Command Interface

All systems offer the traditional Monitor Console Routine (MCR) interface and the user-oriented, English-like Digital Command Language (DCL). Users also have the option to write their own Command Line Interpreters (CLIs) to suit their specific applications.

Indirect Command Processor

An indirect command file created by a terminal user contains system commands that will be executed automatically by the system without further user intervention. Indirect command files save the user time and keystrokes by invoking repetitive or frequently used command procedures and system operations.

Programming Tools for RSX Operating Systems

RSX-11M provides text editors for the entry and easy update of source programs and also provides the MACRO-11 assembler, a task builder (or linker), a symbol cross-reference processor, an interactive debugger, task memory dump facilities, and other utilities for program development and checkout. RSX-11M provides shared subroutine libraries and support for user-created libraries. Additional programming tools, including higher-level languages such as FORTRAN-77, BASIC-PLUS-2, COBOL-81, Pascal, and a symbolic debugger are available but each must be purchased separately.

Data Management

The RSX-11M file system provides automatic space allocation and file structures for all data on block-structured devices. Features include file protection, volume protection, and logical device assignments. Multiheader file support enables file size to be limited only by the capacity of the volume on which the file resides. Two file access facilities are available: File Control Services (FCS) and Record Management Services (RMS). FCS is smaller and simpler and supports sequential and direct access to sequentially and randomly organized files. RMS supports three file organizations – sequential, relative, and multikeyed indexed sequential (ISAM) – and provides sequential and direct access modes.

Memory Management

The RSX-11M executive can dynamically allocate available memory in system-controlled partitions. Effectively, this allows a task to be loaded anywhere in memory where there is room. When a task terminates, the space then becomes available for another task. Memory management provides the most efficient use of system memory, faster task execution, and hardware task protection.

Communications Support

RSX-11M provides full support for DECnet Phase IV, (DECnet-RSX must be purchased separately), and for remote command terminals attached to any RSX or VMS DECnet system. File interchange with other RSX or VMS systems running VAX-11 RSX is also supported without the need for DECnet.

TSA Support

RSX-11M supports the Digital Terminal Services Architecture (TSA). Terminals connected to an RSX-11M system in a DECnet-based network can function as remote command terminals on other RSX or VAX/VMS systems that also support TSA. Likewise, terminals on those remote systems can function as command terminals on the RSX-11M system.

SPD 14.35

Product Description

RSX-11M-PLUS is a high-performance superset of the RSX-11M operating system, designed to take advantage of the expanded addressing capability of today's larger-memory PDP-11s. RSX-11M-PLUS maintains the superior reliability and successful architecture of RSX-11M to ensure compatibility and ease of transition between systems. This realtime, multiprogramming, multiuser operating system offers the same features as RSX-11M and many others in addition to those listed below.

User Mode I/D Space

RSX-11M-PLUS supports separate instruction and data space. That means a user task has the ability to address up to 64 Kbytes of instruction and 64 Kbytes of data simultaneously, giving a 128-Kbyte total. I/D space simplifies the development and enhances performance of large application programs by reducing the need for program overlays.

Supervisor Mode

For even greater addressing capability, RSX-11M-PLUS supports supervisor mode libraries.

Multistream Batch Processing

RSX-11M-PLUS provides a powerful batch processing facility in addition to an indirect command file processing capability. Batch-specific commands, MCR and DCL commands, and data may be placed in a file and submitted for automatic execution at a designated time (perhaps at night when there are fewer demands on the system). Batch jobs may run without the presence of a user or access to a terminal.

Accounting

The RSX-11M-PLUS system can automatically create and maintain records. These records are kept in an accounting log file. Accounting information is provided on users, the system, and every task running in the system. The system manager can use these accounting logs to establish programs for reporting on the use of system resources and for billing. Accounting also provides extensive performance information on mass-storage devices.

Disk Performance Features

RSX-11M-PLUS supports overlapped seeks, request queue optimization, disk data caching and dynamic dual pathing. RSX-11M-PLUS also provides "shadowed disk" support, or redundant recording of data on a secondary disk to nearly eliminate the possibility of lost data or unscheduled downtime as a result of hard-disk errors.

Support for Terminal Servers

Terminals or terminal servers on an Ethernet can connect to RSX-11M-PLUS on that Ethernet. For this capability, DECnet is prerequisite on the RSX-11M-PLUS system.

TSA Support

RSX-11M-PLUS supports the Digital Terminal Services Architecture (TSA). See full description under RSX-11M operating system.

SPD 14.70

Product Description

RSX-11S is a memory-based, realtime operating system designed to run on a PDP-11 or MicroPDP-11 processor with a minimum of 16 Kbytes of memory. It is a fully compatible subset of the RSX-11M disk-based operating system. RSX-11S is designed, however, for the runtime execution of memory resident application programs and requires the support of a disk-based RSX-11M, RSX-11M-PLUS, or VAX/VMS with VAX-11 RSX host system for system generation and program development.

The I/O driver interfaces are identical to those of RSX-11M. Device drivers written for either system can execute on both systems. Any application program that executes under RSX-11S will execute under RSX-11M without change following a relink of the object program. With the exception of device drivers, application programs that run under RSX-11S will execute under RSX-11M-PLUS following a relink of the object program.

As a memory-based system, RSX-11S does not support a file system, nonresident tasks, checkpointing (rollin/rollout), overlays (excluding memory-resident overlays), or program development. It provides a runtime environment for execution of tasks on a memory-based system.

RSX-11S has most of the features and capabilities of the RSX-11M system, and supports all of its peripheral devices. CPU options include floating-point processors, parity memory, and memory management.

RSX-11S supports the Digital Terminal Services Architecture (TSA).
See full description under RSX-11M operating system.

SPD 9.21

Product Description

Micro/RSX is an extended subset of the multiuser, multitasking RSX-11M-PLUS operating system, tailored for the MicroPDP-11 family of computers. Micro/RSX is available on RX50 diskettes and TK50 cartridge tapes. It is preSYSGENed and can be installed by the customer, with no prior experience, in less than an hour. Micro/RSX offers the Digital Command Language (DCL) and also allows user-written command language interpreters. Micro/RSX will run most programs written for RSX-11M or RSX-11M-PLUS without modification. Micro/RSX is divided into two parts.

Base Kit

The base kit provides the RSX-11M-PLUS executive, appropriate utilities, device drivers, and support for program development with high-level languages. The base kit has complete tutorial and reference documentation. Customers who wish to program in high-level languages need only buy the base kit and the appropriate Micro/RSX language kit. RMS and the EDT editor are included in the base kit.

Advanced Programmers Kit

The Advanced Programmers Kit is an optional addition to the Base Kit. It includes the MACRO-11 assembler, tools for developing privileged code (or "systems programming" such as user-written device drivers), support for ANSI magtape handling, a point-to-point communications and file-transfer capability, and additional documentation.

Additional Software for Micro/RSX

Most of the major programming languages and tools, utilities, and communications and networking products available as separate products for RSX-11M-PLUS are also available for Micro/RSX. A partial list of these software products includes BASIC-PLUS-2, FORTRAN-77, COBOL-81, DIBOL-83, Pascal, DATATRIEVE, SORT/MERGE, the PDP-11 Symbolic Debugger, and DECnet.

Support for Terminal Servers

Terminals or terminal servers on an Ethernet can connect to Micro/RSX on the Ethernet. For this capability, DECnet is prerequisite on the Micro/RSX system.

TSA Support

Micro/RSX supports the Digital Terminal Services Architecture (TSA). See full description under RSX-11M operating system.

SPD 14.28

Product Description

MicroPower/Pascal is an advanced software tool kit for developing Q-bus-based microcomputer applications. It includes a high-performance Pascal compiler, a modular executive, and a variety of tools to create concurrent, realtime applications programs.

MicroPower/Pascal has two system environments to accomplish this development. The *host system* creates and builds the software. The *target system* executes the software. Each application is custom-designed for its target system and includes the appropriate set of operating system services. The host, using the symbolic debugger, controls the execution of the target application during development.

There are four MicroPower/Pascal products. MicroPower/Pascal-RT, Micro-Power/Pascal-Micro/RSX, MicroPower/Pascal-VMS, and MicroPower/Pascal-RSX develop applications using a PDP-11 host system.

The host development environment for each of these products includes an extended, realtime Pascal compiler, a symbolic debugger, several build utilities, and a MACRO-11 interface. The target environment includes a library of software modules for process synchronization, communications, scheduling, exception and interrupt handling, timer services, and device and file I/O.

The application program is created and linked with the appropriate runtime software in the host system. It is then transported to the target system by one of three methods – writing it into read-only memory, downline loading it over a serial line, or recording it onto removable storage media such as a floppy disk or tape cartridge and then bootstrapping it on the target system.

MicroPower/Pascal is very compact and can reside in as little as 8 Kbytes of memory for small application programs. For complex applications, Micro-Power/Pascal can address as much as 4 Mbytes of memory.

SPD 14.83 for MicroPower/Pascal-RSX
SPD 18.24 for MicroPower/Pascal-Micro-RSX
SPD 19.12 for MicroPower/Pascal-RT
SPD 26.24 for MicroPower/Pascal-VMS

Product Description

RSTS/E is a multiuser, general purpose timesharing system designed for the commercial, financial, and educational market. RSTS/E provides a low cost per terminal combined with a friendly interface especially suited to these markets. In its 15-year history, thousands of applications have been written and are available to meet the needs of these markets. The system offers a rich development environment providing EDT, RMS-11, BASIC-PLUS, PDP-11 SORT/MERGE, and MACRO-11 as standard components. RSTS/E supports up to 63 jobs and up to 127 concurrent terminals using multiterminal support.

Digital Command Language

DCL is based upon the DCL available on most Digital operating systems. In particular, it is similar to the DCL implemented on VAX/VMS. DCL features include fundamental operations such as listing directories and copying files, as well as DCL symbol substitution, reading and writing files, system and account management functions, and terminal activity logging.

DCL Command File Processing

Conceptually, the commands in the DCL command file appear to the system as a series of commands presented to DCL from the keyboard. Parameters can be passed to the command file processor at the time the file is invoked. DCL command files are considered to be executable and can be "run" or "chained to" as programs or can be invoked with the DCL "@" command. In addition to standard DCL commands, the command file processor interprets a set of specialized commands that allow further operations such as conditional branching, local and global symbols using 32-bit integers and 255 character strings, and other special purpose DCL functions.

Security

Access to the system is controlled by the use of passwords. Each user, given the required privilege, can change his or her own password at any time. Passwords can, optionally by account, be stored in hashed form that then cannot be retrieved in unhashed form. The system manager may optionally define a system password.

Print/Batch

Batch jobs are a collection of DCL commands in a file placed on a queue for execution. Multiple queues can be defined and the user can set limits on the system resources allocated for each.

Account Management

DCL commands allow the user to defined different types of accounts, create and delete accounts, set account attributes, and display account information. Account templates can be created and used to set the defaults for a class of accounts.

Help

A comprehensive set of help frames explaining the operation of most DCL commands is available using the "Help" command. This information is also available in the documentation provided as part of the RSTS/E product.

Disk File and Device Backup

RSTS/E provides the ability for total or selective backup of accounts and files to disks or to magnetic tapes using DCL commands. RSTS/E BACKUP produces backup sets that are subset-compatible with the VAX/VMS BACKUP and can read BACKUP sets produced by VAX/VMS BACKUP. It also provides streaming support for streaming tape drives.

BASIC-PLUS

BASIC-PLUS can serve as a powerful programming language. The extensive file processing capabilities of BASIC-PLUS allow users to take full advantage of RSTS/E file-processing features.

SPD 13.01

Product Description

Micro/RSTS is a prebuilt subset of RSTS/E. System calls and programming facilities supported by RSTS/E are also supported by Micro/RSTS, allowing programs written for RSTS/E to run unaltered on Micro/RSTS. Micro/RSTS allows a maximum of twenty jobs and fourteen terminals. It is available in two kits to meet the needs of two functionally distinct markets. A base kit is available as an applications engine and for BASIC-PLUS development (the language is included). An application development kit is also available that can be added to the base kit to provide support for developing applications using MACRO-11 (included) and high-level compilers. The base kit is a prerequisite for the application-development kit.

Micro/RSTS uses the DCL command language specifically designed for people with limited computer knowledge. It includes a simplified documentation set.

Base Kit

Standard with the base kit are the Micro/RSTS operating system configured for the MicroPDP-11 distributed on the RX50 floppy disks and TK50 cartridge tape, with appropriate documentation. RSTS/E Operating System Utilities, BASIC-PLUS, RMS-11, EDT, SORT/MERGE, RSX Emulation, and RT Emulation.

The purpose of this kit is to provide a product for users who require only that part of the operating system that is needed to run applications such as those available through the *Software Source Book*. Also served by this kit are those who use BASIC-PLUS as their only development language.

Application Development Kit

The Micro/RSTS application development kit that layers on the base kit includes utility programs and documentation that allows programmers to do software development on the MicroPDP-11 in MACRO-11 (included) and provides a base for adding layered product compilers such as FORTRAN-77, PDP-11 Symbolic Debugger, BASIC-PLUS-2, COBOL-81, and others. This kit is not required for BASIC-PLUS development.

Included with the Micro/RSTS application development kit on RX50 floppy disks and TK50 cartridge tape, with appropriate documentation are MACRO-11, RSX Utilities, RT-11 Utilities, Task Builder (TKB), Librarian for RSX, LINK (RT-11), Librarian for RT-11, and RMS-11 Utilities.

Installation and Operation

Both kits have been designed and tested to be customer-installable by the novice user reading the *Micro/RSTS Installation Guide*.

Disk and Memory Usage

Approximately 4 Mbytes are used by the base kit and 2 Mbytes by the application development kit. Applications that require more than the remaining space should add a second disk.

The minimum required memory is 256 Kbytes. If simultaneous use of three or more large programs is expected, then additional memory is recommended to improve performance. If more than four simultaneous users are required, additional memory must be added.

SPD 18.12

Product Description

The RT-11 operating system is a single-user, realtime operating system designed for interactive program development of online application execution on Professional 300 Series, PDP-11 and LSI based systems. Although it is a single-user system, RT-11 supports both single job (SJ) and foreground/background (FB/XM) modes of processing, as well as a number of system jobs. In addition to a variety of system and program utilities, RT-11 supports a number of high-level language processors including BASIC-PLUS and FORTRAN-77.

The emphasis in RT-11 is on efficient use of system resources, minimizing system requirements in the CPU and on the mass-storage devices, while maximizing system throughput. The RT-11 operating system offers the following configurations:

Single Job (SJ) Monitor — Enables one job at a time to execute in memory. As distributed, SJ resides in approximately 6 Kbytes of memory and requires minimal overhead. Should the user's requirements change, a properly written program that runs under the SJ monitor can be executed under the FB or XM monitor as a background program without modification, provided there is sufficient memory.

Foreground/Background (FB) Monitor — Provides for the simultaneous execution of up to seven jobs in the foreground and a background job. The realtime function is accomplished in the foreground, which has priority on system resources. Functions such as program development that do not have critical response time requirements are accomplished in the background, which operates whenever the jobs in the foreground cannot run. Within their priorities, both foreground and background jobs are fully functional RT-11 programs with access to system capabilities.

Extended Memory (XM) Monitor — Has the features of the FB monitor and supports systems with more than 64 Kbytes of memory. XM allows programs to extend their size to the full PDP-11 virtual address space of 64 Kbytes. By program control an RT-11 job may allocate and use all available physical memory not used by the monitor or other jobs. A linker option allows user programs to have overlays in extended memory for fast access.

Flexible Realtime I/O

Three modes of I/O operation are provided to satisfy a variety of input and output requirements. Synchronous I/O suspends user program processing until the completion of an I/O event. With asynchronous I/O, user program processing continues until a user-defined point is reached. Processing is then suspended until the I/O event is completed. Event-driven I/O allows user program processing to continue until the I/O event completes. Processing is then interrupted to service the completed I/O event.

Programming Capabilities and Tools

Capabilities include device-independent I/O programming and ease-of-writing device interfaces. Program development tools offered within RT-11 include a choice of three text editors, file and device maintenance utilities, a symbolic debugger, and a number of patch utilities.

Communications tools, Virtual Terminal Communication (VTCOM) and File Transfer (TRANSF), enable RT-11 systems to act as a terminal or transfer files using a serial line.

SPD 12.01

Introduction

Most operating systems need additional software, such as programming languages and applications packages, to perform more specialized tasks than the operating system can perform alone. PDP-11 programming languages and applications are well-suited to the needs of industry, science, academia, and business. A wide range of languages and applications is available on PDP-11 operating systems to meet all programming needs, from system software development to general purpose application program development. When choosing a language or application package, various criteria can be evaluated based on individual needs and constraints. Among these criteria are relative performance, ease-of-use, price, portability, complexity, as well as specific functionality.

Some PDP-11 application packages are designed to give users with little computer familiarity the tools to perform specific tasks. The DECWORD/DP word processing package, DECmail-11 electronic mail, and the DATATRIEVE-11 query and report system are examples of such specialized packages. Other application products are designed for professional programmers to create new software for a much wider range of tasks. Programming languages and packages such as FMS-11 and the Professional Host Tool Kit fall into this category.

Programming languages have typically developed in response to specific functional needs. Some languages, such as FORTRAN, were originally intended for processing enormous amounts of numerical data through complicated formulas at high speeds. Others, such as COBOL and DIBOL, were developed for commercial applications in which data management played a major role. And still others, like BASIC, were invented for use by students who were unfamiliar with computers and needed a simple, easy-to-learn language related to everyday speech. While some of these distinctions have become blurred over time, it is still true that certain kinds of problems are best approached through specific languages. The descriptions in this section attempt to show the special strengths of each Digital-supplied language in satisfying specific application needs.

With an appropriate selection of languages and applications packages, the PDP-11 system can satisfy the computer needs of users of multiple levels of expertise and function.

BASIC-PLUS-2

BASIC-PLUS-2 is a high-level software implementation language derived from the original Dartmouth BASIC. Like the original, BASIC-PLUS-2 is a highly approachable language with an interactive user interface, online help text, and simple English-like language elements. Unlike many other BASICs, though, BASIC-PLUS-2 is a compiled language with modern block-structured programming constructs, sophisticated file access methods, and a host of program development tools aimed at increasing programmer productivity. This combination makes BASIC-PLUS-2 practical for a wide range of uses, from developing data processing applications to training new programmers. Also, since BASIC-PLUS-2 is a close subset of VAX BASIC, the two languages can be used together in projects with a mix of PDP-11 and VAX systems. BASIC-PLUS-2 provides sequential, relative, indexed, and record file address (RFA) file access via the RMS Record Management System. Other features include a RUN command that allows immediate compilation and execution of the program currently in memory, a LOAD command that places previously compiled BASIC-PLUS-2 modules in memory for use by RUN, immediate-mode program debugging statements, the ability to omit line numbers and use mnemonic statement labels, and 31-character variable and constant names.

SPD 14.11 for RSX-11M and RSX-11M-PLUS
SPD 14.54 for RSTS
SPD 18.06 for Micro/RSX
SPD 18.09 for Micro/RSTS
SPD 40.23 for PRO/Tool Kit

BASIC-PLUS/RT-11

BASIC-PLUS/RT-11 is an interactive, incremental compiler operating under the RT-11 operating system that uses simple, English-like statements and familiar mathematical notations to perform operations. The BASIC-PLUS processor comprises a compiler and runtime system. The BASIC-PLUS compiler produces a compact pseudocode that is interpreted by the runtime system. Being an incremental compiler, it checks each program line for syntax errors and immediately returns an appropriate message if an error is found.

In addition to all the other features found in BASIC-PLUS/RT-11, the latest version contains a new feature called Language Extension. This feature allows users to define new keywords and statements in their BASIC-PLUS programs. User-written MACRO subroutines can also be accessed through the BASIC-PLUS program. (Refer to appropriate SPD for detailed information).

BASIC-PLUS/RT-11 is a follow-on version to BASIC-11/RT-11. Its significantly enhanced features and functionality make it an appropriate choice for users in the technical development and educational markets.

SPD 12.05 for RT-11
SPD 40.39 for Professional Series

Software

Programming Languages

COBOL-81

The COBOL-81 language processor is a high-performance compiler designed for interactive PDP-11 business systems programming where ANSI-74 standard COBOL features, compact code, and low memory usage are of prime consideration. The new release of COBOL-81 also includes some of the features from the 1985 COBOL Standard. VAX COBOL and COBOL-81 share many common features that are implemented with the same syntax and semantics on both compilers. This way, source code developed using COBOL-81 may be migrated to VAX COBOL. Also, VAX/VMS systems may be used to develop source code that will eventually be compiled using COBOL-81. COBOL-81 runs on the full range of PDP-11 systems. It lets users begin with the smallest PDP-11 system and grow to the largest VAX systems running VAX COBOL. The compiler takes full advantage of the PDP-11's optional Commercial Instruction Set (CIS) to generate even more efficient object code. The compiler's extensive library facilities and interaction with the PDP-11 Symbolic Debugger help increase programmer productivity and enable the production of powerful application programs.

SPD 13.16 for RSTS/E
SPD 14.26 for RSX
SPD 18.03 for Micro/RSX
SPD 18.08 for Micro/RSTS
SPD 40.24 for PRO/Tool Kit

DIBOL

DIBOL, Digital's Business-Oriented Language, is a structured high-level language for commercial applications programming. It is similar to COBOL in that it has a Data Division and a Procedure Division and uses English-like procedural statements (although more concise than those of COBOL). DIBOL is designed specifically for creating interactive applications programs.

DIBOL is available as part of CTS-300 and Professional CTS-300, as well as an option on RSTS/E, Micro/RSTS, RSX-11M-PLUS, Micro/RSX, and VAX/VMS and on the Professional 300 computers under the P/OS operating system.

DECFORM, a powerful, easy-to-use data entry and file inquiry package, is included with DIBOL on CTS-300 and Professional CTS-300, DIBOL for RSTS/E and DIBOL for Micro/RSTS for designing screen formats for data entry. Using interactive video terminals, programmers can produce forms on the terminal screen that closely resemble traditional printed forms. Thus DIBOL and DECFORM work together to help programmers who are designing applications for data entry and retrieval.

Both DIBOL and DECFORM have their own interactive debugging utilities to speed program development. DIBOL performs data manipulation, arithmetic expression evaluation, table subscripting, record redefinition, external calls to other programs, and sequential, random, and indexed access to files. DECFORM features facilities for defining data entry field protection, autoduplication, alphabetic or decimal checking, range checking, field totaling, cross-field validation, and autoincrement of counters.

SPD 12.09 for CTS-300
SPD 14.08 for RSTS/E
SPD 14.09 for Micro/RSTS
SPD 14.24 for RSX-11M-PLUS
SPD 18.05 for Micro/RSX
SPD 40.22 for P/OS
SPD 40.37 for Professional CTS-300

FORTRAN IV

FORTRAN IV is an extended superset of the ANSI X3.9-1966 standard for this scientific and engineering programming language. Its high-speed, one-pass optimizing compiler works very efficiently in small-memory environments, making FORTRAN program development possible on smaller PDP-11 systems. Because it can produce absolute binary code suitable for stand-alone PDP-11 systems or for loading into ROM or PROM memory, Digital's FORTRAN IV is especially useful for such industrial applications as control programs for automated equipment.

Other features of FORTRAN IV include the ability to use general expressions in all meaningful contexts, mixed-mode arithmetic, the byte data type for character manipulation, commenting at the end of each source line, and list-directed input/output.

SPD 12.10 for RT-11
SPD 12.41 for RSTS/E
SPD 14.63 for RSX
SPD 14.77 for IAS

FORTRAN-77

FORTRAN-77 is much more than just a scientific and engineering language. It combines the efficient numerical computation for which FORTRAN is known with provisions for keyed and sequential access to RMS multikey ISAM files. This makes FORTRAN-77 ideal for writing programs that must manipulate and perform calculations on masses of data, as in accounting or statistical packages. FORTRAN-77 runs on RSTS/E, Micro/RSTS, RT-11, RSX-11M, RSX-11M-PLUS, and Micro/RSX-based PDP-11 systems. Runtime operations are supported on RSX-11S.

FORTRAN-77 is built on the ANSI subset FORTRAN X3.9-1978 standard with the following extensions: Type and Accept input/output statements, the BYTE data type, hexadecimal and octal constants, virtual arrays (on systems equipped with memory management), and language elements to perform RMS multikey ISAM. To use RMS files and utilities, FORTRAN-77 programs utilize the RMS Object Time System (RMS OTS); a File Control Services OTS (FCS OTS) is also available. The compiler produces direct PDP-11 machine code optimized on systems equipped with a floating-point processor. I & D space is supported on most systems.

FORTRAN-77 interacts with the PDP-11 Symbolic Debugger. This tool aids in the location of programming errors in successfully compiled programs that behave abnormally when executed, thereby increasing programmer productivity.

RMS file capabilities are not available for FORTRAN-77 running under RT-11.

SPD 14.31 for RSX-11M-PLUS, RSX-11M, and RSX-11S
SPD 14.49 for RSTS/E
SPD 18.04 for Micro/RSX
SPD 18.10 for Micro/RSTS
SPD A3.55 for RT-11

PDP-11 PASCAL

PDP-11 PASCAL is a high-level language for developing business, manufacturing, research, and educational programs. Its English-like commands, logical grammar, and block structure help developers produce programs that have clear organization and linear flow.

PDP-11 PASCAL accepts programs compatible with Level 0 of the ISO Specification for Computer Programming Language Pascal [ISO 7185-1983 (E)] as well as to the ANSI/IEEE 770X3.97-1983 (December, 1983) Standard. PDP-11 PASCAL runs on all RSX-11M and RSX-11M-PLUS-based PDP-11 systems that have the Extended Instruction Set (EIS). It also runs on Micro/RSX systems that are configured with either the KEF11-AA floating-point chip option or the FPF11 dot floating-point processor card. PDP-11 PASCAL/RSX uses FCS for file I/O and supports sequential or direct record access, plus fixed-length or variable-length records. PDP-11 PASCAL/RSX supports many RSX features, including cluster libraries and I & D space separation, and it provides access to the RSX executive directives.

SPD 14.18 for RSX-11M-PLUS and RSX-11M
SPD 18.07 for Micro/RSX
SPD 40.20 for PRO/Tool Kit PASCAL

PDP-11 Symbolic Debugger

PDP-11 Symbolic Debugger is a fully symbolic debugger for FORTRAN-77, COBOL-81, and MACRO-11. This tool is a valuable aid in locating programming errors in successfully compiled programs that behave abnormally when executed. The PDP-11 Symbolic Debugger provides I & D space support for user tasks. A SET LANGUAGE command allows programmers to debug programs written in the language of their choice. The user is allowed to refer to program locations by symbols or line numbers rather than by addresses, thus saving valuable programmer time. Breakpoints and tracepoints may be set in overlay segments that are not currently resident. A programmer may step through a program by source line, which facilitates source debugging, or by PDP-11 instructions. A single application program composed of modules written in either FORTRAN-77 and MACRO-11 or COBOL-81 and MACRO-11 can be debugged using the PDP-11 Symbolic Debugger.

The PDP-11 Symbolic Debugger is available on RSX-11M, RSX-11M-PLUS, Micro/RSX, RSTS/E, Micro/RSTS, and VMS via VAX-11 RSX.

SPD 12.78 for RSX-11M and RSX-11M-PLUS
SPD 12.79 for RSTS/E
SPD 14.79 for Micro/RSX
SPD 18.11 for Micro/RSTS
SPD 26.75 for VAX to RSX
SPD 40.25 for PRO/Tool Kit

DATATRIEVE-11

DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for the less-sophisticated computer user. DATATRIEVE-11 uses the RMS-11 record management services to access data contained in disk files of sequential, indexed, or relative organization. DATATRIEVE-11 provides facilities for selective data retrieval, sorting, formatting, updating, and report generation, without the need for programming. Record and domain (file) definitions entered in DATATRIEVE-11 are stored in Data Dictionaries shared by DATATRIEVE-11 users. Data Dictionaries can also be used to store frequently used sequences of commands to be recalled and processed later. Commands are provided to list the contents of the Data Dictionary, to delete entries, and to control access to individual entries in the Data Dictionary. A Dictionary Compression utility is provided to compress the Data Dictionary file.

DATATRIEVE-11 enables the user to define domains that cross RMS file definitions and subset record definitions. DATATRIEVE-11 provides the Application Design Tool (ADT) to assist the novice user in creating domain and record definitions. The ADT uses an interactive dialogue technique to guide the user through the data definition process. It creates an indirect command file that is then processed to actually update the DATATRIEVE-11 Data Dictionary.

A distributed server will allow DECSYSTEM-20 and VAX DATATRIEVE transport access to DATATRIEVE domains on the user's system. A remote call interface will allow the user to write programs in COBOL, BASIC, or FORTRAN to access DATATRIEVE domains on DECSYSTEM-20, PDP-11, and VAX/VMS host systems connected via DECnet.

Micro/RSX DATATRIEVE-11 also features a distributed server and remote call interface. Micro/RSTS DATATRIEVE-11 offers DATATRIEVE-11 functionality without distributed access or remote call interface capabilities.

SPD 12.48 for RSX-11M-PLUS, RSX-11M, and RSTS/E
SPD 18.15 for Micro/RSX
SPD 18.30 for Micro/RSTS

FMS-11

FMS-11 (Forms Management System) is used by application programmers to build interactive, screen-oriented data-entry capabilities into their application programs. Used in conjunction with a standard programming language such as FORTRAN-77, COBOL-81, DIBOL, or BASIC-PLUS-2, FMS-11 can be used for any data-entry application in which paper forms were traditionally used, such as inventory, payroll, bookkeeping, and patient admittance. FMS-11 can aid productivity at all levels: program designers are spared the complexities of creating custom terminal interfaces to use special features of the VT100 or VT200; program developers can debug and correct forms quickly with FMS-11's own forms-debugging and editing utilities; and the application's end user gets an intelligent data-entry system that minimizes keystrokes and catches most common typing errors.

Components of the FMS-11 package are the Form Editor for layout and modification of video forms on a VT100 or VT200 screen; the Video Keypad Editor for general purpose text editing of standard ASCII files; the Form Utility for manipulation of FMS forms descriptions during debugging; the Form Driver for performing screen processing at application runtime; and, on RT-11, the Application Runtime Supervisor for running application programs independently of programs running on other system terminals.

SPD 12.22 for FMS-11/RT
SPD 12.27 for FMS-11/RSX
SPD 13.17 for FMS-11/RSTS/E
SPD 18.34 for FMS-11/Micro/RSX

SORT/MERGE

SORT/MERGE provides a fast and flexible means of reordering (sorting) and combining (merging) data in files. It is composed of several components including the SORT Utility Program, the MERGE Utility Program, a SORT/MERGE callable subroutine package, and a detailed documentation set. SORT/MERGE can accept as input up to ten RMS-11 formatted files and will produce as output one reordered RMS-11 formatted file. Records can be sequenced in ascending or descending order by as many as 16 key fields with a maximum total key size of 512 bytes. Commands can be issued interactively via the standard command-line interfaces or through the specification file created by the user. The subroutine package includes an equal-key callback to be invoked whenever two keys are found to be equal; a user-defined key comparison algorithm; a user-defined warning routine to be invoked when nonfatal errors occur; and a user-defined input routine for the merge record interface. There is a DCL interface as well as online help for the DCL interface.

SORT/MERGE is sold as a separate product on RSX-11M, RSX-11M-PLUS, and Micro/RSX. It is included as part of the operating system package on RSTS/E and Micro/RSTS.

SPD 12.07 for RSX-11M and RSX-11M-PLUS
SPD 18.13 for Micro/RSX

A-to-Z Data Inquiry

See description under *A-to-Z Software.*

BCP Graphics Software

The BCP Bar Code/Block Character software package lets RSX-11M users print out industry-standard Code 39 bar codes, block characters, and vertical and horizontal lines and dashes on Digital's LXY12 graphics lineprinter. The package provides quick and easy production of labels for warehouse, stockroom, and other inventory-tracking operations.

The package's interactive user program lets users enter data to be coded for immediate printout of bar codes and block-lettered labels. A library of graphics routines are also provided that can be combined with applications programs written in FORTRAN-77, for fully automated label generation. Both parts of the package require that the RSX-11M system on which they run have FORTRAN-77 plus a minimum 40 Kbytes of memory. BCP is shipped with the LXY12 graphics lineprinter and must be specified when ordering hardware.

A-to-Z Business Graphics

See description under *A-to-Z Software*.

RGL/11

RGL/11 (ReGIS Graphics Library) is a subset of VAX RGL, which is a collection of subroutines designed to support the graphics capabilities of the VT125. RGL/11 subroutines are callable from FORTRAN-IV (RT-11) and FORTRAN-77 (RSX-11M). Picture-drawing features of RGL/11 include shading; line patterns; writing modes; and picture objects such as boxes, arcs, circles, and regular polygons. RGL/11 also provides a method for storing and later recalling screen images. Data plotting capabilities allow the user to define various types of graph "papers," such as linear or logarithmic. RGL/11 provides numeric and alphanumeric labeling and scaling of axes. The plotting subroutines are divided into static and dynamic segments. Static routines display all the user's data in one call, while dynamic routines allow point plotting. RGL/11 is Digital-supported and customer-installed.

SPD 14.62

PLXY-11

PLXY-11 is a software package designed to provide RT-11, RSX-11M, RSX-11M-PLUS, and RSTS/E applications programmers access to the plotting capabilities of Digital's LXY12 graphics lineprinter. Using the PLXY-11 graphics subroutines, programmers can create software that prints out representations of data in graphs and charts with clear alphanumeric labeling. This makes PLXY-11 useful for equipping scientific, engineering, statistical, and econometric application programs with graphics.

To use PLXY-11, the programmer writes FORTRAN programs that call the appropriate subroutines in the PLXY-11 library. These subroutines convert the program's graphics requests into a series of vectors stored in an intermediate file. This file is submitted to the PLXY-11 postprocessing task, which converts its vector data into raster format suitable to the LXY12 graphics lineprinter. The user then transfers this converted file to the graphics printer via a standard file transfer utility such as PIP, where it is printed out by the system LP11 lineprinter driver. PLXY is shipped with the LXY12 graphics lineprinter and must be specified when ordering hardware.

Software

Word Processing Applications

DECtype

DECtype is a Gold key, DECmate-style word processor that permits concurrent word and data processing in a multiuser environment. With industry-standard features such as menu-driven operation, cut and paste, forward and reverse scrolling, search and replace, automatic word wrap, subscripts/superscripts, header/footers, a four-function math utility, and user-defined keys for predetermined, repetitive operations, DECtype is appropriate for any nonlegal, nonscientific small-business office.

When printing from DECtype, users can remove documents from the print queue, view the list of documents in the queue, and view the status of all defined printers in the queue.

SPD 12.71 for CTS-300
SPD 14.82 for RSX-11M-PLUS
SPD 18.14 for Micro/RSX

A-to-Z Word Processing

See description under *A-to-Z Software.*

DECdx

DECdx is a layered software product that resides on a RSX, RSTS, or VMS system. It enables DECmate/WPS systems, both stand-alone and shared-resource, to be linked to the host for "TEAM" computing, allowing better system utilization, document exchange, and information and data sharing. DECdx users can transfer documents between the DECmate/WPS system and the host through a serial-line interface.

SPD 13.32 for RSTS
SPD 13.39 for RSX

WPS-PLUS/POS

WPS-PLUS/POS is a document-processing software system that provides Gold key word processing. It is designed to run on any Professional 350 or 380 series system configured with the P/OS Hard Disk operating system. WPS-PLUS/POS allows users to create, edit, and print documents; produce form letters and maintain mailing lists; file and retrieve documents; include data from a professional application in a document; convert a WPS-PLUS document to and from a P/OS, DX, and ASCII file format; include diagrams, matrices, and equations; and use TCS.

SPD 40.30

WPS-PLUS/RSX

WPS-PLUS/RSX is a document-processing application that provides Gold key-style word processing. WPS-PLUS/RSX runs as a layered product under the RSX-11M-PLUS and Micro/RSX operating systems.

WPS-PLUS/RSX features menu-driven document processing, including word and list processing with math and sort capabilities. WPS-PLUS/RSX allows users to create, edit, and print documents; produce form letters and maintain mailing lists; file and retrieve documents, include data from an application in a WPS document; and include diagrams, matrices, composite and multinational characters in a document. It contains a spell verifier and corrector, and conversion utilities that allow documents to be converted to ACSII or DX format.

SPD 13.47

A-to-Z Base System

The A-to-Z Base System is a user-installable, multiuser base system that supports up to ten concurrent users on MicroPDP-11 and sixteen or more concurrent users on MicroVAX. The A-to-Z Base System includes menu-driven system management functions as well as the ability to install Micro/RSX and/or MicroVMS applications. Inherent in the system are the menu manager and flow-control processor, which insulate the end user from the system-level interface without isolating the developer or system manager from the functions available at the operating system level. The A-to-Z Base System for MicroPDP-11 includes the Micro/RSX operating system software, whereas the other A-to-Z Base Systems require the purchase of MicroVMS as prerequisite software.

SPD 18.16

A-to-Z Data Inquiry

A-to-Z Data Inquiry is a software product designed to create impromptu reports and terminal queries from existing data files. Through the use of English-language-like commands, a novice user can design the desired output without the need for programming.

A-to-Z Data Inquiry uses dictionaries to describe data files. Logical field names assigned to each field are used with A-to-Z Data Inquiry to extract the desired information.

A-to-Z Data Inquiry also provides the user with a simplified dictionary build and data entry facility. Using this feature, users are able to describe their own dictionary and add, delete, or modify data in the user file designated by those dictionaries.

A-to-Z Data Inquiry can create a procedure file consisting of a sequence of commands to produce the desired output. This procedure file may be stored and recalled at will for repetitive report requests.

A-to-Z Integration Features

A-to-Z Data Inquiry is integrated with other A-to-Z applications. There are interfaces to A-to-Z Business Graphics, A-to-Z Word Processing, and A-to-Z SupercompTwenty™; data can be extracted by Data Inquiry and passed to each of these other applications for their use.

SPD 18.17

A-to-Z Word Processing

A-to-Z Word Processing is a Gold key word processing application that runs in a multiuser environment. With industry-standard features such as menu-driven operation, cut and paste, forward and reverse scrolling, search and replace, automatic word wrap, subscripts/superscripts, headers/footers, a four-function math utility, journaling (allowing recovery of document in the event of an unexpected ending to editing session), and user-defined keys for predetermined, repetitive operations, A-to-Z Word Processing is appropriate for any nonlegal, nonscientific small-business office.

When printing from A-to-Z Word Processing, users can remove documents from the print queue, view the list of documents in the queue, and view the status of all defined printers in the queue.

The A-to-Z Word Processing editor allows you to create and then maintain documents stored on the A-to-Z System. Storage available for documents will vary depending on other storage requirements.

A-to-Z Word Processing facilitates the creation of compound documents. Reports and/or graphs from other A-to-Z applications may be embedded into the documents.

SPD 18.18

A-to-Z Document Transfer

A-to-Z Document Transfer facility allows word processing documents to be moved between A-to-Z Word Processing and DECmate word processing systems. It utilizes the DECdx protocol and is compatible with DECdx on other systems.

SPD 18.31

A-to-Z Electronic Mail

The A-to-Z Base System expedites business communications with its optional software, A-to-Z Electronic Mail. This mail package represents the key element in the A-to-Z product that meets users' needs for information sharing on the MicroPDP-11 and the VAX. With A-to-Z Electronic Mail, users can instantaneously create and send messages, reports, and files without learning special procedures. Electronic Mail is accessed from the standard A-to-Z menu that is easy to use, with screen prompts and online help available at all times. Users can create and edit messages, letters, and reports using A-to-Z Word Processing. With this integrated mail package, users also can define, use, and change distribution lists, store and list messages in folders; selectively search for messages; move messages from one folder to another; print, delete, and convert messages into A-to-Z Reports.

If the optional DECnet software and appropriate communication hardware is available, A-to-Z Electronic Mail users can communicate with other PDP-11 or VAX systems (with the VMS MAIL utility). A-to-Z Electronic Mail uses the same installation process as the other A-to-Z Base System components. The A-to-Z Base System and A-to-Z Word Processing are prerequisites for this product.

SPD 18.26

A-to-Z Business Graphics

A-to-Z Business Graphics is an interactive business graphics application that enables the nontechnical user to create presentation style graphs. Aided by picture-assisted menus, a user is able to input the data to be graphed, design the graph description, and combine this information to create a graph file for display on video terminal, printer, or plotter. In this manner, the data, design, and graph files are maintained independently. This permits modified or new data files to be used with a previously designed graph. Graphs may be created and stored on a file for future use. A-to-Z Business Graphics uses the capabilities of graphics terminals and graphic-mode printers. On monochrome terminals, graphic images can be represented in black-and-white formats with the use of selected fill and line patterns. On color terminals, graphs can be designed with four colors chosen from a list of fourteen.

An application can also be written to access data files and establish an A-to-Z Business Graphics data file. A-to-Z Business Graphics can create the following 12 graph types:

* Vertical bar
* Horizontal bar
* Vertical clustered bar
* Horizontal clustered bar
* Vertical stacked bar
* Horizontal stacked bar
* Simple line
* Shaded line
* Scatter
* Scatter with trend line(s)
* Pie
* Pie with exploded segment(s)

SPD 18.19

A-to-Z Developer's Kit

The A-to-Z Developer's Kit is designed to allow the creation or migration of software packages targeted for the A-to-Z Base System. The A-to-Z Developer's Kit provides the necessary software routines to create and maintain A-to-Z Data Inquiry. The A-to-Z Developer's Kit allows the user to create and modify menus for user-written applications with all of the functionality of the menus used in other A-to-Z components.

Features

* A-to-Z Base System menu compiler for ease of menu creation and modification.
* A-to-Z Base System menu subroutines for use by user applications.
* Utility for creation, modification, and printing of data dictionaries, allowing access to the application data through A-to-Z Data Inquiry.
* Definition and suggested use of the A-to-Z Base System function keys.
* Definition and requirements for the creation of A-to-Z Base System installation files.
* Definition and use of callable interface for A-to-Z Base System software routines.

SPD 18.20

Software

Applications Development

RTEM-11

RTEM-11 provides the RT-11 program-development environment on Micro/RSX, RSX-11M, and RSX-11M-PLUS. It allows several users to develop RT-11 applications concurrently on a host system. The number of users depends on CPU power and system activity. Application programs can be created, edited, assembled, and linked on RTEM-11 and then debugged and executed on an RT-11 system. RTEM-11 requires a minimum of 32 KW (64 Kbytes) of memory available per user.

SPD 15.63

MENU-11

MENU-11 allows application programmers and system managers to design customized interfaces between a RSTS/E or Micro/RSTS system and its users. Unrelated applications can easily be tied together to make complete functional environments on a per-user or per-site basis. RSTS/E's DCL command-language environment can be sealed off from novice or infrequent users and replaced with a set of interactive menus backed by help texts. Programmers design the menus and help texts, giving users access to only those procedures and utilities needed in their work. This makes MENU-11 ideal for turning a RSTS/E system into a "turnkey" application system, as well as for providing security on a system with many inexperienced users.

MENU-11 consists of a set of programs that interact with RSTS/E or Micro/RSTS and that control the display of menus to users according to prepared command files. The command files specify the format and content of menus, the help text associated with each menu option, the actions to be taken when an option is chosen (including conditional execution of actions), the transfers between different menus; and the interactions with the user to gather more information. Menu options can execute system commands, run application programs, and generally perform any action or series of actions that is possible under RSTS/E.

SPD 12.60

Peripheral Processor Tool Kit/RSX

The Peripheral Processor Tool Kit supports use of KXT11-CA peripheral processors as slave processors in Q-bus systems running RSX-11M-PLUS or RSX-11M in the arbiter CPU. The application on the KXT11-CA may be either MicroPower/Pascal-RSX-based or stand-alone MACRO-11. The Tool Kit facilitates loading and debugging KXT11-CA applications from RSX. The software also provides a driver for communication over the Q-bus between MicroPower application softw_re in the KXT11-CA and the RSX-11M-PLUS application.

The KXT11-CA is designed to offload traditional single-processor LSI-11 systems. Typical uses of the Peripheral Processor Tool Kit are applications utilizing serial or parallel I/O in realtime environments. Development of the Peripheral Processor Tool Kit onboard application can be done with the MicroPower/Pascal-RSX product, which provides a complete software environment for the development of applications in either Pascal or MACRO-11 Assembler Language.

SPD 13.25

Peripheral Processor Tool Kit/RT-11

The Peripheral Processor Tool Kit supports use of KXT11-CA peripheral processors as slave processors in LSI-11 systems running RT-11 in the arbiter CPU. The application of the KXT11-CA may be either MicroPower/Pascal-RT-based or stand-alone MACRO-11. The Tool Kit facilitates loading and debugging KXT11-CA applications from RT-11. The software also provides a driver for communication over the Q-bus between MicroPower/Pascal-RT application software in the KXT11-CA and the RT-11 application.

SPD 12.70

Communications

DECnet-RSX

DECnet-RSX allows a suitably configured PDP-11 computer system to participate as a node in a DECnet network. For further information about this product, consult the *Networks and Communications Buyer's Guide.*

DECnet/E

DECnet/E software allows a suitably configured RSTS/E system to participate as a routing or nonrouting node in DECnet computer networks. For further information about this product, consult the *Networks and Communications Buyer's Guide.*

DECnet-RT

DECnet-RT allows a suitably configured RT-11 Foreground/Background (FB) system to participate as an end node in DECnet Phase III (non-Ethernet) computer networks. For further information about this product, consult the *Networks and Communications Buyer's Guide.*

SPD 10.72

RSX-11 Packetnet Switching Interface

RSX-11 PSI/M and RSX-11 PSI/M-PLUS allow suitably configured RSX-11M and RSX-11M-PLUS systems to connect Packet Switching Data Networks (PSDN) conforming to the CCITT recommendation X.25 (June 1980). For further information about this product, consult the *Networks and Communications Buyer's Guide.*

KMS11 RSX X.25 LAPB Link-level Software

The KMS11 RSX X.25 LAPB link-level software is a software/firmware package consisting of basic X.25 LAPB link-level firmware for the KMS11-BD or KMS1P-M, a firmware loader to load the firmware into the KMS11 hardware, RSX-11 device driver for a KMS11-BD or a KMS1P-M communications controller, and a demonstration program.

The driver, in conjunction with the X.25 LAPB link-level firmware, allows the RSX-11 user to perform high-speed, synchronous X.25 link-level communication in a point-to-point environment. The driver provides the interface that allows for transfer of command, control, and data information to and from the RSX-11 user task, KMS11-BD or KMS 1P-M X.25 LAPB link-level firmware and remote end communications line. The KMS11 driver is full-duplex and maintains internal queues, enabling the supplied firmware to control eight receive and eight transmit buffers per line, concurrently.

Software

KMV1A-M RSX X.25 LAPB Link-level Software

The KMV1A-M RSX X.25 LAPB link-level software is a software/firmware package consisting of basic X.25 LAPB link-level firmware, a firmware loader, a device driver for a KMV1A-M Q-bus communication controller, a demonstration test program, a trace dump module, and a trace interpreter.

This package allows the RSX-11M, RSX-11M-PLUS, or RSX-11S operating-system user to perform high-speed, synchronous communications in a point-to-point environment.

SPD 13.43

KMV1A-M HDLC Framing Software

The KMV1A-M HDLC framing software is a package of basic HDLC/SDLC framing firmware; a firmware loader; and an RSX-11M, RSX-11M-PLUS, or RSX-11S device driver for the KMV1A-M programmable communications controller. The driver, in conjunction with the HDLC/SDLC framing firmware, loader, and the KMV1A-M hardware, allows the RSX-11M, RSX-11M-PLUS, or RSX-11S Operating-System user to perform medium-speed, synchronous communication in a point-to-point or multipoint environment. The driver provides the interface for transfer of command, control, and data information to and from RSX-11M, RSX-11M-PLUS, or RSX-11S, the KMV1A-M basic HDLC/SDLC framing firmware, and remote-end communications line.

The KMV1A-M driver is full-duplex and maintains internal queues, enabling the supplied firmware to control two receive and two transmit buffers at the same time, allowing for the most efficient use of the device during transmission and reception of data.

SPD 14.22

KMV1A-M Development Tools

The KMV1A-M Development Tools consist of a software/firmware package that facilitates the development of layered telecommunications protocols in the KMV1A-M communications controller. The KMV1A-M operates under the RSX-11M, RSX-11M-PLUS, or RSX-11S operating systems, and should be used by programmers who have MACRO-11 skills.

To facilitate the user development effort, the following set of utilities is included: A "linker" that allows the user to create a working image from the user-written source programs; a "loader" to load into the KMV1A-M RAM the file created by the linker; a dump analyzer, so files created by the unload function of the debug utility can be formatted and dumped to a disk; and a debug utility program, which enables a programmer to interactively debug KMV1A-M firmware.

The KMV1A-M firmware consists of both user-written firmware and ROM-resident firmware. The ROM-resident firmware consists of powerup code, the communication executive routines, and the self-test routines to detect hardware malfunctions. The RAM-resident firmware consists of the user-written code specific to the communication protocol being used.

SPD 13.41

DECmail-11

DECmail-11 is an easy-to-use, full-functionality menu mode or command-driven electronic mail system. It is available on RSTS/E, Micro/RSTS, RSX-11M-PLUS, and Micro/RSX.

Commands are in English. You would "Read" to read a message, "Send" to send a message, "List" to display a directory of messages in a file folder, "Answer" to reply to a message, and "File" to store a message in a file folder.

Commands such as "Next," "Previous," and "Last" allow the user to move through a large number of messages easily. As users become familiar with the system's operation, they can define their own names for commands and sequences to suit personal needs on other systems. An extensive online help facility and friendly documentation provides indepth information on all user commands.

Powerful, easy-to-use functionality offers users the ability to create, answer, or forward messages with or without editing capability (user's option), store messages, search by author, subject, date and text (phrases or words), retrieve messages held in user folders, define command names, defaults, command sequences, print, transfer data to the native file system, and use online help. Users can choose to use EDT to prepare the text of messages.

Multinode Operation

DECmail-11 can be used in a network environment with several RSTS, RSX, ULTRIX, and VMS systems on DECnet, where DECmail-11 is able to send and receive mail from VMSmail and other RSTS, RSX-11M-PLUS, Micro/RSX, or A-to-Z systems running electronic mail. DECmail-11 uses VMS Message Router or the VMSmail Gateway to interface PDP-11 electronic mail with other Message Router-based mail systems, including ALL-IN-1, PC ALL-IN-1, and VAX DECmail.

User's names can be defined by the system manager or individual users to entirely hide references to network locations.

SPD 13.19 for RSTS/E and Micro/RSTS
SPD 13.27 for RSX-11M-PLUS and Micro/RSX

A-to-Z Electronic Mail

See description under *A-to-Z Software.*

A-to-Z Document Transfer

See description under *A-to-Z Software.*

Diagnostic Software

PDP-11 and MicroPDP-11 diagnostic kits are available to support the maintenance of standard PDP-11 CPUs and peripheral devices. The diagnostics reduce downtime by eliminating "shotgun"-style troubleshooting, as they allow the user to pinpoint the defective unit within the system. PDP-11 diagnostics are protected under U.S. Copyright Laws (Unlicensed). The diagnostics are provided on an "as is" basis, without expressed or implied warranty. For more details, refer to the *Self-Maintenance Services Price Book*.

Additional Services for
PDP-11 Systems Maintenance

Maintenance Documentation Service (MDS) is essential for all PDP-11 customer implementing a self-maintenance program. The service provides hardware maintenance documentation as well as PDP-11 diagnostics listings on microfiche (available only through Maintenance Documentation Service) that provides further diagnostic fault isolation from module to logic path and integrated curcuit. PDP-11 hardware modifications and system revision level changes are included in the PDP-11 microfiche library. An update service is available that automatically reports the latest changes to the PDP-11 system hardware and diagnostics as released from engineering. New or updated Diagnostic Listings are issued coincidentally to the release of new or update diagnostic media. *Note:* Although diagnostics are usually shipped with a system, they remain the property of Digital and are intended to be removed from the site with the expiration of the Digital Field Service warranty or contracts. Customers performing self-maintenance must place an order for the diagnostic they wish to use beyond the warranty period.

Order Numbers
MD-PDP11-00 PDP-11 Maintenance Documentation and Diagnostic Listings
MD-PDP11-R PDP-11 Documentation/Diagnostic Update Service
MD-PDP11-L PDP-11 Diagnostic Listings Only
MD-PDP11-LR PDP-11 Diagnostic Listings Update Service
MD-PDP11-D PDP-11 Documentation Only
MD-PDP11-DR PDP-11 Documentation Update Service

Professional Operating System*
(P/OS)

The Professional Operating System (P/OS) is an enhanced subset of Digital's popular PDP-11/RSX-11M-PLUS operating system. P/OS is a multitasking, resource-sharing, realtime operating system with VAX and PDP-11 file structure compatibility. For technical or experienced personnel, a subset of the traditional Digital Command Language (DCL) is available. For less experienced people, the P/OS menu system, characterized by user-friendly menus, on-screen prompts, and abundant in-context help, is available.

The P/OS RMS and Files-11 file structures give the Professional compatibility with Digital's VAX and PDP-11 systems. P/OS serves as the primary operating system for the Professional's outstanding communications and graphics capabilities, as well as for the Professional's extensive listing of application development products.

P/OS Hard Disk provides new support for additional terminals as well as the diskless Professional 300 Series systems.

Order Numbers
QBA13-A3 P/OS for diskette-based system
QBA13-H3 P/OS diskette update
QBA02-A3 P/OS for hard-disk-based system
QBA02-H3 P/OS hard-disk update
QBA89-UZ P/OS Add Four License

Q*XXX-A3 Includes single-use license, documentation, binaries, warranty, and media (RX50)
Q*XXX-C3 Includes single-use license, documentation, binaries, and media (RX50); no warranty
Q*XXX-H3 Update kit only – includes documentation and binaries (Note: An -A3 or -C3 software license is a prerequisite.)

Ordering and product information for all PDP-11 Software products, including those of other vendors, can be found in the *PDP-11 Software Source Book,* (EB-29102-41).

RT-11 on the Professional

RT-11 native on the Professional is nearly identical to the traditional RT-11 system, featuring the same compact size, speed, and simplicity of use that have made RT so popular. RT-11 on the Professional allows users to take advantage of the Professional's video bit map, and provides the VTCOM communications option to enable Professionals to emulate a VT100 terminal for communication with host systems, including VAX. RT-11 provides a full development environment on the Professional.

Order Numbers
QBA39-A3 RT-11 on the Professional, license with warranty
QBA39-H3 RT-11 on the Professional, update

The following languages are available under RT-11 on the Professional:

Order Numbers
QA609-C3 FORTRAN-77 for RT-11
QB813-A3 FORTRAN IV for RT-11 on the Professional
QB913-A3 BASIC-PLUS for RT-11 on the Professional

Professional CTS-300

Professional CTS-300 is a commercial operating system that bundles RT-11 with DIBOL. Professional CTS-300 is a disk-based single-user multitasking system designed to support commercial applications on the Professional. DIBOL is a high-level procedural language designed specifically for interactive business data processing, and is highly compatible with DIBOL implementations running on other operating system, including VAX/VMS, RSX-11M-PLUS, RSTS/E and P/OS.

Order Numbers
QB354-A3 Professional CTS-300, license with warranty
QB354-H3 Professional CTS-300, update

PRO/BASIC

PRO/BASIC is a highly interactive BASIC interpreter available for both the diskette- and hard-disk-based P/OS operating systems. PRO/BASIC emphasizes ease-of-use and is well suited for the everyday programming needs of the end user. PRO/BASIC supports monochrome or color graphics on all Professional systems.

Order Numbers
QBA04-A3 PRO/BASIC, license with warranty
QBA04-H3 PRO/BASIC, update

Synergy

Synergy provides a window environment that integrates popular personal-productivity applications. Using Synergy, you can easily produce professional-looking reports that combine text and graphics, and you can develop and share data between applications. Synergy offers the latest, enhanced versions of the PROSE PLUS text and graphics editor, Synergy Datamanager, Synergy Spread-sheet, Synergy Graph, PRO/Communications (including PRO LAT Ethernet terminal support), Synergy File Services, Synergy Chess, Synergy Calculator, and the new Synergy Calendar. An additional enhancement to Synergy is the inclusion of Synergy application development tools in the PRO/Tool Kit.

Order Numbers
QBA76-A3 Synergy, license with warranty
QBA76-H3 Synergy, update

Networking and Communications

PRO/DECnet

PRO/DECnet enables a Professional 300 Series system to participate as a Phase IV end node in DECnet computer networks. Through the networking port, PRO/DECnet provides support for Ethernet-based local area networking. Through the communications port, PRO/DECnet supports asynchronous or synchronous DDCMP wide area network communications.

Order Numbers
QBA44-A3 PRO/DECnet, license with warranty
QBA44-H3 PRO/DECnet, update

PRO/Communications

PRO/Communications is the primary communications package for the Professional, performing a wide range of asynchronous communications functions, including multiple terminal emulations, file conversion services, file transfers (usually with full error checking), and support for voice/data communications. PRO/Communications also provides PRO LAT Ethernet terminal support.

Order Numbers
QBA05-A3 PRO/Communications for hard disk, license with warranty
QBA05-H3 PRO/Communications for hard disk, update
QBA45-A3 PRO/Communications for diskette, license with warranty
QBA45-H3 PRO/Communications for diskette, update

Professional 380 Software

PRO/DATATRIEVE

PRO/DATATRIEVE is a database system that includes an interactive query language that lets you find information quickly and retrieve that information in nearly any format you require. PRO/DATATRIEVE Report Writer lets you organize and summarize information in your database in clear, easy-to-read, meaningful reports. The PRO/DATATRIEVE Data Dictionary stores a wealth of information about your database and helps you with your query, update, and reporting operations. PRO/DATATRIEVE includes a Local Cable Interface that allows applications to call PRO/DATATRIEVE. PRO/DATATRIEVE runs on a hard-disk-based Professional.

Order Numbers
QBA43-A3 PRO/DATATRIEVE, license with warranty
QBA43-H3 PRO/DATATRIEVE, update

PRO/RDT

PRO/RDT lets you extract subsets of data from a remote Professional, VAX, DEC-20, or PDP-11 host. The PRO/RDT facility uses DECnet as the transfer medium, and DATATRIEVE and its protocols to control information transfer. The PRO/DATATRIEVE Distributed Data Management Facility (DDMF), which is packaged with the PRO/RDT application, lets the Professional be a remote host for other Professionals and must be an installed task on host systems. PRO/RDT runs on a hard-disk-based Professional equipped with a DECNA Ethernet controller, P/OS Hard Disk, PRO/DECnet, and PRO/DATATRIEVE.

Order Number QBA71-A3 PRO/RDT, license with warranty

Spreadsheets

PRO 20/20

PRO 20/20™ integrates a high-end electronic spreadsheet with graphics business modeling capabilities to provide an invaluable resource for business professionals. The 20/20 spreadsheet supports 1,000 rows and 1,000 columns of information, and allows users to consolidate, summarize, or link a number of worksheets. The package makes it easy to bring in external data for analysis, and provides an interface to PROSE or to stand-alone PROSE PLUS. 20/20 includes an extensive set of functions for financial (e.g., depreciation, future and present value, and internal rate of return) and scientific (e.g., average, simple linear regression, and modulo arithmetic) calculations, as well as for data management and reporting. With its graphics capabilities, 20/20 lets users choose from a selection of pie, bar, comparison bar, stacked bar, and line charts.

Order Number QAAA0-C3 PRO 20/20, license

RS/1

RS/1™, the Research System, integrates the four most important software capabilities for the laboratory: database management, analysis, modeling, and graphics input. RS/1 includes a full range of data-handling techniques that give researchers complete control of their data, using simple English-based commands. RS/1 on a hard-disk-based Professional (10 Mbyte or larger recommended) is a full implementation of RS/1- PLUS, which is also available on Digital's VAX and PDP- 11 computers.

Order Number QA497-C3 RS/1, license

PRO/SIGHT

PRO/SIGHT is a full-function drawing package that allows graphics arts professionals and inexperienced users alike to take full advantage of the Professional's outstanding graphics capabilities to create striking, colorful graphics. Its easy-to-use, menu-driven operations include flexible color and fill pattern selection, extensive line drawing support, and text positioning within graphics. Users can create using the keyboard, a mouse, and/or a graphics tablet. PRO/SIGHT runs on a hard-disk-based Professional.

Order Numbers
QBA35-A3 PRO/SIGHT, license with warranty
QBA35-H3 PRO/SIGHT, update

ATHENA/graph

ATHENA/graph™ is a presentation and decision-support business graphics application designed for both novice and experienced users. ATHENA/graph provides a set of model graphics displays that users modify by stepping through a set of easy-to-use screens. The User Chart Set and Company Chart Set let you save and recall charts you have created. ATHENA/graph runs on a hard-disk-based Professional.

Order Number QA550-C3 ATHENA/graph, license

DESIGN GRAPHIX/Executive

DESIGN GRAPHIX™/Executive (DGx/Exec) is a high-performance, low-cost, two-dimensional computer-aided design and drafting (CAD) package. DGx/Exec capabilities include geometric designs, figure and text insertion, graphic editing, display controls, and bit pad and plotter support. DGx/Exec is a subset of the full three-dimensional DESIGN GRAPHIX CAD system, and drawings created with DESIGN GRAPHIX on Digital's other systems can be processed by DGx/Exec. DGx/Exec runs on a hard-disk-based Professional.

Order Number QA684-C3 DESIGN GRAPHIX/Executive, license

PRO/Videotex

PRO/Videotex is the first local, single-user videotex system available for a desktop computer system. Because PRO/Videotex maintains the videotex database and NAPLPS decoder directly on the Professional, you can access information without the complications and expense of maintaining a videotex link or expensive communications equipment. Additionally, PRO/Videotex supports the VR241 color monitor, and takes advantage of the Professional's high-resolution bit-mapped graphics for unsurpassed videotex graphics displays. PRO/Videotex runs on a hard-disk-based Professional equipped with the Extended Bit-mapped Graphics Module.

Order Number QA569-C3 PRO/Videotex, license

Accounting

Multi-Journal Accounting

Multi-Journal Accounting (MJA™) products are general purpose, fully functional accounting applications targeted for use by small businesses. Each of the five available models can be run as a stand-alone subsidiary ledger or in systems that are fully integrated with the General Ledger module. Because MJA runs under Digital's VAX/VMS, RT-11, and RSTS operating systems, it can be used in environments where file transfers can be done for consolidation purposes. The MJA modules include General Ledger, Accounts Receivable, Accounts Payable, Payroll and Personnel, and Order Entry/Inventory. The MJA products run on a hard-disk-based Professional.

Order Numbers
QA384-C3 MJA General Ledger, license
QA385-C3 MJA Payroll and Personnel, license
QA386-C3 MJA Accounts Receivable, license
QA387-C3 MJA Accounts Payable, license
QA388-C3 MJA Order Entry/Inventory, license

PROSE PLUS

PROSE PLUS integrates time-saving word-processing features with a full-screen graphics editor to provide an ideal writing and presentation tool for managers. The graphics editor incorporates sophisticated drawing routines to let you create title pages, diagrams, organizational charts, schedules, call outs, and other graphic elements. Text and graphics can be arranged and combined on the screen or printed page to create effective, appealing presentations. PROSE PLUS runs on a Professional equipped with a hard disk.

Order Numbers
QBA11-A3 PROSE PLUS, license with warranty
QBA11-H3 PROSE PLUS, update

CT∗OS

CT∗OS™ (Compu-Tome Office System) is a full-featured word processing system designed to emulate Digital's WPS78 word processing system, containing the same menu interface and most of the features users enjoy in Digital word processing. With its scientific character set, CT∗OS is particularly useful in technical or academic environments. CT∗OS runs on a hard-disk-based Professional.

Order Number QA767-C3 CT∗OS, license

WPS-PLUS/POS

WPS-PLUS/POS is a menu-driven document processing application. Features include Gold key word processing and list processing with math and sort capabilities. Users can create, edit, and print documents; produce form letters and maintain mailing lists; file and retrieve documents by folder, title, or number; include data from another Professional application in a document; and convert a WPS-PLUS document to and from a P/OS file format, DX file format, and ASCII file format.

Order Number QBA63-A3 WPS-PLUS/POS, license with warranty

Professional 380 Software

Phoenix-PRO

Phoenix-PRO™ Project Management System Planning and Evaluation is designed to provide management information to the professional manager and analyst. The system is designed in three modules: milestone tracking, milestone plotting, and network analysis. These modules allow the user to track at a glance, using one database in a variety of ways. Output formats provide detailed statistical tables, Gantt charts, time-to-completion status charts, and high-level network drawings.

Order Number QAAC2-C3 Phoenix-PRO Project Management System Planning and Evaluation, RX50, license

LOGO

LOGO™ is an interactive, user-flexible programming language. It can be used to develop learning tools, enhance computer literacy, and develop applications using graphics, mathematics, text-handling, and file manipulation. LOGO supports multitasking, 16-digit precision floating point, RMS file services, and GIDIS graphics library. It is easy to learn and use and provides three levels of help. Math functions include random number generator, Power, PI EXPonent, Arctan, and natural logarithms.

Order Number QA179-C3 LOGO, RX50, license

Trademarks

AT&T is a trademark of American Telephone & Telegraph Company.
ATHENA/graph is a trademark of Ship Analytics, Inc.
CT*OS is a trademark of Compu-Tome, Inc.
DESIGN GRAPHIX is a trademark of Engineering Systems Corporation.
IBM is a registered trademark of International Business Machines Corporation.
LOGO is a trademark of Design Research, Inc.
MJA Accounting is a trademark of Prodata, Inc.
Phoenix-PRO is a trademark of Advanced Technology, Inc.
PRO 20/20 is a trademark of Access Technology, Inc.
RS/1 is a trademark of Bolt Beranek and Newman, Inc.
Supercomp Twenty is a trademark of Access Technology, Inc.
UNIX is a registered trademark of American Telephone & Telegraph Company.
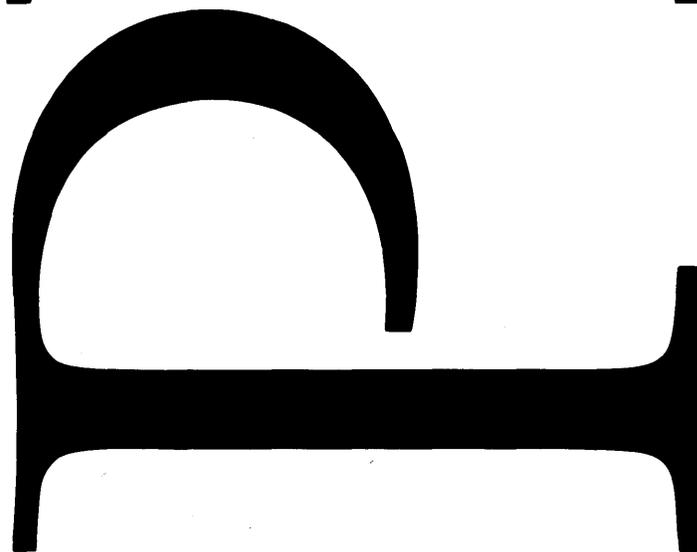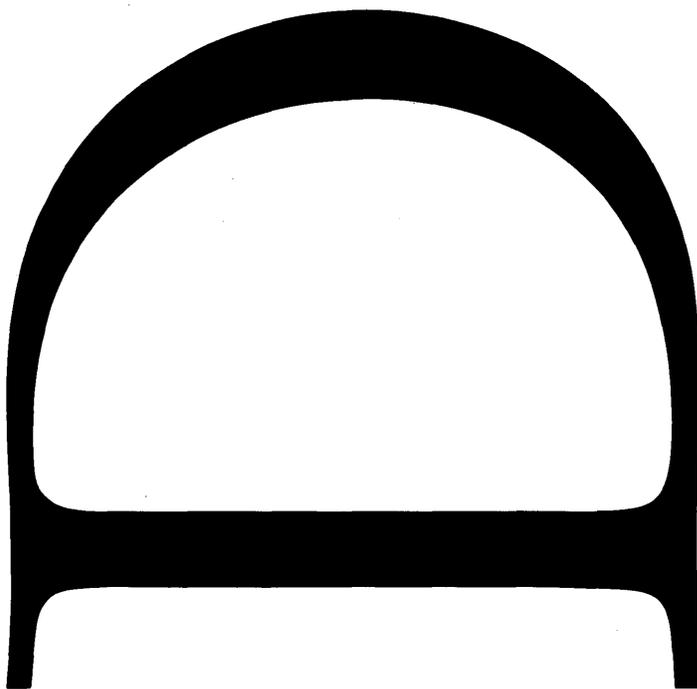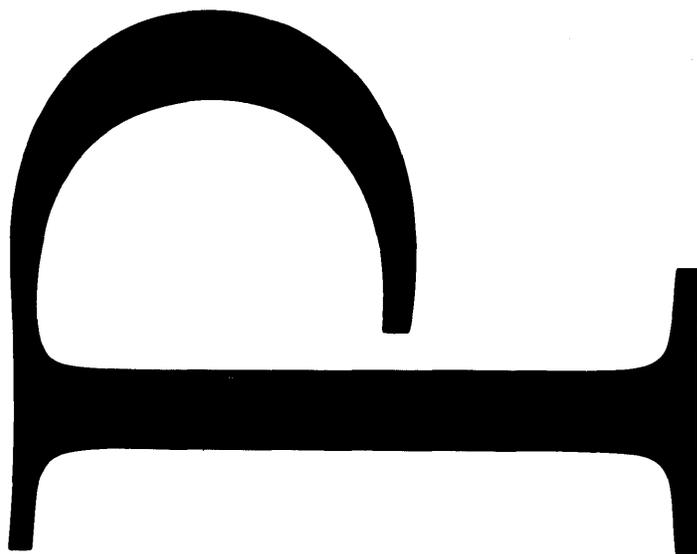
Introduction

Startup Service Packages are total service solutions for new system sales. Startup Service is part of a program that provides integrated services for the lifecycle of a customers' system.

Startup Service Packages

Startup Service Packages (SSPs) provide cross-functional, comprehensive service support for the software and training needs of the end users of Digital products. SSPs consist of defined sets of services essential to successful system installation, startup, and usage during the first year of operation.

Digital offers three comprehensive levels of Startup Service Packages. Each SSP provides immediate training upon purchase, DECstart where applicable, one year of service for the operating system and eligible dependent software, and initial media and documentation.

These packages are priced at the system level; that is, they cover all eligible Digital licensed software operating on a particular system at no additional charge. Prices are targeted to be less than the sum of the service pieces for typical software configurations. SSPs can be included in the Digital Business Agreement (DBA) discount structure.

SSPs are currently available for three operating systems: RSX-11M-PLUS, RSTS/E, and RT-11.

Software Configurator

The Software Configurator module (SC) of the Automated Quoting System (AQS) contains all business rules and service exceptions for SSPs. Quotes are easy to generate and accurate when the SC module is used. The SC module will automatically generate the correct, corresponding H kit (media and documentation) at $0.00 for each license on the AQS quote.

Startup Service Package III   Package III is the recommended solution for providing technical assistance and training to get system users off to quick and productive starts. It contains the most comprehensive full year of service support for operating systems and their dependent software.

Startup Service Package II   Package II is appropriate for a customer's technical staff who have the time and the resources to support the new system after Digital has trained the staff, installed the product, and oriented the staff concerning basic system operation.

Startup Service Package I   Package I is appropriate for a technical staff requiring minimal training and having the time, resources and skill to install and support the new system.

Package III	Package II	Package I
SPS DECsupport Service	SPS Basic Service	SPS Basic Service
Initial Media/Documentation	Initial Media/Documentation	Initial Media/Documentation
Training	Training	Training on selected systems
DECstart Plus	DECstart	
Software Installation	Software Installation	

Startup Package Components

Installation Component   Installation covers the operating system and qualified dependent products installed concurrently. Some communications products are exceptions to the courtesy installation and will carry additional installation fees. *Software Product Descriptions* indicate installation specifics. Dependent products installed at a later time will incur the normal add-on and travel charges.

Media and Documentation Component

Media and documentation are provided with the Startup Package of the operating system and qualified dependent products purchased with the system at no additional charge. Software products purchased for a system at a later time will require the customer to purchase the appropriate documentation and media kit, if desired.

Training Component   In most Startup Packages, customers will receive an amount of training dollars and a DECplan account from Digital's Educational Services. This enables customers to choose the training solution that meets the educational needs of their organization.

A DECplan account representative will provide customers with assistance in determining the most beneficial ways to allocate their DECplan dollars and purchase training appropriate to match their needs.

Services

The training component in certain packages contains a specific educational product (e.g., a Computer-Based Instruction course, a Digital Press book, etc.). A DECplan account can also be initiated any time training is purchased in advance from Educational Services. Customers always have the option of purchasing/prepaying for additional training at discount rates.

Service for Software Component

Service for software agreements cover the operating system and dependent products for one year, commencing with the installation of the operating system. Dependent products installed later are covered for the period remaining on the operating system service agreement. For customers who need a level or combination of services that differ from the Startup Packages, all traditional software services are available in an "á la carte" manner. Packages may be augmented by purchasing additional service items.

DECstart Component

DECstart Services are provided with most Level II and III Startup Packages. A startup consulting service delivered onsite to customers' staffs by a Digital Software Specialist, the service familiarizes customers with their new operating systems and provides hands-on experience with system setup, management and operations.

Field Service

Integrated Services

Basic Service for
Hardware and Software

Digital's Basic Service for Hardware and Software integrates the benefits of onsite Basic Service for hardware with Digital's Basic Service for software. This service is designed for customers who require onsite hardware maintenance during regular hours, need highly responsive answers to software-related questions or problems, and want software updates. This service is available for selected products only.

Full System DECservice

Full System DECservice is an onsite, hardware/software service product available for Digital's DECmate I, DECmate II, Rainbow, and Professional Personal Computer Systems. It is designed for customers who need highly responsive answers to questions and problems with their hardware and Digital Classified Software, and who require committed response times and extended coverage – up to 24 hours a day, 7 days a week for hardware maintenance.

Full System Basic Service

Full System Basic Service is an onsite, hardware/software product available for Digital's DECmate I, DECmate II, Rainbow, and Professional Personal Computer Systems. This system service product is designed for customers who need highly responsive answers to questions and problems with their hardware and software, and who require onsite hardware maintenance for up to 8 hours per day, Monday through Friday.

Full System Carry-in Service

Full System Carry-in Service is an offsite, hardware/software service product for DECmate I, DECmate II, Rainbow, and Professional Personal Computer Systems. This service product is designed for customers who need highly responsive answers to questions and problems with their hardware and software, who choose to deliver and pick up their systems at a Digital Servicenter for hardware maintenance, and who require a maximum turnaround time of 2 days for hardware maintenance.

Hardware Services

Digital's Field Service Organization offers a range of onsite and offsite post-warranty services. Over 22,000 Field Service Personnel in more than 450 locations worldwide with an inventory of over $500 million in parts are ready to provide the support needed for continuous productivity.

Onsite Services

DECservice

DECservice is Digital's most comprehensive onsite service product. It provides a committed four-hour response time for hardware under DECservice contract – when located within 100 miles of a Digital service location. DECservice provides continuous repairs until the problem is solved, a program of preventive maintenance, installation of the latest engineering changes, and automatic escalation for complex problems. DECservice also allows you to choose the hours of coverage you need to support your application – up to 24 hours a day, seven days a week.

Basic Service

Basic Service offers economical, yet full-service, coverage. Your calls for service receive priority status, second only to DECservice calls. You also receive preventive maintenance, installation of the latest engineering changes, and automatic escalation of complex problems.

Per Call Service

If your application doesn't demand comprehensive support, you can take advantage of one of Digital's per-call programs. Per-call service is available onsite and offsite on a noncontractual basis. Service is available Monday through Friday during standard business hours, from 8 A.M. to 5 P.M.

For onsite per-call service, you pay for the time and materials required for each service call. Offsite per-call service is available through mail-in board replacement and carry-in system repairs.

Network Services

As part of Digital's commitment to meet the total computing needs of its customers, Field Service provides the full set of services that are needed throughout the process of planning, implementing, and operating a network. Most networks, including those with non-Digital products, can be completely maintained under a standard Digital Service Agreement. Digital, acting as a single source for service, delivers professional services on a worldwide basis, thus ensuring a consistent and high-quality response to distributed and/or multinational networking requirements.

The Field Service Network Services product portfolio includes both custom-quote consulting and project management services, and the new SERVpak services, which provide fixed-price planning, installation, and maintenance of Standard Network Packages (SNPs). The specific services include

Planning
- Network Physical Design Consulting

Implementation
- Network Physical Installation Management
- Network Certification

Operations
- Ongoing Maintenance

Network Tools
- NMCC/VAX ETHERnim

SERVpak Services

DECsite Services

Media Maintenance Service

Digital's Media Maintenance Service is a comprehensive program that provides total media maintenance support for your disk cartridges (RL01, RL02, RK05, RK06, and RK07). The program provides

- Inspection of all disk cartridges

- Thorough cleaning of all cartridges

- Labeling of all cartridges

- Installation of SHOCKWATCH warning device

- Cartridge warranty for life of your Field Service contract

- Free replacement of defective cartridges that are under this program

- Reduced downtime, increased system performance

Laser Printer Service

Laser Printer Service is a supplement to Digital's onsite DECservice, Basic Service, and Full Service System Agreements. The base maintenance price for Laser Printer Service includes a charge for a specific number of copies per month. An additional charge will be made for each copy printed above the monthly allowance.

DECall Service

DECall Service provides onsite hardware service on specified personal computers, terminals, and hardcopy printers. A minimal retainer fee for each unit ensures fast, priority response time and provides a predetermined fixed charge for each service call, including all parts and labor.

Platter Removal Service

Winchester Platter Removal Contract Service is an optional addition to Digital's onsite DECservice and Basic Service agreements. It is a unique remedial service, providing removal of platters from sealed head and disk assemblies (HDAs) that have failed. This service offering is designed to meet the needs of those customers who cannot allow media containing secure or proprietary data to leave their premises.

Recover-all Service

Recover-all Service is an optional addition to Digital's DECservice, Basic Service, Full System DECservice, and Full System Basic Service onsite service agreements. Recover-all Service extends the services available through these agreements to cover equipment damage that would not normally be included. It is designed to meet the needs of customers requiring prompt recovery from the loss of computing power.

DECompatible Service

DECompatible Service is an optional addition to Digital's DECservice, Basic Service, and Carry-in service agreements. It provides service to selected non-Digital products connected to Digital systems.

Offsite Services

Digital Servicenter

The Digital Servicenter (DSC) is a carry-in repair center for Digital's terminals and small systems offering low-cost repairs at over 175 convenient locations. At the DSC you receive the same quality service as you would at your office with a guaranteed two-day turnaround on your equipment. At the DSC you may choose from contract (fixed annual cost), per-call (fixed labor charge plus parts), or parts exchange (pay only for the part you determine to be bad).

Carry-in Service

This is Digital's low-cost alternative to onsite support. You can carry your terminal to any of the 160-plus Digital Servicenters throughout the U.S. and pick up the repaired system within two days. Or, if you perform your own maintenance, you can carry in your faulty module and we'll make an over-the-counter exchange.

Carry-in service is available through a one-year, fixed-cost agreement or on a per-call basis that charges a flat rate for labor, plus the cost of all parts used in the repair. All carry-in service and parts come with a 90-day warranty.

DECmailer

DECmailer is a return-to-factory replacement service for Digital customers who maintain their equipment to the module or subassembly level. It provides five-day turnaround, free return shipping, 90-day warranty, 24-hour emergency service, monthly billing, and quarterly activity reports.

Software Product Services

Digital's Field Service organization provides advisory, preventive, and remedial services to help customers before, during, and after software installation.

Software Product Services offers several levels of support on a per product and system-level basis. For customers purchasing additional systems, contracts and add-on services are offered. SPS also has special services for multiple systems, products sold through OEMs and distributors, and small-business applications.

Service Agreements

For customers requiring ongoing support there are DECsupport, Basic, and Self-Maintenance annual service contracts.

DECsupport Service for Software

DECsupport is the ideal solution for maximum user productivity and system utilization. It provides high-level personalized support and saves customers the time and associated costs of doing their own routine software maintenance and installation of updates and also provides critical onsite assistance when required.

Basic Service for Software

Basic is designed for customers who have the time, technical expertise, and resources to maintain their own systems, but who need highly responsive answers to questions or problems crucial to their business. Basic Service provides access to software specialists and to online information.

Self-Maintenance Service for Software

Self-Maintenance is for customers who have highly technical staffs with the time and resources to maintain their own system software and who require only updates and written communication channels with Digital.

Service Agreements		
DECsupport	**Basic**	**Self-Maintenance**
Installation of Software Updates		
Preventive Maintenance		
Remedial Support		
Telephone Support	Telephone Support	
Digital's Software Information Network	Digital's Software Information Network	
Software Media and Documentation Updates	Software Media and Documentation Updates	Software Media and Documentation Updates
Technical Newsletters	Technical Newsletters	Technical Newsletters

Service Agreement Components

Installation of Updates

Digital installation of new software releases and interim updates for all operating system and dependent products under contract. Products may be installed by a Customer Support Center Specialist assigned to the customers account or installed onsite by a local Specialist. Central delivery advantages include fast installation pretested to the customer's unique system configuration and scheduled at a convenient time. It is available on applicable products. Scheduling is subject to the approval of the Customer Support Center (CSC).

Preventive Maintenance

Central delivery includes outbound calls from the customer assigned CSC Specialist.

Remedial Support

Remedial Support includes remote diagnostics, fault isolation, and correction of problems with installations of solutions or workarounds. Onsite Remedial Support is available during contracted hours of coverage for problems that cannot be resolved by telephone and that, by mutual agreement, are critical.

Telephone Support

Toll-free advisory assistance is provided by Digital's Customer Support Centers 24 hours a day, seven days per week for most Digital operating systems.

Digital's Software Information Network

Customers may access this easy to use service database for software information. Flash messages alert the user to any high-impact software problems and their timely solutions.

Software Media and Documentation Updates

The customer automatically receives new software releases and interim updates with corresponding documentation for all operating systems and dependent products under contract.

Technical Newsletters

Technical newsletters and dispatches contain information about new software developments and enhancements, programming notes, and documentation updates.

Special Services for Multiple Systems/CPUs

Networking Services

Software Product Service agreements apply to Digital's software networking products.

Supplementary Service for Multiple Systems/CPUs

SPS provides service options supplementary to systems already under a service agreement.

Media Update Service

The Media Update Service is a subscription service that provides SPS customers with a means of obtaining the machine readable media in order to install new software updates on two or more CPUs. Customers may elect their choice of available distribution medium for additional systems. A prerequisite for this Service is that customers have a DECsupport, Basic, or Self-Maintenance Software Product Services agreement with Digital.

Documentation Update Service

The Documentation Update Service supplies service customers with additional copies of the documentation-only portion of a Software Product Services contract. This service is available for most Digital 16-, 32-, and 36-bit products that offer DECsupport, Basic, and Self-Maintenance Service for Software.

Service Right-to-Copy

This option allows customers with a software agreement to automatically copy all software product updates under an SPS agreement onto another specified CPU. Service Right-to-Copy is purchased per product per CPU.

Additional Telephone Support Center Contact Service

This service allows customers who have a Basic or DECsupport Service agreement to add one additional name to the list of people entitled to call Digital's Customer Support Center.

Additional Software Dispatch Subscription Service

Customers who have a Digital Software Product Services agreement can obtain an additional copy of dispatches and technical newsletters supplied under the agreement.

Software Revision Right-to-Copy

The Software Revision Right-to-Copy option allows customers to copy a single software product update onto a single, additional CPU.

Software Product Services for Resellers

Several programs exist that allow resellers to sell Digital products to their end users. Your local Digital office can provide more information.

Á La Carte Options for Single and Multiple Systems

The availability of these supplementary options can vary by country. Customers should contact the nearest Digital sales or service office for information on availability.

Installation Service

The purchase of installation as a separate service is appropriate in those instances in which there is no need to purchase a Startup Package or there is a need to have add-on dependent products installed. Installation Service ensures that customers have received all of the proper distribution materials and that the system generation process for the operating system and/or dependent software products is completed.

Software Product Updates

A software product update (H Kit) provides the most current release of a software product, including documentation, for customers who do not have an SPS service agreement, and who wish to update the product to its latest revision.

Further detailed information on specific Software Product Services is available from your local Field Service Sales Support Specialist.

Introduction

Software Services offers a wide range of comprehensive services to support Digital's system customers during any aspect of their system analysis, software development, or implementation efforts. These services start with the personal attention of a Digital software consultant and continue for as long as the customer owns the system.

A Digital software specialist often works with a Digital sales representative to evaluate a prospective user's needs prior to purchase, in order to recommend hardware/software solutions appropriate to the customer's requirements. A full range of services is available to assist customers throughout the planning, implementation, and production phases of their systems.

Computer Services

Digital's Computer Services is the Software Services business for providing automated information and software access to its customers. Three principal service offerings are available to deliver the total business solution to a customer's computer resource problem. Additionally, a telephone support service offering a 24-hour-a-day, 365-day-a-year hotline staffed by Digital software experts is available.

These services are accessed locally and delivered remotely from Digital's Information Network Center. The network makes access only a local phone call away.

Service Bureau Services (Timesharing)

- Enhanced Application Network Services — combines terminals/micros, customer systems, Computer Services Systems and our nationwide network into an integrated application that is delivered nationwide.
- Hardware/Software Evaluation Service — makes available the VAX, PDP, DEC-SYSTEM 20s and their associated software for customer evaluation delivered via our nationwide network.
- Project Resource Services — provides VAX, PDP, and DECSYSTEM 20 computing resources and associated software delivered via nationwide network for major Software Services professional consulting projects.
- Incremental Computer Resources — provides VAX, PDP, and DECSYSTEM 20 computing resources delivered via our nationwide network for special customer needs such as peak-load processsing.

Disaster Back-up Services

Back-up and disaster recovery services allow customers to anticipate and plan for disruptions involving their computer facilities, and to continue processing critical applications at computer facilities other than their own.

- Restart — Disaster Backup Services for VAX and PDP computing resources available within 24 hours for emergency processing.
- Disaster/Plan-80 — A contingency planning methodology available to assist customers in developing their own contingency plan.

Facility Management Services

- A long-term customized/dedicated packaging of service offerings consisting of computing resources and operational staff available on the customer's site or Digital's. Facility Management Services will free customers from the need to develop operations resources to support information systems.

Services

Software Services

Professional Services

Digital's Professional Services organization offers a full range of consulting services to help customers analyze, develop, implement, and productively use their Digital computer systems. These services benefit customers at all stages of a system life cycle from planning and design, to the development and delivery of solutions through a successful system startup and user implementation. In addition, Professional Services offers productivity services such as performance monitoring and capacity planning, and migration and conversion services.

Professional Services consultants possess extensive practical experience in areas such as manufacturing, office automation, information systems, artificial intelligence, and networks.

Planning and Design Services

Planning and Design Services assist customers in evaluating their needs by determining the best approach to estimate the structure, systems, environment, and cost factors to provide the optimal solution. Areas of concentration include long-range growth planning, networks, office systems, and specific applications.

Network Planning and Design Services help customers construct a new network or reconstruct an existing one to meet information flow requirements based on business needs, organization structure, and operational procedures.

Office Analysis and Design Services provide critical management analysis and planning tasks that precede the implementation of an office automation system. A Digital consultant studies how each department in the customer's organization works, and determines the technology and applications that will most effectively achieve specific business goals.

Artificial Intelligence Planning and Design Services provide critical data to help customers select AI applications with the highest potential payoff and the lowest potential risks to meet business objectives.

Custom Applications Consulting and Projects

By working with customers to understand and analyze their unique computing needs and applications, Professional Services provides solutions designed for specific applications. A large-scale project could result in an entire turnkey solution; a smaller-scale project could mean the building of a new application or the expansion of an existing one.

DECstart Services

For maximum productivity and cost-effectiveness, DECstart Plus and DECstart should be sold as part of a Startup Package. However, all DECstart services may be purchased á la carte as well as in a Startup Package. One available option upgrades the DECstart component in Startup Package Level II to a DECstart Plus Service. (See Descriptions under Startup Package Components.)

DECstart Consulting Services

DECstart Consulting Services consist of several levels of fixed-price consulting services and automated system management tools that prepare customers to effectively use and manage their systems. They are available for all major Digital operating systems, ALL-IN-1, networks, and some layered products.

Office Application Support Services

Office Application Support Services provide customized support and individualized onsite consulting for office staff. This includes orientation in the use of office products, support for the transition to an automated office, office procedures consulting, and training on customized applications installed on customer's systems.

Performance and Capacity Planning

Performance and Capacity Planning helps customers monitor their systems, evaluate performance, resolve problems, and make recommendations on how to optimize system utilization. Specific areas of focus are system performance monitoring and capacity planning, and network management control and DECnet monitoring.

Migration and Conversion Services

RPG Migration Assistance Service assists in the organization, planning, and implementation of the conversion of RPG source programs, data files, and command procedures from IBM System/3, System/34, or System/36 environments to the Digital VAX environment.

Conversion services enable customers to move from one operating system to another or from other vendors' software to Digital's.

Network Management Services

Digital's network specialists provide customers with a family of comprehensive network services. These services include Network Planning and Design Services, and Network Consulting Services.

The Network Planning and Design Service

The Network Planning and Design Service provides Digital communications expertise which assists customers in defining or reevaluating network requirements. It develops network designs aimed at meeting customers' business and technical goals.

Network Consulting Services

Digital's software specialists assist customers at any stage in their network planning, operation, implementation, or modification. Digital's consultants can provide appropriate assistance, from overall project management to specific advice on a particular problem.

Management Services

These new services bring contemporary planning methodologies and advanced technological approaches together to come up with solutions in the four key areas of change identified by leading experts as critical for business success.

Network Planning and Design — Our management consulting team goes to the customers' site to help them plan and design a data communications network that supports their business needs, organizational structure, and operational procedures. Customers will learn how to keep costs down, keep up with technology, and keep expanding.

Office Analysis and Planning — Digital is ideally positioned to help customers make sound choices for their office environment. First, we'll study how each department in the customer's organization works. Then, we'll determine the technology and applications that will most effectively help them achieve their business goals. Our professional analysts and planners will work closely with all levels of personnel to record goals, objectives, and expectations. We'll conduct indepth requirements analysis. When we've collected and evaluated this data, we'll present the customer with a formal statement of our findings. In this document, we'll recommend how customers can best implement office information technology within their departments (or across organizations) to achieve their stated goals.

Capacity Planning — Using specially developed Performance Monitoring and Analysis tools, we'll help customers restore good service levels and efficiency use, increase their ROI, and give them information they need to make timely and appropriate decisions on their next equipment purchases.

Artificial Intelligence — Digital has had more experience with AI technology than any other company, and we can offer our customers all the traditional Digital support services plus the real advantages of single-vendor management. Through our unique multistep methodology, we will study the customer's business needs, organizational goals, and technological requirements in depth. Then we will help them select the applications with the highest potential payoff and lowest potential risk.

Office Application Support Services

These services provide customized support, feature individualized onsite consulting for office staff, office product usage orientation, office automation transition support, office procedures consulting, and user training on customer applications.

Digital's customers benefit from an acceleration in productivity gains and improved acceptance of technological changes in the office environment.

Project Services

These services provide the customer with the expertise to solve business problems through customized solutions, applications expertise, project management, ongoing support, postimplementation support, and flexible solutions.

Resident and Advisory Services

When Digital's customers have an adequate software staff and wish to maintain project management responsibility, Resident and Advisory Services guides customers in effectively using Digital hardware and software. The services feature software consulting, short-term staffing, and assistance to personnel using new systems.

Application Startup Services

This low-cost service is geared toward application management and productivity.

Educational Services

Digital's Customer Training Programs

Educational Services offers a variety of training options, each with distinctive features and benefits, allowing customers to make the most effective use of their training dollars. Comprehensive educational curricula are available in a selection of training options.

Lecture/Lab Instruction Program

Job-relevant classroom lectures including hands-on laboratory experience are available at Digital's worldwide Training Centers. Instructors interact with students in fully-equipped computer lab environments.

Onsite Courses

Lecture/Lab Instruction can also be given at a site chosen by the customer. Onsite course content is identical to the content of courses offered at the Training Centers. This alternative educational solution is often used when many employees need training.

Exclusive Courses

Lecture/Lab Instruction can also be designed specifically for a particular customer's employees and taught at one of Digital's Training Centers. This is an attractive option for a customer when onsite training facilities are not available and many employees need training.

Self-paced Instruction (SPI) and Computer-based Instruction (CBI)

Self-paced Instruction generally consists of educational media, (either text-based, computer-based, or audio/visual-based), with educational materials such as student guides, workbooks, sumaries, and tests that enable students to progress at their own pace. SPI can include Computer-based Instruction, in which students interact with the course material online, at their own terminal. SPI, CBI, and Audio/Visual (A/V) courseware are cost-effective ways to educate many people at a relatively low cost. Digital's SPI, CBI, and A/V courses are available as off-the-shelf products.

Seminars

Short, high-quality courses on topics of interest to managers and technical specialists are offered. These seminars are taught by experienced professionals from both Digital and the computer industry at large. Using a highly interactive format, these seminars provide key employees with state-of-the-art information as well as the opportunity for stimulating exchanges with peers. Seminars are held regularly at Digital Training Centers and at hotels and conference centers in major cities throughout the United States. Special arrangements can also be made to customize seminars and to hold them onsite at customer facilities.

Educational Technologies Group

For customers who need custom training programs that integrate people and technology, the Educational Technologies Group provides many types of custom training programs for groups such as managers, office professionals, technical staff members, and factory-floor personnel. Offerings include computer-based training (CBT), computer-based interactive video (CBIV), consulting and analysis services, and other programs. Educational Services can perform a specific needs analysis for a specific job or group of jobs, or a broader training analysis to examine an entire organization's training needs. From these analyses, specific training programs can be developed and implemented.

Examples of these customer training programs might be job-integrated training applications from the factory floor using graphics and interactive video, advanced seminars for managers, or computer-based training for office personnel. Some of these programs may include the creation of a training network from the customer's computer network, which then allows many users to simultaneously access courses or databases.

In general, the highest quality training is delivered in the most appropriate format, whether it's CBT, CBIV, lecture-based training, linear video, or seminars. For further information, call 1-800-343-8321 (outside the state of Massachusetts) or 1-800-343-8321 (within Massachusetts). The mailing address is

Digital Equipment Corporation
Training and Information Products Group
12A Esquire Road
North Billerica, MA 01862

Leasing Services

As part of Digital's total solution, the U.S. Customer Finance organization provides financing and leasing alternatives for customers who choose not to purchase Digital's products on a cash basis. Whether our customer is responding to budgetary limitations or prefers to preserve cash and bank lines for other purposes, Customer Finance can facilitate the acquisition of Digital's products.

Programs
- Master Lease — A convenient arrangement that supports the delivery of equipment over an extended period of time. Each delivery (Lease Schedule) can be tailored to the Lessee's specific needs, e.g., fair market value option or prenegotiated option.
- DEClease — A simple-to-use lease contract that will support single-delivery leasing needs. Step-by-step instructions are provided for both Digital's personnel as well as customers.

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- Tax-oriented Leases — Leases that use tax benefits and residual values in their pricing mechanisms. Terms range from 2 to 5 years. The title remains with the lessor and the equipment can be purchased from the lessor at its fair market value at the end of the term. This plan is extremely price sensitive.
- Lease with Option to Purchase — Leases that normally include a prenegotiated purchase-option. Tax benefits often flow to the lessee. Terms range from 2 to 5 years. The title remains with the lessor until the purchase option is exercised.

Customers Supported
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Field Support
- Customer Finance Managers are conveniently located throughout the country. They work with customers and Digital account managers in developing financial strategies which best meet customer needs. For more information, please contact your Customer Finance Manager or call 1-800-343-3451 (outside the state of Massachusetts) or 1-800-322-3239 (within Massachusetts).

Digital's Electronic Store

The Electronic Store is a free online computer service that helps customers evaluate, select, and purchase products online. The store offers quick, easy shopping for Digital products such as VAXstations, personal computers, microcomputers, software, tapes, disks, terminals, printers, environmental products, accessories, and supplies. The store is a simple menu-driven system requiring no expertise or training.

Using rapid-search methods, such as keywords, product lists, and part numbers, the Store helps to evaluate Digital products and services through its descriptions, demonstrations, selection charts, cable diagrams, prices, and other configuration aids. The information is organized in conversational menus.

The store saves time and money because orders are placed online. Critical ordering information is displayed, such as correct part numbers, accurate pricing, and product availability. Once the order is placed, it is immediately entered into Digital's order-processing system–fast and error-free.

To register for an account online, dial 800-332-3366 at 1200/2400 baud from 8 A.M. to midnight, EST with any VT100, VT200, Rainbow, DECmate, PRO, VAXstation, or other PC that emulates a VT100.

Digital Press, the publishing entity of Digital's Educational Services group, produces practical, timely books for today's computer community. Digital Press serves the computer professional and academic and business communities with books on computer technology, computer management and business applications, general applications, the history of computing, subjects for first-time computer users, and books with specific reference to Digital products.

Written by leading authorities and practitioners in the computer field, Digital Press books provide accurate, up-to-the-minute information on computer technology. They address the real-world interests of computer professionals including managers, programmers, systems designers, and business users, and they meet the academic needs of students as well as instructors. No matter what their computer interests are, readers find Digital Press books useful and stimulating.

The following titles are a small sample of Digital Press's offerings and reflect the most recently published texts:

A Programmer's Guide to COMMON LISP
Deborah G. Tatar

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Nick Tredennick

RSX: A Guide for Users
John F. Pieper

The Artificial Intelligence Experience: An Introduction
Susan J. Scown

Local Area Networks: An Introduction to the Technology
John E. McNamara

Working with RT-11
David Beaumont, Anne Summerfield, and Julie Wright

HANDS-On BASIC for the DEC Professional Computer
Herbert Peckham with Wade Ellis and Ed Lodi

The Human Factor: Designing Computer Systems for People
Richard Rubinstein and Harry M. Hersh with Henry F. Ledgard

Digital Press also offers valuable reference handbooks, including many specifically geared towards PDP-11 computer users. Further information about Digital Press can be obtained by writing

Digital Press
Digital Equipment Corporation
12A Esquire Road
Billerica, MA 01862-9990

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MicroPDP-11 systems and software are supported by a comprehensive set of documents dedicated to their operation, programming, and maintenance. These are periodically updated to include new developments and equipment and can be ordered through Digital's Publishing and Circulation Services. The following list contains some of the titles and associated Digital order numbers of documents that may be useful to MicroPDP-11 system users.

To order these documents, write

Digital Equipment Corporation
Publishing and Circulation Services
10 Forbes Road
Northboro, Massachusetts 01532-2597

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EB-29317-41	*PDP-11 Systems Handbook*
EB-23657-DP	*PDP-11 Architecture Handbook*
EB-26077-DP	*UNIBUS CPU Handbook*
EK-1184E-TM	*PDP-11/84 System Technical and Reference Manual*
EK-1184D-MG	*PDP-11/84-D System Maintenance and User Guide*
EK-1184E-MG	*PDP-11/84-E System Maintenance and User Guide*

Software Manuals

EB-28783-41	*PDP-11 Software Handbook*
EB-29102-41	*PDP-11 Software Source Book* (Volumes 1 and 2)

Networking Manuals

ED-29631-42	*Networks and Communications Buyer's Guide*
EB-28987-42	*DECconnect Communications System Handbook*
EB-26013-42	*Digital's Networks: An Architecture with a Future*
EB-29097-42	*Digital's Solution to Multivendor Networking*

Miscellaneous

ED-31737-78	*Self-Maintenance Services Price Book and Reference Guide*
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EB-28948-49	*Guide to Digital's Industrial and Scientific Products*
EB-24501-JL	*Guide to Personal Computing*
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To complement your Digital computer system, supporting products such as accessories, supplies, add-on and upgrade products, documentation and selected hardware options are available for immediate delivery through the *DECdirect PLUS* catalog. Network and personal computing products are also available through *DECdirect PLUS*. Featuring a colorful, informative format, *DECdirect PLUS* makes buying high-quality Digital products easier. For your free copy call toll-free **800-258-1710.** The mailing address is

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