Cii Honeywell Bull DPS 7 Series

PRODUCT DESCRIPTION

The large-scale DPS 7 Series comprises a family of five modular distributed processing systems. DPS 7 systems are collections of specialized processors that can operate simultaneously, providing a maximum throughput of up to 25 megabytes per second in the 7/60, 7/65, and 7/70 models and up to 36 megabytes per second in the larger 7/80 and 7/82 models. Current Mode Logic (CML), a fast, lower power, low heat technology, is used in the main processors, the I/O processors, the cache memories, and, in the 7/80 and 7/82 models, in the control store. Major system functions such as task management, addressing, and data protection, are implemented in firmware, providing a further performance boost.

DPS 7 central processors are composed of seven "mini-machines," a control store, a processor bus, and, with the exception of Model 7/65, a 16K-byte cache memory. This processing "system" is connected, via its cache memory, with the central bus, which also services main memory and the input/output processors. The I/O processors, which have their own control stores and main memories, are connected to the peripheral processors, which also have their own control stores and main memories. This distributed architecture enables various subsystems to operate simultaneously, allows subsystems to communicate with each other without tying up the main processor, and provides flexibility in distributed processing network environments.

The seven mini-machines in the main processor are as follows:

● Pilot machine (PIM): The PIM retrieves micro-instruction sequences from the control store and routes them to the appropriate mini-machines. Micropro-grams are composed of two or more 56-bit words, each protected by an 8-bit autocorrection code. ▷

PRODUCT: The Cii Honeywell Bull DPS 7 Series, a family of modular large-scale distributed processing systems for business data processing or communications.

DATE ANNOUNCED: DPS 7/80 and DPS 7/82, September 1979; DPS 7/60 and DPS 7/70, January 1980; DPS 7/65, January 1981.

DELIVERY: DPS 7/60, DPS 7/70, DPS 7/80, and DPS 7/82 systems are scheduled for the fourth quarter of 1980. The DPS 7/65 is scheduled for July of 1981.

BASIC SPECIFICATIONS

MANUFACTURER: Cii Honeywell Bull, 94, avenue Gambetta, B.P. 33, 75960 Paris, Cedex 20, France. Telephone 360.02.22. Telex 220 898 F.

MODELS: DPS 7/60, DPS 7/65, DPS 7/70, DPS 7/80, DPS 7/82.
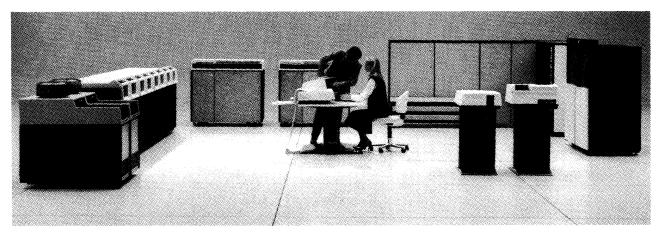
MAIN MEMORY: See Characteristics table.

DISK CAPACITY: See Characteristics table.

CONFIGURABILITY: See Characteristics table.

COMMUNICATIONS: See Characteristics table.

OPERATING SYSTEM: See Characteristics table.

APPLICATIONS PROGRAMS: The DPS 7 is marketed with software packages for industrial management with IMS-TD, inventory management with DIMS, accounting and budgetary management with COGEB, statistical analysis with STATPAC, project management with PMCS-X, mathematical applications with MATHLIB, and linear programming with LPI. Applications software can be ▶

Equivalent in power to the IBM 4341-2 and three times more powerful than the largest 64/DPS model, the DPS 7/70 pictured above runs under GCOS 64E, SIRIS 3E, and SIRIS 8E, providing a direct upgrade path for users of CII-HB Level 64 and 64/DPS systems, and of CII IRIS systems.

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CHARACTERISTICS OF THE DPS 7 SERIES

Model	DPS 7/60	DPS 7/65	DPS 7/70	DPS 7/80	DPS 7/82
Date announced	January 1980	January 1981	January 1980	September 1979	September 1979
Date of first delivery	4Q 1980	July 1981	4Q 1980	4Q 1980	4Q 1980
Principal operating systems	GCOS 64E	GCOS 64E	GCOS 64E	GCOS 64E	SIRIS 8E
	SIRIS 3E		SIRIS 3E	SIRIS 3E	
	SIRIS 8E		SIRIS 8E	SIRIS 8E	
MAIN PROCESSORS					
Processors	1	1	1	1	2
Processor cycle time (nanoseconds)	210	140	160	110	110
Levels of internal simultaneity	7	5	7	7	7
CACHE MEMORIES					
Cache memories	1	None	1	1	2
Cache memory capacity (bytes)	16K	—	16K	16K	2 x 16K
Cache memory access time (nanoseconds)	160	—	160	110	110
MAIN MEMORIES					
Memory units	1	1	1	1	1 or 2
Throughput per unit (millions of bytes per second)	18	18	18	19	19
Double-word (eight-byte) read time (nanoseconds)	960	710 (355 single-word)	960	660	660
Double-word write time (nanoseconds)	880	580 (290 single-word)	880	550	550
Main memory capacity (millions of bytes)	2, 3, or 4	2, 3, or 4	2, 3, or 4	3 or 4	4 or 8
SYSTEM BUS					
Bus cycle time (nanoseconds)	160	105	160	110	110
Bus width (data and address transfers are simultaneous)					
● Data (bytes)	4	4	4	4	4
● Addresses (bits)	28	28	28	28	28
Bus throughput (millions of bytes per second)	25	25	25	36	36
INPUT/OUTPUT PROCESSOR GROUPS					
Number of groups	1	1	1	1	1 or 2
Maximum throughput per group (millions of bytes per second)	18	18	18	19	29
Input/output channel throughput (millions of bytes per second)	2.5	2.5	2.5	2.5	2.5
Number of input/output processors	4 to 12	4 to 8	4 to 12	4 to 16	4 to 32
SERVICE, UNIT RECORD AND COMMUNICATIONS PROCESSORS					
Integrated Service and Unit Record Processors	1	1	1	1	1
Additional Unit Record Processors (optional)	1	1	1	2	5
Maximum connections supported	10	10	13	21	45
Communications Processor (optional, uses one connection)	1	1	1	1	—
Lines supported	15	15	15	15	—
NETWORK PROCESSORS					
Datanet 7100 front-end network processors (optional)	1	1 or 2	2	3	4
Total lines supported	48	128	128	256	512
MASS STORAGE PROCESSORS					
Integrated processors	1	1	1	1	1
Additional processors (optional)	2	Up to 4 single-channel or 2 dual-channel	3	3	7
Maximum disk units supported	27	36	36	36	72
Maximum online mass storage capacity (millions of bytes)	16,000	21,000	21,000	21,000	42,000
MAGNETIC TAPE PROCESSORS					
Single-access processors	Up to 2	Up to 2	Up to 4	Up to 4	Up to 8
Dual-access processors	1	1	Up to 2	Up to 2	Up to 4
Maximum tape units supported	16	16	32	32	64

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▷ • Address Calculation Machine (ACM): The ACM handles all address translations and includes the base registers and an associative memory that stores up to 128 descriptors. The ACM also handles data protection by checking rings (under GCOS) or keys (under SIRIS).

• Data and Instruction Management Machine (DIM): The DIM provides the interface between the cache memory and the other mini-machines and includes a 32-byte lookahead buffer that often allows it to begin interpreting another instruction while a previous instruction is still being executed.

• Arithmetic and Logic Machine (ALM): The ALM includes the data registers and executes fixed-point, decimal, and logic operations.

• Scientific Calculation Machine (SCM): The SCM executes floating-point operations.

• Timer: Using the main clock as a reference, the timer transmits a master frequency along the processor bus and also provides various types of information, such as real time, elapsed time, and process time.

• Maintenance Interface Machine (MIM): The MIM provides the interface between the main processor and the service processor for system initialization and testing.

Each I/O processor has a control store of 4K 48-bit words, a main memory of 2K bytes, and a maintenance interface. Via a common memory interface unit, the I/O processor can transfer data to either the cache memory or the system's main memory. Four I/O processors are standard, and the 7/65 can have up to 8, the 7/60 and 7/70 up to 12, and the 7/80 up to 16.

Via the I/O processors, the DPS 7 systems support four types of peripheral processors: unit record, mass storage, tape, and network. The integrated unit record processor supports the system console, card units, printers, diskette drives, document handlers, and, optionally, a DCC4380 communications controller. Details of the peripheral processors are summarized in the Characteristics table.

To help assure system availability, the DPS 7 includes special channels that allow diagnostic tests to be run and the system to be reconfigured without interrupting user service. A remote maintenance service allows the console operator to connect the DPS 7 to a CII-HB center, enabling specialists to monitor system performance, initiate diagnostics, and recommend solutions to problems.

▷ transferred from Level 64, 64/DPS, and IRIS computer systems, where appropriate.

LANGUAGES: High level programming languages include BASIC, COBOL, FORTRAN, RPG 2, WORDPRO, APL, and QUERY.

PRICING

Equipment	Purchase	Rental*
DPS 7/60	4,250,000 FF	125,000 FF
DPS 7/65	3,410,000 FF	106,000 FF
DPS 7/70	5,400,000 FF	160,000 FF
DPS 7/80	Not established	170,000 FF
DPS 7/82	Not established	350,000 FF

*Monthly rental including software.■

RELATION TO CURRENT PRODUCT LINE

Designed to provide a common upgrade path for users of CII-HB Level 64 and 64/DPS systems and of CII IRIS systems, the DPS 7 also is aimed at converting users of IBM System/370, ICL 1900 Series, and Siemens System 4004 and Series 77 computers.

The DPS 7 Series is composed of the 7/60, 7/65, 7/70, 7/80 and 7/82. The DPS 7/65, the most recently introduced model has the same internal performance and throughput as the DPS 7/60, but is more cost efffective for GCOS operating system users because it does not include facilities for IRIS emulation. In comparison to the entry-level 7/60, the 7/65 has over twice the communications lines, provides an additional 5,000 megabytes of on-line storage, and is physically more compact. Moreover, the 7/65, which runs under GCOS 64E, is capable of using the OS 200/2000 operating systems and can be adapted to existing users of the company's H 200 and H 2000 computers.

CII-HB offers three DPS 7 operating systems—GCOS 64E, SIRIS 3E, and SIRIS 8E—and three instruction sets, providing a direct upgrade path for users now running under GCOS 64, SIRIS 3 or SIRIS 8. In addition to Model 7/65's 200/2000 "Program Mode" capability, CII-HB offers Transit, a software conversion system.

COMPETITIVE POSITION

At the low end of the new series, the DPS 7/60 and DPS 7/65 provide about twice the performance of the largest 64/DPS model, the 64/DPS-6, and when running business applications under GCOS 64E, provide a performance level comparable to the 4341-1. The next model, the DPS 7/70, provides about 1.5 times that performance, equivalent to the power of the 4341-2. The fastest model, the DPS 7/80, provides about 1.3 times the performance of the DPS 7/70. The fourth model, the dual-processor DPS 7/82, is an upgrade only for the IRIS 80 and is not directly comparable to the 64/DPS.□