Honeywell Bull DPS 7000

PRODUCT DESCRIPTION

The new DPS 7000 Series of medium-scale computers are the first offspring of Honeywell Bull Inc., the new corporate entity formed from the marriage of Honeywell Inc., Groupe Bull of France, and NEC of Japan. The five-model, 32-bit DPS 7000 line is the apparent replacement for the existing DPS 7 processors and will be available in August 1987. New DPS 7s are no longer available, although users can still obtain DPS 7 add-on products and upgrades. DPS 7000 systems can be upgraded to the next highest model in the series. Like this older line, the DPS 7000 systems are built by Groupe Bull. The DPS 7000 machines are positioned as "enterprise-wide" computers that are tuned for high-volume transaction processing, although the low-end model can be used as a departmental satellite machine.

The new product line, announced last April, will continue to address manufacturing and health industry markets, two established Honeywell Bull niche markets. Software products addressing these market segments include the Honeywell Bull Manufacturing System/7 (HMS/7), now available for the DPS 7000, and the Patient Care Management System, the first component of Honeywell Bull's Comprehensive Hospital System.

The five models include the 10, 20, 30, 40, and 50. System memory can range from 4 megabytes to 16 megabytes and channel capacity can range from 4 to 8 I/O channels. The DPS 7000 can use most of the newer vintage DPS 7 disk, tape, and printer products.

A base Model 10 features four megabytes of main memory and is packaged with a 700-megabyte mass storage disk, and 1600 bits-per-inch (bpi) magnetic tape unit, and a service processor. The service processor includes a 5¼-inch diskette, a 20-megabyte hard disk, a system console and printer, a diagnostic interface, and a remote maintenance

PRODUCT ANNOUNCED: The new DPS 7000 is the first new processor line to be announced by Honeywell Bull since the formation of the new company that teams up Honeywell Inc. with Groupe Bull of France and NEC of Japan. The Bull manufactured product line includes five models positioned as medium-scale organizational and departmental machines.

COMPETITION: CDC 930; Digital Equipment VAX 8200, 8300; IBM 9370 Information Systems and System/38; NCR 9800; Unisys 2200, A 3, and A 5.
DATE ANNOUNCED: April 1987.
SCHEDULED DELIVERY: August 1987.

BASIC SPECIFICATIONS

MANUFACTURER: Honeywell Bull Inc., 200 Smith Street, Waltham, Massachusetts 02154. Telephone (617) 895-6000.

MODELS: Honeywell Bull Models 10, 20, 30, 40, and 50.

CONFIGURATION: The DPS 7000 line features five models. Memory ranges from four megabytes to 16 megabytes, and channel capacity ranges from four to eight channels depending on model. The low-end Model 10 is offered as a packaged system. The Model 10 features a central processor with four megabytes of memory packaged with a 700-megabyte mass storage unit and 1600-bits-per-inch (bpi) magnetic tape unit. A configuration can also include a Datanet 8/05 front-end network processor.

Models 20, 30, and 40 feature a central processor with eight megabytes of memory, four I/O channels, and a service processor

The new Honeywell Bull DPS 7000 Series, the apparent replacement for the DPS 7 Series, is designed to handle high volume transaction processing and supports manufacturing and health industry applications. The Model 30, shown in the photo, is configured with eight 500-megabyte mass storage units, a 900 lines-per-minute printer, and a 1600/6250 bits-per-inch magnetic tape subsystem.

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attachment. A basic Model 20, 30, 40, or 50 features eight megabytes of main memory, four I/O channels, and the service processor. All processor models can be outfitted with Datanet 8 front-end communications processors.

The system CPU, I/O processors, and memories make use of new very-large-scale (VLSI) complementary metal oxide semiconductor (CMOS) chips and 256K-bit memory chips. A company spokesperson said at some point one-megabit chips will be available, but could not specify when. The CMOS chips feature 22,000 ports per chip. The CPU uses 10 VLSI chips and has an internal transfer capacity of 27 megabytes per second. It features a cache memory of 64 kilobytes, a control memory of 192 kilobytes, and a clock cycle time of 150 nanoseconds. I/O transfer rate ranges from 1.25 megabytes per second to 2.5 megabytes per second.

Similar to other medium- and large-scale Honeywell Bull systems, the vendor places much market emphasis on transaction processing applications. The entry-level Model 10 system can handle up to 9,000 TP1 benchmarked transactions per hour and a fully configured, top-end Model 50 can handle up to 600 terminals and 52,000 transactions per hour.

To facilitate networking and connectivity, the DPS 7000 features PC-to-mainframe link functions and peer-to-peer networking. Peer networking is implemented through Honeywell Bull's Distributed Systems Architecture, which also conforms to the International Standards Organization (OSI) model for interconnecting equipment from other vendors.

On the software side, Honeywell Bull introduced Version 3 of the GCOS 7 operating system to run on the DPS 7000 Series. Through the use of menus and help screens, GCOS 7 can be used by both experienced and inexperienced users. The operating system uses Honeywell Bull's Integrated Data Store/II (I-D-S/II) data base management system and also supports Oracle, a relational data base management system from Oracle Corporation. Other components include software development tools, fourth-generation languages, and networking software. Software development tools include data dictionaries and other software packages available from third-party software vendors.

RELATIONSHIP TO CURRENT PRODUCT LINE: The five-model DPS 7000 processor line replaces the three remaining models of the DPS 7 model line. The new DPS 7000 line extends processing power beyond the range of the DPS 7 line through the use of additional main memory capacity, faster internal throughput, and faster I/O transfer rates. This will be particularly beneficial for DPS 7 users now running out of capacity. The DPS 7000 line ranges from four megabytes to 16 megabytes, while the DPS 7 line ranges from two megabytes to eight megabytes. Published MIPS (millions of instructions per second) ratings for the DPS 7000 range from 0.65 MIPS to 3.8 MIPS. Ratings for the DPS 7 range from 0.66 to 1.36 MIPS. The DPS 7000 can also handle up to 52,000 transactions per hour com-

which includes a 5¼-inch diskette, a 20-megabyte hard disk, system console, printer, diagnostic interface, and remote maintenance attachment.

A Model 50 features two central processors and eight megabytes of main memory, expandable to 16 megabytes and four I/O channels expandable to eight channels.

CENTRAL PROCESSOR AND MEMORY: DPS 7000 processors are 32-bit systems using very large scale integration (VLSI) complementary metal oxide semiconductor (CMOS) chips within the CPU, input/output processors, and system memory. The components feature 22,000 ports per chip. The CPU, packaged with 10 VLSI chips, has an internal transfer rate of 27 megabytes per second and a clock cycle time of 150 nanoseconds. The CPU also features a 64-kilobyte cache memory and 192 kilobytes of control memory.

The CPU contains arithmetic and logic units divided into subunits that perform different logic functions. To promote a form of parallel processing, five functions can operate simultaneously in firmware.

INPUT/OUTPUT SUBSYSTEM: The DPS 7000 I/O processors feature a transfer rate ranging from 1.25 megabytes per second to 2.5 megabytes per second for each individual processor channel. Processor models can feature from four to eight channels depending on model. The I/O processors include 64 kilobytes of memory for channel program execution and data buffering. For transaction processing environments, DPS 7000 systems can handle from 9,000 to 52,000 transactions per hour using the TP1 industry-standard benchmark. A fully configured top-end Model 50 can handle up to 600 terminals.

COMMUNICATIONS: The DPS 7000 Series incorporates connectivity and peer-to-peer networking capabilities. Peer-to-peer capabilities are implemented using Distributed Systems Architecture (DSA), Honeywell Bull's open networking architecture. DSA conforms to the International Standards Organization (ISO) Open Systems Interconnection (OSI) model, making it easier for Honeywell Bull systems to communicate with other vendors' equipment which conforms to the OSI model.

In addition to peer networking, the DPS 7000 systems permit micro-to-mainframe links. PC users running MS-DOS can connect directly to a DPS 7000 machine. Through a personal computer, PC users can access PC functions and all DPS 7000 functions. Users can also download GCOS 7 operating system data to the PC for use with such software packages as Lotus 1-2-3 or Framework.

To handle networking and data communications functions, users can configure DPS 7000 systems with Datanet 8 front-end communications processors. Using a Honeywell Bull DPS 6 minicomputer, Datanet processors can handle line, protocol, and message management and in general manage the network load for the central DPS 7000 processor. Depending on DPS 7000 model, the Datanet front-end can handle from three to 255 lines and up to 600 terminals.

SOFTWARE: The DPS 7000 processor series runs under Version 3 of the GCOS 7 operating system. Using automatic menus, command prompting, and help screens, the operating system is designed for both experienced and less experienced users. GCOS 7 features more than 200 functions that can be accessed through menus. A systems administrator can determine what functions should be available to a given user.

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pared with the DPS 7 which handles up to 22,500 transactions per hour, according to Honeywell Bull.

To improve performance and throughput over the DPS 7 line, the new product line uses a new semiconductor technology, according to Honeywell Bull. The very-large-scale integration (VLSI) complementary metal oxide semiconductor (CMOS) is used in central processors, I/O processors, and system memory. I/O throughput now ranges from 1.25 megabytes per second to 2.5 megabytes per second per channel. The DPS 7 features a throughput rate ranging from 1.25 megabytes per second to 1.81 megabytes per second. The DPS 7 also uses both 64K-bit and 256K-bit memory chips, depending on the age of the installed processor, while the DPS 7000 line uses 256K-bit chips and at some later point will use one-megabit chips.

To ease migration to the new processor line, DPS 7 users can move most of their disk, tape, and printer peripherals over to the DPS 7000 line using special reconnect kits. Peripherals that can be moved over to the DPS 7000 include the MSU1007, MSU0452, MSU0555, MSU0390, all disk drives; the MTU0537 tape drive; the PRU0906, PRU0909, PRU1205, PRU1209, all high-speed line printers. Older DPS 7 peripherals, which Honeywell-Bull considers obsolete, such as card machines and some older printer families, cannot be moved to the DPS 7000. Many of these older products are now considered old enough to be written off. For users not ready to write off their hardware, users can cluster DPS 7000s within installed DPS 7 configurations. Under this arrangement, a DPS 7000 can be loosely coupled with a DPS 7 through crossbaring, dynamic switching, and cabling. Loose coupling allows two versions of GCOS 7 to run simultaneously on both systems. Users can readily share files and peripherals within the joined systems. This arrangement can be beneficial to sites requiring additional power and system redundancy.

The new product line runs under Version 3 of the GCOS 7 operating system, which is compatible with the previous version, making it possible for DPS 7 users to port existing applications over to the DPS 7000. Both the DPS 7 and DPS 7000 operating under GCOS 7 continue to feature peer-to-peer networking capabilities and PC-to-mainframe links. Additionally, both product lines can run the Oracle relational data base from Oracle Corporation. Mantis and IQS fourth-generation languages are also available to both product lines.

In the operating system pricing area, Honeywell Bull announced a new graduated pricing structure with the introduction of the DPS 7000. The initial software license fee has been divided into three pricing groups based on power of the central processor. An initial GCOS 7 Version 3 license for the Models 10 and 20 costs $25,500. An initial license for the Models 30 and 40 costs $47,700 and $66,600 for the top-end Model 50. In addition, users will be charged a small monthly license fee beginning 13 months after the initial agreement. As an option, users can choose to pay only a non-graduated monthly license fee not based on model power range.

GCOS 7 Version 3 is composed of four components which include data base technologies, a development methodology, fourth-generation languages, and networking functions.

DATA BASE MANAGEMENT: GCOS 7 uses Honeywell Bull's Integrated Data Store/II (I-D-S/II) network data base management system which is tailored to large volume transaction processing environments. To satisfy customer demands for a relational data base system, Honeywell Bull also offers the Oracle relational data base management system from Oracle Corporation. According to Honeywell Bull, Oracle is well adapted to query and decision-making systems.

PROGRAM DEVELOPMENT: To facilitate applications development, the operating system features fourth-generation language capabilities and data dictionaries. Specifically, Honeywell Bull offers the following third-party software:

- **Sindia 7, a transaction code generator from Steria Diffusion.**
- **Mantis, an on-line fourth-generation application generator from Cincom Systems Inc.**
- **IQS, a fourth-generation language with relational views, and**
- **SQL, the industry-standard language used with Oracle.**

OTHER SOFTWARE: Application packages available for the DPS 7000 Series include the Honeywell Bull Manufacturing System/7 (HMS/7) and Patient Care Management System. The integrated packages address two established Honeywell Bull niche markets, manufacturing and the health industry.

HMS/7 is a Manufacturing Resource Planning (MRP II) system for integrated inventory and production control. The package contains six application modules. These include Inventory Record Management, Manufacturing Data Control, Material Requirements Planning, Master Production Scheduling, Statistical Forecasting, and Capacity Requirement Planning. HMS/7 can be integrated with the Honeywell Bull Factory Data Collection system using the new Host Application Interface for monitoring the shop floor.

The Patient Care Management System, a Honeywell Bull package developed for the DPS 7000 Series, is said to be the first component of the company's Comprehensive Hospital System, an on-line, modular hospital information product featuring an integrated data base, productivity tools, patient care accounting and financial management applications. Patient Care Management is composed of 10 modules that handle patient admission, discharge, transfer and registration processing, patient scheduling, staff scheduling, order entry and results reporting, pharmaceutical processing, patient chart review, point-of-service billing, medication administration, patient acuity information processing, and care planning.

PRICING: Honeywell Bull DPS 7000 systems are marketed primarily as purchase-only systems. The company has not published any lease charges, although users may call to request lease pricing quotes.

In the software pricing area, Honeywell Bull now offers two software pricing plans. The first plan involves a new tiered pricing structure with the introduction of the DPS 7000. The initial software license fee has been divided into three pricing groups based on power of the central processor. Users will pay a graduated license fee in addition to a small monthly license fee that begins 13 months after the initial agreement. As an option, users can choose a second pricing plan which calls for only a flat monthly license fee.

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COMPETITIVE POSITION: While on its face the DPS 7000 appears to have the performance range of a supermini, Honeywell Bull prefers to call the new product line a midrange 32-bit mainframe. The model line is positioned to compete against the new IBM 9370 Information System supermini and the IBM System/38 minicomputer. The DPS 7000 is marketed as an enterprise-wide system featuring applications software addressing manufacturing and health-industry applications. As with its other mini and mainframe products, Honeywell Bull talks up transaction processing capabilities. The Distributed Systems Architecture (DSA), Honeywell Bull's networking architecture, is an open architecture supporting peer-to-peer networks and conforms to ISO's Open Systems Interconnection (OSI) model for interconnecting equipment from other vendors.

Lately, IBM has also been moving in a similar data communications direction with new software products that support peer-to-peer networking and OSI. The newly announced IBM Systems Application Architecture (SAA) will also let users develop a consistent software interface among IBM PCs, S/3X minis, 9370 superminis, and S/370 mainframes. The 9370 is a 370-compatible system that brings the mainframe operating environment to the departmental level. The 9370 addresses some of the shortcomings of the System/36 and System/38 which operate under incompatible operating systems.

Similar to the S/3X, System 7000 users cannot readily migrate to larger GCOS/8 based Honeywell Bull systems without code rewriting and recompilation. Both GCOS 7 and GCOS 8, however, use a similar I-D-S/II data base and TDS transaction processing system, and use common file structures among other similarities. Over the years, a company spokesperson said, most of its medium-scale users have not found a need to migrate to the larger operating environment, although there have been sites that rapidly outgrew Honeywell Bull medium-scale offerings and needed to move up to a larger Honeywell Bull system. These customers are usually the exception.

Similar to the 9370, the DPS 7000 is designed to function in an office environment and does not require a separate computer room environment.

To enhance system throughput, Honeywell Bull developed VLSI CMOS chips. The DPS 7000 now uses a faster I/O 2.5-megabyte-per-second transfer speed. IBM, meanwhile, enhanced throughput rates on the S/38 with the introduction of the 9332 disk, which operates at 2.5 megabytes per second, and the 9335, which operates at 3 megabytes per second. □

EQUIPMENT PRICES

		Purchase Price ($)	Maint. Price ($)
DPS 7000 Processors			
Model 10	System includes central processor with four megabytes of main memory, 700 megabytes of mass storage, 1600 bits-per-inch magnetic tape subsystem, service processor, remote maintenance attachment, console CRT, printer, and diagnostic interface.	112,400	491
Model 20	System includes central processor with eight megabytes of main memory, four I/O channels, service processor, remote maintenance attachment, console CRT, printer, and diagnostic interface.	70,000	230
Model 30	System includes central processor with eight megabytes of main memory, four I/O channels, service processor, remote maintenance attachment, console CRT, printer, and diagnostic interface.	100,000	320
Model 40	System includes central processor with eight megabytes of main memory, four I/O channels, service processor, remote maintenance attachment, console CRT, printer, and diagnostic interface.	140,000	415
Model 50	System includes two central processors with eight megabytes of main memory, four I/O channels, service processor, remote maintenance attachment, console CRT, printer, and diagnostic interface.	193,200	525

SOFTWARE PRICES

	Initial Software License Fee ($)
GCOS 7 Operating System Software*	
Model 10	25,500
Model 20	25,500
Model 30	47,700
Model 40	47,700
Model 50	66,600

**With the introduction of the DPS 7000, Honeywell Bull announced graduated GCOS 7 initial license fees based on processor size and power.* ■