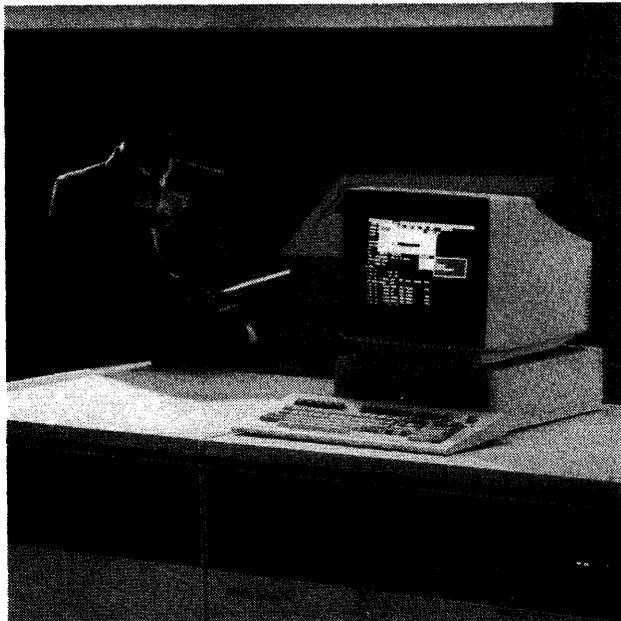


Unisys 2200/400 Series

PRODUCT DESCRIPTION

Unisys has not been resting on its laurels as the number two computer vendor in the U.S. The company has made good on its promise to continue its two different main-frame architectures with the announcement of the high-end A 17 in November 1987 and the introduction of the 2200/400 Series in March 1988. The 2200/400 Series will replace the 1100/60 and 1100/70 when it becomes available in the last quarter of 1988. Unisys is planning to introduce yet another 2200 Series by the end of the year.

The 2200/400 performs equally well in a centralized or distributed environment. It also can serve as a front-end or back-end processor with IBM and Unisys hosts. The 2200/400 Series features Very-Large-Scale Integration (VLSI) semiconductor technology to reduce component count and a bus-structured architecture to provide for the downsizing necessary in today's market. The bus architecture was first used in the 2200/200 Series, a departure from the cross-bar architecture of the older 1100 Series. The 2200/400 marks the return to the scientific orientation of the 1100 Series, however, with Fortran handling features for improved number-crunching. The 2200/400 provides three times the performance of the 1100/70 in a scientific environment. Performance ratings for commercial applications range from 2.4 million instructions per second (MIPS) for the single-processor 2200/401 to 14



The Unisys 2200/400 consists of six models featuring from one to six instruction processors, each with 64K bytes of cache memory. Main memory ranges from 16M to 64M bytes. Up to 10 I/O processors with up to 64 I/O channels can be configured. The entry-level 2200/401 occupies only 22 square feet of space and does not require a special computer room environment.

PRODUCT ANNOUNCED: The new Unisys mid-range 2200/400 Series is a distributed processing system using the 1100 Series architecture and OS 1100 operating system. It is available in six models, featuring from 1 to 6 processors and up to 64 input/output channels. Main memory capacity ranges from 16 to 64 megabytes. The 2200/400 is object-code compatible with the 1100 and 2200/200 Series systems and provides a growth path for 1100/60, 1100/70, and 1100/80 users.

COMPETITION: IBM 9370 and 4381 systems.

DATE ANNOUNCED: March 15, 1988.

SCHEDULED DELIVERY: November 1988, second and third quarter of 1989.

MIPS for the tightly coupled six-processor 2200/406 model. The small footprint (only 22 square feet for the 2200/401), reduced power consumption, and air-conditioning eliminates the need for under-floor cabling and a separate computer room.

RELATIONSHIP TO CURRENT PRODUCT LINE:

The 2200/400 Series joins the 2200/200 family introduced in October 1986. The new series offers 2 to 11 times the performance of the 2200/200 and features the 1100 architecture and OS 1100 operating system used throughout the 1100 and 2200/200 Series product line. The common architecture and operating system protects user investments in hardware, software, and communications products. The 2200/400 is object-code compatible with the 1100 and 2200/200 Series systems and provides a growth path for 1100/60, 1100/70, and 1100/80 users. According to the vendor, most customer-written applications software can run on the 2200/400 without recompilation or relinking.

Unisys supports an extensive number of new and existing peripherals on the 2200/400. Among the disk storage devices available are the 5057/8481 Cache/Disk System, the 5071 Optical Disk Subsystem, the 5074/8494 Disk Subsystem, and the 5090/8490 Cache/Disk Subsystem. Tape storage systems include the Uniservo 36 II and Uniservo 28 Tape Subsystems and the Uniservo Tape Cartridge Subsystem. Printers recommended for the 2200/400 are the 0770 II Printer Subsystem and the 9246-7L and 9246-14B band printers.

Several PC-based software options are available for the 2200/400 console. The software product Shield, also offered on the 2200/200, lets the user perform system operations using a menu interface and an on-line help facility. ▽

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▷ It also provides simplified tasks including file administration, user security, and accounting. It is especially suitable for operators with limited experience. Smart Console enables the system to operate in attended, casual, or unattended mode. It also permits the system to run without a full-time operator and to recover from most faults without manual intervention. Automated Power Control provides automated and unattended power control and monitoring of the computer system and associated facilities. It requires additional hardware called the Facilities Access Control Unit (FACU). The Smart Console option is a prerequisite.

COMPETITIVE POSITION: Unisys had a very successful 1987, with revenues of \$9.7 billion, up 7 percent over 1986, and earnings of \$578 million. The company moved into the number 36 position in the 1987 list of *Fortune* 500 companies, up from 46 in 1986. The number-two computer vendor, second only to IBM, continues to update its various computer product lines with new mainframes, minicomputers, microcomputers, and workstations. Unisys' marketing strategy is changing, from being strictly competitive to more of a coexistence stance. The 2200/400 is a prime example of this strategy with industry-standard networking and Systems Network Architecture (SNA) connectivity. The 2200/400 works efficiently in an Unisys or multivendor environment employing the Distributed Communications Architecture (DCA) in its communications system design. DCA is based on the concepts and structure of the proposed International Standards Organization for Open System Interconnection (OSI) protocol.

Unisys identifies three target markets for the 2200/400: installed base, distributed processing systems, and new name accounts. Primarily, the 2200/400 will provide a migration path for 1100/60, 1100/70, and 1100/80 systems users. With over 2,300 of these systems installed, this represents a rather large market for system upgrades. The ability of the 2200/400 to function as a distributed processing system linked with installed 1100 systems opens another big marketing opportunity. The 1100 systems, including the high-end 1100/90, has an installed base of over 4,000 systems. The 2200/400, with its more powerful Fortran compiler, will be competing for new accounts in the engineering and scientific area. IBM will be Unisys' strongest competitor in the area of new accounts. The Unisys 2200/400 and the IBM 4381 systems function well as standalone systems or in a distributed systems environment, while the IBM 9370, because of its compact size, is a true departmental system. According to Unisys, the 2200/401 offers a slightly higher performance than the 9377/90, bringing the 2200/400 family in just above the top-end 9370-class computer. The mid-range 2200/400 models are comparable to IBM's 4381/21, 22, 23, and 14 models. □

BASIC SPECIFICATIONS

MANUFACTURER: Unisys Corporation, P.O. Box 500, Blue Bell, Pennsylvania 19424. Telephone (215) 542-4011. Canada: Unisys Canada, 2001 Sheppard Avenue East, North York, Ontario M2J 4Z7. Telephone (416) 495-0515.

MODELS: Unisys 2200/400, Models 401, 402, 403, 404, 405, and 406.

CONFIGURATION: The 2200/400 Series is usually housed in three cabinets: processor cabinet, Common Input/Output Processor (CIOP) cabinet, and Input/Output accessory cabinet. For a large system, an I/O expansion cabinet is needed to hold the I/O processors. Additional I/O accessory cabinets may also be required. The cabinets contain the Instruction Processor (IP), Memory Storage Unit (MSU), Input/Output Processor (IOP), CIOP, and system console. The 2200/400 Series has from one to six IPs, the last digit of the model number denoting the number of processors in a system. All models can be upgraded on-site by adding additional IPs, MSUs, IOPs, and other components.

The entry-level 2200/401 consists of one IP with 64 kilobytes of cache; one MSU with a storage capacity of 16 megabytes, expandable in 16-megabyte increments to 64 megabytes; one System M-Bus; one IOP; one Block Multiplexer Channel (BMC) Module with four BMC interfaces; one CIOP; one Multibus II; one Small Computer Standard Interface (SCSI); one Integrated Asynchronous Line Module; and one Personal Computer (PC) system console.

The high-end 2200/406 consists of six tightly coupled IPs; four MSUs with a total storage capacity of 64 megabytes; two System M-Buses; 10 IOPs; 10 BMC Modules with a total of 40 BMC interfaces; two Integrated Asynchronous Line Modules; and two PC system consoles. To support Unisys word channel peripherals, 10 IOPs with 10 Word Channel (WDC) Modules and 64 WDC interfaces can be used. Not all BMC and WDC I/O channels can be configured simultaneously.

CENTRAL PROCESSOR AND MEMORY: The IPs and the MSUs share the processor cabinet. The IP uses Very-Large-Scale Integration (VLSI), Complementary Metal Oxide Semiconductor (CMOS) chip technology. The IP performs all logical, arithmetic, and instruction sequencing operations. The IP includes the Arithmetic Logic Unit, which supports all arithmetic and logic functions; the Address Generator Unit, which performs basic and extended addressing; the Decode/Control Unit, which performs the first level of decoding on instructions; a Cache Interface, which supports 64 kilobytes of cache memory; the Extended Instruction Set, which provides extensions to the basic 1100 Series instruction set; and the Multiply/Divide Unit, which provides hardware acceleration for multiply and divide instructions. The IP has an addressing range of 16 million 36-bit words with a 2.25 instruction overlap, a 128-word general register stack, and an 80-nanosecond basic cycle time, 8-phase clock.

The MSU is based on 1-megabit chip technology and consists of an interface, control logic, and 16 megabytes of dynamic random access memory (DRAM). The MSU performs single-bit error detection and correction and double-bit error detection. Up to four MSUs can be connected to the M-Bus. The M-Bus is also located in the processor cabinet and interconnects the main functional elements. The double-word (72-bit) M-Bus has a data transfer rate of 90 megabytes per second and has sufficient capacity to support a six-processor system.

INPUT/OUTPUT SUBSYSTEM: The IOPs are located in the processor cabinet. When more than five IOPs are required in a large system, the IOPs have to be moved to an I/O expansion cabinet along with a second M-Bus. An M-Bus expander is required to link the two buses together. The IOPs control I/O operations between peripherals and the M-Bus, serving mainly as I/O interface adapters for the transmission of control information and data. Each IOP can service four BMCs or four WDCs.

The common I/O processor cabinet contains the CIOP, which provides system initialization and microcode loading and the integrated disk and diskette drives for system control. Line modules

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► to connect the PC console, printers, integrated hard disk and diskette, and distributed communications processors are also located in the CIOP cabinet. The Multibus II, which has a bandwidth of 12 megabytes per second, is used to connect line modules to the CIOP. The Integrated Asynchronous Line Module provides an RS-232 connection to the PC console. The SCSI Module is required for the integrated disk and diskette. The printer interface module and the front-end processor interface are available as options. Up to 10 Multibus II slots are available for I/O expansion.

The I/O accessory cabinet houses up to three I/O channel modules. They can be either BMC or WDC modules. A maximum of four I/O accessory cabinets can be configured in a system. Each I/O channel module can house up to eight BMCs or up to four WDCs, a maximum of 16 interfaces per I/O accessory cabinet.

COMMUNICATIONS: The 2200/400 Series supports a full line of Distributed Communications Processors (DCPs). The DCP/15, DCP/20, DCP/40, and DCP/50 are freestanding communications units utilizing Unisys Telcon software to support a wide range of networking requirements. All four models of the DCP support the Unisys Distributed Communications Architecture (DCA). The entry-level DCP/15 supports up to 52 two-way simultaneous lines. The top-of-the-line DCP/50 can accommodate nearly 1,000 communications lines.

The maintenance and diagnostics system for the 2200/400 monitors all system states and logs any errors. It runs continuously in parallel with normal system operations. Diagnostics facilities identify faulty components down to the level of field-replaceable units and can be operated locally or remotely.

SOFTWARE: The 2200/400 operates under the control of the Series 1100 operating system OS 1100. The OS 1100 supports batch, transaction, realtime, and interactive processing in multiprogramming, multiprocessing, and distributed processing environments. Realtime and communications programs, which are subject to specific time constraints, receive top-priority handling by the operating system. Multiprocessing is handled as a logical extension of the OS 1100 Executive's multiprogramming capabilities.

System software consists of system microcode, Executive (Exec) software, Exec features, software for system installation and control, and optional software products. System software is available in absolute or mixed-mode form. In both forms, the software comes ready to install and use. The Exec schedules programs, allocates main memory and mass storage, assigns device facilities, monitors system use, and allows users to communicate with the operating system.

The 2200/400 will also run SX 1100 as a guest operating system under OS 1100. SX 1110 provides a compatible, full implementation of AT&T's UNIX System V. It includes the kernel, shell, library, C compiler, Fortran 77 compiler, and utilities.

Among the software products available for the 2200/400 are the fourth-generation language Mapper, Ofis Link office system, and the Interactive Processing Facility (IPF 1100). Data Base Management Systems include the Universal Data System (UDS), Data Dictionary System (DDS 1100), Network Data Management System (DMS 1100), Relational Data Management System (RDMS 1100), Shared File System (SFS 1100), Processor Common Input/Output System (PCIOS), and Information Management System (IMS 1100).

The Communications Management System (CMS 1100) is the standard communications network interface for all 2200 Series processors to a DCA-based DCP/Telcon network. Among the various communications software products offered by Unisys are Telcon, Remote Batch File Transfer Extended (RBFTE), and Distributed Systems Services (DSS). For more information on these, and other software packages offered for the 2200 Series, please refer to the Unisys 2200/200 Series report on Page 70C-944YT-751.

The 2200/400 supports a wide range of high-level and interpreter languages including APL, Basic, Cobol 74 and 85, Fortran 77, Pascal, PL/1, and RPG II.

PRICING: The only hardware prices available to us at this time are for the six 2200/400 models. For prices on peripherals, please refer to the price list following the Unisys 2200/200 Series report on Page 70C-944YT-751. All software is unbundled, but pricing was not available. The standard Unisys leasing and support agreements apply to the 2200/400 Series.

EQUIPMENT PRICES

		<u>Purchase Price (\$)</u>
Basic Configuration		
2200/401	Basic System; includes three system cabinets, one instruction processor, one 16-megabyte main storage unit, one I/O processor, one common I/O processor, integrated disk and diskette drives, one PC console, and maintenance facilities	177,951
2200/402	Basic System; includes three system cabinets, two instruction processors, one 16-megabyte main storage unit, one I/O processor, one common I/O processor, integrated disk and diskette drives, one PC console, and maintenance facilities	317,385
2200/403	Basic System; includes three system cabinets, three instruction processors, one 16-megabyte main storage unit, one I/O processor, one common I/O processor, integrated disk and diskette drives, one PC console, and maintenance facilities	475,134
2200/404	Basic System; includes three system cabinets, four instruction processors, one 16-megabyte main storage unit, one I/O processor, one common I/O processor, integrated disk and diskette drives, one PC console, and maintenance facilities	638,800
2200/405	Basic System; includes three system cabinets, five instruction processors, one I/O expansion cabinet, one 16-megabyte main storage unit, one I/O processor, one common I/O processor, integrated disk and diskette drives, one PC console, and maintenance facilities	808,784
2200/406	Basic System; includes three system cabinets, six instruction processors, one I/O expansion cabinet, one 16-megabyte main storage unit, one I/O processor, one common I/O processor, integrated disk and diskette drives, one PC console, and maintenance facilities ■	952,065