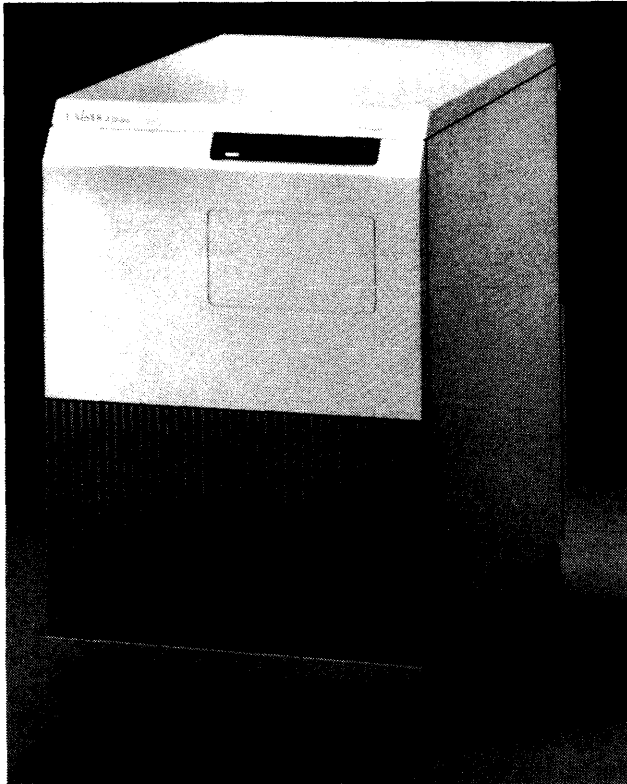# Unisys A 1, A 4, and A 6

PRODUCT DESCRIPTION

With the introduction of its A 1, A 2, and A 6 Model F entry-level systems, dubbed "smallframes," Unisys followed the footsteps of IBM and Honeywell Bull into the world of departmental systems. The new single-processor, deskside systems are targeted for use by small businesses, schools, and government organizations. One cabinet measuring only 18.5 by 29.0 by 29.0 inches houses the central processor, 12 megabytes of memory on a single board, the I/O and data communications subsystem, and a maintenance processor. Expansion cabinets of the same size provide additional I/O subsystems. The use of CMOS gate arrays, TTL-compatible VLSI devices, and the new 1-megabit DRAM chip results in a smaller footprint and lower power consumption and heat dissipation when compared to the A 2, the previous entry-level system. The "smallframes" are air cooled and require no special computer room environment. A 110-volt connection is standard for the A 1 and A 4; the A 6, because of the faster processor, requires 220 volts. The new systems are designed to operate in an office environment but function equally well in a distributed data processing environment as local node processors in Unisys or IBM-hosted networks.

The Unisys A 1, A 4, and A 6 systems consist of a central processor, 12 megabytes of main memory, I/O and data communications subsystems, and a maintenance subsystem. All these components are contained in a cabinet with a footprint of only 3.67 square feet.

> **PRODUCT ANNOUNCED:** The A 1, A 4, and A 6 Model F systems are the latest additions to the Unisys A Series. The new systems consist of a central processing unit (CPU), a memory subsystem, an input/output (I/O) and data communications subsystem, and a maintenance system. All these modules are packaged into a cabinet with a footprint of only 3.67 square feet. The systems have a 48-bit architecture, use the MCP/AS operating system, and have a memory capacity of up to 48 megabytes.
>
> **COMPETITION:** Digital Equipment Corporation VAX II 8200 and 8300, Honeywell Bull DPS 7000, IBM 9370.
>
> **DATE ANNOUNCED:** September 2, 1987.
>
> **SCHEDULED DELIVERY:** September 1987 (A 1, A 4); fourth-quarter 1987 (A 6).

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 A 1, A 4, and A 6 Model F.

CONFIGURATION: The A 1, A 4, and A 6 Model F systems consist of a single central processor; 12 megabytes of main memory expandable to 48 megabytes in 12-megabyte increments; a data communications processor; two I/O bases with eight data link processors (DLPs); a maintenance subsystem; and up to 500 megabytes of integrated disk storage. The A 1 supports one expansion cabinet, up to 16 DLPs, and up to 16 data communications lines. The A 4 and A 6 each support two expansion cabinets, a maximum of 24 DLPs, and up to 16 communication lines. To expand data communications capabilities, up to two CP2000 communications processors can be attached to the systems.

CENTRAL PROCESSOR AND MEMORY: The central processing unit (CPU) is a microprogrammed processor that makes extensive use of transistor-to-transistor logic (TTL), complementary metal oxide semiconductor (CMOS) gate arrays, and Very Large Scale Integrated (VLSI) devices. Microcode controls instruction execution. The CPU is functionally subdivided into relatively independent submodules, each performing its own specific task.

The storage element of the CPU is organized as a Register File and made up of 32 words that are 48 bits wide. The Arithmetic/Logic Unit (ALU) located in the Data Section performs all mathematical and logic functions required by other system modules. The Condition Logic Module receives data and status inputs from the Data Section, Memory Control Unit (MCU), and the Host Dependent Port (HDP) to accomplish condition checking. Tag storage and selection, counter and timer implementation, and address decoupling are also performed by the Condition Logic Module.

A parallel multibus structure transfers data to the various modules. The logic supervising this transfer is contained in the central processor. The 52-bit-wide Memory Bus (MC) transfers data between the MCU and the processor, and also between the HDP ▶

Unisys A 1, A 4, and A 6

▷ At the time Unisys announced the A 1, A 4, and A 6 systems, it also announced a series of packaged applications that combines "smallframes" with industry-specific software and installation and support services. Aptly named Solution Partners, the applications software packages include BAMCS, a closed-loop MRP II manufacturing system; CASTS, an administrative package for school systems and higher education; HMS/HCFM, for hospital administration and financial reporting; and Court Management System, for all levels of the judiciary.

RELATIONSHIP TO CURRENT PRODUCT LINE: The new entry-level A systems are object code compatible with all A series computer systems. They use the 48-bit mainframe architecture, the MCP/AS operating system, and the complete range of software including InterPro and LINC II. The new systems also support all peripherals qualified for the A Series with the exception of the Network Support Processor (NSP), Line Support Processor (LSP), the 3680 (5.4-gigabyte) disk drive, and the B9495-24 (200 inches per second) tape drive.

The new and faster A 1, A 4, and A 6 systems replace the A 2, A 3, and A 5, respectively. The A 2 and A 3 are no longer available; the remaining A 5 machines will be sold at discounted prices until the A 6 is available. The A 1 is field upgradable to an A 4 or A 6 and the A 4 can be expanded to an A 6 without changing the cabinet. Because of the cabinet size, the A 2, A 3, and A 5 cannot be upgraded to the new systems. The new A systems, however, represent a migration path for B 1000, B 5000, and B 6000 Series users looking for an affordable upgrade into the A Series.

COMPETITIVE POSITION: In a departure from its usual marketing strategy of selling to its existing user base, Unisys is targeting the A 1, A 4, and A 6 systems primarily for first-time buyers. In the highly competitive minicomputer arena, the new Unisys "smallframes" will face their biggest challenge from the IBM 9370 Information System superminicomputer and the Digital Equipment VAX II 8200 and 8300. The Honeywell Bull DPS 7000 will compete with the Unisys A systems in the manufacturing and health care markets, an established Honeywell Bull stronghold. The Unisys "smallframes" not only feature the 48-bit A Series architecture, they also have the advantage of the MCP/AS operating system which is upwards compatible through the entire A Series. The IBM 9370 does offer System 370 architecture but the MVS/SP operating system is only supported on the high-end Models 9375 Model 60 and 9377 Model 90. □

▶ and the processor. The HDP transfers 2 bytes of data at a time, utilizing the upper 16 bits of the MC. The HDP ensures the integrity of the data by both vertical and longitudinal parity checking.

The memory subsystem consists of memory storage boards, the MCU, and the MC. Main memory is based on 256K-bit or 1-megabit dynamic RAM chip technology and is expandable in 12-megabyte increments, from a base of 12 megabytes to a maximum of 24 megabytes using 1-megabit chips. The MCU serves as the interface between the processor and the main memory subsystem. The MCU checks the integrity of data received from memory and logs hardware and software failures. Logic contained in the MCU performs single-bit error corrections and detects multiple-bit errors. The MCU also issues commands to the storage boards to correct any soft errors in main memory.

INPUT/OUTPUT SUBSYSTEM: The HDP serves as the interface between the central processor and the I/O subsystem through the Data Link Interface (DLI). The I/O expansion cabinets are connected through the Message Level Interface (MLI) port to the HDP. The I/O subsystem contains a series of specialized Data Link Processors (DLPs) responsible for transferring data to and from peripheral devices and the data communications subsystem, thereby relieving the burden on the central processor. Each type of peripheral device uses a unique DLP. Some DLPs can service multiple peripherals of the same type through standard peripheral exchanges. Each DLP includes a microprocessor, a peripheral interface, and a quantity of local memory. The I/O subsystem supports up to 24 DLPs and an I/O bandpass of 3.4 megabytes per second. The Small Computer System Interface (SCSI), standard on the new A systems, accommodates a variety of micro- and minicomputer peripherals in addition to a full complement of traditional mainframe I/O devices.

COMMUNICATIONS: The Data Communications DLPs (DCDLPS), located in the I/O subsystem are designed for small-to medium size networks. A maximum of four DCDLPs can be supported, with each DCDLP controlling four communication lines. For larger networks, the front-end communications processor CP2000 is available as an option and is supported by the A 1, A 4, and A 6. In addition, the new systems take advantage of a full range of A Series SNA communications network gateways including SNA/RJE, SNA/3270, and SNA/LU6.2.

The User Interface Processor (UIP) is the core of the maintenance subsystem. The UIP performs system initialization and provides diagnostic testing for the components of the CPU, memory, and I/O subsystems. The UIP also provides the interface for a remote diagnostic link that enables all diagnostic routines to be run and monitored at a remote location.

SOFTWARE: The Master Control Program/Advanced System (MCP/AS), designed to support the advanced architecture of the A Series family of computers, is the operating system used by the A 1, A 4, and A 6 systems. The system architecture is derived from hardware and software designed as an integral unit to provide virtual memory, compiler-oriented hardware, reentrant code, dynamic resource allocation, and multiprogramming. Programs running under the MCP/AS can address the entire main memory, up to 48 megabytes. The MCP/AS operating environment offers ease of use features such as on-line "Help" and "Teach" functions and menu-assisted operation with prompts.

Among the A Series software products available for the A 1, A 4, and A 6 are InterPro, and Logic and Information Network Compiler II (LINC II). The InterPro software modules can be implemented individually or as a complete package and include Menu Assisted Resource Control (MARC), Interactive Data Communications Configurator (IDC), Screen Design Facility (SDF), Communications Management System (COMS), Advanced Data Dictionary System (ADDS), and Extended Retrieval with Graphics Output (ERGO). The LINC II fourth-generation language generates complete on-line, realtime systems, including programs, data base description, screen formats, transaction management, and network management.

All software products, including high-level and interpreter languages, are useable on the new A systems.

PRICING: The A 1, A 4, and A 6 Model F systems are for purchase only. Leasing is available only through special leasing agreements handled through the Unisys Leasing Department or through third-party leasing. Unisys is offering a one-year warranty on processors, memory, integrated peripherals, and DLPs. I/O expansion cabinets are available separately but pricing information could not be obtained at this time. ▶

Unisys A 1, A 4, and A 6

EQUIPMENT PRICES

		Purchase Price ($)

Basic Configuration

A 1	Central System; includes one central processor, a memory subsystem with 12 megabytes of memory, I/O and data communications subsystems, and a maintenance subsystem	25,000
A 4	Central System; includes one central processor, a memory subsystem with 12 megabytes of memory, I/O and data communications subsystems, and a maintenance subsystem	55,000
A 6 Model F	Central System; includes one central processor, a memory subsystem with 12 megabytes of memory, I/O and data communications subsystems, and a maintenance subsystem	145,000

Typical Configuration

A 1	Configuration; includes one A 1 processor, 12 megabytes of memory, a data communications processor, eight-page-per-minute laser printer, a tape streamer, a 125-megabyte disk drive, SCSI interface, and an operator display terminal	59,770
A 4	Configuration; includes one A 4 processor, 12 megabytes of memory, a data communications processor, eight-page-per-minute laser printer, a tape streamer, a 375-megabyte disk drive, SCSI interface, and an operator display terminal	154,600
A 6 Model F	Configuration; includes one A 6 processor, 12 megabytes of memory, a data communications processor, 650-lines-per-minute laser printer, a tape streamer, a 1-gigabyte disk drive, and an operator display terminal	287,000

Smallframe/Solutions Partners

A 1/BAMCS	BAMCS Solutions Partner/A 1; includes one processor, 12 megabytes of memory, 500-megabyte integrated disk, MCP/AS operating system (includes extended term license), three DLPs, one operator display terminal, six T27 workstations, 650 lines-per-minute printer, BAMCS software (includes five-year license fee), and 15 days of customer service	126,400
A 4/BAMCS	BAMCS Solutions Partner/A 4; configuration same as A 1/BAMCS	207,900
A 6/BAMCS	BAMCS Solutions Partner/A 6; configuration same as A 1/BAMCS, a 1,200 lines-per-minute printer replaces the 650-lpm printer	332,500
A 1/CASTS	CASTS Solutions Partner/A 1; includes one processor, 12 megabytes of memory, 125-megabyte integrated disk, MCP/AS operating system (license included), three DLPs, one operator display terminal, one tape streamer, one 650 lines- per-minute printer, four data communications lines, CASTS K-12 Complete Solution software (includes license), and 15 days of service	157,592
A 4/CASTS	CASTS Solutions Partner/A 4; configuration same as A 1/CASTS, plus a 500- megabyte disk drive and one additional DLP ■	192,697