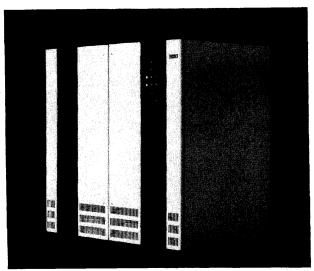
Although traditional 8- and 16-bit minicomputer systems have not yet disappeared, and may not do so as quickly as some analysts have predicted, they are most definitely an endangered species. Their obsolescence, if not extinction, can be attributed in no small part to the growth in popularity of superminicomputers. The enhanced computing power of the 32-bit superminis makes them better suited to computation-intensive technical applications than the traditional minis, and their expandability renders them better able to store and address the large data bases and perform the multiple application tasks increasingly required in both technical and commercial environments.

This report provides an up-to-date look at developments and directions in the burgeoning superminicomputer marketplace, and provides information, in concise comparison-chart form, on the hardware and software features of superminis marketed in the United States. Detailed explanations of the chart entries are also provided, along with tips to help you select a supermini that suits your application requirements.

WHAT IS A SUPERMINI?

A supermini can be generally characterized as a computer distinguished by:

- A word length of at least 32 bits.
- An I/O architecture in which at least 32 bits of data are moved into memory from auxiliary storage.
- A main storage capacity of 32 million bytes (MB) or less. (A few supermini systems support main memory in excess of 32MB.)



The 9955 is the new high-end system in Prime Computer's 50 Series of superminicomputers. Based on ECL (Emitter Coupled Logic) circuitry, the 9955 features processor power rated at 4 MIPS. It can support up to 254 workstations, as well as 16MB of main memory and 10GB of online disk storage.

Superminis represent the most dynamic segment of the market for medium-range computer systems, with sales growing at a rate of 45 percent a year. Superminis remain highly popular in the technical and scientific applications areas, and are becoming increasingly popular for commercial computing, with lower end systems moving rapidly into office and departmental environments. Efforts by vendors at the high end of the market have led superminis to challenge mainframes in power and configurability. This report presents the salient characteristics of 73 superminis from 24 vendors through detailed comparison charts. The report also explains the chart entries and provides information on trends in the supermini market.

• A purchase price of approximately \$100,000 and up for a basic configuration, including peripherals and controllers.

The majority of the currently available superminis use a 32-bit word length. A 32-bit word neatly holds four 8-bit bytes or two of the 16-bit words used in most of the smaller minicomputers. (Some vendors offer supermini systems with larger word lengths; Harris Corporation's systems use a 48-bit word, and Elxsi's System 6400 has a 64-bit word length.)

While the foregoing definition is somewhat restrictive eliminating 16-bit systems, no matter how powerful, from considerations—it is broad enough to accommodate a wide range of systems. It includes computers that run the gamut from single-user engineering stations like Apollo's Domain systems (which can be networked to create, effectively, a larger system) to systems that approach mainframe power, like Digital Equipment's VAX 8600, IBM's 4381 systems, Prime Computer's 9955, and Formation's IBM 370-compatible systems.

The systems covered in this report are generally based on proprietary architectures centered around TTL (Transistor to Transistor Logic) or ECL (Emitter Coupled Logic), or other larger-scale technologies. These systems are, thus, differentiated from 32-bit systems based on merchant microprocessors like National Semiconductor's 16032 and Motorola's MC68000 and MC68010. While some of those systems exhibit computing power and configurability approaching those of some standard superminis, the MPUs on which they are based employ 16- rather than 32-bit data buses. Thus, such MPU-based systems are not included here.

We have not entirely eschewed microprocessor-based systems, however; this report includes AT&T's 3B5 systems, which are based on a proprietary microprocessor with a full 32-bit I/O bus. More such systems are likely to be forth-

coming within the next few years, as new MPUs like National Semiconductor's 32032, Motorola's MC68020, and other full 32-bit microprocessors become readily available to serve as the basis for a new generation of systems with supermini-like architectures and functionality.

SUPERMINI ADVANTAGES

The advantages of superminis derive both from features of their internal architectures and from the high degree of processing power and configurability they exhibit. On the first score, superminis provide the following advantages as a result of their extended word lengths:

- Increased addressability—If an entire 16-bit word is used to specify a memory address, the maximum number of storage locations that can be directly addressed is only 216 or 65,536. A 32-bit address, by contrast, can specify up to 232 or 4.29 billion distinct storage locations. Thus, the longer word length greatly increases a system's logical address space (that is, the total amount of storage that can be directly addressed), permitting effective use of both the large physical main storage capacities and the virtual memory facilities that characterize most superminis. Virtual memory, in turn, can greatly facilitate the development of programs for execution on multiprogrammed computers by enabling each programmer to act as if he or she had a very large single-level storage space totally at his or her disposal.
- Increased precision—A single 32-bit word provides enough precision to satisfy the demands of most scientific and commercial computations, and most of the superminis are also capable of processing double precision (64bit) operands. Conversely, the common 16-bit minicomputer word length is too short to provide the required precision in many applications, necessitating the use of time-consuming multiple-word operations.
- Increased instruction sets—The longer word length typically makes more bits available for specifying the operation code of each instruction, as well as for specifying index registers, multiple accumulators, indirect addressing, and other parameters. Thus, the superminis canand usually do—have larger and more powerful instruction repertoires than their 16-bit counterparts. As a result, a single supermini instruction can often do the work of several 16-bit instructions.
- Increased performance—A 32-bit supermini normally transfers twice as much information to or from main storage during each cycle as a 16-bit minicomputer, and this inherent performance advantage is further enhanced in many cases through storage interleaving, cache memories, and other power-boosting features. The three previously discussed advantages (increased addressability, greater precision, and more powerful instruction sets) also lead directly to increased performance in most applications.

On the second head, the CPU power and expandability of superminis make them adept in both technical and commercial applications. The sophisticated processor architectures of the systems allow them to process large amounts of data; some machines can perform as many as 5 million instructions per second (MIPS), and even the smallest superminis can operate at about 0.5 MIPS. That raw processing power makes superminis suitable for all types of CPU-bound, or computation-intensive, applications, including simulation, artificial intelligence, statistical modeling, and computer aided engineering (CAE) on the technical side, and business graphics on the commercial side.

Also, high memory capacities and disk configurability (frequently in excess of 1GB, that is, 1 billion bytes) make these systems ideal for storing and addressing large data bases, like those used in computer integrated manufacturing (CIM), which combines computer aided design (CAD), automated manufacturing, and production accounting functions (like material requirements planning). Those capabilities also make superminis strong performers in I/Obound commercial applications like inventory control.

Furthermore, superminis generally possess communications capabilities that make them suitable for both standalone and distributed data processing. The typical supermini provides intrinsic support for a large number of local workstations. Moreover, most superminis can be networked to other systems either locally or remotely. Thus, they can be used as departmental host systems which can be accessed by PCs, and can, in turn, communicate with large organizational machines; some superminis are fully capable of acting as organizational hosts.

From a resource viewpoint, the power and flexibility of superminis permit them to integrate computing functions formerly divided among systems. Most superminis can simultaneously handle both technical/commercial solution applications and support functions (word processing and planning/decision support, for example) that used to be split between mainframes and minicomputers or timesharing systems. Thus, superminis can provide an economical means of consolidating organizational computing functions.

In the past, superminis had substantially higher price tags than most 16-bit computers, and were generally cost-effective only in applications that clearly required the level of sophistication they provide. Due to recent developments in on-board technology, however, many new superminis deliver 32-bit performance at a substantially lower price/ performance ratio than was previously available. In fact, because of those technological improvements, many superminis now provide computing power and configurability similar to those of more expensive mainframes; powerful superminis can often deliver mainframe performance at a significantly lower price/performance ratio.

THE SUPERMINI MARKET

The supermini market is a high-growth segment of the data processing industry; it is fed by the desire of both technical



→ and commercial enterprises for greater computing power at lower costs. International Data Corporation (IDC), a DP industry consulting firm based in Framingham, Massachusetts, estimates that U.S. shipments of medium-scale computer systems—a classification composed largely of superminis-will increase from 25,100 in 1984 to 38,900 in 1988, with the value of those shipments increasing from \$6.5 billion to \$9.8 billion. IDC also sees the installed base of those systems in the U.S. increasing from 110,400 units with a value of \$33.9 billion in 1984 to 199,900 systems valued at \$53.9 billion in 1988.

Venture Development Corporation, a Natick, Massachusetts-based management consulting and market research firm that serves the computer industry, predicts a 45 percent compound annual growth rate for supermini sales through 1986. Although superminis have traditionally been targeted more toward technical and engineering/scientific applications, Venture Development has identified the general business portion of the supermini market as the most active segment, with an average growth rate of 54.8 percent a year.

The growth in the general business sector reflects a trend toward integration of superminis—especially smaller ones-into departmental environments. With increased power in smaller and quieter packages, strong communications capabilities, and support for business graphics and office functions, lower end superminis are coming out of the computer room and into the office. In the past year, for example, several vendors, including Prime Computer (Model 2250), Wang Laboratories (Model VS65), Harris Corporation (Model H600), and Data General (Model Eclipse MV/4000 SC) have introduced compact, low-end superminis designed for office and departmental computing.

The fiercest competition in the supermini area, however, is at the high end of the market, where vendors vie to top each other in computing power, encroaching in the process on the mainframe preserve. In this segment of the market,

Digital Equipment Corporation (DEC) and IBM have finally faced off directly. IBM recently debuted the dual processor 4381 Model Group 3, which processes about 5.13 MIPS; less than a week later, DEC announced the single processor VAX 8600, which comes in at about 4.45 MIPS and can be clustered with other VAX processors for increased power. In addition, Prime Computer introduced the 9955, which processes at 4.0 MIPS, and Gould added the 32/97 group, which reportedly delivers between 4.67 and 10.08 MIPS (the latter in a multiprocessor configuration). Even smaller vendors have joined the scramble toward enhanced power; Computer Consoles, Inc. (CCI) debuted the Power 6/32, which it claims can perform at up to 8.0 MIPS.

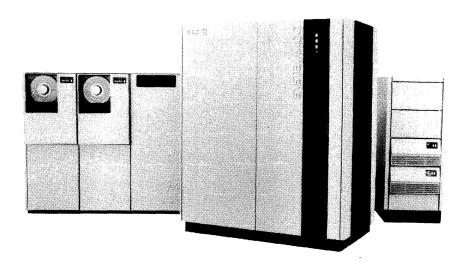
All of the aforementioned systems challenge the raw computing power of systems like IBM's lower-end 3083-EX mainframe (which, according to IDC estimates, runs at about 4.4 MIPS), and outstrip the new low-end 3083-CX, which comes in at about 3.3 MIPS.

This competition to deliver increasingly powerful superminis is certain to continue at least through the next year. Other entrenched vendors must now respond to their rivals' high-end maneuvers. Vendors will continue to expand their presence in the scientific/engineering/technical segment of the market, in which superminis have always fared well, and will strive to stake out turf in the fertile commercial sector.

An additional market trend worth noting is increased support for Unix among supermini vendors. Data General, DEC, Perkin-Elmer, Harris, and Gould have all debuted Unix-based operating systems as alternatives to their proprietary operating systems. In addition, new market players like AT&T and CCI are offering solely Unix-based computer systems.

One cannot construe this trend as a wholesale migration to Unix as a standard operating system for superminis. In the first place, not all of the systems are based on the same





Elxsi's System 6400 employs a 64bit word as its basic data unit. Designed for aerospace and other scientific/technical applications, the system can be expanded to include 10 CPUs, and can handle up to 192MB of main memory and 100GB of disk storage. It can provide support for up to 1,000 users.

version of Unix. Secondly, major vendors like DEC and DG offer the Unix systems as special-purpose alternatives to their primary operating systems, not as replacements for them. However, the move toward Unix does indicate the heavily entrenched vendors' acceptance of Unix as an alternative operating environment for which there is a demand. On the part of newer and smaller players, support for Unix provides a means for taking advantage of the growing application software libraries available for itespecially that for Unix System V, which is sponsored by AT&T.

COMPARISON CHARTS

The key functional characteristics of 73 commercially available superminis from 24 manufacturers are presented in the accompanying comparison charts. Most of the information in the charts was supplied or verified by the manufacturers during December 1984 and January 1985. The staff at Datapro Research greatly appreciates the vendors' cooperation in the preparation of these charts. A detailed vendor list appears after the comparison column explanations. The absence of any specific company from our charts means that the company either failed to respond to our repeated requests for information or was unknown to us.

All of the comparison chart entries are explained in the following paragraphs, together with discussions of their significance to prospective buyers and some guidelines for selecting the most appropriate superminis for specific applications.

Note: A dash (—) in a column indicates either that the vendor did not supply the requested information or that we were unable to complete the entry with the information that was supplied.

WORD LENGTH

One of the most important distinguishing characteristics of a computer is its word length, that is, the number of bits (binary digits) that can be stored in or retrieved from main storage during a single cycle. In general, the longer the word, the greater the efficiency and accuracy of a computer's internal operations. Nearly all of the superminis currently on the market have a 32-bit word length. Indeed, even if not entirely accurately, the 32-bit word length is the most frequently used criterion for distinguishing between the superminis and their smaller relatives. The entries also indicate the presence of additional bits used for parity checking or error correction (for example, the entry "32 + 5" indicates that each word location in main storage consists of 32 data bits and 5 error correction bits).

MAIN MEMORY

The minimum and maximum amount of main storage available for each computer, expressed in thousands of bytes (KB) or millions of bytes (MB).

DISK STORAGE CAPACITY

This indicates the minimum and maximum online storage capacities offered by the system. The indicated storage capacities are shown in millions of bytes (MB) and indicate the capacity of a single disk drive or the total capacity of two or more drives that can be connected to the system.

NUMBER OF WORKSTATIONS SUPPORTED

A very important consideration for many potential computer users is the number of workstations the system can support. Workstations, in this case, can mean most types of devices that can input and/or receive data from the computer. When the computer is used in a business environment, for example, the workstation would normally be a display terminal, a graphics workstation, or some other CRT-based device; in a manufacturing or distribution environment, the workstation could be a sensor or transmission unit that simply transmits signals back to the computer for processing.

PRICE RANGE

Ideally, these figures represent the upper and lower prices for system hardware, from the minimum processor complex to a fully configured system. The figures actually presented in the columns can vary according to vendor response. In cases in which only one figure is quoted (e.g., "From \$100,000"), the price is usually that of the minimum processor complex only.

TARGET MARKET

This indicates the industries toward which the system is geared. In many cases, the market is indicated in general terms capable of further refinement. For example, "Engineering/scientific" can indicate a variety of submarkets, including computer-aided engineering and design (CAE and CAD, respectively), seismic data processing, and computation-intensive applications.

CENTRAL PROCESSOR

Although there are many variations in their internal architectures, the majority of currently available superminis are parallel, binary processors with a fixed word length of 32

The number of directly addressable bytes of main storage is one of the principal features that distinguishes the superminis from the smaller minicomputers. The short word lengths used in most minicomputers impose serious limitations upon the number of bits that can be assigned to hold the address part of each instruction. A typical 16-bit minicomputer instruction might consist of three parts: operation code, address mode field, and the address itself. If 6 bits are assigned to hold the operation code (permitting up to 64 distinct operations) and 2 bits are used to designate the addressing mode (permitting specification of indexing and/or indirect addressing), then only 8 bits are left to hold the address field. Since these 8 bits permit direct addressing of only 256 distinct memory locations, it is clear that other

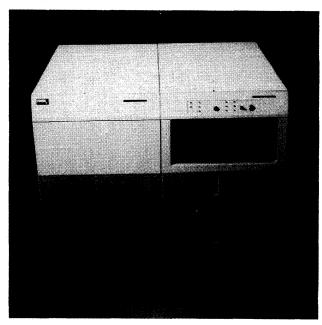


means need to be employed to access most regions of the computer's main storage. The most common solutions to the problem are the use of multiword instructions, indexing, and indirect addressing.

The 32-bit word length used in most of today's superminis effectively removes this limitation. If just 16 of the 32 bits in each instruction word are used to hold the address field, up to 216 or 65,536 distinct memory locations can be addressed. If a full 32-bit word is used to hold the address field, up to 232 or 4.29 billion distinct locations (most of which would necessarily be in virtual memory rather than in real main storage) can be directly addressed.

Virtual memory is a facility that simplifies programming by providing a large addressable space on a high-speed disk storage unit that appears to the user as real main storage, and from which instructions and data are transferred into real main storage locations as required. Specialized hardware or software is required to perform the translations between virtual and real storage addresses, and to perform the necessary transfers of instructions and data between auxiliary storage and main storage. The number of addressable bytes of virtual memory is provided in this entry.

Hardware floating point facilities are included in the standard instruction repertoires of most currently available superminis. A hardware floating point removes the burden of performing floating point arithmetic from the CPU, and thus enhances system processing speed. In the absence of hardware floating point, floating point arithmetic would have to be performed through time- and space-consuming subroutines in the operating system.



Computer Consoles' Power 6/32 is a Unix-based system targeted toward office automation and software development applications. It can support over 128 users. Memory can be expanded to 8MB, and up to 8.2GB of online disk storage can be configured.

The entries under this heading usually indicate that the system's hardware floating point is single-precision (SP), double-precision (DP), triple-precision (TP), quadrupleprecision (QP), or a combination of the foregoing. The precision of the floating point is an indication of the number of bits on which it can operate simultaneously, generally expressed in arithmetic increments of 32; for example, a single-precision floating point can operate on 32 bits simultaneously, a double-precision on 64, and so forth.

Battery backup permits an orderly shutdown of the system in the event of an electrical failure or another sudden interruption. If battery backup is not or cannot be implemented, all data in main storage at the time of the interruption can be lost. This entry indicates whether battery backup is standard, optional, or inapplicable to a system.

A realtime clock or timer is another essential element in most "time-conscious" systems. A realtime clock enables the program to determine the time of day, while an interval timer usually indicates the amount of time that has elapsed since the occurrence of some significant event. In many cases, the timer can trigger an interrupt signal when a predetermined interval of time has elapsed. The entry indicates whether the clock or timer is standard, optional, or inapplicable to the system.

CPU cycle time, nanoseconds indicates the time that elapses between the CPU's call for data and the delivery of that data from a storage device by the I/O section of the processor.

MIPS indicates how many millions of instructions the computer can execute per second. A MIPS rating is a commonly accepted means of assessing a system's performance.

The 16-/32-bit compatibility entry indicates the extent of program compatibility between a supermini and the same vendor's 16-bit minicomputers (if any). "Direct" indicates that the vendor claims that the supermini's instruction set is a "compatible superset" of the instruction set used in the vendor's 16-bit computers, so that all programs written for the 16-bit computers can be executed without modification on the supermini. "Via mode bit" indicates that the supermini can be switched from its native operational mode into a "compatibility mode" in which it can execute some, if not all, of the programs written for the vendor's 16-bit computers.

MAIN STORAGE

Bytes fetched per cycle is the number of bytes accessed by main storage in a single read.

Cycle/access time, nanoseconds indicates two benchmarks of the system's main storage. The cycle time is a minimum time interval that must elapse between the starts of two successive accesses to any one storage location. Though cycle time ranks with word length as one of the most significant individual indicators of a computer's performance potential, one cannot assume that the computer >

with the fastest cycle time will be the best overall performer in a particular application. Other parameters that have an important effect on a computer's performance include the flexibility and power of its instruction repertoire, the number of storage cycles it requires to execute each instruction, and its input/output capabilities. Access time is the actual elapsed time between the CPU's request for data and the time when that data is received (read) in memory.

Storage protection is a feature that prevents unauthorized writing in or reading from certain areas of main storage. The protection can be accomplished through hardware, software, or a combination of both. Though unnecessary in simple dedicated systems, an effective storage protection scheme is an essential element in multiprogramming and time-sharing environments. Some of the superminis feature elaborate storage protection schemes that divide the total logical address space into hierarchical segments or "rings" with varying degrees of protection against unauthorized access. The entry indicates whether storage protection is standard, optional, or inapplicable to the system.

Increment size, bytes denotes the size of the add-on units used to increase the system's main memory.

Cache memory is a high-speed storage unit that can significantly increase the performance of a computer by serving as a fast-access buffer between main storage and the central processor or the input/output subsystem. The entry indicates the capacity in bytes of the cache memory unit, if applicable to the system.

INPUT/OUTPUT CONTROL

The number of I/O channels indicates the maximum combination of high-speed and low-speed channels that can be used to connect peripheral controllers to the CPU. Low-speed lines are used to connect such devices as terminals, printers, and card equipment, while high-speed lines connect mass storage devices like disk and magnetic tape subsystems.

The data transfer rate, sometimes referred to as the "I/O bandwidth," is a measure of the computer's ability to transfer data to and from peripheral devices or other external sources through all available I/O channels, buses, and ports. The transfer rate is indicated in thousands or millions of bits per second (K or M bps) or thousands or millions of bytes per second (KB/sec. or MB/sec.).

COMMUNICATIONS

Maximum number of lines indicates how many data communications lines can be handled by a particular system. The types of lines are specified in the next two entries.

Synchronous lines are those featuring synchronous data transmission. In this mode of transmission, bits or characters (composed of 5 to 8 bits) of data pass through the line in blocks at a relatively constant rate regulated by synchronizing characters at the beginning of each block.

The entries indicate whether synchronous lines are standard, optional, or not applicable to the system; where possible, the maximum speed of each line in bits per second (bps) is noted.

Asynchronous lines feature asynchronous data transmission, in which characters are transmitted individually at irregular rates. A start bit precedes each character, and a stop bit follows it. The entry tells whether asynchronous lines are standard, optional, or inapplicable, and also notes the line speed in bps.

Protocols supported indicates which intersystem communications conventions, if any, are supported through the availability of appropriate hardware and software facilities.

Type of LAN supported indicates local area networks that can be used to link the system to other computer systems within a limited area, such as an office building. An example would be Xerox's Ethernet LAN.

RJE terminals emulated indicates which of the popular remote job entry terminals, if any, the system can be equipped to emulate. Programs that emulate the functions of the IBM 2780, 3780, and Hasp terminals, for example, are available for most current superminis.

IBM 3270 emulation indicates whether the system can be equipped to emulate the functions of the widely used IBM 3270 display terminals.

PERIPHERAL EQUIPMENT

These entries provide details on the standard peripheral devices available for use with each computer system.

Disks supported indicates the types of disk media available for use on the system. Most responses indicate a mixture of fixed and removable disk drives. Fixed disk drives include those employing Winchester technology and those using older fixed-media technologies. Removable drives are those that employ disk packs and cartridges. This entry also supplies the storage capacities of the disk devices that are compatible with the system.

Serial printers generally range in speeds from about 30 to 600 or more characters per second (cps), employ various matrix and daisywheel technologies to print a character at a time, and are frequently able to print bidirectionally (that is, while the print head is moving in either direction across the page). These printers are usually used in smaller configurations, and provide excellent-quality hardcopy reports for far less money than the line-at-a-time printers usually used with larger systems. This entry indicates the speeds of the serial printers available for the system.

Letter-quality printers are low-speed serial printers (generally 30 to 55 cps) used in office automation applications to produce correspondence-quality documents. This entry provides the speeds of the letter-quality printers available for the system.

Line printers operate at speeds of 100 to 2000 or more lines per minute (lpm) and are used most frequently in large configurations. This entry gives the speeds of the line printers available for use on the system.

Reel-to-reel tape drives indicates the applicability, the recording density in bits per inch (bpi), and the speed in inches per second (ips) of tape drives that accommodate industry-standard magnetic tape.

Streaming tape drives permit data to be transferred to a tape without the tape's stopping between data blocks; this high-speed transfer makes streaming tape drives valuable as backup media for fixed (especially Winchester) disks. This entry indicates the speed of the tape in inches per second (ips) and, where applicable, the presence of a start/stop mode that permits the streaming tape drive to emulate conventional tape subsystems.

Cassette/cartridge tape drives indicates the availability and recording densities in bits per inch (bpi) of I/O devices that accommodate low-cost magnetic tape cassettes or cartridges.

Other peripherals supported lists the additional peripheral devices that are available for each system. Typical entries include card readers and punches, plotters, laser printers, and graphics devices.

SOFTWARE

Software—the programming packages and languages used to direct the computer's operations—is a crucial component of any computer system. When you select a system, it is imperative that you carefully investigate the available software. Areas of investigation should include: operating systems; programming languages; preprogrammed utility packages, such as sorts and file maintenance; and application packages, such as payroll, graphics, CAD/CAM, and others. Prospective buyers should carefully note whether the software they will require is included in the cost of the system or offered at extra cost.

Vendors' claims and promises concerning the availability and capabilities of software should be carefully checked. This is particularly true of software that has been announced but not yet released. Sometimes the delivered product does not live up to its touted capabilities.

An assembler is a special-purpose program that uses the computer's power to facilitate the preparation of other programs. It enables the programmer to write his or her own programs in a simplified format that uses mnemonic operation codes and symbolic operand addresses. The assembler program then converts these symbolic instructions into their machine-language equivalents, producing computer programs ready for loading and execution. Entries here indicate the availability of an assembler, a macro assembler, or both. A macro assembler is another software tool to make the programmer's job easier. Macro routines can be called by the programmer and copied right into the program. This saves the programmer from having to re-

code the routine each time it is used, and also eliminates the possibility of keying errors when that part of the program is entered. As usual, there is a price to pay; macros usually consume large quantities of memory space.

Compilers are software tools that shift part of the program preparation task from the user to the computer itself by converting programs written in a simplified, procedure-oriented language into machine-language object programs. Compilers are now used in the vast majority of supermini installations because of their demonstrated ability to slash programming costs. This widespread availability has resulted from the development of more powerful central processors; compilation is an intricate process that requires the storage space and processing power provided by supermini systems.

Entries in this section of the charts may include widely used high-level programming languages like Cobol, RPG, Fortran, Basic, C, APL, PL/1, and Pascal, or proprietary languages that are available from a vendor for use on a particular system.

A word of warning here: if you use a language that is unique to a vendor, you may be faced with a problem if you eventually decide to change vendors. Your investment in software may be lost, for the programs generally will not operate on any other system.

The operating system facilitates the operation of a computer by handling such functions as: scheduling, loading, and supervising the execution of programs; allocating storage and I/O devices; initiating and controlling I/O operations; analyzing interrupt signals and dealing with errors; handling communications between the system and its human operator; and controlling multiprogramming or time-sharing operations.

The operating system name entry indicates, obviously, the name or names of the operating systems offered by the vendor for a specific system or model. A number of vendors offer more than one operating system for their machines. (For example, a manufacturer might offer both a proprietary realtime system and a timesharing, Unix-based operating system for the same supermini.)

Operating system type indicates the type of each operating systems available for the computer. Typical entries describing the available operating systems include: "batch," which means that the system processes one or more jobs sequentially and requires all data to be supplied before initiation; "interactive," which means that the system allows data and parameters to be entered as the job is executing; "realtime," which means that the system responds to external demands on a priority basis; or "timesharing," which means that the system allows multiple users to access the system and share all its resources at the same time. The operating systems for many of the current superminis are capable of supporting two, three, or all four of the above modes of operation simultaneously.

Operating system implemented in firmware tells whether the language processor and the operating system are contained in microcode. The entries stipulate "fully", "partially", or "no" to indicate the extent of firmware implementation. Implementation of an operating system or language in firmware is advantageous to the user, for it frees more memory space for the user's programs and data. Also, because the microcode is generally contained in read-only memory, it is usually inaccessible to the user; thus, any possibility of the user's tampering with the language processor or operating system is eliminated and chances for error are reduced. Another advantage of firmware implementation is the ability to create more sophisticated and complex system functions at the hardware level. Microcode routines can be substituted for the usual subroutines, thereby increasing system performance.

A database management system (DBMS) is a software facility designed to manage and maintain data in a nonredundant structure so that the data will be conveniently available for processing by multiple applications. The DBMS organizes data elements in some predefined structure and keeps track of the relationships among the data elements, thereby facilitating information retrieval and report generation. The availability of an effective DBMS can greatly simplify applications programming tasks and increase the overall value of a data processing system. This entry provides the names of the principal database management systems available for the computer.

Principal industry application indicates the main types of software packages available for the computer's target market. Principal applications for the engineering/scientific market would include CAD/CAE and power generation; principal applications for the commercial market would include transaction processing, office automation, and general business packages. In some cases, the vendors have supplied the names of specific application packages for their target industries.

Other packages are those software products that are not principal market applications for the system; they are secondary packages that are available for use in the target market and collateral markets. For example, a vendor in the commercial market could list an office automation package as the principal industry application and a general accounting package—useful but not primary for the target market—as the other package.

PRICING & AVAILABILITY

Typical system configuration and price, intended to provide an accurate guide to the cost of the system, ideally shows a processor/peripheral configuration that would typically be used in the vendor's stated target business environment.

Although we requested full configurations and applicable prices, most vendors did not comply. Some provided only processor configurations and prices; others neglected altogether to provide hardware and pricing data. Where components and pricing for processor complexes only were

supplied, we have left the information as is; potential buyers should thus be aware that the actual cost of a full system configuration could be many times that of the base processor price provided in the comparison chart. When vendors supplied no information, we developed our own sample configurations in many cases. Although we believe each configuration to be realistic and accurate, the reader must realize that, depending upon the configuration and pricing rules imposed by the vendor, the actual price of a workable system could vary from that supplied in the chart.

If you wish to buy two or more computers, it is worth noting that most of the manufacturers offer discounts from their list prices on orders for multiple computers.

Monthly maintenance of typical configuration provides the amount to be paid per month on a maintenance contract with the vendor for service and repair for the typical configuration.

Date of first delivery indicates when the first production model of each computer was delivered (or is scheduled to be delivered) to a customer.

Number installed to date shows how many systems of each type had been delivered to customers as of December 1984/January 1985.

COMMENTS

This final entry on the comparison charts is used to explain or amplify the preceding entries and to provide other pertinent information about each system's hardware, software, pricing, applications, or characteristics.

SUPERMINI MANUFACTURERS

Listed below, for your convenience in obtaining additional information, are the full names, addresses, and telephone numbers of the 24 vendors whose products are listed in the specification charts that follow.

Apollo Computer, Inc., 330 Billerica Road, Chelmsford, MA 01824. Telephone (617) 256-6600.

AT&T Information Systems, 1 Speedwell Avenue, Morristown, NJ. Telephone (201) 898-2000.

BTI Computer Systems, 870 West Maude Avenue, Sunnyvale, CA 94086. Telephone (408) 733-1122.

Computer Consoles, Inc. (CCI), 97 Humboldt Street, Rochester, NY 14609. Telephone (716) 482-5000.

Computer Designed Sytems, Inc., 10911 Olson Memorial Highway, Minneapolis, MN 55441. Telephone (612) 545-2855.

Data General Corporation, 4400 Computer Drive, Westboro, MA 01580. Telephone (617) 366-8911.

Digital Equipment Corporation (DEC), 146 Main Street, Maynard, MA 01754. Telephone (617) 897-5111.

Elxsi, 2334 Lundy Place, San Jose, CA 95131. Telephone (408) 942-0900.

Formation, Inc., 823 East Gate Drive, Mt. Laurel, NJ 08054. Telephone (609) 234-5020.

Gould Inc., Computer Systems Division, 6901 West Sunrise Boulevard, Fort Lauderdale, FL 33313. Telephone (305) 587-2900.

Harris Corporation, Computer Systems Division, 2101 West Cypress Creek Road, Fort Lauderdale, FL 33309. Telephone (305) 974-1700.

Honeywell Information Systems, Inc., 200 Smith Street, Waltham, MA 02154. Telephone (617) 895-6000.

Ilene Industries Data Systems, Inc., 301 Stanley Boulevard, P.O. Box 186, Shelbyville, TN 37160. Telephone (615) 684-8731.

International Business Machines Corporation (IBM), Old Orchard Road, Armonk, NY 10504. Contact your local IBM representative.

Management Assistance Inc. (MAI), Basic Four Information Systems Division, 14101 Myford Road, Tustin, CA 92680. Telephone (714) 731-5100.

McDonnell Douglas Computer Systems Company (formerly Microdata Corporation), P.O. Box 19501, Irvine, CA 92713. Telephone (714) 250-1000.

Modular Computer Systems, Inc. (Modcomp), 1650 West McNab Road, Fort Lauderdale, FL 33309. Telephone (305) 974-1380.

NCR Corporation, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-2075.

Norsk Data N.A., 55 William Street, Wellesley, MA 02181. Telephone (617) 237-7945.

Perkin-Elmer Corporation, Data Systems Group, 2 Crescent Place, Oceanport, NJ 07757. Telephone (201) 870-4500.

Prime Computer, Inc., Prime Park, Natick, MA 01760. Telephone (617) 655-8000.

Sperry Corporation, Information Systems Group, P.O. Box 500, Blue Bell, PA 19424. Contact the local Sperry office.

Tandem Computers, Inc., 19333 Vallco Parkway, Cupertino, CA 95014. Telephone (408) 725-6000.

Wang Laboratories, Inc., One Industrial Avenue, Lowell, MA 01851. Telephone (617) 459-5000. □

	A			
MANUFACTURER & MODEL	Apollo Computer, Inc. DN460	Apollo Computer, Inc. DN660	AT&T 3B5/100	AT&T 3B5/200
WORD LENGTH	32 bits	32 bits	32 bits	00.1
	1			32 bits
MAIN MEMORY	1MB/4MB	1MB/4MB	1MB-8MB	1MB-8MB
DISK STORAGE CAPACITY	80MB-1GB	80MB-1GB	40MB-1.1GB	40MB-2.2GB
NO. WORKSTATIONS SUPPORTED	Single-user	Single-user	40	60
PRICE RANGE	\$39,500-\$54,500	\$54,500-\$79,000	From \$57,000	From \$73,000
TARGET MARKET	Engineering/scientific	Engineering/scientific	General business	General business
CENTRAL PROCESSOR				
No. of directly addressable bytes	16M	16M		
Virtual memory	256MB	256MB	4GB	4GB
Hardware floating point	DP	DP	SP. DP	
	Standard	1	SP, DP	SP, DP
Battery backup		Standard		_
Real-time clock or timer	Standard	Standard		_
CPU cycle time, nanoseconds		[T]		<u> </u>
MIPS	1.2	1.2	0.6	0.8
16-/32-bit compatibility	Not applicable	Not applicable	Not applicable	Not applicable
MAIN STORAGE			* - 2	
Bytes fetched per cycle	1—		_	<u> </u>
Cycle/access time, nanoseconds	ļ—		500	500
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	l	l—	1M	1M
Cache memory, bytes	<u> </u>	<u></u>	8K	8K
NPUT/OUTPUT CONTROL		1		1
No. of I/O channels	3	3		25
Data transfer rate	12M bps	12M bps	4 984 bms	
COMMUNICATIONS	, _IVI DP3	יבועו טףס	4-8M bps	4-8M bps
Max. number of lines		1 .		1
	J		T	-
Synchronous	Not applicable	Not applicable	Std.; 56K bps	Std.; 56K bps
Asynchronous	19.2K bps	19.2K bps	Std.; 9600 bps	Std.; 9600 bps
Protocols supported	Hasp, X.25, TCP/IP,	Hasp, X.25, TCP/IP,	Async, Sync, TTY, RJE,	Async, Sync, TTY, RJE,
	IBM 2780/3780 RJE	IBM 2780/3780 RJE	UUCP	UUCP
Type of LAN supported	Domain/Ethernet gateway	Domain/Ethernet gateway	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN
RJE terminals emulated	IBM 2780/3780 Hasp	IBM 2780/3780 Hasp	IBM 360 HASP	IBM 360 HASP
IBM 3270 emulation	Yes	Yes	_	
PERIPHERAL EQUIPMENT		1.55		
Disks supported	Fixed & removable:	Fixed & removable:	Fixed: 134MB; fixed/re-	Fixed: 134MB; fixed/re-
Dieke capported	80MB-1GB	80MB-1GB	movable: 48MB	
Serial printers	100/400 cps			movable: 48MB
		100/400 cps	55-240 cps	55-240 cps
Letter-quality printers	Not applicable	Not applicable	-	
Line printers	Not applicable	Not applicable	-	(<u> </u>
Reel-to-reel tape drives	Not applicable	Not applicable	-	<u> </u>
Streaming tape drives	1600 bpi, 100 ips	1600 bpi, 100 ips	Start/stop; 25 ips	Start/stop; 25 ips
Cassette/cartridge tape drives	Not applicable	Not applicable		I_ '
Other peripherals supported	Multibus, others	Multibus, others	 	
SOFTWARE				
Assembler	l	<u> </u>		
Compilers	Fortran, C, Pascal,	Fortran C Boood		[-
Compilers	1	Fortran, C, Pascal,	Fortran, C, Basic,	Fortran, C, Basic,
	Lisp	Lisp	RM/Cobol	RM/Cobol
0				
Operating system name	Aegis	Aegis	Unix System V	Unix System V
Operating system type	Multitasking	Multitasking	Timesharing	Timesharing
Operating sys. implemented in firmware		Partially		 —
Database management system	D3M	D3M	dBase II, AT&T Ingres	dBase II, AT&T Ingres
Principal industry application	CAD/CAM/CIM/CAE, struc-	CAD/CAM/CIM/CAE, struc-	General business	General business
	tural analysis, simula-	tural analysis, simula-	·	l
	tion, molecular modeling	tion, molecular modeling		
Other packages	Over 350 third-party	Over 350 third-party	OA, communications	OA, communications
	packages	packages	management control	management control
	[1		monagement control
PRICING & AVAILABILITY				
Typical system configuration and price	CPU: 1MR main memory:	CPU; 1MB main memory;	CPU; 2MB memory; 2 async	CDI I. 284D moments 2 con
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	80MB disk; multimode	80MB disk; multimode	controllers; 16 termi-	
	printer: \$55,800	printer: \$70,800		controllers; 24 termi-
	printer: \$55,000	printer. \$70,800	nals; 48MB fixed/remov-	nals; 48MB fixed/remov-
			able disk; two 134MB	able disk; two 134MB
			fixed disks; two 240 cps	fixed disks; (3) 240 cps
	1		dot-matrix printers;	dot-matrix printers;
	1		Unix System V: \$112,810	Unix System V: \$135,965
Monthly maintenance of tunical	8560	6700	0040	
Monthly maintenance of typical	\$560	\$709	\$649	\$826
configuration		1.		}
	1st quarter 1984	1st quarter 1984	March 1984	March 1984
Date of first delivery		i .	i	l
Number installed to date	<u> </u>	1—	ì	1
	High-performance	High-performance		
Number installed to date	High-performance monochrome engineering	High-performance		
Number installed to date				

MANUFACTURER & MODEL	AT&T 3B5/300	AT&T 3B20S	AT&T 3B20A	AT&T 3B20D
VORD LENGTH	32 bits	32 bits	32 bits	00.1:
MAIN MEMORY	1MB-8MB	2MB-16MB		32 bits
			2MB-16MB (per CPU)	5MB-16MB
DISK STORAGE CAPACITY	40MB-1.1GB	256MB-8.8GB	256MB-8.8GB	279MB-10.5GB
IO. WORKSTATIONS SUPPORTED	60	256	256	256
PRICE RANGE	From \$101,500	From \$230,000	From \$330,000	From \$340,000
ARGET MARKET	General business	Custom applications	Custom applications	Commercial transaction processing
ENTRAL PROCESSOR				processing
No. of directly addressable bytes	-	 		<u> </u>
Virtual memory	4GB	16MB	16MB	16MB
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP
Battery backup	l <u>—</u>	Standard	Standard	Optional
Real-time clock or timer				1
CPU cycle time, nanoseconds	!—			1
MIPS	0.8	1.0	1.5-1.8	0.9
16-/32-bit compatibility	Not applicable	Not applicable		
IAIN STORAGE	Not applicable	Not applicable	Not applicable	Not applicable
Bytes fetched per cycle		4	1.	f _
	500		4	4
Cycle/access time, nanoseconds	500	400	400	400 (with cache)
Storage protection	Standard	Standard	Standard	Standard
ncrement size, bytes	1M	1M	1M	1M
Cache memory, bytes	8K	8K :	8K (per CPU)	8K (opt.)
PUT/OUTPUT CONTROL	1	ļ	}	1
No. of I/O channels	25	<u> </u>	1—	
Data transfer rate	4-8M bps	ļ ¹		
OMMUNICATIONS	l '			1
Max. number of lines	<u> </u>	i	<u> </u>	
Synchronous	Std.; 56K bps	9600 bps	9600 bps	0000 1
Asynchronous	Std.; 9600 bps	9600 bps		9600 bps
			9600 bps	9600 bps
Protocols supported	Async, Sync, TTY, RJE,	X.25, HDLC, RJE, UUCP,	X.25, HDLC, RJE, UUCP,	X.25, HDLC, RJE, UUCP,
	UUCP	Hyperchannel	Hyperchannel	Hyperchannel
Type of LAN supported	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN	Ethernet, ISN
RJE terminals emulated	IBM 360 HASP	Yes	Yes	Yes
BM 3270 emulation		 —	<u> </u>	<u> </u>
RIPHERAL EQUIPMENT			}	1
Disks supported	Fixed: 134MB; fixed/re-	Winchester: 279MB,	Winchester: 279MB,	Winchester: 279MB
	movable: 48MB	550MB; removable: 256MB	550MB; removable: 256MB	
Serial printers	55-240 cps		_	<u> </u>
Letter-quality printers				
Line printers	· ·	300/600/900/1200 lpm	300/600/900/1200 ipm	300/600/000/1300 /==
Reel-to-reel tape drives	i	1600-6250 bpi/25-125 ips		300/600/900/1200 lpm
Streaming tape drives	Start/stop; 25 ips		1600-6250 bpi/25-125 ips	1600-6250 bpi/25-125
Cassette/cartridge tape drives	Start/stop, 25 ips	Start/stop; 25 ips	Start/stop; 25 ips	Start/stop; 25 ips
Other peripherals supported		<u> </u>		<u> </u>
Other peripherals supported	_	 -		_
OFTWARE				
Assembler	<u> </u>		1	
Compilers	Fortran, C, Basic,	Fortran, C. Basic,	Fortran, C, Basic,	Fortran, C, Basic,
	RM/Cobol	Pascal, LPI/Cobol	Pascal, LPI/Cobol	Pascal, LPI/Cobol
Operating system name	Unix System V	Unix System V	Unix System V	Unix RTR
Operating system type	Timesharing	Timesharing	Timesharing	Timesharing, realtime
Operating sys. implemented in firmware			l—	I—
Database management system	dBase II, AT&T Ingres		<u></u>	! — •
Principal industry application	General business		I—	<u> </u>
			•	
Other packages	OA, communications	Third-party packages	Third-party packages	
	management control	Time party pastages	Time party packages	
			ŀ	
RICING & AVAILABILITY				1
	CPI I: 4MP momony: 3 norms	CBU. 444D mamanu aan	CDI I. CAAD	0.0011 0000
		CPU; 4WB memory; con-	CPU; 8MB memory; con- sole; 1600 bpi tape;	2 CPUs; 8MB memory;
		anles 1000 bei seens		sole; 9-track tape;
	controllers; 24 termi-	sole; 1600 bpi tape;		
	controllers; 24 termi- nals; 9-track tape; two	three 256MB removable	three 256MB removable	
	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives;	three 256MB removable disk drives; 7 async	three 256MB removable disk drives; 7 async	disk drives; 64 termi-
	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix	three 256MB removable disk drives; 7 async comm. controllers; 40	three 256MB removable disk drives; 7 async comm. controllers; 40	disk drives; 64 termi-
	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V:	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band	three 256MB removable disk drives; 7 async	disk drives; 64 termi-
Typical system configuration and price	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix	three 256MB removable disk drives; 7 async comm. controllers; 40	three 256MB removable disk drives; 7 async comm. controllers; 40	nals; two 1200 lpm band
	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V:	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band	disk drives; 64 termi- nals; two 1200 lpm ban-
Typical system configuration and price	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V: \$152,315	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$381,100	three 256MB removable disk drives, 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$490,900	disk drives; 64 terminals; two 1200 lpm ban printers: \$5,11,680
Typical system configuration and price Monthly maintenance of typical	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V:	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V:	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V:	disk drives; 64 termi- nals; two 1200 lpm ban-
Typical system configuration and price Monthly maintenance of typical configuration	controllers; 24 terminals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V: \$152,315	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$381,100 \$3,452	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$490,900 \$3,549	disk drives; 64 terminals; two 1200 lpm ban printers: \$511,680
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	controllers; 24 termi- nals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V: \$152,315	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$381,100	three 256MB removable disk drives, 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$490,900	disk drives; 64 terminals; two 1200 lpm ban printers: \$5,11,680
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	controllers; 24 terminals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V: \$152,315	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$381,100 \$3,452	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$490,900 \$3,549 March 1984	disk drives; 64 terminals; two 1200 lpm ban printers: \$511,680
Typical system configuration and price Monthly maintenance of typical	controllers; 24 terminals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V: \$152,315	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$381,100 \$3,452	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$490,900 \$3,549 March 1984 Dual processor system	disk drives; 64 terminals; two 1200 lpm ban printers: \$511,680
Typical system configuration and price Wonthly maintenance of typical configuration Jate of first delivery Number installed to date	controllers; 24 terminals; 9-track tape; two 134MB fixed disk drives; three 120 cps dot-matrix printers; Unix System V: \$152,315	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$381,100 \$3,452	three 256MB removable disk drives; 7 async comm. controllers; 40 terminals; 1200 lpm band printer; Unix System V: \$490,900 \$3,549 March 1984	disk drives; 64 terminals; two 1200 lpm ban printers: \$511,680

Interactive applications	MANUFACTURER & MODEL	BTI Computer Systems BTI 8000	Computer Consoles, Inc. Power 6/32	Computer Designed Systems, Inc. Adviser 1400/32	Computer Designed Systems, Inc. Adviser 1800/64
MAIN MEMORY SINK STORAGE CAPACITY SINK STORAGE C	MORD LENGT!!	22 hito	22 hita	22 0 bit-	64 0
SAME AND CAPACITY			1		
20. WORKSTATIONS SUPPORTED 258 \$10,000-\$700,000 \$106,000-\$550,000 \$106,000-\$					
RICE FANGE ARGET MARKET CORPORATION CONTROL PROCESSOR Not directly addressable bytes SOOK SP. DP	ISK STORAGE CAPACITY	64MB-8GB		24GB	
ARGET MARKET General business High-end Unix Interactive applications, commercial totons, commercial toton	IO. WORKSTATIONS SUPPORTED	256	128+	256	600+
ARGET MARKET General business High-end Unix Interactive applications, commercial totons, commercial toton		\$110,000-\$700,000	\$165,000-\$550,000	\$35,000-\$300,000	\$40,000-\$550,000
ENTRAL PROCESSOR No. of directly addressable bytes Virtual memory South					1
ENTRAL PROCESSOR No. of directly addressable bytes Virtual memory Interviewer floating point Sook Sook B So	ANGET WANKET	General business	I light-end Offix		
No. of directly addressable bytes 500K		k	ļ	tions, commercial	tions, commercial
Virtual memory Hardware floating point Batterly backup Batterl		1	l _	1	1
Name	No. of directly addressable bytes	500K	1G	256M	512M
Batterly backup Standard Standard Optional Op	Virtual memory	500KB	2GB	Optional	Optional
Battery backup Standard Standard Optional Opt	Hardware floating point	DP	SP. DP. functions	SP DP	SP DP
Real-time clock or timer CPU cycle timer CPU cycle timer CPU cycle time clock or timer CPU with 1MB rain reprocess times and severe clock or compliance or compliance configuration and price principal industry application CPU with 1MB rain repropriate configuration and price principal industry application CPU with 1MB rain repropriated configuration and price principal industry application CPU with 1MB rain repropriated configuration CPU with 1MB rain repropriated configu		1 = 1			
CPU cycle time, nanosaconds Z50				- p	1
MIPS 16-/32-bit compatibility					
16.732-bit compatibility Alan STORAGE Street facthed per cycle 4		250	1	50	35
AAN STORACE Sytes fetched per cycle Cycle/access time, nanoseconds Storage protection Increment size, bytes Cache memory, tytes None SSK Storage protection Standard	MIPS	<u> </u>	18		<u></u>
AAN STORACE Sytes fetched per cycle Cycle/access time, nanoseconds Storage protection Increment size, bytes Cache memory, tytes None SSK Storage protection Standard	16-/32-bit compatibility	Basic only	Í <u>—</u>	Optional	Optional
Bytes fatched per cycle					optional.
Occupance Occu			١,		140
Standard Increment size, bytes None Standard Stan		1007	1 -		
Increment size, bytes 1M					
None	Storage protection	Standard	Standard	Standard	Standard
Cache memory, bytes	Increment size, bytes	1M	4MB	512K	1512K
NEUT/OUTPUT CONTROL No. of I/O channels Data transfer rate ODM/MUNICATIONS Max. number of lines S256 128 Opt.: 307K bps Optional			f	1	£ "
No. of I/O channels Data transfer rate 67M bps 11MB/second 19.6MB/sec. 24.6MB/sec. 24.6M			1000	1021	10-K
Data transfer rate ODMMUNICATIONS Max. number of lines Samue of lines Synchronous No Asynchronous Std.; 19.2K bps Std.; 19.2K		laa	los	lasa	1
20MM/UNICATIONS 256 128 164 228 28 27 270					<u>j —</u>
20MM/UNICATIONS 256 128 164 228 28 27 270	Data transfer rate	67M bps	11MB/second	19.6MB/sec.	24.6MB/sec.
Max. number of lines	COMMUNICATIONS		i	1	1
Synchronous Asynchronous Protocols supported 2780/3780 Sid.: 19.2k bps Sid.: 1		256	128	164	228
Asynchronous Std.: 19.2k bps 2780/3780 BSC, SNA, X.25 All IBM All				1	
Protocols supported 2780/3780 BSC, SNA, X.25 All IBM All IBM Type of LAN supported REL terminals emulated Not applicable PSERIE terminals PSERIE terminals emulated Not applicable PSERIE Terminals PSERIE Terminals PSERIE TERMINAL EQUIPMENT Disks supported PSERIE Terminals PSERIE TERMINAL EQUIPMENT Disks supported PSERIE TERMINAL EQUIPMENT Disks supported PSERIE TERMINAL PSERIE TERM					
Type of LAN supported RJE terminals emulated					
RIÉ terminals emulated IBM 3270 emulation RIBM 3270 emulation Pissed & removable: 64MB-254MB 30/1200 cps Serial printers Letter-quality printers Line printers Not applicable Not applicable Serial printers Letter-quality printers Line printers Not applicable Sof-55 cps Sof-50	Protocols supported	2780/3780	BSC, SNA, X.25	All IBM	All IBM
RIÉ terminals emulated IBM 3270 emulation RIBM 3270 emulation Pissed & removable: 64MB-254MB 30/1200 cps Serial printers Letter-quality printers Line printers Not applicable Not applicable Serial printers Letter-quality printers Line printers Not applicable Sof-55 cps Sof-50		1			
RIÉ terminals emulated IBM 3270 emulation RIBM 3270 emulation Pissed & removable: 64MB-254MB 30/1200 cps Serial printers Letter-quality printers Line printers Not applicable Not applicable Serial printers Letter-quality printers Line printers Not applicable Sof-55 cps Sof-50	Type of LAN supported	Not applicable	Ethernet	SNA Ethernet Y 25	SNA Ethernet Y 25
IBM 3270 emulation ERIPHERAL EQUIPMENT Disks supported Fixed & removable: 64MB-254MB 64MB-254MB 160/300/340/515MB 400 cps 30/1200 cps 30					
Fixed & removable: 64MB-254MB 30/1200 cps 30/1200 cps 30/1200 cps 400 cps 30/1200 cps					
Disks supported Serial printers Serial printers Solvitage printers So		Not applicable	Yes	Yes	Yes
Serial printers G4MB-254MB 30/1200 cps A00 cps A00 cps S5/55 cps S3/55 cps	PERIPHERAL EQUIPMENT				į.
Serial printers G4MB-254MB 30/1200 cps A00 cps A00 cps S5/55 cps S3/55 cps	Disks supported	Fixed & removable:	Fixed & removable (16):	3GB	6.2GB
Serial printers Letter-quality printers Line printers Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cother peripherals supported Not applicable Assembler Compilers Relocatable assembler Compilers Relocatable assembler Compilers Relocatable assembler Compilers Operating system name Operating system type Operating system particular system Principal industry application Not applicable Not applicable Office automation Office automation CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 6500 bpi printer; terminal; 80MB disk: \$71,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date DAMMENTS Not applicable Assembler Yes C, Fortran, Cobol, Pascal Pascal Assembler Vers C, Fortran, Cobol, Pascal Assembler Vers C, Fortran, Cobol, Pascal Multitasking Partially Advos-Relational Commercial Avos Realtime, multitasking Partially Avos-Relational Commercial CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type Assembler CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type Assembler CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type Assembler CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type Assembler CPU with 256(B memory; power supply; console; printer; terminal; 80MB disk: \$71,000 March 1981 Operating system type Assembler CPU with 256(B memory; powe				1552	0.202
Letter-quality printers Line printers Line printers Aline printers Such a printers Such a printers Streaming tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported As is ps Other peripherals supported Not applicable SOFTWARE Assembler Compilers Commercial Comm	Carial animana			· I	1
Line printers Reel-to-reel tape drives Streaming tape drives Streaming tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported Not applicable SOFTWARE Assembler Compilers Operating system name Operating system type Operating system policable BTI/FMS General business Office automation Other packages Not applicable Office automation Other packages Not applicable Office automation CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS SoftMare 1984 Soft (April 1980)					<u> </u>
Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported Assembler Compilers Coperating system name Operating system type Oper					
Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Other peripherals supported Relocatable assembler Compilers Relocatable assembler Compilers Relocatable assembler Cobol, Fortran, Pascal, Basic Operating system name Operating system type Operating sys. implemented in firmware Operating sys. implemented in firmware Not applicable BTI/FMS General business General business Office automation Other packages Not applicable Not applicable CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS 1600/6250 bpi, 100 ips — — Assembler C, Fortran, Cobol, Pascal Unix BSD 4.2/System V Multitasking Avos Realtime, multitasking Partially Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; private; terminal; 80MB disk: \$71,000 S724 \$910 March 1981 — Accelerator gate array Accelerator gate array	Line printers	300-1200 lpm	300/600/1000 lpm		
Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Other peripherals supported Relocatable assembler Compilers Relocatable assembler Compilers Relocatable assembler Cobol, Fortran, Pascal, Basic Operating system name Operating system type Operating sys. implemented in firmware Operating sys. implemented in firmware Not applicable BTI/FMS General business General business Office automation Other packages Not applicable Not applicable CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS 1600/6250 bpi, 100 ips — — Assembler C, Fortran, Cobol, Pascal Unix BSD 4.2/System V Multitasking Avos Realtime, multitasking Partially Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; private; terminal; 80MB disk: \$71,000 S724 \$910 March 1981 — Accelerator gate array Accelerator gate array	Reel-to-reel tape drives	800/1600 bpi	l ·	! —	1
Cassette/cartridge tape drives Other peripherals supported Operating system name Operating system type Operating system partially Database management system Other packages Not applicable BTI/FMS General business Office automation Other packages Not applicable Office automation Other packages Not applicable Office automation CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Innes: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Other peripherals supported Assembler Unix BSD 4.2/System V Mutitiasking Partially Avos Relational Commercial Commercial CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 6250 bpi tape drive; 6000 pm printer; 64 async ports; Unix license: \$296,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Other peripherals supported to date Other packages Assembler Assembler Avos Reattime, multitasking Partially Avos-Relational Commercial CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 6000 pm printer; 64 async ports; Unix license: \$296,000 Second Printers of typical supports of the prin			1600/6250 bpi 100 ipe		1_
Other peripherals supported Not applicable Passembler Compilers Operating system name Operating system type Operating system type Operating system name Operating system type Operating system type Operating system name Operating system type Operating system typ		45 :	1000/0230 bpi, 100 ips		
Assembler Compilers Relocatable assembler Cobol, Fortran, Pascal, Basic Operating system name Operating system type Operating system type Operating system type Operating system type Operating system patiabase management system Principal industry application Other packages Not applicable Office automation Other packages Not applicable Office automation Other packages PRICING & AVAILABILITY Typical system configuration and price Image: Storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMIttirasking Unix BSD 4.2/System V Multitasking Healtime, multitasking Partially Avos-Relational Commercial Office automation CPU with 256KB memory; power supply; console; printer; termina; 80MB disk: \$71,000 S724 S910 March 1981 March 1981 Assembler Avos Realtime, multitasking Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; printer; termina; 80MB disk: \$71,000 S724 S910 March 1981 March 1981 Avos Realtime, multitasking Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; printer; termina; 80MB disk: \$71,000 S724 S910 March 1981 March 1981 Avos Realtime, multitasking Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; printer; termina; 80MB disk: \$71,000 S724 S910 March 1981 March 1981 Avos Realtime, multitasking Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; printer; termina; 80MB disk: \$71,000 Monthly maintenance of typical configuration Avos Realtime, multitasking Partially Avos-Relational Commercial CPU with 256KB memory; power supply; console; printer; termina; 80MB disk: \$71,000 Monthly maintenance of typical configuration Accelerator gate array			I—	<u> </u>	1—
Assembler Compilers Relocatable assembler Cobol, Fortran, Pascal, Basic Operating system name Operating system type Operating syst	Other peripherals supported	Not applicable	-	 -	<u> </u>
Assembler Compilers Relocatable assembler Cobol, Fortran, Pascal, Basic Operating system name Operating system type Operating syst			ĺ	į.	1
Assembler Compilers Relocatable assembler Cobol, Fortran, Pascal, Basic Operating system name Operating system type Operating syst	SOFTWARE	!]		· L
Compilers Cobol, Fortran, Pascal, Basic Cobol, Fortran, Cobol, Pascal Avos Realtime, multitasking Partially Avos-Relational Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Copusition, Copus Selections, Copus		Relocatable accembler	Vac	Accombion	Accombion
Operating system name Operating system type Operation		1	j	Assembler	Assemblei
Operating system name Operating system type Operation Op	Compilers		1	-	
Operating system type		Basic	rascai	1	1
Operating system type		ł	1	1	1
Operating system type Operating sys. implemented in firmware Operating sys. implemented in firmware Database management system Principal industry application Other packages Other package	Operating system name	 	Unix BSD 4.2/System V	Avos	Avos
Operating sys. implemented in firmware Database management system Principal industry application Other packages Not applicable BTI/FMS General business Office automation Office automation Office automation Office automation Office automation Office automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Onther packages Not applicable BTI/FMS General business Office automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 SPRICING & AVAILABILITY Typical system configuration and price automation AUTOMATICAL AUTOMATICAL AUTOMATICAL AUTOMATICAL AUTOMATICAL AUTOMATICAL AUTOMATIC		Proprietary multitasking			Realtime, multitasking
Database management system Principal industry application Other packages Not applicable Office automation Other packages Not applicable Office automation Office automation CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Office automation Office automation CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 \$1,750 \$1,750 \$724 \$910 March 1981 — Accelerator gate array Avos-Relational Commercial					
Principal industry application General business Software development, office automation Office automation Office automation CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; bayen drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Multiprocessor system Software development, office automation CPU, 8MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm princer; 64 disk: \$71,000 \$1,750 \$1,750 \$724 \$910 March 1981 — Accelerator gate array Accelerator gate array			(I		
Other packages Not applicable Office automation Office automation Office automation Office automation Office automation — CPU with 1MB main memory; two 340MB disks; power supply; console; printer; terminal; 80MB disk: \$71,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Office automation — CPU with 256KB memory; power supply; console; printer; terminal; 80MB disk: \$71,000 Spoker supply; console; printer; terminal; 80MB disk: \$71,000 Spoker supply; power supply; console; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; power supply; power supply; power supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$71,000 Spoker supply; power supply; printer; terminal; 80MB disk: \$89,000 Spoker supply; power					
Other packages Not applicable Office automation ———————————————————————————————————	Principal industry application	General business		Commercial	Commercial
Other packages Not applicable Office automation ———————————————————————————————————		l	office automation	ì	l
PRICING & AVAILABILITY Typical system configuration and price CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm printer; 64 async ports; Unix license: \$296,000 \$1,750 \$1,750 \$724 \$910 March 1981 — Accelerator gate array		1		1	i
PRICING & AVAILABILITY Typical system configuration and price CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CPU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm printer; 64 async ports; Unix license: \$296,000 \$1,750 \$1,750 \$724 \$910 March 1981 — Accelerator gate array	Other nackages	Not applicable	Office automation	1	!
Typical system configuration and price CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CMU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm printer; 64 async ports; Unix license: \$296,000 \$1,750 \$724 \$910 March 1981 March 1981 Accelerator gate array	outor packages	Trot applicable	Cince automation	<u> </u>	<u> </u>
Typical system configuration and price CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CMU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm printer; 64 async ports; Unix license: \$296,000 \$1,750 \$724 \$910 March 1981 March 1981 Accelerator gate array			i	1	1
Typical system configuration and price CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CMU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm printer; 64 async ports; Unix license: \$296,000 \$1,750 \$724 \$910 March 1981 March 1981 Accelerator gate array			l	1	1
Typical system configuration and price CPU with 1MB main memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CMU with 1MB main memory; two 340MB disks; 6250 bpi tape drive; 600 lpm printer; 64 async ports; Unix license: \$296,000 \$1,750 \$724 \$910 March 1981 March 1981 Accelerator gate array	PRICING & AVAILABILITY	1		1	}
memory; 64MB mass storage unit; cartridge tape drive; 8 comm. lines: \$110,000 to lines: \$296,000 to lines: \$296,000 to lines: \$1,750 to lines: \$296,000 to lines: \$29		CPU with 1MR main	CPU: 8MB main memory:	CPU with 256KB memory:	CPU with 256KB memory
storage unit; cartridge tape drive; 8 comm. lines: \$110,000	,,, oega.ation one price				
tape drive; 8 comm. lines: \$110,000					power supply; console;
tape drive; 8 comm. lines: \$110,000		, , ,			printer; terminal; 80MB
Monthly maintenance of typical configuration Date of first delivery Number installed to date SOMMENTS Som times: \$110,000 async ports; Unix license: \$296,000		tape drive; 8 comm.		disk: \$71,000	disk: \$89,000
Monthly maintenance of typical configuration Date of first delivery Aumber installed to date SOMMENTS S1,750 S1,750 S724 \$910 S724 \$910 S724 S910				1	1
Monthly maintenance of typical configuration Date of first delivery 2nd quarter 1982 3rd quarter 1984 June 1980 March 1981 Number installed to date 50 Multiprocessor system 50 Accelerator gate array Accelerator gate				1	Į.
configuration Date of first delivery Number installed to date COMMENTS 2nd quarter 1982 3rd quarter 1984 50 Multiprocessor system June 1980 March 1981 — Accelerator gate array Accelerator gate		!	license: \$290,000	1	
configuration Date of first delivery Number installed to date COMMENTS 2nd quarter 1982 3rd quarter 1984 50 Multiprocessor system June 1980 March 1981 — Accelerator gate array Accelerator gate		i		i .	1
configuration Date of first delivery Number installed to date COMMENTS 2nd quarter 1982 3rd quarter 1984 50 Multiprocessor system June 1980 March 1981 — Accelerator gate array Accelerator gate		1	l .	1	
configuration Date of first delivery Number installed to date COMMENTS 2nd quarter 1982 3rd quarter 1984 50 Multiprocessor system June 1980 March 1981 — Accelerator gate array Accelerator gate			l	1	ł
configuration Date of first delivery Number installed to date COMMENTS 2nd quarter 1982 3rd quarter 1984 50 Multiprocessor system June 1980 March 1981 — Accelerator gate array Accelerator gate	Monthly maintenance of typical	\$827	\$1.750	\$724	tea10
Date of first delivery 2nd quarter 1982 3rd quarter 1984 50 4nd parter 1980 4nd parter 1981 2nd quarter 1984 50 4nd parter 1980 4nd parter 1981 4nd parter 198		J02/	\$1,79U	7/24	1 pp 10
Number installed to date 50 50 — Accelerator gate array Accelerator gate array		i	1	1	
Number installed to date 50 50 — Accelerator gate array Accelerator gate array		2nd guarter 1982	3rd quarter 1984	June 1980	March 1981
COMMENTS Multiprocessor system Accelerator gate array Accelerator ga				1	I
[1	190		<u> </u>
with up to 8 CPUs tri-port CPU quad-port CPU	OIVIMENTS		l		Accelerator gate array
		with up to 8 CPUs	ĺ	tri-port CPU	quad-port CPU
		1	l	1 '	1
		}	l	1	

	1				
MANUFACTURER & MODEL	Data General Corp. Eclipse MV/4000 SC	Data General Corp. Eclipse MV/4000 DC	Data General Corp. Eclipse MV/4000	Data General Corp. Eclipse MV/8000 C	
VORD LENGTH	32 bits	32 bits	32 bits	32 bits	
MAIN MEMORY	1MB-4MB	2MB-8MB	1MB-8MB	1MB-4MB	
ISK STORAGE CAPACITY	38.6MB-77.2MB	70MB-240MB	50MB-9.4GB	50MB-9.4GB	
O. WORKSTATIONS SUPPORTED	8	16	64	128	
PRICE RANGE	From \$38,400	Contact vendor	From \$25,000	From \$58,000	
ARGET MARKET	General business,	General business,	General business,		
ENTRAL PROCESSOR	office automation	office automation	office automation	General business, office automation	
No. of directly addressable bytes		64K-512M		1	
	4GB		400	1.00	
Virtual memory		4GB	4GB	4GB	
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP	
Battery backup	_	-	 -		
Real-time clock or timer	 	<u> </u>	 	Standard	
CPU cycle time, nanoseconds	-		-	 	
MIPS	0.6		0.6	1.2	
16-/32-bit compatibility	Direct	Direct	Direct	Direct	
IAIN STORAGE			2301	Direct	
Bytes fetched per cycle	<u> </u>		1		
Cycle/access time, nanoseconds	200	200	200	200	
	Standard	Standard		220	
Storage protection		+	Standard	Standard	
Increment size, bytes	1M, 2M	1M, 2M, 4M, 8M	512K, 1M, 2M	4M	
Cache memory, bytes	None	None	None	16K	
NPUT/OUTPUT CONTROL					
No. of I/O channels	2		9	8	
Data transfer rate	<u> </u>	3MB/sec.	5MB/sec.		
OMMUNICATIONS					
Max. number of lines		<u> </u>			
Synchronous	Opt.; 56K bps	Ont ESK has	Ont : 999KB /	0-4 (880)/0 /-	
		Opt.; 56K bps	Opt.; 888KB/sec.	Opt.; 888KB/sec.	
Asynchronous	Std.; 38.4K bps	Std.; 38.4K bps	Optional	Optional	
Protocols supported	TCP/IP; X.25	X.25, SDLC, Hasp II	X.25, SDLC, Hasp II, SNA	X.25, SDLC, Hasp II, SN	
Type of LAN supported	Xodiac, IEEE802	Xodiac, IEEE802	Xodiac, IEEE802	Xodiac, IEEE802	
RJE terminals emulated	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	
IBM 3270 emulation	Yes	Yes	Yes	Yes	
ERIPHERAL EQUIPMENT			1.55		
Disks supported	Winchester: 38.6MB,	Winchester: 70MB, 120MB	Fixed: 73MB-592MB;	E 72840 E02840.	
Disks supported		VVIII (CHESTEI. 701VIB, 1201VIB		Fixed: 73MB-592MB;	
<u> </u>	120MB	1	removable: 96MB-277MB	removable: 96MB-277MI	
Serial printers	340 cps	340 cps	340 cps	340 cps	
Letter-quality printers	35/55 cps	35/55 cps	35/55 cps	35/55 cps	
Line printers	 —	<u> </u>	230-1200 lpm	230-1200 lpm	
Reel-to-reel tape drives	Not applicable	Not applicable	800-6250 bpi, 75 ips	800-6250 bpi, 75 ips	
Streaming tape drives	Not applicable	Not applicable	Start/stop; 30 ips	Start/stop; 30 ips	
Cassette/cartridge tape drives	6400 bpi, 60 ips	6400 bpi, 60 ips	Not applicable	Not applicable	
Other peripherals supported	Diskette	Diskette			
Other peripherals supported	Diskette	Diskette	Laser printers	Laser printers	
OFTWARE					
Assembler	l		İ		
Compilers	Cohol Fortron 77 Bl /1	Cabal Famor 77 Bt /1	Cabal Fasters 33 Bl /1	0.1.1 F 77 BL 44	
Compilers	Cobol, Fortran 77, PL/1,	Cobol, Fortran 77, PL/1,	Cobol, Fortran 77, PL/1,	Cobol, Fortran 77, PL/1,	
	Basic, C, Pascal, DG/L,	Basic, C, Pascal, DG/L,	Basic, C, Pascal, DG/L,	Basic, C, Pascal, DG/L,	
	APL, RPG II, Lisp	APL, RPG II, Lisp	APL, RPG II, Lisp	APL, RPG II, Lisp	
Operating system name	AOS/VS; MV/UX; DG/UX	AOS/VS; MV/UX; DG/UX	See Comments	See Comments	
Operating system type	Multiprogram.; timeshare	Multiprogram.; timeshare	Multipr.; r-t; timeshare	Multipr.; r-t; timeshare	
Operating sys. implemented in firmware		I— · -	_		
Database management system	DG/DBMS, DG/SQL	DG/DBMS, DG/SQL	DG/DBMS, DG/SQL	DG/DBMS, DG/SQL	
Principal industry application	CEO (Comprehensive	CEO (Comprehensive	CEO (Comprehensive	CEO (Comprehensive	
par madetty application	Electronic Office),				
		Electronic Office),	Electronic Office),	Electronic Office),	
0.1	CFO	CFO	CFO	CFO	
Other packages	Third-party packages	Third-party packages	Third-party packages	Third-party packages	
			<u>}</u>		
DICINIC R. ALVARI ADILITY			1		
RICING & AVAILABILITY			1	1	
Typical system configuration and price		Contact vendor	CPU; 1MB memory; 73MB	CPU; 1MB memory; 147	
	floppy disk; 38MB disk;		disk; 1600 bpi tape	fixed disk; streaming	
	8 async/2 sync comm.	1	drive; 8-line async	tape drive; 600 lpm	
	lines; IEEE 802.3 inter-	1	controller: Dasher D410	band printer; 16-line	
	face; DG/UX operating		terminal: 2 cabinets:	1 '	
		1		async comm. controller;	
	avatami aaftura	Ī	AOS/VS right-to-use:	16 terminals; AOS/VS	
	system; software		\$62,000	operating system:	
	system; software entitlements: \$34,800			\$134,200	
				ψ13 4 ,200	
Monthly maintenance of surical	entitlements: \$34,800	Contact vender			
		Contact vendor	\$391	\$1,021	
configuration	entitlements: \$34,800 \$269		\$391	\$1,021	
Date of first delivery	entitlements: \$34,800	Contact vendor			
configuration Date of first delivery Number installed to date	entitlements: \$34,800 \$269		\$391 December 1982	\$1,021 March 1984	
configuration	entitlements: \$34,800 \$269		\$391 December 1982 — Runs AOS/VS, AOS/RT32,	\$1,021 March 1984 — Runs AOS/VS, AOS/RT3	
configuration Date of first delivery Number installed to date	entitlements: \$34,800 \$269		\$391 December 1982	\$1,021 March 1984 — Runs AOS/VS, AOS/RT:	
configuration Date of first delivery Number installed to date	entitlements: \$34,800 \$269		\$391 December 1982 — Runs AOS/VS, AOS/RT32,	\$1,021	

MANUFACTURER & MODEL	Data General Corp. Eclipse MV/8000 II	Data General Corp. Eclipse MV/10000	Digital Equipment Corporation (DEC) VAX-11/725	Digital Equipment Corporation (DEC) VAX-11/730
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1MB-12MB	1MB-16MB	1MB-3MB	1MB-5MB
DISK STORAGE CAPACITY	50MB-14.2GB	73MB-28.4GB	52MB	20MB-2GB
NO. WORKSTATIONS SUPPORTED	128	192	8	24
PRICE RANGE	From \$81,000	From \$154,000	From \$24,950	From \$21,500
TARGET MARKET	General business,	General business,	General business,	General business,
	office automation	office automation	engineering/scientific	engineering/scientific
CENTRAL PROCESSOR		1	•	ł.
No. of directly addressable bytes	1—) 		<u> </u>
Virtual memory	4GB	4GB	4GB	4GB
Hardware floating point	SP, DP	SP, DP, integer funct.	SP, DP, extended	SP, DP, extended
Battery backup			Optional	Optional
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	Claricara		270	270
	1.2	2.5	270	
MIPS	E -	1		0.36
16-/32-bit compatibility	Direct	Direct	Via mode bit	Via mode bit
MAIN STORAGE		•		}
Bytes fetched per cycle	 	<u> </u>	4	4
Cycle/access time, nanoseconds	220	140	810	810
Storage protection	Standard	Standard	Standard	Standard
	1M, 2M	1M, 2M	1M	1M
Increment size, bytes		1 -		1
Cache memory, bytes	16K	16K	None	None
NPUT/OUTPUT CONTROL	_	1	1 .	1
No. of I/O channels	13	23	 -]
Data transfer rate	18MB/sec.	28MB/sec.	1.5MB/sec.	1.5MB/sec.
COMMUNICATIONS				l i
Max. number of lines	i	<u> </u>	<u> </u>	1
Synchronous	Opt.; 888KB/sec.	Opt.; 888KB/sec.	Std.; 19.2K bps	Sed . 10 2V has
				Std.; 19.2K bps
Asynchronous	Optional	Optional	Std.; 19.2K bps	Std.; 19.2K bps
Protocols supported	X.25, SDLC, Hasp II, SNA	X.25, SDLC, Hasp II, SNA	SDLC, HDLC, DDCMP, X.25,	
			ADCCP, SNA, DNA, Bisync	ADCCP, SNA, DNA, Bisyr
Type of LAN supported	Xodiac, IEEE802	Xodiac, IEEE802	Ethernet	Ethernet
RJE terminals emulated	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	1.50	1.55	1.45	1,00
	Fixed: 73MB-592MB;	Fixed: 73MB-592MB;	Fixed (removable: F2MP	Fixed & remarkable.
Disks supported			Fixed/removable: 52MB	Fixed & removable:
	removable: 96MB-277MB	removable: 96MB-277MB		10.4MB-456MB
Serial printers	340 cps	340 cps	40-240 cps	40-240 cps
Letter-quality printers	35/55 cps	35/55 cps	25-34 cps	25-34 cps
Line printers	230-1200 lpm	230-1200 lpm	170-1200 lpm	170-1200 lpm
Reel-to-reel tape drives	800-6250 bpi, 75 ips	800-6250 bpi, 75 ips		
Streaming tape drives	Start/stop; 30 ips	Start/stop; 30 ips	Canadana OF inc	Coom forem. OF im-
			Start/stop; 25 ips	Start/stop; 25 ips
Cassette/cartridge tape drives	Not applicable	Not applicable	Not applicable	Not applicable
Other peripherals supported	Laser printers	Laser printers	Laser printers, voice	Laser printers, voice
			synthesis, graphics dev.	synthesis, graphics dev.
SOFTWARE				l · .
Assembler	<u> </u>		Macro assembler	Macro assembler
Compilers	Cobol, Fortran 77, PL/1,	Cobol, Fortran 77, PL/1,	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,
Compilers	Basic, C. Pascal, DG/L.			
	1	Basic, C, Pascal, DG/L,	DSM, Cobol, Basic, C,	DSM, Cobol, Basic, C,
	APL, RPG II, Lisp	APL, RPG II, Lisp		PL/1, Ada, Pascal
Operating system name	See Comments	See Comments	VAX/VMS	VAX/VMS; Ultrix-32
Operating system type	Multipr.; r-t; timeshare	Multipr.; r-t; timeshare	Batch, realtime	Batch, rt.; timeshare
Operating sys. implemented in firmware	<u> </u>	 	No	No
Database management system	DG/DBMS, DG/SQL	DG/DBMS, DG/SQL	VAX DBMS, VAX Rdb	VAX DBMS, VAX Rdb
Principal industry application	CEO (Comprehensive	CEO (Comprehensive	General business,	General business,
par masou y approution	Electronic Office),	Electronic Office),	engineering scientific	
			engineering scienting	engineering scientific
	CFO	CFO		1
Other packages	Third-party packages	Third-party packages	Office automation,	Office automation,
	1		numerous third-party	numerous third-party
	1	1	packages	packages
PRICING & AVAILABILITY		1	1	
Typical system configuration and price	CPLI: 2MR memory: 16-line	CPU; 2MB memory; 16-line	CPU; 2MB memory; 2 car-	CPU; 2MB memory; dual
. , p. our oyotom configuration and price	async controller; tape	async controller; 190MB	1	
			tridge tape drives; 52MB	cassette tape; 121MB
	unit; 190MB disk sub-	disk; 800/1600 bpi tape	f/r disk; async comm.	fixed disk; comm. inter-
	system; cabinet; system	drive: \$232,000	controller; Ethernet	face; streaming tape;
	console; AOS/VS right-	1	adapter; 4 workstations;	20 workstations;
	to-use: \$163,000	1 -	170 lpm dot-matrix	two 300 lpm printers;
	1		printer; VAX/VMS lic.	VAX/VMS license: \$88,3
		1		1 This illerise. \$66,3
			& warranty; DECnet	
	l	1	license: \$53,630	l
Monthly maintenance of typical	\$967	\$1,500	\$422	\$692
configuration	i		l .	i .
Date of first delivery	August 1983	May 1983	November 1983	May 1982
Number installed to date				
	D 400 0/0 400 /DT00	D		<u> </u>
COMMENTS	Runs AOS/VS, AOS/RT32,	Runs AOS/VS, AOS/RT32,	1	
	DG/UX, MV/UX operating	DG/UX, MV/UX operating	1	J
	systems	systems	1	

No. of I/O channels Data transfer rate 1.5-2/MB/sec. 1.5-2	MANUFACTURER & MODEL	Digital Equipment Corporation (DEC) VAX-11/750	Digital Equipment Corporation (DEC) VAX-11/780	Digital Equipment Corporation (DEC) VAX-11/782	Digital Equipment Corporation (DEC) VAX-11/785
2MB-64MB 12MB-64MB 12MB-	NORD LENGTH	32 hits	32 hits	32 hits	32 hits
121MB-30GB 121					
128		1			
### STRICE RANGE ### ANGET MARKET CENTRAL PROCESSOR No. of directly defressable bytes ### ANGET MARKET CENTRAL PROCESSOR No. of directly defressable bytes ### ANGET MARKET CHARGE MARKET CHARGET MARKET					
Cameral Dusiness, engineering /scientific engineerin				1	
engineering/scientific					
SENTEAL PROCESSOR According to the processor and storage According to th	ARGET MARKET		-	-	
AGB		engineering/scientific	engineering/scientific	engineering/scientific	engineering/scientific
Virtual memory		· .			1
New York Service Ser	No. of directly addressable bytes		-	ļ 	I—
District	Virtual memory	4GB	4GB	4GB	4GB
Sandard Sand	Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP, QP
Real-time clock or timer	Battery backup	Optional	Optional	Standard	Standard
200 200 200 133 136 146		Standard	Standard	Standard	Standard
MBPS i 1-5/32-bit compatibility AMN STORAGE Syntyses factched per cycle Sycle/sizeoss time, nanoseconds Cycle/sizeoss time, na		320	200	200	
16./32-bit compatibility Almode bit Almost TORAGE Bytes fatched per cycle Cycle/access time, annoesconds Storage protection Hint, 2M, 4M, 4M Almost TORAGE Storage protection Hint, 2M, 4M, 4M Almost TORAGE Storage protection Hint, 2M, 4M, 4M Almost TORAGE Almost TORAGE Storage protection Hint, 2M, 4M, 4M Almost TORAGE Hint, 2M, 4M Almost TORAGE Hint, 2M, 4M, 4M Almost TORAGE Hint, 2M, 4M A					
AMA STORAGE Spread feathed per cycle Cycle/access time, nanoseconds Storage protection increment aize, bytes (access memory, protection) 15-2MB/sec. 13-3MB/sec. 13-3MB/sec. 13-3MB/sec. 13-3MB/sec. 13-2MB/sec. 13-3MB/sec. 13-3MB/sec. 13-2MB/sec. 13-2MB/sec. 13-2MB/sec. 13-2MB/sec. 13-3MB/sec. 13-2MB/sec.					
Bytes fatched per cycle		Via Triode bit	Via mode bit	Via mode bit	Via mode bit
\$290 (cache enabled) \$290 (cache enabled)		ام	6		
Slorage protection increment size, bytes Cache memory, bytes PVP VIOUTPUT CONTROL CONTROL No. of I/O channels 1.5		8	7	8	8
Increment size, bytes Cache memory, bytes NRUT/OUTPUT CONTROL No. of I/O channels Data transfer rate Data transfer rate Data transfer rate Operating system name Operating syste			, ,		
Cache memory, bytes No. of I/O channels No. of I/O channels Data transfer rate 1.5-ZMB/Jesc. 1.5-ZMB/sec. 1.5	5 .	1	1	Standard	
NEUT/OUTPUT CONTROL No. of I/O channels Data transfer rate Data transfer rate Opt.: 1MB/sec. Opt				_	1 ' ' '
No. of I/O channels Data transfer rate 1.5-2/MB/sec. 1.5-2	Cache memory, bytes	4K	8K	8K	32K
1-8	NPUT/OUTPUT CONTROL	1		1	1
Data transfer rate Max. number of lines Max. number of lines Synchronous Opt.; 19.2K bps SDLC, HDLC, DDCMP, X.25, ADCCP, SNA, DNA, Bisync Ethernet BM 2780/3780 Ves Ves Ves Lefter-quality printers Line printers Line printers Cassette/carridge tape drives Chester to peripherals supported Line printers Coperating system name Operating system stype Coperating system stype Coperat		1-5	1-8	1-8	1-8
DOMMUNICATIONS Max. number of lines Opt.; 11MB/sec. Opt.; 19.2K bps SDLC, HDLC, DDCMP, X.25, ADCCP, SNA, DNA, Bisyne Ethernet IBM 2780/3780 Yes SDLC, HDLC, DDCMP, X.25, ADCCP, SNA, DNA, Bisyne Ethernet IBM 2780/3780 Yes SPECIAL Supported Fixed: 121/456/516MB; rem:: 10.4/205/256MB 40-240 cps 25-34 cps 25-34 cps 170-1200 ipm 170-1200					
Max. number of lines Synchronous Opt.; 11MB/sec. Opt.; 19.2K bps SDLC, HDLC, DDCMP, X.25, SDLC,					1
Opt.: 1MB/sec. Opt.: 1MB/sec. Opt.: 1MB/sec. Opt.: 1MB/sec. Opt.: 19.2K bps		<u> </u>			I
Asynchronous		Opt : 1MR/sec	Opt : 1MP/coc	Opt : 1MP/see	Opt : 1MP/coc
SDLC, HDLC, DDCMP, X.25, SDLC, HDLC, DDCMP,	•				
ADCCP, SNA, DNA, Bisync Ethernst Ether				1	
Type of LAN supported IBM 278 (12 12 1456 15 16 18 18 18 18 18 18 18	Protocois supported				
BM 2780/3780 BM 2					
Yes					
Fixed: 121/456/516MB; rem.: 10.4/205/256MB 40-240 cps 25-34 cps 25	RJE terminals emulated	IBM 2780/3780	IBM 2780/3780		IBM 2780/3780
Disks supported Fixed: 121/456/516MB; rem:: 10.4/256/516MB; rem::	IBM 3270 emulation	Yes	Yes	Yes	Yes
Fern:: 10.4/205/256MB 40-240 cps 25-34 cps 170-1200 lpm 800-6250 bpi. 45-125 ips Streaming tape drives Other peripherals supported STOPMINES OPERATING & AVAILABILITY Other packages Monthly maintenance of typical configuration Monthly maintenance of typical compositions and price of the processors and storage Monthly maintenance of typical comments Monthly main	PERIPHERAL EQUIPMENT		-		1
A0-240 cps A0-	Disks supported	Fixed: 121/456/516MB;	Fixed: 121/456/516MB;	Fixed: 121/456/516MB;	Fixed: 121/456/516MB;
Serial printers Line printers Line printers Line printers Rel-to-reel tape drives Streming tape drives Cassette/cartridge ta		rem.: 10.4/205/256MB	rem.: 10.4/205/256MB	rem.: 10.4/205/256MB	rem.: 10.4/205/256MB
Letter-quality printers Line printers Line printers Line printers Line printers 170-1200 lpm 800-6250 bpi, 45-125 ips Start/stop; 25 ips Start/stop; 25 ips Cassette/cartridge tape drives Cassette/cartridge tape drives Cher peripherals supported Compilers Macro assembler Assembler Compilers Macro assembler Fortran, RFG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS, Ultrik-32 Batch, rt.; timeshare Database management system Database management system Principal industry application Office automation, numerous third-party packages Principal system configuration and price Typical system configuration and price CCPU; 3MB memory; 2 mag, tapes; 121MB fixed disk; 2 256MB rem. disk; async-comm. interface; hard-copy console; 20 terminals; two 600 lpm printer; 12 ppm lase printers Principal first delivery Nonthly maintenance of typical configuration Monthly maintenance of typic	Serial printers				
Line printers Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Comber peripherals supported SOFTWARE Assembler Compilers Compilers Operating system name Operating system type Operating system type Orifice automation, numerous third-party packages Principal industry application Other packages Office automation, numerous third-party packages Principal system configuration and price Compilers Office automation, numerous third-party packages Principal industry with 15 other processors and storage Operating system configuration Other packages Office automation, numerous third-party packages Operating system configuration Other packages Office automation, numerous third-party packages Office automation, numerous third-party packages Operating system configuration Other packages Office automation, numerous third-party packages Operating system configuration Other packages Office automation, numerous third-party packages Operating system configuration Other packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Operating system configuration Other packages Office automation, numerous third-party packages Office automation, numerous third-party packages Operating system configuration Operating system type Operating system					
Reel-to-reel tape drives Casserte/cartridge tape drives Cher peripherals supported Cher peripherals supported Compilers Compil					
Stratt/stop; 25 ips Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Coffer peripherals supported SOFTWARE Assembler Compilers Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/MS; Ultrix-32 Batch, r-t.; timeshare No Database management system Principal industry application Other packages Office automation, numerous third-party packages Obj partines, voice synthesis, graphics dev. Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/MS Batch, r-t.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages Office automation, numerous third-party packages Dual CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; 120 pm laser printers, voice synthesis, graphics dev. Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/MS: DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/MS Batch, r-t.; timeshare No VAX DBMS, VAX Rdb Genera					
Cassette/cartridge tape drives Other peripherals supported Other peripherals supported SOFTWARE Assembler Compilers Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare Operating system type Ope					
Other peripherals supported synthesis, graphics dev. Software synthesis, graphics dev. Software synthesis, graphics dev. Software synthesis, graphics dev. Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering system configuration and price Typical system configuration and price Software synthesis, graphics dev. Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific office automation, numerous third-party packages of the packages of the processors and storage of the configuration of the first delivery No VAX DBMS,		Start/stop; 25 ips	Start/stop; 25 ips	Start/stop; 25 ips	Start/stop; 25 ips
SOFTWARE Assembler Compilers Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, r-t.; timeshare Operating system name Operating system type Ope		<u>1.</u>	<u>. </u>	<u> </u>	1—
Assembler Compilers Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare Operating system type Operating s	Other peripherals supported				
Assembler Compilers Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare No Derating system type Operating system type Office automation, Office automation, Operating syste		synthesis, graphics dev.	synthesis, graphics dev.	synthesis, graphics dev.	synthesis, graphics dev.
Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal Operating system name Operating system type Ope	SOFTWARE	•			1
DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare Operating system type Opera	Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, rt.; timeshare Operating system type Opera	Compilers	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,
Operating system name Operating system type Operating stem	·			DSM, Cobol, Basic, C,	
Operating system name Operating system type Operating system type Operating system type Operating system type Database management system Principal industry application Other packages Office automation, numerous third-party packages Office automation, numerous third-party packages OFU; 3MB memory; 2 mag, commiguration and price CPU; 3MB memory; 2 mag, commiguration and price Seministry (256MB fixed disks; 4 256MB rem. disk; async. comm. interface; hard- copy console; 20 terminals; tx00 lym print- ers; VAX/VMS; Ultrix-32 Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages OFTICING & AVAILABILITY Typical system configuration and price CPU; 3MB memory; 2 mag, tapes; 121MB fixed disks; 4 256MB rem. disk; async. comm. interface; hard- copy console; 20 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS April 1982 April 1982 April 1982 April 1982 April 1984 Can be configured in VAXcluster with 15 other processors and storage PAX/VMS; Ultrix-32 Batch, rt.; timeshare No VAX/VMS Batch, realtime No VAX DBMS, VAX Rdb General business, engineering scientific engineering s				1	
Operating system type Operating system type Operating system type Operating system inplemented in firmware Database management system Principal industry application Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages CPU; 3MB memory; 2 maps; 121MB fixed disk; 256MB rem. disk; async- comm. interface; hard- copy console; 20 termi- nals; two 600 lpm print- ers; VAX/VMS lic. & war- ranty: \$206,195 Monthly maintenance of typical configuration Monthly maintenance of typical configured in VAXcluster with 15 other processors and storage Monthly maintenance of typical configured in VAXcluster with 15 other processors and storage Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 S442,515 Monthly maintenance of typical configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Date of first delivery November 1980 Can be configured in VAXcluster with 15 other processors and storage	Operating system name		VAX/VMS: Ultrix-32		
Operating sys. implemented in firmware Database management system Principal industry application Other packages Other packages Office automation, numerous third-party packages PRICING & AVAILABILITY Typical system configuration and price CPU; 3MB memory; 2 mag. tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 [pm printers; VAX/VMS] lic. & warranty: \$206,195 Monthly maintenance of typical configuration Dot office automation, numerous third-party packages Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; 12 pmm laser ptr.; two comm. controllers; console; 40 terminals; 1200/800 [pm printer; 12 ppm laser ptr.; VAX/VMS] s396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 [pm printer; 12 ppm laser ptr.; two 600 pm ptrs.; 60 terminals; VAX/VMS: \$575,395 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 [pm ptrs.; 60 terminals; VAX/VMS: \$575,395 S75,395 S75,395 S7416 Danuary 1978 — Can be configured in VAXcluster with 15 other processors and storage NoXcluster with 15 other processors and storage Date of first delivery Number installed to date Condition, numerous third-party packages Date of first delivery Number installed to date Can be configured in VAXcluster with 15 other processors and storage	Operating system type				
Database management system Principal industry application Other packages Office automation, numerous third-party packages PRICING & AVAILABILITY Typical system configuration and price Typical system configuration Office automation and price AVAILABILITY Typical system configuration and price Office automation, numerous third-party packages CPU; 3MB memory; 2 mag. tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date CDMMENTS VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four d56MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; two 600 lpm printers; 12 ppm laser ptr.; two 600 lpm printers; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four d56MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm printers; 12 ppm laser ptr.; two 600 lpm printers; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS April 1982 June 1984 — Asymmetrical, dual VAXcluster with 15 other processors and storage VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four d56MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm printers; 12 ppm laser ptr.; two 600 lpm printers; 12 ppm laser ptr.; VAX/VMS: \$396,515 STACLABLICATION.		I The state of the	1		
Principal industry application General business, engineering scientific Other packages Office automation, numerous third-party packages PRICING & AVAILABILITY Typical system configuration and price tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; two 600 lpm printers; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS General business, engineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS April 1982 June 1984 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage					1
engineering scientific Office automation, numerous third-party packages PRICING & AVAILABILITY Typical system configuration and price copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Office automation, numerous third-party packages Office automation, numerous third-party packages CPU; 3MB memory; 2 mag. tapes; 121MB fixed disk; 256MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printers; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$1,303 \$2,577 Sangineering scientific Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS April 1982 June 1984 — Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage PRICING & AVAILABILITY Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$396,515 \$3,697 Can be configured in VAXcluster with 15 other processors and storage			l '	1 ' '	
Office automation, numerous third-party packages PRICING & AVAILABILITY Typical system configuration and price CPU; 3MB memory; 2 mag. tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Office automation, numerous third-party packages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS November 1980 ———————————————————————————————————	Principal industry application			1	1
PRICING & AVAILABILITY Typical system configuration and price tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Inumerous third-party packages Daul CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; two comm. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Inumerous third-party packages Daul CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; two comm. disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Movember 1980 Inumerous third-party packages Daul CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 20 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Say6,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date Con be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		engineering scientific	engineering scientific	engineering scientific	engineering scientific
PRICING & AVAILABILITY Typical system configuration and price tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Inumerous third-party packages Daul CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; two comm. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Inumerous third-party packages Daul CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; two comm. disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Movember 1980 Inumerous third-party packages Daul CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 20 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Say6,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date Con be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		0.5	0.5	lam	
PRICING & AVAILABILITY Typical system configuration and price CPU; 3MB memory; 2 mag. tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Dackages CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 \$1,303 \$2,577 Sa,697 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage packages Dual CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 \$396,515 \$3,697 Can be configured in VAXcluster with 15 other processors and storage	Other packages				
PRICING & AVAILABILITY Typical system configuration and price tapes; 121MB fixed disk; 2256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS PRICING & AVAILABILITY CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Monthly maintenance of typical configuration Date of first delivery November 1980 Can be configured in VAXcluster with 15 other processors and storage CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Sage, 515 Dual CPU; 4MB shared memory; four 456MB fixed disks; 4 tape drives; 40 top fixed d				1 ' '	
Typical system configuration and price tapes; 121MB fixed disk; 256MB rem. disk; async.comm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 tape drives; two comm. controllers; console; 40 tape drives; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Monthly maintenance of typical configuration Date of first delivery Number installed to date Con be configured in VAXcluster with 15 other processors and storage CPU; 4MB memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 Saye, 577 Saye, 67 April 1982 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		packages	packages	packages	packages
tapes; 121MB fixed disk; 256MB rem. disk; async comm. interface; hard- copy console; 20 termi- nals; two 600 lpm print- ers; VAX/VMS lic. & war- ranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS April 1982 Lape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 Movember 1980 Can be configured in VAXcluster with 15 other processors and storage 456MB fixed disks; 4 tape drives; two comm. controllers; console; 20 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 \$3,697 \$2,416 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage			l		1
256MB rem. disk; async comm. interface; hard- copy console; 20 terminals; 1200/800 lpm print- ers; VAX/VMS lic. & war- ranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Lape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$2,577 S3,697 April 1982 June 1984 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage Tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 \$2,416 Can be configured in VAXcluster with 15 other processors and storage	PRICING & AVAILABILITY				CPU; 4MB memory; four
comm. interface; hard- copy console; 20 terminals; 1200/800 pm printer; 12 ppm laser ptr.; two forminals; two 600 lpm printers; VAX/VMS lic. & war- ranty: \$206,195 \$1,303 \$2,577 \$3,697 \$2,416 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Can be configured in VAXcluster with 15 other processors and storage Controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$442,515 kontrollers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515 laser ptr.; VAX/VMS: \$44		CPU; 3MB memory; 2 mag.	CPU; 4MB memory; four	Dual CPU; 4MB shared	
comm. interface; hard- copy console; 20 terminals; 1200/800 pm printer; 12 ppm laser ptr.; two forminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Date of first delivery Number installed to date Configured in VAXcluster with 15 other processors and storage Controllers; console; 40 terminals; 1200/800 pm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$575,395 S2,577 S3,697 S2,416 April 1982 April 1982 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage					
copy console; 20 terminals; 1200/800 pm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$442,515 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS November 1980 Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Lerminals; 1200/800 terminals; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$442,515 April 1982 Asymmetrical, dual 11/780 system using r shared memory VAXcluster with 15 other processors and storage		tapes; 121MB fixed disk;	456MB fixed disks; 4	memory; four 456MB fixed	456MB fixed disks; 4
nals; two 600 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$575,395 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515 lpm printer; 12 ppm laser ptr.;		tapes: 121MB fixed disk; 256MB rem. disk; async.	456MB fixed disks; 4 tape drives; two comm.	memory; four 456MB fixed disks; 4 tape drives;	456MB fixed disks; 4 tape drives; 2 comm.
ers; VAX/VMS lic. & war- ranty: \$206,195 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Movember 1980 Can be configured in VAXcluster with 15 other processors and storage Taker ptr.; VAX/VMS: \$575,395 laser ptr.; VAX/VMS: \$442,515 \$2,416 April 1982 April 1982 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage Taker ptr.; VAX/VMS: \$442,515 \$2,416 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		tapes; 121MB fixed disk; 256MB rem. disk; async comm. interface; hard-	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two	456MB fixed disks; 4 tape drives; 2 comm. controllers; console;
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS November 1980 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage S3,697 \$2,416 April 1982 June 1984 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		tapes; 121MB fixed disk; 256MB rem. disk; async comm. interface; hard- copy console; 20 termi-	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS November 1980 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage \$2,577 \$3,697 April 1982 April 1982 Asymmetrical, dual 11/780 system using r shared memory VAXcluster with 15 other processors and storage		tapes; 121MB fixed disk; 256MB rem. disk; async comm. interface; hard- copy console; 20 termi- nals; two 600 lpm print-	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS:	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm
configuration Date of first delivery Number installed to date COMMENTS Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage Configured in VAXcluster with 15 other processors and storage April 1982 April 1982 Asymmetrical, dual Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		tapes; 121MB fixed disk; 256MB rem. disk; async- comm. interface; hard- copy console; 20 termi- nals; two 600 lpm print- ers; VAX/VMS lic. & war-	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS:	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS:	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS:
configuration Date of first delivery Number installed to date COMMENTS Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage Configured in VAXcluster with 15 other processors and storage April 1982 April 1982 Asymmetrical, dual Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage		tapes; 121MB fixed disk; 256MB rem. disk; async- comm. interface; hard- copy console; 20 termi- nals; two 600 lpm print- ers; VAX/VMS lic. & war-	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS:	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS:	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS:
Date of first delivery Number installed to date COMMENTS Can be configured in VAXcluster with 15 other processors and storage Danuary 1978 Can be configured in VAXcluster with 15 other processors and storage April 1982 Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage June 1984 Can be configured in VAXcluster with 15 other processors and storage	Typical system configuration and price	tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 Ipm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515
Number installed to date COMMENTS Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage	Typical system configuration and price	tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 Ipm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515
Number installed to date COMMENTS Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage VAXcluster with 15 other processors and storage	Typical system configuration and price Monthly maintenance of typical	tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 Ipm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515
COMMENTS Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage Can be configured in VAXcluster with 15 other processors and storage	Typical system configuration and price Monthly maintenance of typical configuration	tapes; 121MB fixed disk; 256MB rem. disk; async-comm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$2,577	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395 \$3,697	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515
VAXcluster with 15 other processors and storage	Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	tapes; 121MB fixed disk; 256MB rem. disk; async-comm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$2,577	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395 \$3,697	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515
processors and storage processors and storage shared memory processors and storage	Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	tapes; 121MB fixed disk; 256MB rem. disk; asynccomm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 \$1,303 November 1980	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$2,577 January 1978	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515 \$2,416 June 1984 —
	Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	tapes; 121MB fixed disk; 256MB rem. disk; async-comm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 \$1,303 November 1980 Can be configured in	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$2,577 January 1978 Can be configured in	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395 \$3,697 April 1982	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515 \$2,416 June 1984 Can be configured in
controllers controllers controllers controllers	Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	tapes; 121MB fixed disk; 256MB rem. disk; async-comm. interface; hard-copy console; 20 terminals; two 600 lpm printers; VAX/VMS lic. & warranty: \$206,195 \$1,303 November 1980 Can be configured in VAXcluster with 15 other	456MB fixed disks; 4 tape drives; two comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$396,515 \$2,577 January 1978 Can be configured in VAXcluster with 15 other	memory; four 456MB fixed disks; 4 tape drives; 12 ppm laser ptr.; two 600 lpm ptrs.; 60 terminals; VAX/VMS: \$575,395 \$3,697 April 1982 Asymmetrical, dual 11/780 system using r	456MB fixed disks; 4 tape drives; 2 comm. controllers; console; 40 terminals; 1200/800 lpm printer; 12 ppm laser ptr.; VAX/VMS: \$442,515 \$2,416 June 1984 Can be configured in VAXcluster with 15 other

MANUFACTURER & MODEL	Digital Equipment Corporation (DEC) VAX 8600	Elxsi System 6400	Formation, Inc. F4000 Information System	Formation, Inc. F4000-AP Information System
VORD LENGTH	32 bits	64 bits	32 bits	32 bits
	1			
MAIN MEMORY	12MB-32MB	8MB-192MB	256KB-8MB	256KB-8MB
ISK STORAGE CAPACITY	456MB-164GB	Up to 100GB	70MB-5GB	70MB-5GB
IO. WORKSTATIONS SUPPORTED	512	1,000	46	I— 1
RICE RANGE	From \$500,000	\$350,000-\$2,000,000	\$75,000-\$300,000	\$100,000-\$300,000
ARGET MARKET	General business,	Scientific/engineering,	1	
	engineering/scientific	CAD/CAM/CAE	OEM, software develop- ment	OEM, software develop- ment
ENTRAL PROCESSOR				
No. of directly addressable bytes	l—	2G	16M	16M
Virtual memory	4GB	4GB	16MB	16MB
Hardware floating point	SP, DP, QP; accelerated	SP, DP, double extended	IDP .	DP
Battery backup	Standard	Optional	None	None
Real-time clock or timer	Standard	Standard	Standard	
				Standard
CPU cycle time, nanoseconds	80	50	200	200
MIPS	4.45 (approx.)	6-60	0.225	0.4
16-/32-bit compatibility	Via mode bit	Not applicable	32-bit only	32-bit only
IAIN STORAGE			,	S.
	8	16		i.
Bytes fetched per cycle			4	4
Cycle/access time, nanoseconds	560	400	800/200	800/200
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	4M	8M	256KB or 1MB	256KB or 1MB
Cache memory, bytes	16K write-back	16K-160K	None	None
NPUT/OUTPUT CONTROL	. T. TIME BUOK	1.50	1	1,40116
	ا '	ام	1.	1.
No. of I/O channels	1-11	l8	4	4
Data transfer rate	20MB/sec.	64MB/sec.	5MB/sec.	5MB/sec.
OMMUNICATIONS			1.	1
Max. number of lines	l	Over 1,000	100	100
Synchronous	Opt.; 1MB/sec.	Optional	Opt.; 19.2K bps	1
				Opt.; 19.2K bps
Asynchronous	Opt.; 19.2K bps	Std.; 19.2K bps	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	SDLC, HDLC, DDCMP, X.25, ADCCP, SNA, DNA, Bisync	Hasp	SDLC, BSC, ASCII	SDLC, BSC, ASCII
Type of LAN supported	Ethernet	Ethernet	SNA	SNA
RJE terminals emulated	IBM 2780/3780	Hasp	Hasp	=
				Hasp
IBM 3270 emulation	Yes	No	Yes	Yes
ERIPHERAL EQUIPMENT	'			
Disks supported	Fixed: 121/456/516MB;	Fixed & removable:	Fixed: 100/135/635MB	Fixed: 100/135/635MB
	rem.: 10.4/205/256MB	300MB-474MB		
Serial printers	40-240 cps	Not applicable	180 cps	100
				180 cps
Letter-quality printers		55 cps	None	None
Line printers	170-1200 lpm	600/1200 lpm	300/600/1000 lpm	300/600/1000 lpm
Reel-to-reel tape drives	800-6250 bpi, 45-125 ips	800-6250 bpi, 125 ips	72/200KB	72/200KB
Streaming tape drives	Start/stop; 25 ips	Not applicable	None	None
Cassette/cartridge tape drives		Not applicable	None	None
Other peripherals supported	Laser printers, voice	Graphics devices and		
Other peripherals supported			Card reader, byte	Card reader, byte
	synthesis, graphics dev.	terminals	multiplexer	multiplexer
OFTWARE			1	· ·
Assembler	Macro assembler	Assembler	Assembler	Assembler
Compilers	Fortran, RPG II, Lisp,	Cobol, Fortran, Pascal,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,
	DSM, Cobol, Basic, C,	C, Basic, Mainsail	RPG II, PL/1	PL/1
	PL/1, Ada, Pascal	[_	1	1
Operating system name	VAX/VMS	Embos; Elxsi Unix	Batch, rt., timeshare	Batch, rt., timeshare
	Batch, realtime	Interact., batch, rt.	Partially	Partially
Operating sys. implemented in firmware		Partially	TMS; any 370-compatible	TMS; any 370-compatible
Database management system	VAX DBMS, VAX Rdb	EDMS (relational)		
			Program development,	Program development,
Principal industry application	General business,	CAD/CAM/CAE, seismic,	online applications	online applications
	engineering scientific	semiconductor, aero-	1	1
	!	space, univ. research	1	1
Other packages	Office automation,	Numerous third-party	IBM 370-compatible	IBM 370-compatible
• • •	numerous third-party	packages	packages	
'		Padragos	Packages	packages
DICING & AVAN ADULTY	packages	l ·		1
RICING & AVAILABILITY	 	1	1.	1
Typical system configuration and price		CPU; 8MB main memory;	CPU with 1MB main	CPU and auxiliary pro-
	async lines; four 456MB	disk drive; tape drive;	memory; 135MB disk;	cessor; 2MB main memor
	J	line printer; communi-	72KB tape; 300 lpm	
		cations lines:		135MB disk; 72KB tape;
	drive; 1200/800 lpm		printer; console;	300 lpm printer; service
		terminals: \$475,000	service processor;	processor; console;
	ptr.; 12 ppm laser ptr.;		8 workstations:	8 workstations:
	10 workstation ptrs.;			
	10 workstation ptrs.;			18123.800
	10 workstation ptrs.; 64 terminals; DECnet &		\$100,300	\$123,800
	10 workstation ptrs.;			\$123,800
Monthly maintenance of typical	10 workstation ptrs.; 64 terminals; DECnet &	\$2.500	\$100,300	
Monthly maintenance of typical	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760	\$2,500		\$123,800 \$852
Monthly maintenance of typical configuration	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760 \$3,893		\$100,300 \$852	\$852
Monthly maintenance of typical configuration Date of first delivery	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760 \$3,893 April 1985	1983	\$100,300 \$852 3rd quarter 1981	\$852 1982
Monthly maintenance of typical configuration	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760 \$3,893		\$100,300 \$852	\$852
Monthly maintenance of typical configuration Date of first delivery	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760 \$3,893 April 1985 Not applicable	1983 80	\$100,300 \$852 3rd quarter 1981 70	\$852 1982 70
Monthly maintenance of typical configuration Date of first delivery Number installed to date	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760 \$3,893 April 1985 Not applicable Can be configured in	1983 80 Expandable to 10 CPUs	\$100,300 \$852 3rd quarter 1981 70 Optional fault tolerant	\$852 1982 70 Optional fault tolerant
Monthly maintenance of typical configuration Date of first delivery Number installed to date	10 workstation ptrs.; 64 terminals; DECnet & VAX/VMS: \$806,760 \$3,893 April 1985 Not applicable	1983 80	\$100,300 \$852 3rd quarter 1981 70	\$852 1982 70

				1
MANUFACTURER & MODEL	Gould, Inc. Concept 32/27	Gould, Inc. Concept 32/67	Gould, Inc. Concept 32/97	Gould, Inc. PowerNode 6000
VORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	512KB-16MB	1MB-16MB	4MB-16MB	2MB-16MB
DISK STORAGE CAPACITY	80MB-5.4GB	80MB-5.4GB	80MB-5.4GB	80MB-5.4GB
NO. WORKSTATIONS SUPPORTED	32	128	128	128
PRICE RANGE	\$75,000-\$150,000	\$100,000-\$250,000	\$300,000-\$500,000	\$100,000-\$250,000
ARGET MARKET	Engineering/scientific	Engineering/scientific	Engineering/scientific	Unix applications
CENTRAL PROCESSOR				
No. of directly addressable bytes	<u> </u>	16M	16M	16M
Virtual memory	Not applicable	Not applicable	Not applicable	16MB
Hardware floating point	SP, DP	SP. DP	ISP. DP	SP, DP
Battery backup	Optional	Not applicable	Not applicable	Not applicable
Real-time clock or timer	Standard	Standard	Standard	Standard
	150		75	
CPU cycle time, nanoseconds	1 .	150	1 -	150
MIPS	0.8	1.7-3.0	4.7-10.0	1.7-3.0
16-/32-bit compatibility MAIN STORAGE	Not applicable	Not applicable	Not applicable	Not applicable
	4	4	4	
Bytes fetched per cycle	1 *	1 '	1 · ·	4
Cycle/access time, nanoseconds	300	300	300	300
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	256KB, 500KB, 1MB	1MB	1MB	1MB
Cache memory, bytes	None	32K	32K std.; 64K opt.	32K
NPUT/OUTPUT CONTROL		1		1
No. of I/O channels	128	128	128	128
Data transfer rate	26.67MB/sec.	26.67MB/sec.	26.67MB/sec.	26.67MB/sec.
COMMUNICATIONS	1	1		1
Max. number of lines	32			
Synchronous	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps
Asynchronous	l <u>—</u>	<u> </u>		<u> - </u>
Protocols supported	_	<u> </u>		
Type of LAN supported	GM-MAP	GM-MAP	CAAAAAA	Fabruare
	GIVI-IVIAF	GIVI-IVIAP	GM-MAP	Ethernet
RJE terminals emulated	_		 -	
IBM 3270 emulation	<u> </u>	<u> </u>	-	
PERIPHERAL EQUIPMENT		L		I
Disks supported	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
	80MB-675MB	80MB-675MB	80MB-675MB	80MB-675MB
Serial printers	120/350 cps	120/350 cps	120/350 cps	120/350 cps
Letter-quality printers	30/55 cps	30/55 cps	30/55 cps	30/55 cps
Line printers	300/600/1000 lpm	300/600/1000 lpm	300/600/1000 lpm	300/600/1000 lpm
Reel-to-reel tape drives	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ip
Streaming tape drives	Start/stop, 100 ips	Start/stop, 100 ips	Start/stop, 100 ips	Start/stop, 100 ips
Cassette/cartridge tape drives				Start/stop, 100 lps
Other peripherals supported	Card, paper tape, analog	Array processor,	Array processor,	Graphica davises
Other peripherals supported				Graphics devices
SOFTWARE	I/O, graphics devices	graphics devices	graphics devices	İ
				l
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
Compilers	Fortran, Cobol, Pascal,	Fortran, Cobol, Pascal	Fortran, Cobol, Pascal,	Fortran, Pascal, C, Ada
	Basic		Basic	
	l ·	1		į.
Operating system name	MPX-32	MPX-32; UTX-32	MPX-32; UTX-32	UTX-32
Operating system type	Realtime	Realtime; multitasking	Realtime; multitasking	Multitasking
Operating sys. implemented in firmware		No	No	No
Database management system	Seed/Reigraph/Total	Seed/Reigraph/Total	Seed/Relgraph/Total	Mistress/Unify
Principal industry application	Simulation, scientific	Scientific computing	Scientific computing	<u></u>
	computing			1
	14			1
Other packages	l 			Q-Office, spreadsheets
			ľ	
RICING & AVAILABILITY		1	1	
Typical system configuration and price	CPU with 1MB main	6731: CPU, 1MB memory;	9705: CPU, 4MB memory;.	6031E: CPU, 2MB memo
	memory; 680MB mass	Floating Point Accelera-	Floating Point Accelera-	Floating Point Accelera-
	storage; 300 lpm	tor; 8 async lines; CRT;	tor; 8 async lines; CRT;	tor; CRT; 8 async lines;
	printer; tape unit;	340MB miniWinchester	340MB miniWinchester	340MB disk subsystem;
	8 communications lines:	disk subsystem; add-on	disk subsystem; add-on	add-on 340MB disk;
	CRTs: \$98,000	340MB disk; streaming	340MB disk; streaming	streaming tape subsys-
	1	tape subsystem; MPX-32	tape subsystem; Unix	tem; Unix operating
		operating system;	operating system;	system; Fortran 77:
Monthly maintenance of trained	\$900	Fortran 77: \$140,945	Fortran 77: \$300,200	\$122,900
Monthly maintenance of typical	φουυ	\$1,012	\$1,715	\$1,142
configuration		1		
Date of first delivery	<u> </u>	I	I 	[_
	Not applicable	Not applicable	Not applicable	Not applicable
			I	
Number installed to date COMMENTS	Single-slot 32-bit CPU	Available with tightly	Available with tightly	Available with tightly
		Available with tightly coupled dual processor	Available with tightly coupled dual processor	Available with tightly coupled dual processor
		Available with tightly		

MANUFACTURER & MODEL	Gould, Inc. PowerNode 9000	Harris Corporation H60	Harris Corporation H700	Harris Corporation H800
WORD LENGTH	32 bits	48 bits	48 bits	48 bits
MAIN MEMORY	4MB-16MB	768KB-12MB	384KB-12MB	768KB-12MB
DISK STORAGE CAPACITY	80MB-5.4GB	80MB-1.6GB	80MB-22.7GB	80MB-22.7GB
NO. WORKSTATIONS SUPPORTED	128	32	128	128
	\$300,000-\$500,000			
PRICE RANGE FARGET MARKET	Unix applications	\$69,900-\$120,000 Engineering/scientific	\$49,900-\$62,000 Engineering/scientific	\$139,000-\$170,000 Engineering/scientific
	,		anginosinig, colonialio	Ling.indonning/oblomatio
CENTRAL PROCESSOR	16M	12M	1204	1014
No. of directly addressable bytes	1	1	12M	12M
Virtual memory	16MB	48MB	48MB	48MB
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP
Battery backup	Not applicable	None	None	None
Real-time clock or timer	Standard	Optional	Optional	Optional
CPU cycle time, nanoseconds	75	300	300	180
MIPS	4.6-10.0	0.88 (single precision)	0.88 (single precision)	1.6 (single precision)
16-/32-bit compatibility	Not applicable	Not applicable	Not applicable	Not applicable
MAIN STORAGE		1		i ·
Bytes fetched per cycle	4		ļ 	
Cycle/access time, nanoseconds	300	335	335	335
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1MB	1.5M	1.5M	1.5M
		6K	1.5W	1.5W
Cache memory, bytes	32K std.; 64K opt.	OK.	UN.	OK .
NPUT/OUTPUT CONTROL	1.00	1_	1	1
No. of I/O channels	128	5	24	31
Data transfer rate	26.67MB/sec.	19MB/sec.	19MB/sec.	19MB/sec.
COMMUNICATIONS	1	1" '	1 '	
Max. number of lines		32	224	224
	Ont . ESK has	Standard	ID .	
Synchronous	Opt.; 56K bps		Standard	Standard
Asynchronous	 -	Standard	Standard	Standard
Protocols supported	<u> </u>	X.25, sync, async,	X.25, sync, async,	X.25, sync, async,
		isochronous	isochronous	isochronous
Type of LAN supported	Ethernet	Ethernet	Ethernet	Ethernet
RJE terminals emulated	Linding	See Comments	See Comments	See Comments
IBM 3270 emulation	<u> </u>	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	1			
Disks supported	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
	80MB-675MB	80MB-675MB	80MB-675MB	80MB-675MB
Serial printers	120/350 cps			1
	30/55 cps	200 cps	200 cps	200 cps
Letter-quality printers				
Line printers	300/600/1000 lpm	730/1000/1200 lpm	730/1000/1200 lpm	730/1000/1200 lpm
Reel-to-reel tape drives	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ip
Streaming tape drives	Start/stop, 100 ips	25 ips	25 ips	25 ips
Cassette/cartridge tape drives		<u> </u>	<u> </u>	
Other peripherals supported	Graphics devices	Card readers	Card readers	Card readers
205734/4.05				•
SOFTWARE				
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
Compilers	Fortran, Pascal, C, Ada	Fortran, Basic, Cobol,	Fortran, Basic, Cobol,	Fortran, Basic, Cobol,
	1 -	C, Ada, Pascal, APL,	C, Ada, Pascal, APL,	C, Ada, Pascal, APL,
		RPG, Snobol, Forgo	RPG, Snobol, Forgo	RPG, Snobol, Forgo
Operating system name	UTX-32	vos	vos	vos
Operating system type	Multitasking	Batch, multitask, rt.	Batch, multitask, rt.	Batch, multitask, rt.
Operating system type Operating sys. implemented in firmware		No	No	No
Database management system		Oracle, Info	Oracle, Info	Oracle, Info
	Mistress/Unify			1
Principal industry application		Engineering administra-	Engineering administra-	Engineering administra-
		tion	tion	tion
Other packages	Q-Office, spreadsheets	Numerous	Numerous	Numerous
PRICING & AVAILABILITY	1			
Typical system configuration and price	9005: CPU, 8MB memory:	Contact vendor	Contact vendor	Contact vendor
	Floating Point Accelera-			
	tor: 340MB miniWinches-		1 .	
		1	1 "	Į.
	ter disk subsystem;	1	l .	1
	1000 lpm printer;	1	1 -	1
	streaming tape subsys-		1	
	tem; Unix operating			
	system: \$355,000		1	
Monthly maintenance of typical	\$1,715	Contact vendor	Contact vendor	Contact vendor
configuration]	Someon Foliable	- Tondor	Somet Vendor
Date of first delivery		June 1984	May 1983	June 1979
	Not applicable		<u></u>	
Number installed to date		Not applicable	I	1—
Number installed to date			Tampinala amulat !!	T-main all and a second
Number installed to date COMMENTS	Available with tightly	Uses office power. Ter-	Terminals emulated in-	Terminals emulated in-
	Available with tightly coupled dual processor	Uses office power. Ter- minals emulated include	clude 2780/3780, U1004,	clude 2780/3780, U100
	Available with tightly	Uses office power. Ter-		Terminals emulated in- clude 2780/3780, U100 UNTR, GRTS, CDC200UT

MANUFACTURER & MODEL	Harris Corporation H1000	Honeywell Information Systems, Inc. DPS 6/95	llene Industries Model 9000	IBM 4361 Model Group
WORD LENGTH	48 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1.5MB-12MB	2MB-16MB	1MB-16MB	2MB-4MB
DISK STORAGE CAPACITY	80MB-22.7GB	67MB-4GB	100MB-32GB	258MB-40.3GB
IO. WORKSTATIONS SUPPORTED	192	128	512	1024
PRICE RANGE	\$250,000-\$291,000	From \$105,000	\$250,000-\$800,000	From \$56,500
ARGET MARKET	Engineering/scientific	General business	Scientific, realtime,	Commercial, engineering/
			timesharing	scientific
ENTRAL PROCESSOR			_	
No. of directly addressable bytes	12M	16M	16M	\
Virtual memory	48MB	Not applicable	16MB	16MB
Hardware floating point	SP, DP	SP, DP	QΡ	SP, DP, extended
Battery backup	None	Optional	Optional	
Real-time clock or timer	Optional	Standard	Standard	Standard
CPU cycle time, nanoseconds	75	125	100	<u> </u>
MIPS	4.8 (single precision)	<u> </u>	3+	0.38 (approx.)
16-/32-bit compatibility	Not applicable	Direct	Not applicable	I_ ···
AIN STORAGE				
Bytes fetched per cycle	l	4	8	<u> </u>
Cycle/access time, nanoseconds	335	500	315	<u> </u>
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1.5M	4M	1M	
Cache memory, bytes	6K	18K	None	8K
VPUT/OUTPUT CONTROL	Jon.	Jon.	THORE	OK
	31	24	256	اء
No. of I/O channels			256	3
Data transfer rate	19MB/sec.	19.2KB/sec.	20MB/sec. (aggregate)	17K bps-1.86MB/sec.
OMMUNICATIONS	l			
Max. number of lines	224	128	512	<u> </u>
Synchronous	Standard	92 opt.; 19.2K bps	1M bps	Optional
Asynchronous	Standard	4 std./92 opt.; 9600 bps	Standard; autobaud	
Protocols supported	X.25, sync, async,	SDLC, HDLC, SNA, DSA	SDLC, Hasp, SNA, BSC,	Bisync, SDLC, X.25,
	isochronous		X.25	3270
Type of LAN supported	Ethernet	None	Ethernet	l—
RJE terminals emulated	See Comments	IBM 2780/3780	Not applicable	
IBM 3270 emulation	Yes	Yes	No	Yes
ERIPHERAL EQUIPMENT			i	
Disks supported	Fixed & removable:	Fixed: 67MB, 256MB;	100MB-32GB	Fixed & removable:
	80MB-675MB	Removable: 80MB		64.5MB-2.52GB
Serial printers		100/400 cps	Not applicable	80-340 cps
Letter-quality printers	200 cps	35/55 cps	35/55 cps	_
Line printers	730/1000/1200 lpm	300/600/900/1200 lpm	300-5000 lpm	325-2000 lpm
Reel-to-reel tape drives	800-6250 bpi, 45-125 ips	800/1600/6250 bpi	800/1600/6250 bpi	200-6250 bpi/12.5-50 i
Streaming tape drives	25 ips	Not applicable	Not applicable	Start/stop; 100 ips
Cassette/cartridge tape drives		Not applicable	Not applicable	
Other peripherals supported	Card readers	650KB diskette; card	Card devices, plotters,	Laser printers, card
other peripherale supported	Joseph Foodors	readers; doc. handlers	graphics devices	equipment
OFTWARE		readers, doc. nandlers	graphics devices	equipment
Assembler	Macro assembler	Assembler	Procedure-oriented macro	
Compilers	Fortran, Basic, Cobol.	Cobol, Fortran, Basic,	APL, Fortran, Basic,	Barrel (VC France
Compilers	C, Ada, Pascal, APL,	Pascal, RPG		Pascal/VS, Fortran,
		rascal, NFG	Cobol, RPG, Text	Basic, VS APL, PL/1,
0	RPG, Snobol, Forgo	0000 0 14 1 400	400 PT0	Cobol, RPG II
Operating system name	vos	GCOS 6 Mod 400	AOS; RTS	See Comments
Operating system type	Batch, multitask, rt.	Realtime	Multitasking; realtime	-
Operating sys. implemented in firmware		No	Not applicable	
Database management system	Oracle, Info	DM6	AOS DMS	DL/1, SQL/DS
Principal industry application	Engineering administra-	Manufacturing, distri-	Scientific, realtime	Commercial, engineering,
	tion	bution, pharmacy		scientific
	i		<u>_</u>	ł
Other packages	Numerous	Office automation,	Technical writing,	Office automation
	1	accounting	simulation, graphics	ľ
	1	1		1
RICING & AVAILABILITY	l .	1.		
Typical system configuration and price	Contact vendor	CPU with 2MB main	CPU; 1MB memory; 100MB	CPU; 2MB memory; 2 co
		memory; 80MB disk;	disk; 600 lpm printer;	soles; 129MB disk stor-
	1	printer port; console;	tape unit; 16 terminal	age; tape drive; 650
		Multiple Device Control-	lines: \$250,000	lpm printer; comm.
	1	ler; Commercial Instruc-		controller; 16
	Į.	tion Processor; Scien-	l .	terminals: \$141,181
		tific Instruction Pro-	1	
		cessor; 4 workstation		
		ports: \$105,000		· ·
	Contact vendor	\$642	Contact vendor	\$895
Monthly maintenance of typical	İ			[
Monthly maintenance of typical configuration	}		1	lm
	July 1984	November 1983	1st quarter 1985	December 1984
configuration	July 1984	November 1983	1st quarter 1985 Not applicable	December 1984
configuration Date of first delivery Number installed to date		November 1983	Not applicable	_
configuration Date of first delivery Number installed to date	ECL-based system.	November 1983 —	Not applicable Bit- and software-	Runs DOS/VSE, SSX/VS
configuration Date of first delivery		November 1983	Not applicable	December 1984 Runs DOS/VSE, SSX/VS VM/SP, VM/370

MANUFACTURER & MODEL	IBM 4361 Model Group 4	IBM 4361 Model Group 5	IBM 4381 Model Group 1	IBM 4381 Model Group
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	2MB-12MB	2MB-12MB	4MB-16MB	4MB-32MB
DISK STORAGE CAPACITY	516MB-80.6GB	516MB-121GB	800MB-403GB	800MB-403GB
NO. WORKSTATIONS SUPPORTED	1024	1024	1024	1024
PRICE RANGE	From \$135,000	From \$180,000	From \$370,000	From \$500,000
ARGET MARKET	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/
	scientific	scientific	scientific	scientific
ENTRAL PROCESSOR		}	1	
No. of directly addressable bytes		T	 _	
Virtual memory	16MB	16MB	16MB	16MB
Hardware floating point	SP, DP, extended	SP, DP, extended	SP, DP, extended	SP, DP, extended
Battery backup			l 	
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	 - -	<u> </u>	<u> </u>	[
MIPS	0.79	1.14	2.1	2.7
16-/32-bit compatibility				
MAIN STORAGE		1	·	1
Bytes fetched per cycle		<u></u>	16	16
	_	<u> </u>	68	68
Cycle/access time, nanoseconds	Standard	Standard		Standard
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes		1016		
Cache memory, bytes	8K	16K	8K	32K
NPUT/OUTPUT CONTROL		1	i .	l
No. of I/O channels	 6	[6]	12	12
Data transfer rate	17K bps-3MB/sec.	17K bps-3MB/sec.	22MB/sec.	22MB/sec.
OMMUNICATIONS	·		1	1
Max. number of lines	<u> </u>	I—		I—
Synchronous	Optional	Optional	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous				
Protocols supported	Bisync, SDLC, X.25,	Bisync, SDLC, X.25,	Bisync, SDLC, X:25,	Bisync, SDLC, X.25,
	3270	3270	3270	3270
Type of LAN supported	 -	-		-
RJE terminals emulated	 	 		
IBM 3270 emulation	Yes	Yes	Yes	Yes
ERIPHERAL EQUIPMENT			1	1
Disks supported	Fixed & removable:	Fixed & removable:	Fixed: 317.5MB-2.52GB;	Fixed: 317.5MB-2.52GB;
	64.5MB-2.52GB	64.5MB-2.52GB	fixed/rem: 70/280MB	fixed/rem: 70/280MB
Serial printers	80-340 cps	80-340 cps	80-340 cps	80-340 cps
Letter-quality printers				
Line printers	325-2000 lpm	325-2000 lpm	650-3600 lpm	650-3600 lpm
Reel-to-reel tape drives	200-6250 bpi/12.5-50 ips	200-6250 bpi/12.5-50 ips	200-6250 bpi/12.5-50 ips	200-6250 bpi/12.5-50 ip
Streaming rape drives	Start/stop; 100 ips	Start/stop; 100 ips	79 ips	79 ips
	Start/stop, 100 ips	L	556-6250 bpi/75-200 ips	556-6250 bpi/75-200 ip
Cassette/cartridge tape drives	Lagar printers and	Loor printers and	, , , , ,	
Other peripherals supported	Laser printers, card	Laser printers, card	Laser printers, card	Laser printers, card
	equipment	equipment	equipment	equipment
OFTWARE	1		i i	Į.
Assembler	<u> </u>		1—	
Compilers	Pascal/VS, Fortran,	Pascal/VS, Fortran,	Pascal/VS, Fortran,	Pascal/VS, Fortran,
	Basic, VS APL, PL/1,	Basic, VS APL, PL/1,	Basic, VS APL, PL/1,	Basic, VS APL, PL/1,
	Cobol, RPG II	Cobol, RPG II	Cobol, RPG II	Cobol, RPG II
Operating system name	See Comments	See Comments	See Comments	See Comments
Operating system type		<u> </u>	_]
Operating sys. implemented in firmware	l	1—		I—
Database management system	DL/1, SQL/DS	DL/1, SQL/DS, IMS/VS-DB	DL/1, SQL/DS, IMS/VS-DB	DL/1, SQL/DS, IMS/VS-I
Principal industry application	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/
Tillcipal illudetty application	scientific	scientific	scientific	scientific
	Scientific	Scientific	Scientific	Scientific
Other packages	Office automation	Office automation	Office automation	Office automation
RICING & AVAILABILITY	1	1		
Typical system configuration and price	CPII: 2MR memory: 2 con-	CPU; 4MB memory; 2 con-	CPU; 8MB memory; 2 con-	CPU; 16MB memory; 2 c
Typical system comiguration and price	soles: 193.5MB disk	soles; 258MB disk stor-	soles & printer; 2.52GB	soles & printer; 5.4GB
	storage; tape drive;	age: 4 tape drives: two	disk storage & control;	disk storage & control;
	two 650 lpm printers;	650 lpm printers; comm.	4 tape units & control;	6 tape units & control;
	comm. controller; 16	controllers; 16	two 1200 lpm printers;	two 2000 lpm printers;
	terminals: \$240,231	terminals: \$343,889	comm. controller; 32	2 comm. controllers;
			terminals: \$806,237	64 terminals: \$1,160,50
Monthly maintenance of typical	\$1,340	\$1,603.50	\$3,196.50	\$5,524.50
configuration			1	[
Date of first delivery	2nd quarter 1984	1st quarter 1984	3rd quarter 1984	1st quarter 1984
Number installed to date	I— ,	1—		<u> </u>
	Runs DOS/VSE, SSX/VSE,	Runs DOS/VSE, SSX/VSE,	Runs MVS/XA, DOS/VSE,	Runs MVS/XA, DOS/VS
OMMENTS		1 1 1		
COMMENTS		VM/370 MVS/370	MVS/370, VM/370; can	IMVS/370, VM/370: can
OMMENTS	VM/370	VM/370, MVS/370	MVS/370, VM/370; can also use DB2 for data-	MVS/370, VM/370; can also use DB2 for data-

MANUFACTURER & MODEL	IBM 4381 Model Group 3	MAI/Basic Four Model 8010	MAI/Basic Four Model 8020	MAI/Basic Four Model 8030
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	8MB-32MB	1MB-4MB	1MB-6MB	2MB-8MB
DISK STORAGE CAPACITY	800MB-604GB	75MB-2.2GB	75MB-2.2GB	75MB-2.2GB
NO. WORKSTATIONS SUPPORTED	1024	20	52	96
PRICE RANGE	From \$825,000	\$49,000-\$200,000	\$60,000-\$300,000	\$92,000-\$500,000
TARGET MARKET	Commercial, engineering/	General business	General business	General business
CENTRAL PROCESSOR				
No. of directly addressable bytes	<u> </u>	16M	16M	16M
Virtual memory	16MB	2.28GB	2.28GB	2.28GB
Hardware floating point	SP, DP, extended	SP	SP	SP
Battery backup		Standard	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds		160	160	160
MIPS	5.13 (approx.)	0.04	0.08	1.2
16-/32-bit compatibility	5.15 (approx.)	32-bit only		1 ' ' =
MAIN STORAGE	_	32-bit only	32-bit only	32-bit only
	16			1_
Bytes fetched per cycle	16	4	4	4
Cycle/access time, nanoseconds	Considered	480	480	480
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes		0.5M, 1M, 2M, 4M	0.5M, 1M, 2M, 4M	0.5M, 1M, 2M, 4M
Cache memory, bytes	32K (per processor)	None	None	None
NPUT/OUTPUT CONTROL				
No. of I/O channels	18	2	2	2
Data transfer rate	32MB/sec.	100MB/sec.	100MB/sec.	100MB/sec.
COMMUNICATIONS			,	<u>'</u>
Max. number of lines		20 async	52 async	96 async
Synchronous	Opt.; 9600 bps	Standard	Standard	Standard
Asynchronous		Standard	Standard	Standard
Protocols supported	Bisync, SDLC, X.25,	2770/3770, 2780/3780	2770/3770, 2780/3780	2770/3770, 2780/3780
Type of LAN supported	3270	BANCA CNA	DANISA CNIA	DANIS ONA
Type of LAN supported	_	B4Net, SNA	B4Net, SNA	B4Net, SNA
RJE terminals emulated	\ 	2770/3770, 2780/3780	2770/3770, 2780/3780	2770/3770, 2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT		_		i
Disks supported	Fixed: 317.5MB-2.52GB;	Fixed: 144MB;	Fixed: 144MB;	Fixed: 144MB;
	fixed/rem: 70/280MB	Removable: 75MB, 285MB	Removable: 75MB, 285MB	Removable: 75MB, 285M
Serial printers	80-340 cps	120/160 cps	120/160 cps	120/160 cps
Letter-quality printers	l—	45 cps	45 cps	45 cps
Line printers	650-3600 lpm	150/300/600/1000 lpm	150/300/600/1000 lpm	150/300/600/1000 lpm
Reel-to-reel tape drives	200-6250 bpi/12.5-50 ips	800/1600 bpi, 175 ips	800/1600 bpi, 175 ips	800/1600 bpi, 175 ips
Streaming tape drives	79 ips	Start/stop, 100 ips	Start/stop, 100 ips	Start/stop, 100 ips
Cassette/cartridge tape drives	556-6250 bpi/75-200 ips	90 ips	90 ips	90 ips
Other peripherals supported	Laser printers, card	High-speed data.	High-speed data,	High-speed data,
	equipment	RS-232-C I/O	RS-232-C I/O	RS-232-C I/O
SOFTWARE	oquipo.r.	110 202 0 1/0	110 202 0 1/0	113-232-0 1/0
Assembler		<u> </u>		
Compilers	Pascal/VS, Fortran,	Basis Cabal	Paris Cabal	
Compilers		Basic, Cobol	Basic, Cobol	Basic, Cobol
	Basic, VS APL, PL/1,	į l		
0	Cobol, RPG II	ls ""		<u></u>
Operating system name	See Comments	Boss/VS	Boss/VS	Boss/VS
Operating system type		Multitasking, realtime	Multitasking, realtime	Multitasking, realtime
Operating sys. implemented in firmware		Partially	Partially	Partially
Database management system	DL/1, SQL/DS, IMS/VS-DB	Origin	Origin	Origin
Principal industry application	Commercial, engineering/	General-purpose inter-	General-purpose inter-	General-purpose inter-
	scientific	active business	active business	active business
				1
Other packages	Office automation	OA, pharmacy, manufac-	OA, pharmacy, manufac-	OA, pharmacy, manufac-
		turing, construction,	turing, construction,	turing, construction,
		property management	property management	property management
PRICING & AVAILABILITY	1	" "		1
Typical system configuration and price	CPU; 24MB memory; 2 con-	1 CPU; 1MB memory; 144MB	2 CPUs: 1MB memory:	3 CPUs; 2MB memory;
	soles & printer; 7.5GB	fixed disk; 5 EVDT	two 285MB removable	two 285MB removable
	disk storage & control;	terminals; 150 lpm	disks; 16 EVDT termi-	disks; 20 EVDT termi-
	8 tape units & control;;	printer; magnetic tape	nals; 600 lpm printer;	nals; 4 HVDT terminals;
	three 2000 lpm printers;	streamer; Boss/VS	magnetic tape streamer;	300 lpm printer; 600 lpm
	4 comm. controllers;	operating system:	Boss/VS operating	printer; magnetic tape
	128 terminals:	\$62,445	system: \$153,175	, , ,
	I .	Ψ02,440	ခyatem, စု (၁၁, (75	streamer; Boss/VS
•	\$1,886,748	1		operating system:
Manable mains are a first to	#7 000 FC	10440	#4 000	\$207,000
Monthly maintenance of typical	\$7,992.50	\$412	\$1,008	\$1,381
configuration	1.	1		1
Date of first delivery	2nd quarter 1985	October 1983	October 1983	October 1983
Number installed to date		1,000+	1,000+	1,000+
COMMENTS	Runs MVS/XA, DOS/VSE,	1		
	MVS/370, VM/SP, others;	[I
	also uses DB2 as DBMS; a			

EENTRAL PROCESSOR No. of directly addressable bytes No. of directly addressable bytes No. of directly addressable bytes No. of directly addressable bytes No. of directly addressable bytes No. of place of the standard standard St	MANUFACTURER & MODEL	McDonnell Douglas Computer Systems Co. M9000	McDonnell Douglas Computer Systems Co. M9100	McDonnell Douglas Computer Systems Co. M9208	Modcomp Classic 32/85
MAIN MEMORY	MORD LENGTH	32 hite	32 hits	32 hits	32 hits
	*	· · · · ·			1
128					1
RICE RAMSE ARGET MARKET BITOAL PROCESSION AND of insertly discressable bytes Virtual memory Hardware flosting point Battery backup Basic, English, All, Natural Language Department of lifes Basic, English, All, Natural Language Department of lifes Basic, English, All, Natural Language Department of lifes Basic, English, All, Natural Language Department of typical configuration and price Compilers Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office au		130MB-1GB			
ARBETT General business General business General business General business Section	IO. WORKSTATIONS SUPPORTED	128	128	208	256+
Cameral business	PRICE RANGE	From \$100,000	From \$130,000	From \$176,000	\$150,000-\$350,000
Marchity addressable bytes May	****			1	Realtime applics., eng./
Virtual memory Hardware floating point Satety backup Standard Stan	ENTRAL PROCESSOR]	
Virtual memory Hardware floating point Satterly backup Satterly backup Standard Stan	No. of directly addressable bytes	4M	4M	6M	64M
Hardware floating point		1	4MR	6MR	64MB
Standard Standard	· · · · · · · · · · · · · · · · · · ·			1	
Real-stems clock or timer					
150	Battery backup	Standard	Standard		
150	Real-time clock or timer	Standard	Standard	Standard	Standard
MIPS		150	150	150	100
16./32-bit compeatibility Alah STORAGE Bytes fetched per cycle 4		1,00	1.00	1.00	
AMN STORAGE Wheels fetched per cycle		 -			1 - 1 - 1
AMN STORAGE	16-/32-bit compatibility	Yes	Yes	Yes	Direct
## System facthed per cycle Cycle/access time, nanoseconds Storage protection Standard Storage protection Standard Storage protection Standard Sta					
200 300 300 400 300 300 400 300 300 400 300		1.	14	la.	1.
Storage protection increment size, bytes Standard S					
Standard Standard	Cycle/access time, nanoseconds	300	300		
Increment size, bytes		Standard	Standard	Standard	Std.; 7-bit ECC
Cache memory, bytes		1		1 7 7 7	
No. of O. channels 16 DMA 16 DMA 340K8/sec.	,	,	j .	1	i e
16 DMA 1		None	INOUE	None	04K
16 DMA	NPUT/OUTPUT CONTROL	ĺ	l .		l .
Data transfer rate DOMMUNICATIONS Max. number of lines Max. number of lines Synchronous 9500 bps 9500		16 DMA	16 DMA	16 DMA	64
DOMMUNICATIONS Max. number of lines Synchronous 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9780/3780, SDLC, SNA 7/pe of LAN supported REF terminals emulated 18M 3270 emulation Pixed: 130MB, 260MB 120/180/300/400 cps 33 cps 150/300/600/1200 lpm Not applicable 150/300/600/1200 lpm Not applicable 150/300/600/1200 lpm Not applicable 150/300/600/1200 lpm Not applicable N)			
Max. number of lines Synchronous 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 9600 bps 97807380, SDLC, SNA Type of LAN supported RJE terminals emulated RJE terminals emulated RJE terminals emulated RJE terminals emulated PSERIPHERAL EQUIPMENT Disks supported Fixed: 130MB, 260MB Fixed: 130MB, 260MB 120/180/300/400 cps 33 cps 120/180/300/400 cps 33 cps 150/300/600/1200 lpm Not applicable 150/300/600/1200 lpm Not applicable Startifyctop, 25-100 lps Not applicable Startifyctop, 25-100 lps Not applicable Not applicable Not applicable Startifyctop, 25-100 lps Not applicable Not applicable Not applicable Startifyctop, 25-100 lps Not applicable No		OTOND/SEC.	1070KB/366.	UTUND/ 366.	ONID/SEC.
Synchronous 9600 bps 9600 bps 9600 bps 9600 bps 9700 ptional 9800 bps 9700 ptional 9800 bps 9700 ptional 9800 bps 9700 pti. 1101-19.2K bps 9700 pti. 1010-19.2K bps 9700 pti. 1101-19.2K bps 9700 pti. 1010-19.2K bps 97000 pti. 17000 pti. 1010-19.2K bps 97000 pti. 1010-19.2K bps 97000 pti. 1010-19.2K bps 97000 pti. 1010-19.	COMMUNICATIONS	ł	1	1	Į.
Synchronous 9600 bps 9600 bps 9600 bps 9600 bps 9700 ptional 9800 bps 9700 ptional 9800 bps 9700 ptional 9800 bps 9700 pti. 1101-19.2K bps 9700 pti. 1010-19.2K bps 9700 pti. 1101-19.2K bps 9700 pti. 1010-19.2K bps 97000 pti. 17000 pti. 1010-19.2K bps 97000 pti. 1010-19.2K bps 97000 pti. 1010-19.2K bps 97000 pti. 1010-19.	Max. number of lines	128	128	208	64
Asynchronous protocoles supported 2780/3780, SDLC, SNA 2780/3780, SDLC,			9600 bps	9600 bps	Ontional
Protocols supported 2780/3780, SDLC, SNA 2780/3780, SDLC, SNA 2780/3780, SDLC, SNA 2780/3780, SDLC, SNA 2780/3780, SDLC, SNA X.25, 2780/3780 X.25, 280/3780 X.20, 280/3780 X.20, 280/3780 X.20, 280/3780 X.20, 280/3780 X.20, 280/3780 X.20, 280/3780 X.20, 280/3780 X.20, 280/370 X.20, 280/370	-,				
Type of LAN supported RJE terminals emulated BIM 3270 emulation Yes Yes Not applicable 2780/3780 Yes Yes Not applicable 2780/3780 Yes Yes Not applicable 2780/3780 Yes Yes Not applicable 2780/3780 Yes Yes Not applicable 2780/3780 Yes Yes Not applicable Not appli					
RJÉ terminats emulated IBM 3270 emulation Fixed: 130MB, 260MB Fixed: 130MB, 260MB Fixed: 260MB F	Protocols supported	2780/3780, SDLC, SNA	2780/3780, SDLC, SNA	2780/3780, SDLC, SNA	X.25, 2780/3780
RJÉ terminals emulatod IBM 3270 emulation Fixed: 130MB, 260MB Fixed: 2		la	N	N.	.
Yes Yes					
Fixed: 130MB, 260MB Fixed: 130MB, 260MB Fixed: 260MB Fixe	RJE terminals emulated	2780/3780	2780/3780	2780/3780	J2780/3780
Fixed: 130MB, 260MB Fixed: 130MB, 260MB Fixed: 260MB Fixe	IBM 3270 emulation	Yes	Yes	Yes	No
Disks supported Fixed: 130MB, 260MB 120/180/300/400 cps 33 cps 120/180/300/400 cps 33 cps 150/300/600/1200 lpm Not applicable Streaming tape drives Cassette/cartridge tape drives Other peripherals supported Not applicable Not ap				1	
Serial printers Letter-quality printers Line printers Rel-to-relet tape drives Streaming tape drives Consetter/cartridge tape drives Other peripherals supported Operating system name Operating system name Operating system type Operating system type Operating system magement system Principal industry application Other packages Other		F: 4.00MP . 200MP	Fired OCOMP	Fired 200AP	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Serial printers Letter-quality printers Line Line Line Montal place Line Line Line Montal place Line Line Line Montal place Line Line Line Montal place Line Line Line Montal place Line Line Line Line Montal place Line Line Line Line Montal place Line Line Line Line Montal place Line Line Line Line Montal place Line Line Line Line Montal place Line Line Line Line M	Disks supported	Fixed: 130MB, 260MB	Fixed: 260IVIB	Fixed: 260IVIB	
Line printers Line lite develop lpm Not applicable Not a			ł	1	13.5MB-264MB
Line printers Li	Serial printers	120/180/300/400 cps	120/180/300/400 cps	120/180/300/400 cps	64-440 lpm
Line printers Reel-to-reel tape drives Streaming tape drives Streaming tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported SOFTWARE Assembler Compilers Assembler Compilers Assembler Compilers Operating system name Operating system type Operating system type Operating system type Operating industry application Other packages Office automation Office auto					t in the second
Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported Not applicable Not					
Strer/istop; 25-100 ips Cassette/cartridge tape drives Cassette/cartridge tape drives Corber peripherals supported Not applicable Not applic	Line printers	150/300/600/1200 lpm	150/300/600/1200 lpm	150/300/600/1200 lpm	300/600/1000 lpm
Strer/istop; 25-100 ips Cassette/cartridge tape drives Cassette/cartridge tape drives Corber peripherals supported Not applicable Not applic	Reel-to-reel tape drives	Not applicable	Not applicable	Not applicable	800/1600 bpi, 75 ips
Cassette/cartridge tape drives Other peripherals supported Not applicable Not app			Start /ston: 25-100 ins	Start/ston: 25-100 ins	Start/ston 25 ins
Other peripherals supported Not applicable Not applicable Not applicable Not applicable Not applicable Not applicable Not applicable Data capture terminals Yes Basic English, All, Natural Language Operating system name Operating system type Operating system type Operating system raype Operating system raype Operating system raype Operating system raype Operating system system Principal industry application Other packages Office automation CPU; 512KB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 Aports: \$147,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date Onate of first delivery					
Assembler Assembler Compilers Assembler Compilers Assembler Compilers Assembler Compilers Assembler Compilers Assembler Compilers Assembler Natural Language Natural Language Natural Language Natural Language Reality Multitasking Operating system type Operating system operating system Operating system operating system O					
Assembler Compilers Pasic, English, All, Natural Language Operating system name Operating system type Operat	Other peripherals supported	Not applicable	Not applicable	Not applicable	Data capture terminals
Assembler Compilers Per Compilers Operating system name Operating system type Operatin	DOETIMA DE			Í	
Compilers Basic, English, All, Natural Language		lva-	Van	Van	Assembler/masses assembler
Natural Language Natural Language Natural Language Natural Language Natural Language Natural Language Natural Language Natural Language Coral 66 Operating system type Operating				1	
Operating system name Operating system type	Compilers	Basic, English, All,	Basic, English, All,		
Operating system name Operating system type Operation Opfice automation Office automation Office automation Office automation Office automation CPU; 1MB memory; 260MB fixed disk; %-inch streaming tape drive; 600 lpm printer; 32 ports: \$160,000 Application Operation	l	Natural Language	Natural Language	Natural Language	Coral 66
Operating system type Operating system type	Į.	1	T -	1	1
Operating system type Operating system type	Operating system name	Poplity	Poplity	Reality	May IV: May 22
Operating sys. implemented in firmware Database management system Principal industry application Other packages Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation None CPU; 512KB memory; 260MB fixed disk;					
Database management system Principal industry application Office automation None PRICING & AVAILABILITY Typical system configuration and price 2130MB fixed disk; 260MB fixed				1	
Database management system Principal industry application Office automation None PRICING & AVAILABILITY Typical system configuration and price 2130MB fixed disk; 260MB fixed	Operating sys. implemented in firmwarel	Partially	Partially	Partially	Partially
PRICING & AVAILABILITY Typical system configuration and price drive; 600 lpm printer; 24 ports: \$147,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Office automation Office autom			Reality	Reality	Infinity
Office automation Office automation Office automation Office automation Office automation Office automation Office automation Office automation None PRICING & AVAILABILITY Typical system configuration and price V2-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 Office automation CPU; 2MB memory; 260MB fixed disk; 260MB fixed			1		
PRICING & AVAILABILITY Typical system configuration and price CPU; 512KB memory; 130MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CPU; 1MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 32 ports: \$160,000 CPU; 1MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 32 ports: \$160,000 Topic of first delivery Number installed to date COMMENTS CPU; 1MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB	т посранницьку аррисакон	General pusiness	General Dusiliess	General Dusiness	actory automation
PRICING & AVAILABILITY Typical system configuration and price CPU; 512KB memory; 130MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date CPU; 1MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 32 ports: \$160,000 CPU; 1MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 32 ports: \$160,000 CPU; 2MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CRTS; 2 matrix printer; \$248,400 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CRTS; 2 matrix printer; \$248,400 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CRTS; 2 matrix printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CRTS; 2 matrix printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CRTS; 2 matrix printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000 CPU; 4MB memory; 260MB fixed disk; ½-inch streaming tape drive; 600 lpm					
Typical system configuration and price CPU; 512KB memory; 130MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 24 ports: \$147,000 25 ports: \$160,000 25 ports: \$160,000 26 ports: \$208,000 27 po	Other packages	Office automation	Office automation	Office automation	None
Typical system configuration and price 130MB fixed disk; 1260MB fixe	ļ				
130MB fixed disk; 1/2-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 2 2 ports: \$160,000 2 2 ports: \$160,000 3 2 ports: \$160,000 3 2 ports: \$208,000		1	1		
130MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 27 ports: \$160,000 28 ports: \$208,000 260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 32 ports: \$160,000 48 ports: \$208,000 48 ports: \$208,000 48 ports: \$208,000 48 ports: \$248,400 48 ports: \$208,000 48 ports: \$208,000 48 ports: \$208,000 48 ports: \$208,000 48 ports: \$248,400	Typical system configuration and price	CPU; 512KB memory;	CPU; 1MB memory;	CPU; 2MB memory;	CPU, 4MB memory; 256I
½-inch streaming tape drive; 600 lpm printer; 24 ports: \$147,000 24 ports: \$147,000 25 ports: \$160,000 26 ports: \$160,000 27 ports: \$160,000 27 ports: \$160,000 27 ports: \$208,000 27		130MB fixed disk:	260MB fixed disk:	260MB fixed disk:	disk & controller: mag-
drive; 600 lpm printer; 24 ports: \$147,000 Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS drive; 600 lpm printer; 32 ports: \$160,000 drive; 600 lpm printer; 48 ports: \$208,000			_	1	
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS 24 ports: \$147,000 32 ports: \$160,000 48 ports: \$208,000 10 CRTs; 2 matrix priers; 1 line printer: \$248,400					
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Augustia					
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Amount of typical configuration The first delivery The first d		24 ports: \$147,000	32 ports: \$160,000	48 ports: \$208,000	10 CRTs; 2 matrix print-
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS Amount of first delivery Not applicable Special hardware/micro- \$2,400 4th quarter 1984 Not applicable Special hardware/micro-	l l	1		1	
Monthly maintenance of typical — — \$2,400 configuration Date of first delivery 1st quarter 1982 4th quarter 1984 4th quarter 1984 June 1984 Number installed to date 700 Not applicable Special hardware/micro- COMMENTS Formerly known as Special hardware/micro-					
configuration Date of first delivery Number installed to date COMMENTS 1st quarter 1982 700 Formerly known as 4th quarter 1984 Not applicable Special hardware/micro- Special hardware/micro-					
configuration Date of first delivery Number installed to date COMMENTS 1st quarter 1982 700 Formerly known as 4th quarter 1984 Not applicable Special hardware/micro- Special hardware/micro-	Monthly maintanance of typical			_	\$2.400
Date of first delivery 1st quarter 1982 4th quarter 1984 Not applicable Special hardware/micro- Date of first delivery 1st quarter 1982 4th quarter 1984 Not applicable Special hardware/micro-		-		_	ΦZ,400
Date of first delivery 1st quarter 1982 4th quarter 1984 Not applicable Special hardware/micro- Date of first delivery 1st quarter 1982 4th quarter 1984 Not applicable Special hardware/micro-	configuration	i .	l	1	}
Number installed to date 700 Not applicable Not applicable Special hardware/micro-	Comiguration	1st quarter 1982	4th quarter 1984	4th quarter 1984	June 1984
COMMENTS Formerly known as Special hardware/micro-		q,			
	Date of first delivery	700			IAV T
	Date of first delivery Number installed to date		Not applicable		1
Microdata Seguel	Date of first delivery Number installed to date		Not applicable		
creases performance two	Date of first delivery Number installed to date COMMENTS	Formerly known as	Not applicable	Special hardware/micro-	
times	Date of first delivery Number installed to date COMMENTS		Not applicable	Special hardware/micro- code implementation in-	

MANUFACTURER & MODEL	NCR Corp. 9300	Norsk Data N.A., Inc. ND-530/ND-550	Norsk Data N.A., Inc. ND-560/ND-570	Perkin-Elmer Corp. 3205
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1MB-4MB	1.25MB-72MB	2.25MB-72MB	1MB-4MB
DISK STORAGE CAPACITY	40MB-4GB	70MB-7.2GB	70MB-7.2GB	50MB-1.2GB
NO. WORKSTATIONS SUPPORTED	210	128	128	16
PRICE RANGE	\$65,000-\$300,000	See Comments	See Comments	\$12,950-\$41,000
ARGET MARKET	General business	Technical/scientific	Technical/scientific	General-purpose commer cial, scientific
CENTRAL PROCESSOR				
No. of directly addressable bytes	4M	4.2G	4.2G	4M
Virtual memory	128MB	8.4GB	8.4GB	16MB
Hardware floating point	DP	SP, DP	SP, DP	SP, DP
Battery backup	None	Auto restart	Auto restart	Optional
Real-time clock or timer	T	Standard	Standard	Standard
CPU cycle time, nanoseconds	150	120	120	
MIPS	0.33	1.2 (530)/2.7 (550)	4.3 (560)/6.8 (570)	0.5
16-/32-bit compatibility	Direct	Via multiport memory	Via multiport memory	32-bit only
MAIN STORAGE	1			1
Bytes fetched per cycle	4	4	4 (ND-560)/8 (ND-570)	4
Cycle/access time, nanoseconds	450	400	400	400
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1M	1MB, 4MB	1MB, 4MB	1M
Cache memory, bytes	None	None	16K (560)/64K (570)	None
NPUT/OUTPUT CONTROL	1		1	1
No. of I/O channels	8	3	3	32
Data transfer rate	2MB/sec.	2.1MB/sec.	2.1MB/sec.	1.5MB/sec.
COMMUNICATIONS	-,	,		
Max. number of lines	210	64	64	16
Synchronous	Std.; 9600 bps	Opt.; 307.1K bps	Opt.; 307.1K bps	Std.; 19.2K bps
Asynchronous	Std.; 19.2K bps	Std.; 9600 bps	Std.; 9600 bps	Std.; 19.2K bps
Protocols supported	Async, bisync, X.25,	SDLC, Hasp, SNA, BSC,		
riotocois supported			SDLC, Hasp, SNA, BSC,	ADCCP, SDLC, HDLC, Ha
Towns of LAN companyed	2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780, 3270
Type of LAN supported	SNA	Ethernet, HDLC	Ethernet, HDLC	Ethernet
RJE terminals emulated	IBM 2780/3780	IBM 2780/3780, Hasp	IBM 2780/3780, Hasp	2780/3780, Hasp
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	<u></u>			<u> </u>
Disks supported	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
	40MB-4GB	70/140/288/450MB	70/140/288/450MB	32MB-600MB
Serial printers		80/300 cps	80/300 cps	180 cps
Letter-quality printers	33 cps	38/55 cps	38/55 cps	55 cps
Line printers		600/1000 lpm	600/1000 lpm	300/600/1200 lpm
Reel-to-reel tape drives	800/1600/GCR, 45/200 ips		1600/6250 bpi, 125 ips	800/1600/6250 bpi
Streaming tape drives	Not applicable	Start/stop, 90 ips	Start/stop, 90 ips	Not applicable
Cassette/cartridge tape drives	15 ips	90 ips	90 ips	Not applicable
Other peripherals supported	Card reader	Card reader	Card reader	Card reader
SOFTWARE				
Assembler	Macro assembler	Macro assembler	Macro assembler	Cal, Cal Macro
Compilers	Cobol, Basic, Pascal	Cobol, Fortran, Ada.	Cobol, Fortran, Ada,	Cobol, Fortran, Basic,
•	1	Pascal, APL, C, Simula	Pascal, APL, C, Simula	Pascal, RPG II, C
	'		, , , , , , , , , , , , , , , , , , ,	
Operating system name	ITX	Sintran	Sintran	OS/32; Xelos
Operating system type	Multitasking	Rt., batch, timeshare	Rt., batch, timeshare	Realtime; multitasking
Operating system type Operating sys. implemented in firmware		Partially	Partially	
Database management system	ITX/DBS	Sibas (Codasyl)	Sibas (Codasyl)	Reliance
ŭ ,	General commercial,	Simulation/scientific	Simulation/scientific	General-purpose comme
Principal industry application				cial
Principal industry application			Lcomputing	luiai
Principal industry application	medical, industrial	computing	computing	
. , , , ,	medical, industrial	computing	, ,	Numerous third next
Principal industry application Other packages			Computing Office automation	Numerous third-party
. , , , ,	medical, industrial	computing	, ,	Numerous third-party applications
Other packages	medical, industrial	computing	, ,	
Other packages PRICING & AVAILABILITY	medical, industrial Third-party	computing Office automation	Office automation	applications
Other packages	medical, industrial Third-party CPU, 2MB memory; 310MB	computing Office automation ND-500/2 CPU; 4.25MB	Office automation ND-500/2 CPU; 6.25MB	applications CPU; 1MB memory; load
Other packages	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front	applications CPU; 1MB memory; load 8-line communications
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk;	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk;	applications CPU; 1MB memory; load 8-line communications controller; floating
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixed 25MB removable) disk;
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer 25MB removable) disk; console Video Display
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer:	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixed 25MB removable) disk;
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer 25MB removable) disk; console Video Display
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer:	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer:	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer 25MB removable) disk; console Video Display
Other packages PRICING & AVAILABILITY	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer:	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$450,000 (ND-560)/\$525,000 (ND-570)	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixed 25MB removable) disk; console Video Display Unit: \$27,950
Other packages PRICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX Cobol: \$113,227	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer; \$315,000 (ND-530 & -550)	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer; \$450,000 (ND-560)/	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer 25MB removable) disk; console Video Display
Other packages PRICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX Cobol: \$113,227	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer; \$315,000 (ND-530 & -550)	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$450,000 (ND-560)/\$525,000 (ND-570)	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer 25MB removable) disk; console Video Display Unit: \$27,950
Other packages PRICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX Cobol: \$113,227	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer; \$315,000 (ND-530 & -550)	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$450,000 (ND-560)/\$525,000 (ND-570)	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixed 25MB removable) disk; console Video Display Unit: \$27,950
Other packages PRICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX Cobol: \$113,227 \$857 June 1983	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$315,000 (ND-530 & -550) \$2600 (530)/\$3000 (550)	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$450,000 (ND-560)/\$525,000 (ND-570) \$3500 (560)/\$4400 (570)	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixed 25MB removable) disk; console Video Display Unit: \$27,950 \$295 1983
Other packages PRICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX Cobol: \$113,227 \$857 June 1983 — Employs VLSI technology,	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer; \$315,000 (ND-530 & -550) \$2600 (530)/\$3000 (550) — ND-530 is priced from	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$450,000 (ND-560)/\$525,000 (ND-570) \$3500 (560)/\$4400 (570)	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixer 25MB removable) disk; console Video Display Unit: \$27,950 \$295 1983 Can be used in fault
Other packages PRICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	medical, industrial Third-party CPU, 2MB memory; 310MB disk storage; 720 lpm printer; 20 CRTs; ITX operating system; ITX Cobol: \$113,227 \$857 June 1983	computing Office automation ND-500/2 CPU; 4.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$315,000 (ND-530 & -550) \$2600 (530)/\$3000 (550)	Office automation ND-500/2 CPU; 6.25MB memory; ND-100/CX front end; 450MB fixed disk; 16 terminals; 6250 bpi magnetic tape; 1000 lpm band printer; 55 cps letter-quality printer: \$450,000 (ND-560)/\$525,000 (ND-570) \$3500 (560)/\$4400 (570)	applications CPU; 1MB memory; load 8-line communications controller; floating point; 50MB (25MB fixed 25MB removable) disk; console Video Display Unit: \$27,950 \$295 1983

MANUFACTURER & MODEL	Perkin-Elmer Corp. 3210	Perkin-Elmer Corp. 3230	Perkin-Elmer Corp. 3250XP	Perkin-Elmer Corp. 3200MPS
VORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1MB-4MB	1MB-16MB	2MB-16MB	2MB-16MB
DISK STORAGE CAPACITY	32MB-7.2GB	67MB-144GB	67MB-576GB	67MB-576GB
IO. WORKSTATIONS SUPPORTED	32	64	256	256
	\$30.000-\$51.000	\$74,150-\$81,000	\$125,000-\$185,000	\$185,000-\$300,000
ARGET MARKET	General-purpose commercial, scientific	General-purpose commer- cial, scientific	General-purpose commer- cial, scientific	General-purpose commer- cial, scientific
ENTRAL PROCESSOR				ł
No. of directly addressable bytes	4M	16M	16M	j 16M
Virtual memory	16MB	16MB	16MB	16MB
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP
Battery backup	Optional	Standard	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds		_		
MIPS	1.0	2.0	3.0	5-21
16-/32-bit compatibility	32-bit only	32-bit only	32-bit only	32-bit only
MAIN STORAGE	32-bit offiy	SZ-Bit Offiy	32-bit only	32-bit only
	ļ _a '	16	16	146
Bytes fetched per cycle	4	16	16	16
-,,	500	500	500	500
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1M	1M, 2M	2M	2M
Cache memory, bytes	None	1K	8K	12K
NPUT/OUTPUT CONTROL	į			Į.
No. of I/O channels	1023	1023	1023	1023
Data transfer rate	8MB/sec.	8MB/sec.	40MB/sec.	40MB/sec.
OMMUNICATIONS	'	·	·	1 '
Max. number of lines	32	128	256	256
Synchronous	Opt.; 2M bps	Opt.; 2M bps	Opt.; 2M bps	Opt.; 2M bps
Asynchronous	Std.; 19.2K bps	Std.; 19.2K bps	Std.: 19.2K bps	Std.; 19.2K bps
Protocols supported	ADCCP, SDLC, HDLC, Hasp, IBM 2780/3780, 3270	ADCCP, SDLC, HDLC, Hasp, IBM 2780/3780, 3270	ADCCP, SDLC, HDLC, Hasp, IBM 2780/3780, 3270	
	Ethernet	Ethernet	Ethernet	Ethernet
,,	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp
IBM 3270 emulation	Yes	Yes	Yes	Yes
ERIPHERAL EQUIPMENT	1.00	1.00	1.55	1.00
	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
Disks supported	l	1	-	
	32MB-600MB	32MB-600MB	32MB-600MB	32MB-600MB
Serial printers	180 cps	180 cps	180 cps	180 cps
	55 cps	55 cps	55 cps	55 cps
Line printers	300/600/1200 lpm	300/600/1200 lpm	300/600/1200 lpm	300/600/1200 lpm
Reel-to-reel tape drives	800/1600/6250 bpi	800/1600/6250 bpi	800/1600/6250 bpi	800/1600/6250 bpi
Streaming tape drives	Not applicable	Not applicable	Not applicable	Not applicable
Cassette/cartridge tape drives	Not applicable	Not applicable	Not applicable	Not applicable
Other peripherals supported	Card reader	Card reader	Card reader	Card reader
OFTWARE				İ
	Cal, Cal Macro	Cal. Cal Macro	Cal, Cal Macro	Cal, Cal Macro
	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,
		Pascal, RPG II, C	Pascal, RPG II, C	Pascal, RPG II, C
İ	i docar, rii d ii, C	, ascar, in G II, C	l, usual, ili G ii, C	I ascai, iii G ii, C
Operating system name	06/22: Valor	OS /22: Valor	OS /22: Volos	06/22: Yelss
Operating system name	OS/32; Xelos	OS/32; Xelos	OS/32; Xelos	OS/32; Xelos
	Realtime; multitasking	Realtime; multitasking	Realtime; multitasking	Realtime; multitasking
Operating sys. implemented in firmware		<u></u>	[_ .	<u> </u>
Database management system	Reliance	Reliance	Reliance	Reliance
Principal industry application	General-purpose commer-	General-purpose commer-	General-purpose commer-	General-purpose commer-
	cial	cial	cial	cial
	i '			
	1		INC. The second second	Numerous third-party
Other packages	Numerous third-party	Numerous third-party	Numerous third-party	
Other packages	Numerous third-party applications	Numerous third-party applications	applications	applications
Other packages				
Other packages				
RICING & AVAILABILITY	applications	applications	applications	applications
RICING & AVAILABILITY Typical system configuration and price	applications	applications CPU; 1MB memory; loader;		applications CPU; Auxiliary Proces-
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications	applications CPU; 1MB memory; loader; 2-line communications	applications CPU; 1MB memory; loader; writable control store;	applications CPU; Auxiliary Processing Unit (APU); 2MB
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector	applications CPU; 1MB memory; loader; 2-line communications controller; battery	applications CPU; 1MB memory; loader; writable control store; 2-line communications	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem;	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable con-
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video	applications CPU; 1MB memory; loader; 2-line communications controller; battery	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader;
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit:
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console
RICING & AVAILABILITY Typical system configuration and price	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit:
RICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32 right of copy: \$47,000	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video Display Unit: \$74,150	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video Display Unit: \$125,000	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit: \$185,000
RICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32 right of copy: \$47,000	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video Display Unit: \$74,150	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video Display Unit: \$125,000	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit: \$185,000 \$1,240
RICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32 right of copy: \$47,000	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video Display Unit: \$74,150	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video Display Unit: \$125,000	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit: \$185,000
RICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32 right of copy: \$47,000 \$320 1981	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video Display Unit: \$74,150 \$360 1981	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video Display Unit: \$125,000	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit: \$185,000 \$1,240
RICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32 right of copy: \$47,000 \$320 1981 — Can be used in fault	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video Display Unit: \$74,150 \$360 1981 Can be used in fault	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video Display Unit: \$125,000 \$763 1983 Can be used in fault	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit: \$185,000 \$1,240 1983 Supports up to 9 APUs.
RICING & AVAILABILITY Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	applications CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32 right of copy: \$47,000 \$320 1981	applications CPU; 1MB memory; loader; 2-line communications controller; battery backup; console Video Display Unit: \$74,150 \$360 1981	applications CPU; 1MB memory; loader; writable control store; 2-line communications controller; battery backup; console Video Display Unit: \$125,000	applications CPU; Auxiliary Processing Unit (APU); 2MB memory; floating point processor; writable control store; loader; 2-line communications controller; console Video Display Unit: \$185,000 \$1,240

MANUFACTURER & MODEL	Prime Computer, Inc. 2250	Prime Computer, Inc. 2550	Prime Computer, Inc. 9650	Prime Computer, In 9750		
WORD LENGTH	32 bits	32 bits	32 bits	32 bits		
	512KB-4MB	2MB-4MB	2MB-8MB	4MB-12MB		
	632MB	2.7GB	10GB	10GB		
	32	64	96	128		
	\$29,000-\$52,400	\$90,000-\$126,000	\$126,000-\$153,000			
				\$231,000-\$258,000		
TARGET MARKET	General business	General business	General business	General business		
CENTRAL PROCESSOR				Į		
No. of directly addressable bytes	512M	512M	512M	512M		
Virtual memory		<u> </u>				
Hardware floating point	_			l		
	None	None	None	None		
	Standard	Standard	Standard	Standard		
CPU cycle time, nanoseconds	160	160	160	100		
	0.47	0.73	0.9	1.75		
16-/32-bit compatibility		0.73	!	1.75		
MAIN STORAGE				-		
1		']		
Bytes fetched per cycle	220	180	120	105		
Cycle/access time, nanoseconds	230	180	138	105		
Storage protection	Standard	Standard	Standard	Standard		
Increment size, bytes			-	<u> </u>		
Cache memory, bytes	2K	16K	16K	16K		
NPUT/OUTPUT CONTROL		1		ì		
No. of I/O channels			I 	I		
Data transfer rate	2MB/sec.	5MB/sec.	5MB/sec.	8MB/sec.		
COMMUNICATIONS	•	,	,,			
Max. number of lines		!	l			
Synchronous	1.2K-65K bps	1.2K-65K bps	1.2K-65K bps	1.2K-65K bps		
•		50-19.2K bps				
Asynchronous	50-19.2K bps		50-19.2K bps	50-19.2K bps		
Protocols supported	Async, sync, bisync,	Async, sync, bisync,	Async, sync, bisync,	Async, sync, bisync,		
	Hasp, HDLC X.25	Hasp, HDLC X.25	Hasp, HDLC X.25	Hasp, HDLC X.25		
Type of LAN supported	Ringnet	Ringnet	Ringnet	Ringnet		
RJE terminals emulated	2780/3780/3270	2780/3780/3270	2780/3780/3270	2780/3780/3270		
IBM 3270 emulation	Yes	Yes	Yes	Yes		
PERIPHERAL EQUIPMENT]		
Disks supported	Fixed & removable	Fixed & removable	Fixed & removable	Fixed & removable		
i						
Serial printers	30-200 cps	30-200 cps	30-200 cps	30-200 cps		
	55 cps	55 cps	55 cps	55 cps		
	300 lpm	300 lpm	300 lpm	300 lpm		
Reel-to-reel tape drives	_			1		
Streaming tape drives	25/50/100 ips	25/50/100 ips	25/50/100 ips	25/50/100 ips		
	6400 bpi, 30 ips	Other peripherals supported	Card readers, chain	Card readers, chain	Card readers, chain	
			1	Card readers, chain		
	printers	printers	printers	printers		
SOFTWARE			1	j		
Assembler		<u> </u>				
Compilers	Cobol, Fortran, Pascal,	Cobol, Fortran, Pascal,	Cobol, Fortran, Pascal,	Cobol, Fortran, Pascal,		
	Basic/VM, RPG II, C					
Operating system name	Primos	Primos	Primos	Primos		
Operating system type	Realtime	Realtime	Realtime	Realtime		
Operating sys. implemented in firmware		Fully	Fully	Fully		
Database management system	DBMS	DBMS	DBMS	DBMS		
Principal industry application		Commercial DDP, CAD/CAM		CAD/CAM, engineering/		
	engineering/scientific	engineering/scientific	scientific, commercial	scientific, commercial		
			DDP	DDP		
Other packages		_	-			
DRICING 8. AVAILABILITY						
PRICING & AVAILABILITY	CDL 1 St. E.	lonu iii si	lonu. III si	1		
Typical system configuration and price		CPU with Diagnostic	CPU with Diagnostic	CPU with Diagnostic		
	Processor, cabinet,	Processor, cabinet,	Processor, cabinet,	Processor, cabinet,		
	chassis, and modem;	chassis, and modem; 2MB	chassis, and modem; 2MB	chassis, and modem; 4M		
			memory; two 315MB fixed	memory; two 315MB fix		
	15MB cartridge tape sub-	disk; streaming tape	disks with 1 controller;	disks with 1 controller;		
	system; Primos operating	subsystem; office pe-	streaming tape subsys-	streaming tape subsys-		
	system: \$29,900	ripheral cabinet; Primos	tem; peripheral cabinet;	tem; peripheral cabinet;		
		operating system:	Primos operating system:	Primos operating system		
		\$98,500	\$145,500	\$250,500		
	\$515	\$782	\$1,137	\$1,697		
Monthly maintenance of typical		7.02	1 ., 10,	141,007		
Monthly maintenance of typical		İ	l	Luk. 1004		
configuration	1982	1094	l luby 100 <i>4</i>			
configuration Date of first delivery	1982	1984	July 1984	July 1984		
configuration Date of first delivery Number installed to date	1982 —	1984 —	July 1984 	- July 1984		
configuration Date of first delivery	1982 —	1984 —	July 1984 	July 1984		
configuration Date of first delivery Number installed to date	1982 —	1984 —	July 1984 			

	Prime Computer, Inc.	Sperry Corporation	Tandem Computers, Inc. NonStop TXP	Tandem Computers Inc. NonStop TXP
MANUFACTURER & MODEL	9955	7000/40	(2-processor system)	(16-processor syster
VORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	4MB-16MB	4MB-8MB	4MB-16MB	32MB-128MB
DISK STORAGE CAPACITY	10GB	160MB-4.08GB	8GB+	64GB+
	254	128	No set limit	No set limit
	ł .		1	
PRICE RANGE	\$351,500-\$375,000	From \$132,440	From \$283,775	From \$1,700,000
ARGET MARKET	General business	General business, govt., engineering/scientific	High-volume online transaction processing	High-volume online transaction processing
CENTRAL PROCESSOR	l	İ	laa	
No. of directly addressable bytes	i -	 	32M	256M
Virtual memory	512MB	Yes	2GB	16GB
Hardware floating point	QP	Opt.; SP, DP	SP, DP	SP, DP
Battery backup	None	Standard	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	80	<u> </u>	83.3	83.3
	4.0	7.7	4	32
		3		Direct
16-/32-bit compatibility	Not applicable	Yes	Direct	Direct
MAIN STORAGE		Į.		j ·
Bytes fetched per cycle	l 	i—	8 (per processor)	8 (per processor)
Cycle/access time, nanoseconds	58 (cache enabled)	1000	116	116
Storage protection	Standard		Standard	Standard
	2M	4M	2M	2M
	64K	44K	128K	1G
Cache memory, bytes NPUT/OUTPUT CONTROL		1448	1.	
No. of I/O channels	32	<u> </u>	2	16
Data transfer rate	9MB/sec.	· ·	5MB/sec.	5MB/sec.
COMMUNICATIONS				
Max. number of lines		1_	252	1792
Synchronous	1.2K-65K bps	Optional	Opt.; 56K bps	Opt.; 56K bps
	50-19.2K bps	Optional	Opt., 19.2K bps	Opt.; 19.2K bps
•				
Protocols supported	Bisync/Hasp, HDLC/X.25,	SNA	ADCCP, HDLC, SDLC,	ADCCP, HDLC, SDLC,
	SNA, CDC200UT, Univ. 1004		2780/3780, 3270, SNA	2780/3780, 3270, SNA
Type of LAN supported	Ringnet	Ethernet	Hyperchannel, Fox	Hyperchannel, Fox
RJE terminals emulated	2780/3780/3270	IBM 2780/3780, 3770	IBM 2780/3780	IBM 2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
ERIPHERAL EQUIPMENT		F	1.55	
	Fixed & removable	Fixed: 160MB, 340MB;	Winchester: 128MB-540MB:	Winchester: 128MB-540I
bisks supported	I IXEG & TEITIOVADIE	removable: 300MB		
	0000		Removable: 240MB	Removable: 240MB
	30-200 cps	160/400 cps	340 cps	340 cps
Letter-quality printers	55 cps	55 cps	55 cps	55 cps
Line printers	1000 lpm	600 lpm	600/900/1300 lpm	600/900/1300 lpm
Reel-to-reel tape drives	6250 bpi, 75 ips	l <u> —</u>	6250 bpi	6250 bpi
	25/50/100 ips	Start/stop; 100 ips	None	None
Cassette/cartridge tape drives		Not applicable	None	None
	Cond according about			
Other peripherals supported	Card readers, chain	Laser printers, color	Fax, OCR, mag. stripe	Fax, OCR, mag. stripe
}	printers	graphics terminals	card & bar code readers	card & bar code readers
OFTWARE				
Assembler	Macro assembler	!—	None	None
Compilers	Cobol, Fortran, Pascal,	RM/Cobol, Fortran, C	Basic, TAL, Cobol,	Basic, TAL, Cobol,
	Basic/VM, RPG II, C,		Fortran, Mumps	Fortran, Mumps
	PL/1			
	Primas	Series 7000 C- Sunta-	Guardian	Guardian
	Primos	Series 7000 Op. System	Guardian	Guardian
, ,,	Realtime	Timesharing	Multiproc./message-based	Multiproc./message-based
Operating sys. implemented in firmware		<u> </u>	Partially	Partially
Database management system	DBMS	 	Encompass	Encompass
	CAD/CAM, engineering/	General business, govt.,	Reservations, banking,	Reservations, banking,
	scientific, commercial	engineering/scientific	brokerage, telecommuni-	brokerage, telecommuni-
j	DDP]	cations, manufacturing	cations, manufacturing
l de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	,	Third narry packages		
Other packages	<u> </u>	Third-party packages	Info. delivery/presenta-	Info. delivery/presenta-
\	i '		tion, transaction moni-	tion, transaction moni-
}	1	1	toring, OA, 3rd-party	toring, OA, 3rd-party
		l	ľ	[
RICING & AVAILABILITY		CPU; 4MB memory; two	2 processing modules;	Contact vendor
RICING & AVAILABILITY Typical system configuration and price	CPU with Diagnostic		8MB memory; 45 ips tape	1
	CPU with Diagnostic Processor, cabinet,	340MB fixed disk drives	A THE SECOND STATE OF THE	l
	Processor, cabinet,		drive and controller:	
	Processor, cabinet, chassis, and modem; 4MB	& controller; streaming	drive and controller;	
	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed	& controller; streaming tape & controller; two	operations and service	.
	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller;	& controller; streaming tape & controller; two async I/O controllers/		
	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsys-	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals;	operations and service	
	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller;	& controller; streaming tape & controller; two async I/O controllers/	operations and service	
Typical system configuration and price	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsys- tem; peripheral cabinet;	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals;	operations and service	
Typical system configuration and price	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsys- tem; peripheral cabinet; Primos operating system:	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band print-	operations and service	
Typical system configuration and price	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsys- tem; peripheral cabinet; Primos operating system: \$370,500	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band print- ers: \$277,902	operations and service processor: \$283,775	Contact vender
Typical system configuration and price	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsys- tem; peripheral cabinet; Primos operating system:	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band print-	operations and service	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsystem; peripheral cabinet; Primos operating system: \$370,500 \$1,897	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band printers: \$277,902	operations and service processor: \$283,775	
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsys- tem; peripheral cabinet; Primos operating system: \$370,500	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band printers: \$277,902 \$1,887 1st quarter 1985	operations and service processor: \$283,775	Contact vendor November 1983
Typical system configuration and price Monthly maintenance of typical configuration	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsystem; peripheral cabinet; Primos operating system: \$370,500 \$1,897	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band printers: \$277,902	operations and service processor: \$283,775	
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsystem; peripheral cabinet; Primos operating system: \$370,500 \$1,897 January 1985	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band printers: \$277,902 \$1,887 1st quarter 1985	operations and service processor: \$283,775	November 1983
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsystem; peripheral cabinet; Primos operating system: \$370,500 \$1,897	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band printers: \$277,902 \$1,887 1st quarter 1985	soperations and service processor: \$283,775 \$1,515 November 1983 Can be interconnected	November 1983 — Same networking poten-
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	Processor, cabinet, chassis, and modem; 4MB memory; two 315MB fixed disks with 1 controller; streaming tape subsystem; peripheral cabinet; Primos operating system: \$370,500 \$1,897 January 1985	& controller; streaming tape & controller; two async I/O controllers/ adapters; 32 terminals; two 600 lpm band printers: \$277,902 \$1,887 1st quarter 1985	operations and service processor: \$283,775 \$1,515 November 1983	November 1983

MAIN MEMORY DISK STORAGE CAPACITY	VS65	Wang Laboratories, Inc. VS85	Wang Laboratories, Inc. VS90	Wang Laboratories, Ir VS100
MAIN MEMORY DISK STORAGE CAPACITY	32 bits	32 bits	32 bits	32 bits
DISK STORAGE CAPACITY	1MB-4MB	1MB-4MB	1MB-4MB	1MB-8MB
	76MB-2.6GB	5.1GB	5.1GB	10.2GB
				ı
	20 (32 in June 1985)	64	48	128
	\$19,000-\$50,000	\$64,000-\$92,000	\$76,000-\$104,000	-
FARGET MARKET	General business	General business	General business	General business
CENTRAL PROCESSOR				
No. of directly addressable bytes		i— '	<u> </u>	
Virtual memory				
Hardware floating point	. <u></u>	l '		l
Battery backup		<u>'</u>		
				-
Real-time clock or timer		400	100	1
	200	480	480	480
MIPS			 	
16-/32-bit compatibility	32-bit only	<u> </u>	<u> </u> —	
MAIN STORAGE				ļ
Bytes fetched per cycle		i—		
Cycle/access time, nanoseconds		I		
		I '	I	<u> </u>
Storage protection	104 204 254	1—	<u> </u>	 -
	1M, 2M, 3M	lask (1	<u></u>
	16K	32K (opt.)	None	32K
NPUT/OUTPUT CONTROL			1	1
No. of I/O channels	·	<u> </u>	 	
Data transfer rate	.—	I—	I—	l
COMMUNICATIONS		Į ,	Į.	1
	4	6	1	18
,	7	10		10
Synchronous		<u> </u>	I—	-
Asynchronous		<u> </u>		
Protocols supported	SDLC, 3777, BSC, Hasp,	SDLC, 3777, BSC, Hasp,	SDLC, 3777, BSC, Hasp,	SDLC, 3777, BSC, Hasp,
	VT 100, WSN, X.25, TTY	VT100, WSN, X.25, TTY	VT100, WSN, X.25, TTY	VT100, WSN, X.25, TT
Type of LAN supported	Wangnet	Wangnet	Wangnet	Wangnet
	IBM 2780/3780, Hasp	IBM 2780/3780, Hasp	IBM 2780/3780, Hasp	IBM 2780/3780, Hasp
	Yes	Yes	Yes	Yes
	res	Tes	res	res
PERIPHERAL EQUIPMENT	l=	l		l
	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
	76MB-2.6GB	75MB-640MB	75MB-640MB	75MB-640MB
Serial printers	20-55 cps	35-192 cps	35-192 cps	35-192 cps
Letter-quality printers	35-55 cps	35-55 cps	35-55 cps	35-55 cps
	250-1100 lpm	250/600/1100 lpm	250/600/1100 lpm	250/600/1100 lpm
	1600 bpi	800-6800 bpi, 75 ips	800-6250 bpi, 75 ips	800-6250 bpi, 75 ips
	1000 врі	800-0800 bpi, 75 ips	800-0250 bpi, 75 lps	800-0250 bpi, 75 ips
Streaming tape drives		<u> </u>	I	
	6400 bpi	75 ips	75 ips	75 ips
Other peripherals supported	Laser printer	Laser printer	Laser printer	Laser printer
2057144.85	I			
SOFTWARE	1			l .
	Assembler	Assembler	Assembler	Assembler
Compilers	Cobol, Fortran 77,	Cobol, Fortran 77,	Cobol, Fortran 77,	Cobol, Fortran 77,
	Basic, RPG II, PL/1	Basic, RPG II, PL/1	Basic, RPG II, PL/1	Basic, RPG II, PL/1
		•	•	,
Operating system name	VS-OS	vs-os	VS-OS	vs-os
Operating system type	i -		<u> </u>	<u> </u>
Operating system type Operating system type	I _	1		I
		!		<u> </u>
Database management system		Office and a series	055	05
, , , , , , , , , , , , , , , , , , , ,	Office automation	Office automation	Office automation	Office automation
ŀ	(Wang Office)	(Wang Office)	(Wang Office)	(Wang Office)
	I	į.		1
Other packages	Charter, VSGF	Graphics, WP+, Pace,	Graphics, WP+, Pace,	Graphics, WP+, Pace,
	i	Total, Mantis	Total, Mantis	Total, Mantis
	I	Total, Manto	Total, Maritio	rotal, ividitals
	l	1		l
PRICING & AVAILABILITY	CDU 1840 14777		10.1.	la
	CPU; 1MB memory; 147MB	Packaged configurations	Packaged configurations	Packaged configurations
Typical system configuration and price	fixed, 2-port disk;	available; contact	available; contact	available; contact
Typical system configuration and price		vendor	vendor	vendor
Typical system configuration and price	data storage cabinet w/		1	
Typical system configuration and price	data storage cabinet w/ 76MB removable & 147MB			ſ
Typical system configuration and price				
Typical system configuration and price	76MB removable & 147MB fixed disk & cable;			
Typical system configuration and price	76MB removable & 147MB fixed disk & cable; 4 workstations; printer:			
	76MB removable & 147MB fixed disk & cable;			
Typical system configuration and price	76MB removable & 147MB fixed disk & cable; 4 workstations; printer:			
Typical system configuration and price	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300			
Typical system configuration and price Monthly maintenance of typical	76MB removable & 147MB fixed disk & cable; 4 workstations; printer:	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300 \$448	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300 \$448	Contact vendor	Contact vendor	Contact vendor — —
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300 \$448	Contact vendor	Contact vendor — —	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery Number installed to date	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300 \$448	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price Monthly maintenance of typical configuration Date of first delivery	76MB removable & 147MB fixed disk & cable; 4 workstations; printer: \$59,300 \$448	Contact vendor — —	Contact vendor	Contact vendor — —

MANUFACTURER & MODEL	Wang Laboratories, Inc. VS300			
WORD LENGTH	32 bits			
MAIN MEMORY	4MB-16MB			
DISK STORAGE CAPACITY	20.4GB			
NO. WORKSTATIONS SUPPORTED	192			
PRICE RANGE	_	İ		
FARGET MARKET	General business			
CENTRAL PROCESSOR		ĺ		
No. of directly addressable bytes	<u> </u>			
Virtual memory	-			
Hardware floating point	(— () — () — ()			
Battery backup	Optional			
Real-time clock or timer	480			ľ
CPU cycle time, nanoseconds	480			
MIPS				·
16-/32-bit compatibility MAIN STORAGE		ĺ		
Bytes fetched per cycle Cycle/access time, nanoseconds				
Storage protection		i l		
Increment size, bytes	1			
Cache memory, bytes	32K			
NPUT/OUTPUT CONTROL			·	
No. of I/O channels	l			•
Data transfer rate				
COMMUNICATIONS	1			
Max. number of lines	32	İ		
Synchronous	l			
Asynchronous)			
Protocols supported	SDLC, 3777, BSC, Hasp, VT100, WSN, X.25, TTY			
Type of LAN supported	Wangnet			
RJE terminals emulated	IBM 2780/3780, Hasp			
IBM 3270 emulation	Yes	ļ.		
PERIPHERAL EQUIPMENT				
Disks supported	Fixed & removable:			
	75MB-640MB			
Serial printers	35-192 cps	!	·	
Letter-quality printers	35-55 cps			
Line printers	250/600/1100 lpm			
Reel-to-reel tape drives	800-6250 bpi, 75 ips			
Streaming tape drives	 - -			
Cassette/cartridge tape drives	75 ips			
Other peripherals supported	Laser printer			
SOFTWARE		·		
Assembler	Assembler	·		
Compilers	Cobol, Fortran 77,		· i	
	Basic, RPG II, PL/1			
Operating system name	VS-OS	i	1	
Operating system type				
Operating sys. implemented in firmware	 -			
Database management system	O#5-0 0145-1-1-1-1	!		
Principal industry application	Office automation			
	(Wang Office)			
Other medicals	Combine M/B Barr			
Other packages	Graphics, WP+, Pace,			
	Total, Mantis			
DDICING 9. AVAILABILITY	ļ			
PRICING & AVAILABILITY	Packaged configurations			
Typical system configuration and price				i
	available; contact			
	vendor		!	
	1			
	1			
	1			
	1			
Monthly maintenance of tunical	Contact vendor			
Monthly maintenance of typical	Contact vendor			1
configuration Date of first delivery	<u></u>	1	•	
Number installed to date	<u> </u>	 		
INUITIDEL HISTORIER TO CISTE			ľ	
COMMENTS			1	I
COMMENTS				Į.
COMMENTS				
COMMENTS				