The supermini segment continues to be the most active portion of the medium systems market, as well as the one with the most potential for confusion in system definition. At the low end, some microprocessor-based systems are quite powerful and fully capable of supporting large numbers of users, so they are something more than mere supermicros. At the high end, complex uniprocessor and multiprocessor architectures are pushing superminis toward the mainframe realm. Those impediments to smooth taxonomy notwithstanding, the market for superminis is booming, as users seek to take advantage of their power and configurability for both general-purpose and technical computing.

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.
- A data path between the CPU and main memory that permits the transfer of at least 32 bits of data at a time.
- A main storage capacity between 1 megabyte (MB) and 32 megabytes. (Some superminis support more than 32MB.)

Superminis are increasingly installed everywhere, from the office to the data center, in both technical and commercial environments. This report presents the salient characteristics of 110 superminis from 29 vendors through detailed comparison charts. The report also explains the chart entries and provides information on trends in the supermini market.

- Support for between 16 and 256 workstations.
- A purchase price of approximately \$100,000 and up for a basic configuration, including peripherals and controllers. However, for the increasingly available office-installable, low-end superminis, the basic configuration price can be between \$50,000 and \$100,000.

The 32-bit word length has always been the lowest common denominator distinguishing superminis from more traditional (8- and 16-bit) minicomputers, and continues to be so. Most currently available superminis use a 32-bit word as their basic data unit. Some vendors, however, do offer supermini systems with longer basic words; Harris Corporation's H Series uses a 48-bit word, for example, while Elxsi's System 6400 employs a 64-bit word.

The foregoing definition is, admittedly, both restrictive and inclusive. Although it eliminates 16-bit systems, no matter how powerful, it is broad enough to accommodate a wide range of systems. For example, it permits inclusion of systems based on the new generation of full 32-bit merchant microprocessors—such as National Semiconductor's NS32032 and Motorola's MC68020—as well as those employing proprietary architectures based on Transistor to Transistor Logic (TTL) or Emitter Coupled Logic (ECL).



Hewlett-Packard's HP 3000 Series 930 employs HP's Precision Architecture, based on Reduced Instruction Set Computer (RISC) principles. Supporting up to 400 users, the system is targeted for commercial applications from office automation to manufacturing.

Not every system that falls within the parameters of that definition is necessarily a supermini, however, for the denotation can be colored by considerations that vary from vendor to vendor. For example, Plexus Computers' P/75 superficially fits most of the criteria cited above. It employs a CPU based on Motorola's full 32-bit MC68020 microprocessor, supports from 1MB to 16MB of main memory, and allows attachment of 80 workstations; the base processor complex is priced at \$36,000—well within the range for the processor complexes of most low-end superminis. However, Plexus markets the system as a supermicro, and it is compatible with the smaller members of the company's supermicro line. Thus, we consider the P/75 more supermicro than supermini.

Conversely, Digital Equipment Corporation's VAX 8650 supports up to 68MB of main memory and 512 terminals, approaching mainframe expandability. However, it is based on the VAX architecture and runs the VAX/VMS operating system—the same as other members of the VAX line. Because of this architectural and software compatibility across the line, we consider the VAX 8650 a supermini.

#### 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 2<sup>16</sup> or 65,536. A 32-bit address, by contrast, can specify up to 2<sup>32</sup> or 4.29 billion distinct storage locations. Thus, the greater word length significantly 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 traditional 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 greater 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 can—and usually do—have larger and more powerful instruc-

tion 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.

Regarding the second point, 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 perform in excess of 10 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 well 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/O-bound 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 are capable of multiprogramming and 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, most 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

In spite of the slump that has beset the data processing industry for the last year and a half, the supermini segment of the market continues to grow as vendors strive to satisfy users' desire for more computing power at lower prices at all levels, from the office to the data center. International Data Corporation (IDC), a DP industry consulting firm based in Framingham, Massachusetts, has estimated that U.S. shipments of medium-scale computer systems—a classification composed largely of superminis—will rise from about 40,000, with a value of \$14.6 billion, in 1985, to 45,600, valued at \$15.8 billion, in 1986. IDC projects an annual growth rate of 11 percent for unit shipments through the rest of this decade.

Most of the activity for superminis is concentrated at the low and high ends of the market. In the lower echelons, smaller 32-bit systems are being integrated 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 increasing numbers. In the past year, for example, several vendors, including Prime Computer (Models 2350 and 2450), Wang Laboratories (VS 6), and Data General (Eclipse MV/2000 DC) have introduced compact, low-end superminis designed for office and departmental computing.

The fiercest competition in the supermini area, however, continues to be 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. This activity is a continuation of the Great MIPS War that began in late 1984 between IBM and Digital Equipment Corporation (DEC) and soon involved other major vendors, such as Data General and Prime.

In the past year, IBM has replaced the 4381 Model Group 3 with the more powerful dual processor 4381 Model Group 14 (and has also added three other uniprocessor 4381s to replace Model Groups 1 and 2). Digital Equipment has added the VAX 8650 and VAX 8800—the latter a dual processor—at the top of the VAX line, capping the effective reconfiguration of the entire product line. Data General has added the Eclipse MV/20000, with two versions—the uniprocessor Model 1 and the dual processor Model 2. Prime has boosted the power of its 9955, replacing that high-end

machine with the 9955 II. Harris has added the 1200 as the top-of-the-line machine in its H Series.

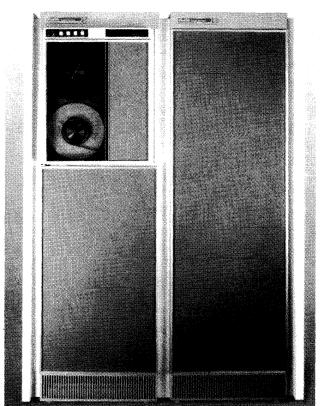
The competition among major vendors to deliver increasingly powerful superminis is certain to carry through the next year, for two principal reasons. First, the entrenched vendors must continue to respond to their major rivals' high-end maneuvers. Secondly, they must meet the challenge posed by smaller or newly entrant supermini vendors who have begun to employ innovative architectures that threaten to challenge and even surpass their machines in computational power.

#### **TRENDS**

One architectural trend that has begun to spread is the use of RISC (Reduced Instruction Set Computer) technology. In RISC, the computational power of a CPU is enhanced by the implementation of only the simplest and most frequently used instructions in hardware. Complex and less frequently used instructions are programmed as system subroutines that can be executed in one machine cycle, without main memory's having to be accessed. Hewlett-Packard's new HP 3000 Series 930 and 950 employ the company's RISC-based Precision Architecture, and HP is reportedly committed to basing its future systems on that architecture. One vendor that has established its RISC-based systems as formidable competitors in the supermini market is Pyramid Technology, whose 90x systems have been challenging Digital Equipment for the last three years.

Parallel processing is another hot technology, and one particularly well suited for computation-intensive applications. In parallel processing, a multiprocessor technology, different parts of a single program are run on different processors, substantially reducing the time it takes for a complex job to execute. Parallel processing differs from conventional multiprocessing (implemented, for example, in Digital Equipment Corporation's VAXclusters), where multiple jobs are apportioned among multiple processors. A growing number of supermini vendors—including Concurrent Computer Corporation, Elxsi, Flexible Computer Corporation, International Parallel Machines, and Sequent Computer Systems-market parallel processing superminis. Some, like Concurrent Computer (formerly known as Perkin-Elmer Corporation's Data Systems Group), link conventional supermini processors; others, like Flexible Computer, use multiple 32-bit microprocessors (in Flexible's case, NS32032 or MC68020).

Although RISC and parallel processing are exciting and useful technologies, they are not panaceas, for they do have limitations. RISC systems perform best in CPU-intensive applications; in I/O bound environments, they can bog down, for the CPU must wait on the slower cycle times of I/O buses. Similarly, parallel processing requires that software be structured to permit parallel activity. If a user wants to parallelize existing applications and the vendor does not offer specialized conversion tools, the transformation can be a lengthy process.



Flexible Computer Corporation's Flex/32 multicomputer is a parallel processing system that allows configuration of up to 1,024 cabinets, each containing twenty 32-bit microprocessors. Memory can be local to a processor or shared; regardless, all memory can be accessed by all processors. The Flex/32 can run under Unix System V or under Flexible's MMOS (MultiComputing, MultiTasking Operating System) for realtime environments. A Concurrency Simulator software facility allows testing of parallel applications.

➤ Ultimately, the user may find that his or her application requirements are met by more traditional architectures. One should at least be aware, however, of the variety of technologies available to the would-be or current supermini user.

The drift toward the Unix operating system continues to be an important trend in the supermini realm. Entrenched vendors such as Digital Equipment, Data General, and Prime, as well as newer ones like Elxsi and Flexible, offer it as an alternative to their proprietary operating systems. Concurrent Computer and Harris have separate product lines—one Unix-based and one running primarily under a proprietary system. Many of the more recent entrants in the market—such as AT&T, Computer Consoles, Pyramid, Sequent, and Sperry—offer a Unix-based system as the primary operating environment. Another new vendor, International Parallel Machines, employs a Unix look-alike system in its parallel processing systems.

Those vendors are obviously responding to the desires of users interested in the flexible development tools and the promise of intersystem software compatibility offered by Unix. Although it is doubtful that vendors with proprietary

operating systems will abandon them in favor of Unix, the increased availability of Unix as either a primary or an alternative operating environment for superminis indicates that it continues to grow as a major force at the upper end of the medium systems market.

#### THE COMPARISON CHARTS

The key functional characteristics of 110 commercially available superminis from 29 manufacturers are presented in the accompanying comparison charts. 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 a company or a product from the comparison charts indicates: the company failed to respond to our repeated requests for information; the product is no longer actively being marketed; or the company is no longer in business.

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 (—) for an entry indicates that the information has not been obtained from the vendor.

### **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. All of the superminis currently on the market have at least 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 minicomputer 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) or billions of bytes (GB) 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), simulation, and other computation-intensive applications.

#### **CENTRAL PROCESSOR**

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. Because those 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.

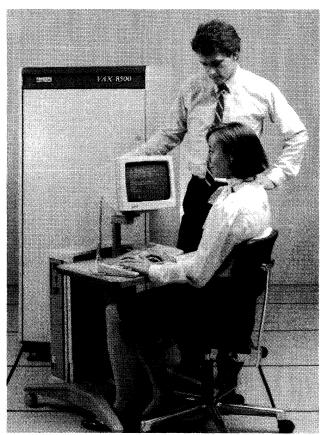
The 32-bit word length used in most of today's superminis effectively removes this limitation. If just 16 of the 32 bits in each instruction word are used to hold the address field, up to 2<sup>16</sup> or 65,536 distinct memory locations can be addressed. If a full 32-bit word is used to hold the address field, up to 2<sup>32</sup> 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.

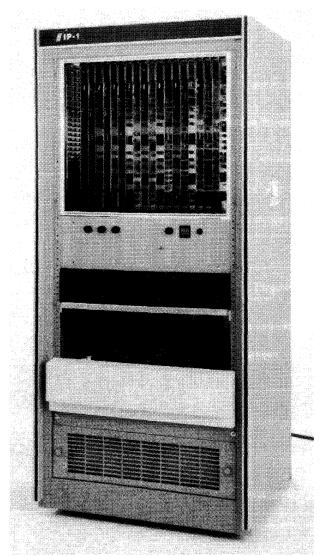
Virtual memory is a facility that simplifies programming by providing a large addressable space on a high-speed disk storage unit that appears to the user as real main storage, and from which instructions and data are transferred into real main storage locations as required. Specialized hardware or software 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.

The entries under this heading usually indicate that the system's hardware floating point is single-precision (SP), double-precision (DP), triple-precision (TP), quadruple-



Digital Equipment Corporation's VAX 8500 is a mid-range system providing up to three times the power of the Digital's venerable VAX-11/780. Designed for both commercial and technical applications, the VAX 8500 occupies only 5.6 square feet of floor space—one third the footprint of its less powerful predecessor, the VAX-11/785.



The IP-1 comes from International Parallel Machines, a new entrant in the supermini market. The IP-1 is designed for high-intensity engineering/scientific applications, including printed circuit board design, signal and image processing, and matrix equation systems. The IP-1 runs under a Unix-like operating system. A 160-MFLOPS floating-point accelerator is available as an option.

precision (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 relative to that of other systems; recently, however, it has come under attack as a valid yardstick of power. Its opponents claim, with much justification, that the number of instructions used in a single operation depends on various factors, including the architecture of the system, the amount of microcode in the system, and the nature of the application. For example, three machines with three different architectures could take one second to perform the same amount of work, although one could use two million instructions, one could use five million, and the other could use 10 million. The 10-MIPS system would not necessarily be the most powerful.

However, the MIPS measurement has some validity as a measure of relative performance among members of the same product family, particularly in the same application environments. For that reason, and because it so widely accepted as a measurement of relative power, we have included it here.

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. Lowspeed lines are used to connect such devices as terminals and printers, 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 bytes per second (KB/sec. or MB/sec.).

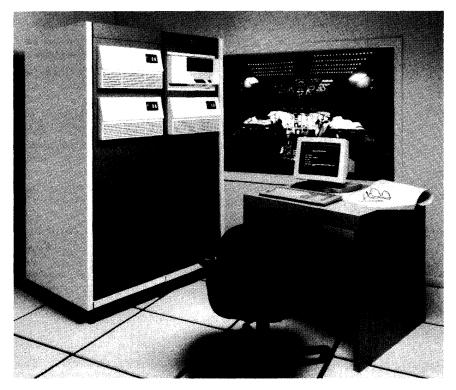
#### COMMUNICATIONS

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.



The H 1200, new top-of-the-line system in Harris Corporation's H Series, employs Emitter Coupled Logic (ECL) circuitry to achieve 5-MIPS CPU performance. The H 1200 is Intended for realtime, high-performance engineering/scientific and technical applications.

➤ 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 the 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 hard copy reports for far less money than the line-at-a-time printers generally 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 available for each system. Typical entries include 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 recode 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.

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; more specialized languages, like Lisp, which is used for artificial intelligence applications; or proprietary languages 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. (An operating system name that ends in "x" or "ix" generally indicates a Unix-based system.)

Operating system type indicates the type of each operating system 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 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 solids modeling; 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 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 first quarter 1986.

#### 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 29 vendors whose products are listed in the specification charts that follow.

AT&T Information Systems, 1 Speedwell Avenue, Morristown, NJ 07690. Telephone (201) 898-2000.

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

Canaan Computer Corporation, 39 Lindeman Drive, Trumbull, CT 06611. Telephone (203) 372-8100.

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

Celerity Computing, 9692 Via Excelencia, San Diego, CA 92126. Telephone (619) 271-9940.

Control Data Corporation, 8100 34th Avenue South, Minneapolis, MN 55440. Telephone (612) 853-5130.

Concurrent Computer Corporation (formerly Perkin-Elmer Corporation, Data Systems Group), 197 Hance Avenue, Tinton Falls, NJ 07724. Telephone (201) 758-7000.

**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.

Flexible Computer Corporation, 1801 Royal Lane, Building 8, Dallas, TX 75229. Telephone (214) 869-1234.

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

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

Hewlett-Packard Company, 1820 Embarcadero Road, Palo Alto, CA 94303. Contact local sales office.

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

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

**International Parallel Machines, Inc.**, 700 Pleasant Street, New Bedford, MA 02740. Telephone (617) 990-2977.

**MAI Basic Four, Inc.**, 14101 Myford Road, Tustin, CA 92680. Telephone (714) 731-5100.

McDonnell Douglas Computer Systems Company (formerly Microdata Corporation), 17481 Redhill Avenue, P.O. Box 19501, Irvine, CA 92713. Telephone (714) 250-1000.

Modular Computer Systems, Inc. (Modcomp), 1650 W. McNab Road, Fort Lauderdale, FL 33310. Telephone (305) 974-1380.

NCR Corporation, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-4158.

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

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

**Pyramid Technology Corporation**, 1295 Charleston Road, P.O. Box 7295, Mountain View, CA 94039-7295. Telephone (415) 965-7200.

Sequent Computer Systems, Inc., 15450 SW Koll Parkway, Beaverton, OR 97006. Telephone (503) 626-5700.

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

Stratus Computer, Inc., 55 Fairbanks Boulevard, Marlboro, MA 01752. Telephone (617) 460-2000.

**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. □

MANUFACTURER & MODEL	AT&T 3B5/101	AT&T 3B5/201	AT&T 3B5/301	AT&T 3B15/101
VODD LENGTH	20 1:	20 his-	22 5:4-	22 -
VORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	2MB-8MB	2MB-16MB	2MB-16MB	2MB-8MB
DISK STORAGE CAPACITY	40MB-1.1GB	40MB-2.2GB	134MB-2.2GB	40MB-1.1GB
IO. WORKSTATIONS SUPPORTED	128 (32 active)	128 (48 active)	128 (48 active)	128 (48 active)
PRICE RANGE	From \$34,500	From \$44,500	From \$44,500	From \$54,500
ARGET MARKET	General business	General business	General business	General business
	denoral business	General Business	General Business	General Business
ENTRAL PROCESSOR  No. of directly addressable bytes				
	400	46P	460	400
Virtual memory	4GB	4GB	4GB	4GB
Hardware floating point	SP, DP, double extended	SP, DP, double extended	SP, DP, double extended	SP, DP, double extended
Battery backup	1—	<u>  —                                   </u>	<del>-</del>	l <del></del>
Real-time clock or timer	<u> </u>			<del></del>
CPU cycle time, nanoseconds		l		
MIPS	0.8-1.0	1.0	1.0	1.4
16-/32-bit compatibility	Does not apply	Does not apply	Does not apply	Does not apply
	Does not apply	Does not apply	Does not apply	Does not apply
IAIN STORAGE		į		
Bytes fetched per cycle		<u> </u>	-	I —
Cycle/access time, nanoseconds	245	245	245	245
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1M, 2M	1M, 2M	1M, 2M	2M
		1 .	1 -	
Cache memory, bytes	8K	8K	8K	16K
NPUT/OUTPUT CONTROL	1	1		1
No. of I/O channels	16	16	16	16
Data transfer rate		I—	l <del></del>	
OMMUNICATIONS			l	l
Max. number of lines	1	1	l	l
	On FCK has	Ont : ECK has	Ont : ECK has	Ont - FOK have
Synchronous	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps
Asynchronous	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; 19.2K bps
Protocols supported	Bisync, SNA, TTY, RJE	Bisync, SNA, TTY, RJE	Bisync, SNA, TTY, RJE	Bisync, SNA, TTY, RJE
Type of LAN supported	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN
RJE terminals emulated	IBM 360 HASP	IBM 360 HASP	IBM 360 HASP	IBM 360 HASP
	1	l e		1
IBM 3270 emulation	Yes	Yes	Yes	Yes
ERIPHERAL EQUIPMENT		1		1
Disks supported	Fixed: 134MB, 279MB;	Fixed: 134MB, 279MB;	Fixed: 134MB, 279MB	Fixed: 134MB, 279MB;
	fixed/removable: 40MB	fixed/removable: 40MB		fixed/removable: 40MB
Serial printers	120/200 cps	120/200 cps	120/200 cps	120/200 cps
Letter-quality printers	1	120,200 500		120,200 000
				<u> </u>
Line printers	600 lpm	600 lpm	600 lpm	<u></u>
Reel-to-reel tape drives	1600/6250 bpi, 25/75 ips	1600/6250 bpi, 25/75 ips	1600/6250 bpi, 25/75 ips	1600/6250 bpi, 75 ips
Streaming tape drives	Start/stop; 25/75 ips	Start/stop; 25/75 ips	Start/stop; 25/75 ips	Start/stop; 75 ips
Cassette/cartridge tape drives	I_ · · · · · ·	<u> </u>	l_ · · · · ·	<u> </u>
Other peripherals supported	Plotters	Plotters	Plotters	Plotters
05714/4.85				
OFTWARE				1
Assembler		_		
Compilers	C, Basic, Pascal,	C, Basic, Pascal,	C, Basic, Pascal,	C, Basic, Pascal,
	RM/Cobol	RM/Cobol	RM/Cobol	RM/Cobol
	1 '	1	'	1 ' '
Operating system name	Unix System V, Rel. 2.0	Unix System V, Rel. 2.0	Unix System V, Rel. 2.0	Unix System V, Rel. 2.1
Operating system type	Timesharing	Timesharing	Timesharing	Timesharing
Operating sys. implemented in firmware	<del></del>		<del> </del>	
Database management system	dBase II, Ingres, Unify	dBase II, Ingres, Unify	dBase II, Ingres, Unify	dBase II, Ingres, Unify
Principal industry application	General business	General business	General business	General business
		1		
Other packages	OA, communications	OA, communications	OA, communications	OA, communications
	management control	management control	management control	management control
DICINIC 9. AVAILADILITY	1		l	l
RICING & AVAILABILITY	0011 0140	ODLL ONED	ODIL 484D	ODLL ON ED
Typical system configuration and price	CPU; 2MB memory; 2 async	CPU; 2MB memory; 3 async	CPU; 4MB memory; 3 async	CPU; 2MB memory; 2 as
	controllers; 16 termi-	controllers; 24 termi-	controllers; 24 termi-	controllers; 16 termi-
	nals; 40MB fixed/remov-	nals; 40MB fixed/remov-	nals; 9-track tape;	nals; 40MB fixed/remov-
	able disk; two 134MB	able disk; two 134MB	two 134MB fixed disk	able disk; two 134MB
	fixed disks; two 200 cps	fixed disks; three 200-	drives; three 120 cps	fixed disks; two 200 cps
	dot-matrix printers;	cps dot-matrix ptrs.;	dot-matrix printers;	dot-matrix printers;
	Unix System V: \$98,690	Unix System V: \$128,785	Unix System V:	Unix System V: \$113,69
			\$117,285	
Monthly maintenance of typical	Contact vendor	Contact vendor	Contact vendor	Contact vendor
viontniy maintenance of typical configuration	Contact vendor	Comact vendor	Contact vericor	COMBCE VENGO
Date of first delivery	October 1985	October 1985	October 1985	December 1985
Number installed to date				-
OMMENTS	Replaces 3B5/100	Replaces 3B5/200	Replaces 3B5/300	
	1		ĺ	
	1			1
	1	I	I	l

AGB	MANUFACTURER & MODEL	AT&T 3B15/201	AT&T 3B15/301	AT&T 3B20S	AT&T 3B20A
2461-16MB   2461-26B					
136K STORAGE CAPACITY					
10. WORKSTATIONS SUPPORTED   128 (60 active)   From \$46,500   General business   128 (100-150 active)   128 (100-150 active		1	1	· ·	
ARGET MARKET  EINTRAL PROCESSOR  No. of directly discreasable bytes  Virtual memory Hardware floating point Batterly backup Batterly backup ANN STORAGE Bytes fetched per cycle Storage protection  Standard  Loss not apply Does not a	ISK STORAGE CAPACITY	40MB-2.2GB	134MB-2.2GB	256MB-8.8GB	256MB-8.8GB
EARCH ARKET  General business	O. WORKSTATIONS SUPPORTED	128 (60 active)	128 (60 active)	256 (100-150 active)	256 (100-150 active)
EARCH ARKET  General business	RICE RANGE	From \$64,500	From \$64,500	From \$139,000	From \$194,000
No. of directly addressable bytes Virtual memory Hardware floating point SP, CP, double extended SP, CP, DP, Sandard S					Custom applications
No. of directly addressable bytes Virtual memory of Hardware floating point SP, DP, double extended SP, DP, Sandard SIANA STORAGE Standard					
Virtual memory Hardware floating point Batterly backup Batterly backup Ames Inter, nancaeconds Intelligent of the property of				16M	1604
Hardware florating point Basterty backup. Real-time clock or timer CPU cycle timer. CPU cycle timer. 1.		100	400	TOW	I DIVI
Battery backup — — — — — — — — — — — — — — — — — — —				I	III
Real-time clock or timer CDC Uyole time, annoseconds MIPS 1.4 Does not apply Does		SP, DP, double extended	SP, DP, double extended		
CPU cycle time, nanoseconds MIRS 16./32-bit compatibility 16./32-bit compatibility 2. Does not apply 2. Does not apply 3. Does not apply 4. A 400 3. Mortappicable 4. A 400 3. Mortappicable 4. Does not apply 4.	Battery backup	1—	l	Standard	Standard
MIRS   1.4   1.4   1.0   1.0   1.5   1.8   Not apply   Does not apply   Do	Real-time clock or timer	<del></del>		l—	I—
MIRS 1.4	CPU cycle time, nanoseconds		l	l	l
16-/32-bit compatibility Although Strorage protection Bytes fetched per cycle Cycle/access time, nanoseconds Storage protection Standard S		114	114	10	15-18
AMA STORAGE Syles fetched per cycle Cycle /access time, nanoseconds Storage protection increment size, bytes  245 Standard Standa		1			1
Bytes fetched per cycle  Cycle/access time, nanoseconds Storage protection Storage protec		Does not apply	Does not apply	Does not apply	Not applicable
Quality					<b>k</b>
Standard Increment size, bytes Cache memory, bytes PVPT/OUTPUT (CONTROL No. of I/O channels Data transfer rate OMMUNICATIONS Synchronous Asynchronous Asynchronous Asynchronous Billy 320 members Billy 320 member			<del>[</del>		
Standard Increment size, bytes Cache memory, bytes PMOT/OUTPUT CONTROL No. of I/O channels Data transfer rate OMMUNICATIONS Opt.: 56K bps Opt.: 19 3ZK bps Bisync, SNA, TTY, RJE	Cycle/access time, nanoseconds	245	245	400	400
Increment size, bytes Cache memory, bytas PUT/OUTPUT CONTROL No. of I/O channels Data transfer rate Ont.: 56K bps Ont.: 518 Kbps Ont.: 19 2K bps Ont.: 19 2K bps Ont.: 19 2K bps Ont.: 19 2K bps Bisync, SNA, TTY, RJE Bisyn		1	Standard	Standard	Standard
Cache memory, bytes PMOT/OUTPUT CONTROL No. of I/O channels Date transfer rate OMMUNICATIONS No. of I/O channels Date transfer rate OMMUNICATIONS No. dry lord fines Synchronous Asynchronous Asynchronous Asynchronous Dpt.; 56K bps Opt.; 19.2K pps Bisync, SNA, TTY, RJE Bisync, SNA, TTY,		1			
### PUT/OUTPUT CONTROL No. of I/O channels Data transfer rate Opt.; 56K bps Opt.; 19.2K bps Opt.; 56K bps Opt.; 19.2K bps Opt.; 56K bps Opt.; 19.2K bps Opt.; 56K bps Opt.;		1			
No. of I/O channels Data transfer rate COMMUNICATIONS Max. number of lines Synchronous Synchronous Synchronous Opt.: 56K bps Opt.: 19.2K bps Bisync, SNA, TTY, RLE Ethernet, 3BNet, ISN BIM 360 HASP Yes Ethernet, 3BNet, ISN BIM 360 HASP Yes Serial printers Letter-quality printer-quality printers Letter-quality printer-		ION	ION	ION	TON (per CPU)
Date transfer rate  Omx. umber of lines  Max. number of lines  Opt.: 56K bps Opt.: 19.2K bps Opt.: 19.2K bps Opt.: 19.2K bps Opt.: 9600 bps Xz.2s, HDLC, RUE, DDCMP. Hyperchannel Ethernet, 38Net, ISN BM 360 HASP Yes  Ethernet, 38Net, ISN BM 360 HASP Yes  Serial printers  Letter-quality printers  Line printers  Cassette/carridge tape drives Other peripherals supported  Opt.: 56K bps Opt.: 19.2K bps Opt.: 9600 bps Xz.2s, HDLC, RUE, DDCMP. Hyperchannel Ethernet, 38Net, ISN BM 360 HASP Yes  Fixed: 134M8, 279M8; fixed/removable: 40M8  120/200 cps  Line printers  Line printers  Cassette/carridge tape drives Other peripherals supported  Opt.: 56K bps Opt.: 56K bps Opt.: 9600 bps Xz.2s, HDLC, RUE, DDCMP. Hyperchannel Ethernet, 38Net, ISN BM 360 HASP Yes  Ethernet, 38Net, ISN BM 360 HASP Yes  Fixed: 134M8, 279M8  550M8; removable: 256M8  560M9; 550 bpi, 75 ips  51000/6250 bpi, 75		1		l.	1.
DOMNUNICATIONS  Max. number of lines  Synchronous  Asynchronous  Opt.; 96K bps Opt.; 98C bps Opt.; 96K bps Opt.; 19K bps Ithment, 3BNet, ISN Yes  Fixed: 134MB, 279MB Fixed: 1		116	16	4	4
Max. muther of lines Synchronous Asynchronous Opt.; 19 & bps Opt.;		}—	J <i>-</i>	1MB-4MB/sec.	1MB-4MB/sec.
Max. muther of lines Synchronous Asynchronous Opt.; 19 & bps Opt.;	OMMUNICATIONS	I .	l	1	1
Synchronous Asynchronous Opt.; 19 2K bps Bisync, SNA, TTY, RJE Bisync, SNA, TTY, RJE Bisync, SNA, TTY, RJE Cethnales emulated IBM 3270 emulation Ethernet, 38Net, ISN IBM 360 HASP Yes Fixed: 134MB, 279MB, fixed/removable: 40MB 120/200 cps Line printers Cassette/cartridge tape drives Other perpherals supported STOFTWARE Assembler Compilers Operating system name Operating system type Operating system type Operating system type Operating system type Operating system planeared in firmware Database management system Principal industry application Other packages  Monthly maintenance of typical configuration Monthly maintenance of typical configuration Monthly maintenance of typical configuration Numbers  Contact vendor  Contact vendor December 1985  Monthly maintenance of typical configuration Numbers Number installed to date Obud First delivery Number installed to date Obus First delivery Number installed to date Operating syst maintenance of typical Confidence of the proper deliver of the proper deliver delivery Number installed to date Operating syst may first delivery Number installed to date Option for the proper deliver of the proper deliver deliver delivery Number installed to date Option for the proper deliver of the proper deliver of the proper deliver of the proper deliver of th		I	I	l	1—
Asynchronous Protocols supported Bisync, SNA, TTY, RLE Bisync, SNA, TTY, Rue Bisync, SNA, SNA, SNA, SNA, SNA, SNA, SNA, SNA		Opt : 56K bos	Opt : 56K bps	Ont : 56K has	Opt : 56K bps
Bisync, SNA, TTY, RJE   Bisync, SNA, TTY, RJE   Bisync, SNA, TTY, RJE   Ethernet, 3BNet, ISN   Harden   Harde					
Type of LAN supported RJE terminals emulated BIM 3270 emulation PERIPHERAL EQUIPMENT Disks supported Serial printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Cassette/cartridge tape drives Cassette/cartridge tape drives Corperating system name Operating system type Decreating system type Decreating system type Decreating system type Decreating system configuration Deterating system configuration and price CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 pit tape drives controllers; 25 terminals; 1600 pit tape drives controllers; 24 termi					
Type of LAN supported RRL terminals emulated BM 360 HASP Yes  Fixed: 134MB, 279MB; fixed: move be: 40MB 120/200 cps  Line printers Line printe	Protocols supported	Bisync, SNA, TTY, RJE	Bisync, SNA, TTY, RJE		X.25, HDLC, RJE, DDCMI
RIE terminals emulated IBM 3270 emulation Prize IBM 3270 emulation Priz				Hyperchannel	Hyperchannel
RIÉ terminals emulated BIM 3270 emulation Pisk supported Fixed: 134MB, 279MB; fixed: 134MB, 279MB; fixed: 134MB, 279MB; fixed: 134MB, 279MB; fixed: 134MB, 279MB fixed	Type of LAN supported	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN	Ethernet, 3BNet, ISN
September   Sept					1
Fixed: 134MB, 279MB				1.00	1.00
Disks supported    Fixed: 134MB, 279MB; fixed: 134M		res	1 165		
Serial printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Line printers Reel-to-reel tape drives Streaming tape drives Other peripherals supported Operating system name Operating system printers Detarbase management system Detarbase management system Principal industry application Other packages Other					l
Serial printers Line printers Line printers Line printers Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Plotters  SOFTWARE Assembler Compilers  Operating system name Operating system type Data base management system Principal industry application  Other packages  OA, communications management control  Other packages  OA, communications management control  CPU; 4MB memory; 3 async controllers; 24 termi- nals; 1600 bpi tape drive & controller; one 279MB & One 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  OMMENTS  120/200 cps ————————————————————————————————————	Disks supported		Fixed: 134MB, 279MB		
Letter-quality printers Line printers Reel-to-reel tape drives Reel-to-reel tape drives Reel-to-reel tape drives Streaming tape drives Other peripherals supported  Degrating system name Operating system type Operating sy		fixed/removable: 40MB	1	550MB; removable: 256MB	550MB; removable: 256M
Letter-quality printers Line printers Reel-to-reel tape drives Reel-to-reel tape drives Streaming tape drives Other peripherals supported  Operating system name Operating system type Operating system type Operating system type Operating system type Principal industry application  Other packages  Other	Serial printers	120/200 cps	120/200 cps	i	I—
Line printers Reel-to-reel tape drives Streaming tape drives Start/stop; 75 ips Start/stop; 75 ips Cassette/cartridge tape drives Cassette/cartridge tape drives Compilers  Other peripherals supported  Operating system name Operating system name Operating system type Operating system type Operating system type Operating system type Operating industry application  Other packages  O				l	
Reel-to-reel tape drives Streaming tape drives Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Start/stop; 75 ips Cher peripherals supported  1600/6250 bpi, 75 ips Ch				600/1000 lpm	600/1000 lpm
Start/stop; 75 ips Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cother peripherals supported  SOFTWARE Assembler Compilers  C, Basic, Pascal, RM/Cobol  Unix System V, Rel. 2.1 Timesharing Coperating system name Operating system type Opera		1600 (63E0 hai 7E ina	i		
Casserte/cartridge tape drives Other peripherals supported Operating system name Operating system name Operating system type Operating syste					
Other peripherals supported  Plotters  Plotters  Plotters  Plotters  ———————————————————————————————————		Start/stop; 75 ips	Start/stop; 75 ips	Start/stop; 75 ips	Start/stop; 75 ips
Assembler Compilers  C, Basic, Pascal, RM/Cobol  Operating system name Operating system type Operating system	Cassette/cartridge tape drives		l—	_	
Assembler Compilers Compilers C, Basic, Pascal, RM/Cobol C, Basic, Pascal, Cascal, Basic, Pascal, Cascal, C	Other peripherals supported	Plotters	Plotters		<u> </u>
Assembler Compilers  C, Basic, Pascal, RM/Cobol  Operating system name Operating system type Operating system		(			
Compilers  C, Basic, Pascal, RM/Cobol  C, Basic, Pascal, RM/Cobol  C, Basic, Pascal, RM/Cobol  C, Basic, Pascal, RM/Cobol  C, Basic, Pascal, Cobol  Cobset of Pascal, Cobol  C, Basic, Pascal, Cobol  C, Basic, Pascal, Cobol  Cobset of Pascal  Cobset o		<b>\</b>			
Operating system name Operating system type		C Pasis Based	C Pasis Passal	C Pasis Passal Cabal	C. Pasia Bassal Cabal
Operating system name Operating system type	Compilers			C, Basic, Fascal, Copol	C, Basic, Fascal, Cobol
Operating system type Operating system type Operating system implemented in firmware Database management system Principal industry application  Other packages  OA, communications management control  Other packages  OA, communications management control  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  OM, communications management control  OA, communications management control  OCPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  OMMENTS  Timesharing ————————————————————————————————————		NIVI/CODOI	NIVI/CODOI		
Operating system type Oberating system type Oberating system type Operating system type Oberating system type Oberating system type Oberating system type Oberating system type Obase II, Ingres, Unify Obase II, Ingres, Unify Operating system type Obase II, Ingres, Unify Operating system type Obase II, Ingres, Unify Obase II, Ingres, Unify Operation Operating system type Obase II, Ingres, Unify Operation Operating system type Obase II, Ingres, Unify Operation	Operating system name	Unix System V Rel 2.1	Unix System V Rel 2.1	Unix System V Rel 2 1	Unix System V Rol 2.1
Operating sys. implemented in firmware Database management system Principal industry application  Other packages  OA, communications management control  OA, communications management control  OA, communications management control  OA, communications management control  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  OA, communications management control  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$161,345  Contact vendor  December 1985 —  Dual processor sy					
Database management system Principal industry application  Other packages  OA, communications management control  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  OA, communications management control  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Contact vendor		rimesnamg	rimesnamg	rimesianing	imesiaring
Principal industry application  General business   OA, communications management control  DA, communications management control  Third-party packages  Third-party packages  Third-party packages  Third-party packages  CPU; 4MB memory; 4 async controllers; 24 terminals; 1600 bpi tape drive & controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration  Date of first delivery Number installed to date  COMMENTS  General business   OA, communications management control  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape & contr.; two 550MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$311,545  Contact vendor  Contact vendor  Contact vendor  December 1985  December 1985  Dual processor system configuration  Date of first delivery Number installed to date  COMMENTS				_	
Principal industry application  General business  General business  General business  General business  General business  ——————————————————————————————————				Ingres	Ingres
PRICING & AVAILABILITY Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  December 1985  March 1984  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape & contr.; two 550MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$161,345  COntact vendor  CPU; 4MB memory; console; 1600 bpi tape & contr.; two 550MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$311,545  Contact vendor	Principal industry application		General business	<b> </b>	l —
management control  MRICING & AVAILABILITY Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  March 1984  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape & controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  COMMENTS  March 1984  — Dual processor system on the management control  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape & contr.; two 550MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$311,545  COntact vendor		}	]	]	
PRICING & AVAILABILITY Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  December 1985  March 1984  CPU; 4MB memory; 2 async controllers; 32 terminals; 1600 bpi tape & contr.; two 550MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$151,535  Contact vendor  CPU; 4MB memory; console; 1600 bpi tape & contr.; two 550MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$311,545  Contact vendor		1			
PRICING & AVAILABILITY Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Contact vendor  CPU; 4MB memory; 2 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$311,545  Contact vendor	Other packages	OA, communications	OA, communications	Third-party packages	Third-party packages
PRICING & AVAILABILITY Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date  CPU; 4MB memory; 3 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Contact vendor  CPU; 4MB memory; 4 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$311,545  Contact vendor  Contact vendor  Contact vendor  Contact vendor  Contact vendor  December 1985  December 1985  December 1985  December 1985  Dual processor sy		management control	management control		
Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  CPU; 4MB memory; 3 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$161,345  Contact vendor  March 1984  —  Dual processor sy		1 -	] -	1	
Typical system configuration and price  CPU; 4MB memory; 3 async controllers; 24 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  CPU; 4MB memory; 3 async controllers; 32 terminals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$161,345  Contact vendor  March 1984  —  Dual processor sy	RICING & AVAILABILITY		1	1	1
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nals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535  Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS  nals; 1600 bpi tape drive & controller; one 279MB & one 134MB fixed disk drives; 5 async comm. controllers; 40 terminals; 1000 lpm band printer; Unix System V: \$151,535  Contact vendor	Typical system comiguration and price				
drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535 Unix System V: \$161,345 (Contact vendor configuration Date of first delivery Number installed to date COMMENTS)  drive & controller; one 279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$161,345 (Contact vendor Contact ven					
279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535 Unix System V: \$161,345 Contact vendor  Monthly maintenance of typical configuration Date of first delivery Number installed to date  COMMENTS  279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$161,345 Unix System V: \$1000 lpm band printer; Unix System V: \$311,545 S385,545 Contact vendor  Contact vendor  Contact vendor  December 1985  December 1985  December 1985  December 1985  December 1985  Dual processor system V: \$161,345 Unix Sy					contr.; two 550MB fixed
279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$151,535 Unix System V: \$161,345 Contact vendor  Monthly maintenance of typical configuration Date of first delivery Number installed to date  COMMENTS  279MB & one 134MB fixed disk; three 200 cps dot-matrix printers; Unix System V: \$161,345 Unix System V: \$1000 lpm band printer; Unix System V: \$311,545 S385,545 Contact vendor  Contact vendor  Contact vendor  December 1985  December 1985  December 1985  December 1985  December 1985  December 1985  Dual processor system V: \$161,345 Unix System V: \$311,545 Unix System V: \$385,545 Unix System V: \$		drive & controller; one	drive & controller; one	disk drives; 5 async	disk drives; 5 async
disk; three 200 cps dot-matrix printers; Unix System V: \$151,535 Unix System V: \$161,345 terminals; 1000 lpm band printer; Unix System V: \$3311,545 terminals; 1000 lpm band printer; Unix System V: \$3311,545 terminals; 1000 lpm band printer; Unix System V: \$3311,545 terminals; 1000 lpm band printer; Unix System V: \$385,545 terminals; 1000 lpm band printer; Unix S				comm. controllers: 40	comm. controllers; 40
dot-matrix printers; Unix System V: \$151,535 Unix System V: \$161,345 printer; Unix System V: \$385,545 S385,545  Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS  dot-matrix printers; Unix System V: \$161,345 printer; Unix System V: \$385,545 Contact vendor Contact vendo		1	•	1	terminals; 1000 lpm band
Unix System V: \$151,535 Unix System V: \$161,345 \$311,545 \$385,545  Monthly maintenance of typical configuration Date of first delivery Number installed to date  COMMENTS  Unix System V: \$161,345 \$311,545 \$385,545  Contact vendor Contact vendor Contact vendor March 1984 March 1984  — December 1985 March 1984 — Dual processor systems of the proce					1
Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS  Contact vendor Contact					
configuration Date of first delivery Number installed to date COMMENTS  December 1985		Unix System V: \$151,535	Unix System V: \$161,345	φ3 I I,545	<b>Φ385,545</b>
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Date of first delivery Number installed to date  COMMENTS  December 1985  Decembe		Contact vendor	Contact vendor	Contact vendor	Someon vendor
Number installed to date — — — — — — — — — — — — Dual processor sy		December 100E	December 1995	March 1994	March 1094
COMMENTS Dual processor sy		December 1985	December 1985	IVIAICII 1964	IVIAICII 1964
			<u> </u>	I—	I
hased on 3R2OS	OMMENTS	}		I	Dual processor system
I Based on SEES			1	1	based on 3B20S

	1	<u> </u>		
	ļ			
MANUFACTURER & MODEL	AT&T 3B20D	BTI Computer Systems BTI 8000	Canaan Computer DCS 5100	Canaan Computer DCS 5400
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	5MB-16MB	2MB-24MB	1MB-8MB	1MB-8MB
DISK STORAGE CAPACITY	279MB-8.8GB	64MB-8GB	70MB-664MB	70MB-664MB
NO. WORKSTATIONS SUPPORTED	256 (100-150 active)	256	4	12
PRICE RANGE		1 =	1 .	· —
	From \$340,000	\$110,000-\$700,000	\$39,900-\$90,000	\$43,400-\$90,000
ARGET MARKET	Commercial transaction	General business	Departmental DBMS, decision support	Departmental DBMS, decision support
CENTRAL PROCESSOR	p. coccing		docion support	accision support
No. of directly addressable bytes	16M	500K	8M	8M
Virtual memory		500КВ	16MB	16MB
Hardware floating point	SP. DP	DP	SP	SP
Battery backup	Optional	Standard	None	None
Real-time clock or timer	Optional		* · · · · ·	
		Standard	Standard	Standard
CPU cycle time, nanoseconds		250	270	270
MIPS	0.9	_	0.2	0.2
16-/32-bit compatibility	Not applicable	Basic only	l	l—
MAIN STORAGE	1 ''	·		
Bytes fetched per cycle	14	ì	0.5, 1, 2, 4	0.5, 1, 2, 4
Cycle/access time, nanoseconds	400 (with cache)	450	325	325
		1	1	
Storage protection	Standard	Standard	ECC	ECC
Increment size, bytes	1M	1M	1M	1M
Cache memory, bytes	16K (opt.)	None	None	None
NPUT/OUTPUT CONTROL	1			
No. of I/O channels	12	32	1	I_
Data transfer rate	1MB-4MB/sec.	67MB/sec.	I	I
COMMUNICATIONS	1	07.00,000.		
	1	256	اه	1.0
Max. number of lines	I <del>-</del>	256	8	12
Synchronous	Opt.; 56K bps	No	Std.; 72K bps	Std.; 72K bps
Asynchronous	Opt.; 9600 bps	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps
Protocols supported	X.25, HDLC, RJE, DDCMP,	2780/3780	BSC, SNA	BSC, SNA
	Hyperchannel	1		
Type of LAN supported	Ethernet, ISN	Does not apply	Ethernet	Ethernet
RJE terminals emulated	Yes	Does not apply	<u> </u> -	
IBM 3270 emulation		Does not apply	Yes	Yes
PERIPHERAL EQUIPMENT	1,45 1 . 070145	le:	5: 1 70115 00115	F: 1 70145 00145
Disks supported	Winchester: 279MB	Fixed & removable:	Fixed: 70MB-664MB	Fixed: 70MB-664MB
0.11.1.		64MB-254MB		
Serial printers		30/1200 cps	200/400 cps	200/400 cps
Letter-quality printers		Does not apply	<del> </del>	<u> </u>
Line printers	600/1000 lpm	300-1200 lpm	300/600/1000 lpm	300/600/1000 lpm
Reel-to-reel tape drives	1600 bpi, 25 ips	800/1600 bpi	1600/3200 bpi	1600/3200 bpi
Streaming tape drives	Start/stop; 25 ips		Start/stop; 75 ips	Start/stop; 75 ips
Cassette/cartridge tape drives		45 ips	None	None
Other peripherals supported		Does not apply	IBM 3178/3278,	IBM 3178/3278,
other peripherais supported	_	Does not apply	DEC VT220 terminals	DEC VT220 terminals
SOFTWARE	İ			DEG V VEED COMMINION
Assembler	l—	Relocatable assembler	Macro assembler	Macro assembler
Compilers	C, Basic, Pascal, Cobol	Cobol, Fortran, Pascal.	Cobol, Fortran, PL1,	Cobol, Fortran, PL1,
·	[ ,, ,, ,, ,	Basic	Basic, C	Basic, C
	l			l
Operating system name	Unix RTR, Rel. 1	<del> </del>	Multos	Multos
Operating system type	Timesharing, realtime	Proprietary multitasking	Multitasking	Multitasking
Operating sys. implemented in firmware	I—	Does not apply	Partially	Partially
Database management system	I—	BTI/FMS	l—	I— ·
Principal industry application	_	General business	VM/CMS applications	VM/CMS applications
Other packages	<u> </u>	Does not apply	PROFS, Focus, CICS,	PROFS, Focus, CICS,
paonagoo		5555 not apply	RAMIS, PC virtual disk	RAMIS, PC virtual disk
PRICING & AVAILABILITY	1		1	
Typical system configuration and price	2 CPUs; 8MB memory; con-	CPU with 2MB main	CPU; 1MB memory; 70MB	CPU; 1MB memory; 85M
	sole; 9-track tape;	memory; 64MB mass	mass storage; 1600 bpi	mass storage; 1600 bpi
	three 279MB Winchester	storage unit; cartridge	tape; 4 terminal	tape; 8 terminal
	disk drives; 64 termi-	tape drive; 8 comm.	connections; Multos	connections; Multos
	nais; two 1000 lpm band	lines: \$110,000	operating system:	operating system:
	printers: \$481,870	тинов. ФТ 10,000	\$39,750	\$49,100
			/	
Monthly maintenance of typical	Contact vendor	\$827	\$301	\$365
configuration			1	
Date of first delivery	March 1984	2nd quarter 1982	1st quarter 1984	3rd quarter 1984
Number installed to date		70	100	100
	1-			1
COMMENTS	1	Multiprocessor system with up to 8 CPUs	Vendor claims that	Vendor claims that
		LIMITE UP TO SEL'UILE	DCS 5000 is the only IBM	DCS 5000 is the only
		with up to a cros		1
		With up to 8 Cros	VM/CMS-compatible	IBM VM/CMS-compatible

MANUFACTURER & MODEL	Canaan Computer DCS 5800	Celerity Computing C1200	Computer Consoles, Inc. Power 6/32	Computer Consoles Inc. Power 6/32E
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1MB-8MB	4MB-24MB	4MB-32MB	4MB-8MB
		11.2GB	160MB-8.2GB	160MB-3.4GB
DISK STORAGE CAPACITY	70MB-664MB			
IO. WORKSTATIONS SUPPORTED	36	64	240	64
RICE RANGE	\$49,400-\$90,000	\$38,000-\$50,000	From \$160,000	From \$112,000
ARGET MARKET	Departmental DBMS, decision support	CAE, research	Gen. bus., government, engineering/scientific	Gen. bus., government, engineering/scientific
ENTRAL PROCESSOR		1		1
No. of directly addressable bytes	8M	256M	4G	4G
Virtual memory	16MB	4GB	4GB	4GB
Hardware floating point	SP	64-bit (IEEE)	SP, DP, functions	<del> </del>
Battery backup	None	Optional	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	90	125	100	100
MIPS	0.5	2.5	8	5
	4	,	l°	19
16-/32-bit compatibility	-	Does not apply	_	
IAIN STORAGE		1		Ī
Bytes fetched per cycle	0.5, 1, 2, 4	4 or 8	4	4
Cycle/access time, nanoseconds	325	_	100	100
Storage protection	ECC	Standard	Standard	Standard
increment size, bytes	1M	1M, 4M	4M	4M
Cache memory, bytes	16K	160K	56K	56K
	1.000	1.00%	Jok	Jook
IPUT/OUTPUT CONTROL	1	1.	25	1,
No. of I/O channels	_	1	25	1/
Data transfer rate		6.47MB/sec.	11MB/second	11MB/second
OMMUNICATIONS				
Max. number of lines	36	64	240	64
Synchronous	Std.; 72K bps	64K bps	Opt.; 56K bps	Opt.; 56K bps
Asynchronous	Std.; 19.2K bps	38.4K bps	Std.; 19.2K bps	Std.; 19.2K bps
Protocols supported	BSC, SNA	BSC, Hasp, X.25	BSC, SNA, X.25	BSC, SNA, X.25
Tune of LAN supported	Etharnat	Ethornot	Ethernet	Ethornot
Type of LAN supported	Ethernet	Ethernet		Ethernet
RJE terminals emulated		2780/3780	IBM 2780/3780	IBM 2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
ERIPHERAL EQUIPMENT				1
Disks supported	Fixed: 70MB-664MB	120MB; 337MB; 400MB;	Fixed & removable:	Fixed & removable:
		689MB	160/300/340/515MB	160/300/340/515MB
Serial printers	200/400 cps	300/600 lpm	400 cps	400 cps
Letter-quality printers	1	35/55 cps	35/55 cps	35/55 cps
Line printers	300/600/1000 lpm	300/600 lpm	300/600/1000 lpm	300/600/1000 lpm
			300/000/1000 ipin	1300/000/1000 ipin
Reel-to-reel tape drives	1600/3200 bpi	1600/6250 bpi, 100 ips	1000 (0050 ) : 100 (	1000,0000
Streaming tape drives	Start/stop; 75 ips	1600 bpi, 25 ips	1600/6250 bpi, 100 ips	1600/6250 bpi, 100 ips
Cassette/cartridge tape drives	None	90 ips	<del></del>	_
Other peripherals supported	IBM 3178/3278,	IEEE 488/DR11 and	Laser printers, OCR	Laser printers, OCR
	DEC VT220 terminals	graphics		
OFTWARE		1 '		1
Assembler	Macro assembler	Macro assembler	Yes	Yes
Compilers	Cobol, Fortran, PL1,	Fortran 77, Pascal, C,	C. Fortran, Cobol,	C, Fortran, Cobol,
Compilers			1 .	
	Basic, C	Lisp	Pascal, Ada	Pascal, Ada
	1	1	1	1
Operating system name	Multos	Unix	Unix System V & 4.2 BSD	Unix System V & 4.2 BS
Operating system type	Multitasking	Multitasking	Multitasking	Multitasking
Operating sys. implemented in firmware	Partially	Partially	I—	
Database management system		Informix	Ingres/Unify/BRS/Search	Ingres/Unify/BRS/Search
Principal industry application	VM/CMS applications	CAE, research, graphics	General business,	General business.
	Tim, care apparent	<b>3</b>	engineering/scientific,	engineering/scientific,
			legal	
Oth	PP050 5 0100			legal
Other packages	PROFS, Focus, CICS,	Image processing, finite	Office automation,	Office automation,
	RAMIS, PC virtual disk	element analysis	third-party packages	third-party packages
		1	1	
RICING & AVAILABILITY	1	1	1	1
Typical system configuration and price	CPU; 1MB memory; 199MB	CPU; 4MB main memory;	CPU; 8MB main memory;	CPU; 4MB main memory,
	mass storage; 1600 bpi	64X cache; 120MB disk;	console; two 340MB	console; 340MB disk;
,	tape; 12 terminal	1/4-inch tape; serial	disks; 1600 bpi tape	1600 bpi tape drive;
	connections; Multos	ports; printer port;	drive; 600 lpm printer;	300 lpm printer;
	•	clock; Unix: \$48,000		32 async ports; Unix
	operating system:	GOCK, UNIX: \$48,000	64 async ports; Unix	1 , 1
	\$58,600	1	license: \$275,550	license: \$151,245
Monthly maintenance of typical	\$468		\$1,754	\$1,266
configuration	17.35	4.5	1	1
	1et quarter 1996	October 1984	3rd quarter 1984	January 1986
Date of first delivery	1st quarter 1986	f .		January 1986
Number installed to date	Does not apply	75+	Over 300	II
COMMENTS	Vendor claims that	1		Field upgradable to
	DCS 5000 is the only IBM		1	Power 6/32
	VM/CMS-compatible		1	1

ORD LENGTH AIN MEMORY SK STORAGE CAPACITY D. WORKSTATIONS SUPPORTED NICE RANGE NRGET MARKET		Concurrent Computer Corporation 3205	Corporation 3210	Concurrent Computer Corporation 3230
AIN MEMORY SK STORAGE CAPACITY D. WORKSTATIONS SUPPORTED NICE RANGE	32 bits	32 bits	32 bits	32 bits
SK STORAGE CAPACITY D. WORKSTATIONS SUPPORTED RICE RANGE	0.5MB-4MB			
D. WORKSTATIONS SUPPORTED RICE RANGE		1MB-4MB	1MB-16MB	1MB-16MB
RICE RANGE	51MB-170MB	51MB-1.2GB	51MB-7.2GB	51MB-144GB
	16	16	64	128
RGET MARKET	\$16,600-\$33,990	\$12,950-\$41,000	\$32,000-\$60,000	\$74,150-\$81,000
	General-purpose commer-	General-purpose commer-	General-purpose commer-	General-purpose commer
	cial, scientific	cial, scientific	cial, scientific	cial, scientific
NTRAL PROCESSOR		1		
o. of directly addressable bytes	4M	4M	4M	16M
'irtual memory	16MB	16MB	16MB	16MB
ardware floating point	SP, DP	SP. DP	SP. DP	SP, DP
attery backup	None	Optional	Optional	Standard
eal-time clock or timer	Standard	Standard	Standard	Standard
PU cycle time, nanoseconds	Standard	Standard	Standard	Standard
MPS	0.7	0.5	1.0	
	1 - 1 -			2.0
6-/32-bit compatibility	32-bit only	32-bit only	32-bit only	32-bit only
AIN STORAGE				
ytes fetched per cycle	4	4	4	16
ycle/access time, nanoseconds	400	400	500	500
torage protection	Standard	Standard	Standard	Standard
crement size, bytes	0.5M, 1M, 2M	11M	1M	1M, 2M
ache memory, bytes	None	None	None	1K
PUT/OUTPUT CONTROL	1	1	1	1
lo. of I/O channels	1	1.	4	8
	1 ·	1 EMP /		
ata transfer rate	1.5MB/sec.	1.5MB/sec.	8MB/sec.	8MB/sec.
MMUNICATIONS	1	l	1	§
flax. number of lines	16	16	64	128
ynchronous	Std.; 19.2K bps	Std.; 19.2K bps	Opt.; 2M bps	Opt.; 2M bps
synchronous	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps
rotocols supported	ADCCP, SDLC, HDLC, SNA,	ADCCP, SDLC, HDLC, SNA,	ADCCP, SDLC, HDLC, SNA,	ADCCP, SDLC, HDLC, SN
Toolio capportos	X.25, X.29	X.25, X.29	X.25, X.29	X.25, X.29
ype of LAN supported	I .	Ethernet		
	Ethernet	1	Ethernet	Ethernet
JE terminals emulated	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp
3M 3270 emulation	Yes	Yes	Yes	Yes
RIPHERAL EQUIPMENT				
isks supported	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
	51MB-85MB	51MB-825MB	51MB-825MB	51MB-825MB
erial printers	180 cps	180 cps	180 cps	180 cps
etter-quality printers	55 cps	55 cps	55 cps	
				55 cps
ine printers	300/600/1200 lpm	300/600/1200 lpm	300/600/1200 lpm	300/600/1200 lpm
eel-to-reel tape drives	Does not apply	800/1600/6250 bpi	800/1600/6250 bpi	800/1600/6250 bpi
treaming tape drives	90 ips	90 ips	90 ips	90 ips
assette/cartridge tape drives	Does not apply	Does not apply	Does not apply	Does not apply
ther peripherals supported	Does not apply	Card reader	Card reader	Card reader
FTWARE	1			
Assembler	Cal, Cal Macro	Cal, Cal Macro	Cal, Cal Macro	Cal. Cal Macro
compilers	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,
• **	Pascal, RPG II, C	Pascal, RPG II, C	Pascal, RPG II, C	Pascal, RPG II, C
	, ascai, iii G ii, C	i uscai, iii u ii, c	assai, iii G ii, C	i ascai, ned ii, C
perating system name	OS (22: Valos	05/22: Valas	OS/32; Xelos	OS /22. Val
	OS/32; Xelos	OS/32; Xelos	1	OS/32; Xelos
	Realtime; multitasking	Realtime; multitasking	Realtime; multitasking	Realtime; multitasking
perating system type		I	<u></u>	I <del></del>
perating sys. implemented in firmware		Reliance Plus	Reliance Plus	Reliance Plus
Operating sys. implemented in firmware latabase management system	Reliance Plus			I Conoral murnosa assesses
perating sys. implemented in firmware	General-purpose commer-	General-purpose commer-	General-purpose commer-	General-purpose commer
Operating sys. implemented in firmware latabase management system		General-purpose commer- cial	General-purpose commer- cial	General-purpose commer cial
perating sys. implemented in firmware latabase management system rincipal industry application	General-purpose commer-		cial	
Operating sys. implemented in firmware latabase management system	General-purpose commer-			1 ' '
perating sys. implemented in firmware latabase management system rincipal industry application	General-purpose commer- cial	cial	cial	cial
perating sys. implemented in firmware latabase management system rincipal industry application	General-purpose commercial  Numerous third-party	cial  Numerous third-party	Numerous third-party	cial  Numerous third-party
perating sys. implemented in firmware latabase management system rincipal industry application	General-purpose commercial  Numerous third-party	cial  Numerous third-party	Numerous third-party	cial  Numerous third-party
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications	cial  Numerous third-party applications	cial  Numerous third-party applications	cial  Numerous third-party applications
perating sys. implemented in firmware latabase management system rincipal industry application other packages	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader;	cial  Numerous third-party applications  CPU; 1MB memory; loader;	cial  Numerous third-party applications  CPU; 1MB memory; loader;	cial  Numerous third-party applications  CPU; 1MB memory; load
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem;	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console:	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk;	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem;	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console:	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk;	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video
perating sys. implemented in firmware latabase management system rincipal industry application other packages  ICING & AVAILABILITY	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console:	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY sypical system configuration and price	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY sypical system configuration and price	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console:	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display	cial  Numerous third-party applications  CPU; 1MB memory; loader; 2-line communications controller; selector channel; disk subsystem; 32MB disk; console Video Display Unit; OS/32	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY sypical system configuration and price	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY sypical system configuration and price	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950  \$295	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY 'ypical system configuration and price  Monthly maintenance of typical configuration late of first delivery	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY sypical system configuration and price  Monthly maintenance of typical configuration late of first delivery lumber installed to date	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940  \$157  February 1985 —	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950  \$295	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150  \$360  1981
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY 'ypical system configuration and price  Monthly maintenance of typical configuration late of first delivery	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940  \$157  February 1985  Vendor says system de-	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950  \$295  1983  Can be used in fault	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150  \$360  1981  Can be used in fault
perating sys. implemented in firmware latabase management system rincipal industry application  Other packages  ICING & AVAILABILITY sypical system configuration and price  Monthly maintenance of typical configuration late of first delivery lumber installed to date	General-purpose commercial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; two 51MB disks; streaming cartridge tape; console: \$19,940  \$157  February 1985 —	cial  Numerous third-party applications  CPU; 1MB memory; loader; 8-line communications controller; floating point; 50MB (25MB fixed/25MB removable) disk; console Video Display Unit: \$27,950  \$295	cial  Numerous third-party 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	cial  Numerous third-party applications  CPU; 1MB memory; load 2-line communications controller; battery backup; console Video Display Unit: \$74,150  \$360  1981

MANUFACTURER & MODEL	Concurrent Computer Corporation 3230XP	Concurrent Computer Corporation 3230MPS	Concurrent Computer Corporation 3250XP	Concurrent Computer Corporation 3260MPS
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1MB-16MB	2MB-16MB	1MB-16MB	2MB-16MB
DISK STORAGE CAPACITY	51MB-288GB	51MB-288GB	51MB-576GB	51MB-576GB
NO. WORKSTATIONS SUPPORTED	128	128	256	256
PRICE RANGE	\$85,000-\$156,000	\$125,000-\$439,000	\$125,000-\$185,000	\$185,000-\$300,000
TARGET MARKET	General-purpose commercial, scientific	General-purpose commer- cial, scientific	General-purpose commercial, scientific	General-purpose commer- cial, scientific
CENTRAL PROCESSOR			1	1
No. of directly addressable bytes	16M	16M	16M	16M
Virtual memory	16MB	16MB	16MB	16MB
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP
Battery backup	Standard	Standard	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	-	<del>-</del>		<del>-</del>
MIPS	2.0	1.9-5.0	3.0	1.9-7.2
16-/32-bit compatibility	32-bit only	32-bit only	32-bit only	32-bit only
MAIN STORAGE	1	l . <u>.</u>	1	1
Bytes fetched per cycle	16	16	16	16
Cycle/access time, nanoseconds	500	500	500	500
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1/2/4/6/8/10/12M	2M, 4M, 8M	2M	2M
Cache memory, bytes	4K	4K	8K	12K
NPUT/OUTPUT CONTROL	ا		122	امم
No. of I/O channels	8	8	32	32
Data transfer rate	8MB/sec.	8MB/sec.	40MB/sec.	40MB/sec.
COMMUNICATIONS	1.00	1.00	050	1050
Max. number of lines	128	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, SNA,	ADCCP, SDLC, HDLC, SNA,	ADCCP, SDLC, HDLC, SNA,	ADCCP, SDLC, HDLC, SN
T (1.48)	X.25, X.29	X.25, X.29	X.25, X.29	X.25, X.29
Type of LAN supported	Ethernet	Ethernet	Ethernet	Ethernet
RJE terminals emulated	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
Disks supported	51MB-825MB	51MB-825MB	51MB-825MB	51MB-825MB
Serial printers	180 cps	180 cps	180 cps	180 cps
Letter-quality printers	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	90 ips	90 ips	90 ips	90 ips
Cassette/cartridge tape drives	Does not apply	Does not apply	Does not apply	Does not apply
Other peripherals supported	Card reader	Card reader	Card reader	Card reader
Strict periprises supported	Joans rodge.	, 54.4 15445		
SOFTWARE				
Assembler	Cal, Cal Macro	Cal, Cal Macro	Cal, Cal Macro	Cal, Cal Macro
Compilers	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,
• • •	Pascal, RPG II, C	Pascal, RPG II, C	Pascal, RPG II, C	Pascal, RPG II, C
	1			
Operating system name	OS/32; Xelos	OS/32; Xelos	OS/32; Xelos	OS/32; Xelos
Operating system type	Realtime; multitasking	Realtime; multitasking	Realtime; multitasking	Realtime; multitasking
Operating sys. implemented in firmware	_	I—	I—	-
Database management system	Reliance Plus	Reliance Plus	Reliance Plus	Reliance Plus
Principal industry application	General-purpose commer-	General-purpose commer-	General-purpose commer-	General-purpose commer
. , , ,	cial	cial	cial	cial
Other packages	Numerous third-party	Numerous third-party	Numerous third-party	Numerous third-party
	applications	applications	applications	applications
PRICING & AVAILABILITY	1			
Typical system configuration and price	CPU; 1MB memory; loader;	CPU; 2MB memory;	CPU; 1MB memory; loader;	CPU; Auxiliary Proces-
	8-line communications	Auxiliary Processing	writable control store;	sing Unit (APU); 2MB
	controller; battery	Unit (APU); floating-	2-line communications	memory; floating point
	backup; 80MB disk;	point processor;	controller; battery	processor; writable con-
	console Video Display	writable control store;	backup; console Video	trol store; loader;
	Unit: \$109,000	loader; console Video	Display Unit: \$125,000	2-line communications
	1	Display Unit, 8-line		controller; console
		communications control-		Video Display Unit:
		ler; 80MB disk: \$147,000	1	\$185,000
Monthly maintenance of typical	\$585	\$1,193	\$763	\$1,240
configuration	1		1	1
Date of first delivery	July 1985	July 1985	1983	1983
Number installed to date	\ <u> </u>	_	<u> </u>	<u> </u>
COMMENTS	Can be used in fault	Supports up to 5 APUs;	Can be used in fault	Supports up to 9 APUs.
	tolerant, dual processor	can also be used in	tolerant, dual processor	Can also be used in
			configuration	fault tolerant, dual
	configuration	fault tolerant, dual		

All About Supermini Systems					
MANUFACTURER & MODEL	Concurrent Computer Corporation 3280MPS	Concurrent Computer Corporation XF/400	Concurrent Computer Corporation XF/600	Concurrent Computer Corporation XF/610	
WORD LENGTH	32 bits	32 bits	32 bits	32 bits	
MAIN MEMORY	2MB-16MB	0.5MB-4MB	2MB-16MB	4MB-16MB	
DISK STORAGE CAPACITY			51MB-2.4GB		
	51MB-576GB	51MB-170MB		51MB-2.4GB	
NO. WORKSTATIONS SUPPORTED	512	16	64	64	
PRICE RANGE	\$287,100-\$1,061,400	\$21,995-\$32,095	\$27,000-\$61,000	\$45,000-\$79,000	
TARGET MARKET	General-purpose commer-	General-purpose commer-	General-purpose commer-	General-purpose commer-	
1	cial, scientific	cial, scientific	cial, scientific	cial, scientific	
CENTRAL PROCESSOR					
No. of directly addressable bytes	16M	4M	4M	4M	
Virtual memory	16MB	16MB	16MB	16MB	
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP	
Battery backup	Standard	None	Optional	Optional	
Real-time clock or timer	Standard	Standard	Standard	Standard	
CPU cycle time, nanoseconds			_		
MIPS	6.14-33.8	0.7	1.0	1.0	
16-/32-bit compatibility					
	32-bit only	32-bit only	32-bit only	32-bit only	
MAIN STORAGE	10	1			
Bytes fetched per cycle	16	4	4	4	
Cycle/access time, nanoseconds	500	400	500	500	
Storage protection	Standard	Standard	Standard	Standard	
Increment size, bytes	2M	2M	2M	1M, 2M, 4M, 8M	
Cache memory, bytes	16K	None	1K (opt.)	1K	
INPUT/OUTPUT CONTROL					
No. of I/O channels	32	1	1	4	
Data transfer rate	10MB/sec.	1.5MB/sec.	8MB/sec.	8MB/sec.	
COMMUNICATIONS				55,000.	
Max. number of lines	512	16	64	64	
Synchronous		Does not apply	1	_ ·	
,	Std.; 19.2K bps		Does not apply	Does not apply	
Asynchronous	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps	
Protocols supported	ADCCP, SDLC, HDLC, SNA, X.25, X.29	SNA	SNA	SNA	
Type of LAN supported	Ethernet	Ethernet	Ethernet	Ethernet	
RJE terminals emulated	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp	
IBM 3270 emulation	Yes	Yes	Yes	Yes	
PERIPHERAL EQUIPMENT				ł	
Disks supported	Fixed & removable:	Fixed:	Fixed & removable:	Fixed & removable:	
	51MB-825MB	51MB-85MB	51MB-825MB	51MB-825MB	
Serial printers	180 cps	180 cps	180 cps	180 cps	
Letter-quality printers	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	None	800/1600/6250 bpi	800/1600/6250 bpi	
Streaming tape drives	90 ips	90 ips	90 ips	90 ips	
Cassette/cartridge tape drives	Does not apply				
, , ,		Does not apply	Does not apply	Does not apply	
Other peripherals supported	Card reader	<u> </u>	<del></del>	Card reader	
OCETIALA DE		ŀ			
SOFTWARE		•			
Assembler	Cal, Cal Macro	Assembler Language	Assembler Language	Assembler Language	
Compilers	Cobol, Fortran, Basic,	Cobol, C; Fortran;	Cobol; C; Fortran;	Cobol; C; Fortran;	
	Pascal, RPG II, C	Unibol	Unibol	Unibol	
Operating system name	OS/32; Xelos	Xelos	Xelos	Xelos	
Operating system type	Realtime; multitasking	Realtime, multitasking	Realtime, multitasking	Realtime, timesharing	
Operating sys. implemented in firmware					
Database management system	Reliance Plus	Unify	Unify	Unify	
Principal industry application	Simulation/scientific	General-purpose commer-	General-purpose commer-	General-purpose commer-	
Timopai industry application	computing	cial	· ·	, ,	
	Computing	Clai	cial	cial	
Other				la 1	
Other packages	Numerous third-party	Numerous third-party	Numerous third-party	Numerous third-party	
	applications	applications	applications	applications	
DDIOING & ALVAN ADMITY					
PRICING & AVAILABILITY					
Typical system configuration and price	CPU; 2MB memory; 80MB	CPU; 1MB memory; loader;	CPU; 2MB memory; loader;	CPU; 4MB memory; loader;	
	disk; 8-line comm.	8-line communications	8-line communications	8-line communications	
	controller; Auxiliary	controller; two 51MB	controller; 51MB disk;	controller; 51MB disk;	
	Processing Unit (APU);	disks; streaming	streaming cartridge	streaming cartridge	
	writable control store;	cartridge tape; console:	tape; console; Xelos	tape; console: \$57,290	
	loader; console Video	Xelos software: \$22,945	software: \$37,250		
	Display Unit; floating-	1		1	
	point processor:			<b> </b>	
			i	i	
Monthly maintanana of train-	\$386,150	6170	D245	1	
Monthly maintenance of typical	\$1,970	\$170	\$345	\$393	
configuration	l.,			<u> </u>	
Date of first delivery	November 1985	September 1985	September 1985	September 1985	
Number installed to date			<del></del>		
COMMENTS	Supports up to 5 APUs;	Supports up to 16 user	Supports up to 64 user	Supports up to 64 user	
	can also be used in	connections; for commer-	connections in a multi-	connections in a time-	
	fault tolerant, dual	cial, technical, and in-			
			1		
	fault tolerant, dual processor configuration	cial, technical, and in- dustrial applications	tasking environment	sharing environment	

MANUFACTURER & MODEL	Control Data Corporation Cyber 180 Model 810	Data General Corp. Eclipse MV/2000 DC	Data General Corp. Eclipse MV/4000 DC	Data General Corp. Eclipse MV/4000
VORD LENGTH	64 bits	32 bits	32 bits	32 bits
MAIN MEMORY	2MB-32MB	2MB-5MB	2MB-8MB	1MB-8MB
			70MB-240MB	50MB-9.4GB
DISK STORAGE CAPACITY	256MB-41.6GB	38MB-240MB		I
IO. WORKSTATIONS SUPPORTED	See Comments	24	32	64
PRICE RANGE	\$125,000-\$315,000	From \$17,500	From \$38,800	From \$30,000
ARGET MARKET	General, engineering/	General business d.p.,	General business d.p.,	General business d.p.,
	scientific	office automation	office automation	office automation
ENTRAL PROCESSOR				ĺ
No. of directly addressable bytes	32M	<u> </u>	I—	
Virtual memory	2GB	4GB	4GB	4GB
Hardware floating point	DP (128-bit)	Std.; SP, DP	Opt.; SP, DP	Opt.; SP, DP
Battery backup	Optional	None	None	Optional
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	50	160	200	200
MIPS	0.8	1	0.6	0.6
16-/32-bit compatibility	Does not apply	Direct	Direct	Direct
MAIN STORAGE	Bood not apply	5551		1
Bytes fetched per cycle	8	<u> </u>	1	
Cycle/access time, nanoseconds	400	<u> </u>	1	1
• •	1	Standard	Standard	Standard
Storage protection	Standard			
Increment size, bytes	2M, 4M, 16M	1M, 2M, 3M	1M, 2M, 4M, 8M	1M, 2M, 4M, 8M
Cache memory, bytes	None	None	None	None
NPUT/OUTPUT CONTROL	1	1		1
No. of I/O channels	8, 12, or 16	<u> </u>		
Data transfer rate	3MB/sec. per channel	8MB/sec.	3MB/sec.	5MB/sec.
COMMUNICATIONS	1	1		1
Max. number of lines	2,032	24 async		<u> </u>
Synchronous	Std.; 56K bps	Opt.; 300-56K bps	Opt.; 56K bps	Opt.; 888KB/sec.
Asynchronous	Std.; 38.4K bps	Opt.; 300-38.4K bps	Std., 38.4K bps	Optional
Protocols supported	Hasp, 2780/3780, 3270	X.25, SDLC, Hasp II,	X.25, SDLC, Hasp II,	X.25, SDLC, Hasp II,
Trotocois supported	BSC, X.25 PAD & PACKET	SNA, TCP/IP	SNA, TCP/IP	SNA, TCP/IP
Type of LAN supported	Ethernet	Xodiac, IEEE802	Xodiac, IEEE802	Xodiac, IEEE802
	1		IBM 2780/3780	IBM 2780/3780
RJE terminals emulated	2780/3780	IBM 2780/3780		
IBM 3270 emulation	No	Yes	Yes	Yes
ERIPHERAL EQUIPMENT				
Disks supported	Fixed & removable:	Winchester: 38MB, 70MB,	Winchester: 70MB, 120MB	Fixed: 73MB-5.3GB;
	200MB-1.2GB	120MB		removable: 192MB, 277M
Serial printers	Does not apply	<del>-</del>		I—
Letter-quality printers	Does not apply	35/40 cps	35/40 cps	35/40 cps
Line printers	300/600/1200/2000 lpm	<u> </u>		230-1200 lpm
Reel-to-reel tape drives	1600/3250 bpi	<u> </u>		800-6250 bpi, 50-75 ips
Streaming tape drives	Start/stop; 75 ips	i—	_	Start/stop; 30 ips
Cassette/cartridge tape drives	Does not apply	22MB cartridge	15MB cartridge	
Other peripherals supported	Card rdrs., laser ptr.,	737KB diskette	737KB diskette	Laser printers (12 ppm)
Cition peripriorate capper toa	mass storage subsystem	1	1.2	
SOFTWARE	mass storage subsystem			1
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
	The state of the s			
Compilers	Cobol, Fortran, Basic,	Cobol, Fortran 77, PL/1,	Cobol, Fortran 77, PL/1,	Cobol, Fortran 77, PL/1,
	Pascal, C, Lisp, Prolog	Basic, C, Pascal, DG/L,	Basic, C, Pascal, DG/L,	Basic, C, Pascal, DG/L,
		APL, RPG II, Lisp, Ada	APL, RPG II, Lisp, Ada	APL, RPG II, Lisp, Ada
Operating system name	NOS & NOS/VE	See Comments	See Comments	See Comments
Operating system type	Multitasking	Multiprog. or timeshare	Multiprog. or timeshare	Multiprog. or timeshare
Operating sys. implemented in firmware	No	_	<u> </u>	_
Database management system	IM/DM	DG/DBMS, DG/SQL	DG/DBMS, DG/SQL	DG/DBMS, DG/SQL
Principal industry application		CEO (Comprehensive	CEO (Comprehensive	CEO (Comprehensive
	1	Electronic Office),	Electronic Office),	Electronic Office),
	1	CFO	CFO	CFO
Other packages	I	Third-party packages	Third-party packages	Third-party packages
			, , , , , , , , , , , , , , , , , , , ,	' ', ', ', ', ', ', ', ', ', ', ', ', '
		I		1
PRICING & AVAILABILITY	1	I		1
Typical system configuration and price	CPU; 8MB memory;	Contact vendor	Contact vendor	Contact vendor
Typical System comiguration and price	8 channels; 1.6GB mass	Someon vendor	- Sittage Vollage	Singst vollage
	1			
	storage; tape unit;			
	600 lpm printer;			1
	connection for 7 work-	1		
	stations: \$273,780			
		1		1
		1		1
Monthly maintenance of typical	\$1,726	Contact vendor	Contact vendor	Contact vendor
configuration		1	1	1
Date of first delivery	3rd guarter 1984	1st quarter 1986	1985	December 1982
Date of mot denitory	5.5 quartor 1004		1	
Number installed to date			İ	1
Number installed to date	Morketations supported	Supports AOS/MS	Supports AOS/VS	Supports AOS/VS
Number installed to date COMMENTS	Workstations supported	Supports AOS/VS,	Supports AOS/VS,	Supports AOS/VS,
	Workstations supported via front end processor	Supports AOS/VS, AOS/DVS, DG/UX, and MV/UX operating systems	Supports AOS/VS, AOS/DVS, DG/UX, and MV/UX operating systems	Supports AOS/VS, AOS/DVS, AOS/RT32, DG/UX, and MV/UX

	T	1	T	<del></del>
MANUFACTURER & MODEL	Data General Corp. Eclipse MV/8000 II	Data General Corp. Eclipse MV/10000	Data General Corp. Eclipse MV/10000 SX	Data General Corp. Eclipse MV/20000 Model 1
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	2MB-8MB	4MB-32MB	4MB-32MB	4MB-64MB
DISK STORAGE CAPACITY	50MB-14.2GB	50MB-27GB	50MB-27GB	50MB-27GB
NO. WORKSTATIONS SUPPORTED	128	192	192	1,008
PRICE RANGE	From \$87,100	From \$137,100	From \$162,100	From \$234,000
TARGET MARKET	General business d.p.,	General business d.p.,	General business d.p.,	General business d.p.,
	office automation	office automation	office automation	office automation
CENTRAL PROCESSOR				
No. of directly addressable bytes			l_	
Virtual memory	4GB	4GB	4GB	4GB
Hardware floating point	Opt.; SP, DP	Opt.; SP, DP	Std.; SP, DP	Opt.; SP, DP
Battery backup	Optional	Optional	Optional	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	220	140	140	85
MIPS	1.2	2.5	3.7	5.5
16-/32-bit compatibility	Direct	Direct	Direct	Direct
MAIN STORAGE				
Bytes fetched per cycle	<u>                                     </u>		_	1
Cycle/access time, nanoseconds			<u> </u>	
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1M, 2M	1M, 2M, 4M, 8M	1M, 2M, 4M, 8M	4M, 8M
Cache memory, bytes	116K	16K	16K	1 '
INPUT/OUTPUT CONTROL	ION	TOR	1 TOK	16K
No. of I/O channels	1			J.
•	19 2MP/c==	29MD (200	29MD /000	22840 /
Data transfer rate	18.2MB/sec.	28MB/sec.	28MB/sec.	32MB/sec.
COMMUNICATIONS	1	200	lana	1.040
Max. number of lines	00000	200	200	1,040
Synchronous	Opt.; 888KB/sec.	Opt.; 888KB/sec.	Opt.; 888KB/sec.	Opt.; 888KB/sec.
Asynchronous	Optional	Optional	Optional	Optional
Protocols supported	X.25, SDLC, Hasp II,	X.25, SDLC, Hasp II,	X.25, SDLC, Hasp II,	X.25, SDLC, Hasp II,
	SNA, TCP/IP	SNA, TCP/IP	SNA, TCP/IP	SNA, TCP/IP
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
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 73MB-5.3GB;	Fixed: 73MB-5.3GB;	Fixed: 73MB-5.3GB;	Fixed: 73MB-5.3GB;
	removable: 192MB, 277MB	removable: 192MB, 277MB	removable: 192MB, 277MB	removable: 192MB, 277MB
Serial printers	<b> </b>	<u> </u>	l <del></del>	<u> </u>
Letter-quality printers	35/40 cps	35/40 cps	35/40 cps	35/40 cps
Line printers	230-1200 lpm	230-1200 ipm	230-1200 lpm	230-1200 lpm
Reel-to-reel tape drives	800-6250 bpi, 50-75 ips	800-6250 bpi, 50-75 ips	800-6250 bpi, 50-75 ips	800-6250 bpi, 50-75 ips
Streaming tape drives	Start/stop; 30 ips	Start/stop; 30 ips	Start/stop; 30 ips	Start/stop; 30 ips
Cassette/cartridge tape drives	<u> </u>		<u> </u>	l— ' ' ' '
Other peripherals supported	Laser printers (12 ppm)	Laser printers (12 ppm)	Laser printers (12 ppm)	Laser printers (12 ppm)
	1 ' ' '			(12 pp.1.)
SOFTWARE			]	
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
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, Ada	APL, RPG II, Lisp, Ada	APL, RPG II, Lisp, Ada	APL, RPG II, Lisp, Ada
Operating system name	See Comments	See Comments	See Comments	See Comments
Operating system type	Multiprog. or timeshare	Multiprog. or timeshare	Multiprog. or timeshare	Multiprog. or timeshare
Operating sys. implemented in firmware				
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
	Electronic Office),	Electronic Office),	Electronic Office).	Electronic Office).
	CFO CFO	CFO	CFO	CFO
Other packages	Third-party packages	Third-party packages	Third-party packages	Third-party packages
Danis puolingos	Timu-party packages	Timu-party packages	i i iii u-party packages	rimu-party packages
		1	]	
PRICING & AVAILABILITY		1	1	
Typical system configuration and price	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Typical system configuration and price	Contact Vendor	Contact vendor	Contact vendor	Contact vendor
1	1	l	į.	
	1		1	1
	1	1	1	
		Į.	1	
		1		
	1	I		l _
Monthly maintenance of typical	Contact vendor	Contact vendor	Contact vendor	Contact vendor
configuration		l		
Date of first delivery	August 1983	May 1983	May 1985	1st quarter 1986
Number installed to date	<u> </u>	I—	_	
COMMENTS	Supports AOS/VS,	Supports AOS/VS,	Supports AOS/VS,	Supports AOS/VS,
1	AOS/DVS, AOS/RT32,	AOS/DVS, AOS/RT32,	AOS/DVS, AOS/RT32,	AOS/DVS, AOS/RT32,
	DG/UX, and MV/UX	DG/UX, and MV/UX	DG/UX, and MV/UX	DG/UX, and MV/UX
	operating systems	operating systems	operating systems	operating systems
	<u> </u>	L		. 5 -,

-	MANUFACTURER & MODEL	Data General Corp. Eclipse MV/20000 Model 2	Digital Equipment Corporation (DEC) VAX-11/750	Digital Equipment Corporation (DEC) VAX-11/780	Digital Equipment Corporation (DEC) VAX-11/785
I	WORD LENGTH	32 bits	32 bits	32 bits	32 bits
I	MAIN MEMORY	4MB-64MB	2MB-8MB	2MB-64MB	2MB-64MB
я	DISK STORAGE CAPACITY	50MB-27GB	121MB-19GB	121MB-30GB	121MB-30GB
	NO. WORKSTATIONS SUPPORTED	1,008	128	384	384
	PRICE RANGE	From \$337,000	From \$54,000	From \$105,000	From \$200,000
	TARGET MARKET	General business d.p.,	General business,	General business,	General business,
	CENTRAL PROCESSOR	office automation	engineering/scientific	engineering/scientific	engineering/scientific
	No. of directly addressable bytes		<u> </u>	<u> </u>	
	Virtual memory	4GB	4GB	4GB	4GB
	Hardware floating point	Opt.; SP, DP	SP, DP	SP, DP, QP	SP, DP, QP
	Battery backup	Standard	Optional	Optional	Standard
	Real-time clock or timer	Standard	Standard	Standard	Standard
		85	320	200	133
	CPU cycle time, nanoseconds	10	0.72	1.06	1.5 (approx.)
	MIPS		=		
	16-/32-bit compatibility	Direct	Via mode bit	Via mode bit	Via mode bit
	MAIN STORAGE		· ·		1.
İ	Bytes fetched per cycle	<u> </u>	8	18 11 11 11 11 11 11 11 11 11 11 11 11 1	8
l	Cycle/access time, nanoseconds	I	400 (cache enabled)	290 (cache enabled)	166 (cache enabled)
	Storage protection	Standard	Standard	Standard	Standard
ļ	Increment size, bytes	4M, 8M	1M	8M	8M
	Cache memory, bytes	32K	4K	8K	32K
	INPUT/OUTPUT CONTROL	<u> </u>		1	
	No. of I/O channels	1—	1-5	1-8	1-8
	Data transfer rate	32MB/sec.	5MB/sec.	13.3MB/sec.	13.3MB.sec.
	COMMUNICATIONS		1	1	1
	Max. number of lines	1,040	!—	j	
	Synchronous	Opt.; 888KB/sec.	Opt.; 1MB/sec.	Opt.; 1MB/sec.	Opt.; 1MB/sec.
	Asynchronous	Optional	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; 19.2K bps
	Protocols supported	X.25, SDLC, Hasp II,	SDLC, HDLC, X.25, SNA,	SDLC, HDLC, X.25, SNA,	SDLC, HDLC, X.25, SNA,
		SNA, TCP/IP	DNA, TCP/IP, LU6.2	DNA, TCP/IP, LU6.2	DNA, TCP/IP, LU6.2
	Type of LAN supported	Xodiac, IEEE802	Ethernet	Ethernet	Ethernet
l	RJE terminals emulated	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780
ı	IBM 3270 emulation	Yes	Yes	Yes	Yes
	PERIPHERAL EQUIPMENT	163	1163	100	1103
I	Disks supported	Fixed: 73MB-5.3GB;	Fixed: 121MB/456MB;	Fixed: 121MB/456MB;	Fixed: 121MB/456MB;
	Disks supported				
		removable: 192MB, 277MB	rem.: 10.4MB/205MB	rem.: 10.4MB/205MB	rem.: 10.4MB/205MB
	Serial printers	05.40	50-240 cps	50-240 cps	50-240 cps
	Letter-quality printers	35/40 cps	25-50 cps	25-50 cps	25-50 cps
	Line printers	230-1200 lpm	215-1200 lpm	215-1200 lpm	215-1200 lpm
	Reel-to-reel tape drives	800-6250 bpi, 50-75 ips	800-6250 bpi, 25-125 ips	800-6250 bpi, 25-125 ips	800-6250 bpi, 25-125 ips
	Streaming tape drives	Start/stop; 30 ips	Start/stop; 25-100 ips	Start/stop; 25-100 ips	Start/stop; 25-100 ips
ı	Cassette/cartridge tape drives	_	<del> </del>	<del></del>	<del>-</del>
	Other peripherals supported	Laser printers (12 ppm)	Laser printers, voice	Laser printers, voice	Laser printers, voice
			synthesis, graphics dev.	synthesis, graphics dev.	synthesis, graphics dev.
	SOFTWARE	·		1	
	Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
	Compilers	Cobol, Fortran 77, PL/1,	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,
		Basic, C, Pascal, DG/L,	DSM, Cobol, Basic, C,	DSM, Cobol, Basic, C,	DSM, Cobol, Basic, C,
		APL, RPG II, Lisp, Ada	PL/1, Ada, Pascal	PL/1, Ada, Pascal	PL/1, Ada, Pascal
	Operating system name	See Comments	VAX/VMS; Ultrix-32	VAX/VMS; Ultrix-32	VAX/VMS; Ultrix-32
	Operating system type	Multiprog. or timeshare	Batch, rt.; timeshare	Batch, rt.; timeshare	Batch, rt.; timeshare
	Operating sys. implemented in firmware	I— ·	No	No	No
	Database management system	DG/DBMS, DG/SQL	VAX DBMS, VAX Rdb	VAX DBMS, VAX Rdb	VAX DBMS, VAX Rdb
	Principal industry application	CEO (Comprehensive	General business,	General business,	General business,
	• • • • • • • • • • • • • • • • • • • •	Electronic Office),	engineering/scientific	engineering/scientific	engineering/scientific
		CFO	]	]	j
	Other packages	Third-party packages	Office automation,	Office automation,	Office automation,
	Pre-mag	Party Parinages	numerous third-party	numerous third-party	numerous third-party
			packages	packages	packages
I	PRICING & AVAILABILITY			[	1
۱	Typical system configuration and price	Contact vendor	CPU; 3MB memory; 2 mag.	CPU; 4MB memory; four	CPU; 8MB memory; four
ı	Typical system comigaration and price	Contact Vendor	tapes; 121MB fixed disk	456MB disks & contr.; 4	456MB disks & contr.; 4
l			& contr.; 205MB rem.	mag. tapes; 2 async.	mag. tapes; 2 async.
I		1	disk; async. interface;	interfaces; 40 terminals;	interfaces; 40 terminals;
Į			hard-copy console; 20	1200/800 lpm ptr.; 12	console; 1200/800 lpm
			terminals; two 600 lpm	ppm laser ptr.; VAX/VMS	ptr.; 12 ppm laser ptr.;
	-	1			VAX/VMS license &
			printers; VAX/VMS lic. &	lic. & warranty: \$410,260	
			warranty: \$174,635	1	warranty: \$476,360
I	**	la	104.000	00.744	0.770
l	Monthly maintenance of typical	Contact vendor	\$1,290	\$2,741	\$2,770
l	configuration		l	1.	1
l	Date of first delivery	2nd quarter 1986	November 1980	January 1978	June 1984
١	Number installed to date	<b> </b>	_	_	_
	COMMENTS	Supports AOS/VS,	Can be configured in	Can be configured in	Can be configured in
		AOS/DVS, AOS/RT32,	VAXcluster with 15 other	VAXcluster with 15 other	VAXcluster with 15 other
		DG/UX, and MV/UX	processors and storage	processors and storage	processors and storage
				controllers	controllers

MANUFACTURER & MODEL	Digital Equipment Corporation (DEC) VAX 8200	Digital Equipment Corporation (DEC) VAX 8300	Digital Equipment Corporation (DEC) VAX 8500	Digital Equipment Corporation (DEC) VAX 8600
VORD LENGTH	32 bits	32 bits	32 bits	32 bits
IAIN MEMORY	4MB-16MB	4MB-14MB	20MB	4MB-68MB
ISK STORAGE CAPACITY	414ID- LOIAID	4100-14100		
	100 (10 01 100)	100 (10 04	5.4GB	164GB (VAXcluster)
O. WORKSTATIONS SUPPORTED	100 (16-64 typical)	100 (16-64 typical)	300 (32-200 typical)	400 (56-256 typical)
RICE RANGE	From \$79,000	From \$122,000	From \$260,000	From \$350,000
ARGET MARKET	General business, engineering/scientific	Engineering/scientific (computation-intensive)	General business, engineering/scientific	General business, engineering/scientific
ENTRAL PROCESSOR				
No. of directly addressable bytes	<b>!</b> — .	<b> </b>	<b>\</b> —	1—
Virtual memory	4GB	4GB	4GB	4GB
Hardware floating point	SP, DP, QP	SP, DP, QP	SP, DP, QP	SP, DP, QP
Battery backup	<u> </u>			Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	200	200	45	80
MIPS	1.06 (approx.)	2.0 (approx.)	3.18 (approx.)	4.45 (approx.)
16-/32-bit compatibility	Via mode bit	Via mode bit	Via mode bit	Via mode bit
	Via mode bit	Via mode bit	Via mode bit	Via mode bit
IAIN STORAGE		t		
Bytes fetched per cycle	000 1000	200 4000	100 1000	8
Cycle/access time, nanoseconds	600-1600	600-1600	136-1260	560
Storage protection		<u></u>	I_	Standard
Increment size, bytes	2M	2M	Does not apply	4M, 16M
Cache memory, bytes	8K	8K per CPU	64K	16K
PUT/OUTPUT CONTROL			1	
No. of I/O channels	I—	l	<u> -</u>	1-11
Data transfer rate	13.3MB/sec.	13.3MB/sec.	16MB/sec.	20MB/sec.
OMMUNICATIONS		,		
Max. number of lines	1_	l_		512
Synchronous		<u> </u>		Opt.; 1MB/sec.
	<u> </u>		<u> </u>	
Asynchronous	0010 11010 1105 0114		0010 11010 1105 0114	Opt.; 19.2K bps
Protocols supported	SDLC, HDLC, X.25, SNA, DNA, TCP/IP, LU6.2	SDLC, HDLC, X.25, SNA, DNA, LU6.2	SDLC, HDLC, X.25, SNA, DNA, LU6.2	SDLC, HDLC, X.25, SNA DNA, TCP/IP, LU6.2
Type of LAN supported	Ethernet	Ethernet	Ethernet	Ethernet
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	l
Disks supported	Fixed: 121MB/456MB;	Fixed: 121MB/456MB;	Fixed: 456MB;	Fixed: 121MB/456MB;
ziono dapportos	rem.: 10.4MB/205MB	rem.: 10.4MB/205MB	rem.: 205MB	rem.: 10.4MB/205MB
Serial printers	50-240 cps	50-240 cps	Telli 2031VID	50-240 cps
Letter-quality printers	25-50 cps	25-50 cps	<u> </u>	
			_	25-50 cps
Line printers	215-1200 lpm	215-1200 lpm		215-1200 lpm
Reel-to-reel tape drives	800-6250 bpi, 25-125 ips	800-6250 bpi, 25-125 ips	1600/6250 bpi	800-6250 bpi, 25-125 i
Streaming tape drives	Start/stop; 25-100 ips	Start/stop; 25-100 ips	75 ips	Start/stop; 25-100 ips
Cassette/cartridge tape drives		[ <del></del>	1-	<del></del>
Other peripherals supported	Laser printers, voice synthesis, graphics dev.	Laser printers, voice synthesis, graphics dev.	_	Laser printers, voice synthesis, graphics dev.
OFTWARE	, g. =p = =	, J	1	, , , , , , , , , , , , , , , , , , , ,
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
Compilers	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp,	Fortran, RPG II, Lisp.	Fortran, RPG II, Lisp,
Compilers		DSM, Cobol, Basic, C,	DSM, Cobol, Basic, C,	
	DSM, Cobol, Basic, C,			DSM, Cobol, Basic, C,
	PL/1, Ada, Pascal	PL/1, Ada, Pascal	PL/1, Ada, Pascal	PL/1, Ada, Pascal
Operating system name	VAX/VMS; Ultrix-32	VAX/VMS	VAX/VMS	VAX/VMS; Ultrix-32
Operating system type	Batch, rt.; timeshare	Batch, realtime	Batch, realtime	Batch, rt.; timeshare
Operating sys. implemented in firmware	No	No	No	No
Database management system	VAX DBMS, VAX Rdb			
Principal industry application	General business, engineering/scientific	Engineering/scientific	General business, engineering/scientific	General business, engineering scientific
Other protection		05		
Other packages	Office automation,	Office automation,	Office automation,	Office automation,
	numerous third-party	numerous third-party	numerous third-party	numerous third-party
	packages	packages	packages	packages
RICING & AVAILABILITY	1	l		L
Typical system configuration and price	CPU; 8MB memory; hot	CPU; 12MB memory; hot	CPU; 20MB memory; 456MB	CPU; 16MB memory;
	floating point; disk &	floating point; Ethernet	disk & contr.; mag. tape	Ethernet interf.; four
	comm. controllers;	interface; disk	drive; Ethernet port;	456MB disks; 4 mag. ta
	Ethernet interface;	controller; 1-yr.	comm. contr.; 1-yr.	console; 4 async.
	console; 456MB disk;	hardware warranty; 1-yr.	hardware warranty;	interfaces; 64 term.; 10
	mag. tape drive; hardware	VAX/VMS & DECnet	1	terminal ptrs.; 1200/800
	warranties; 1-yr. VAX/VMS	licenses: \$122,000	licenses: \$299,000	lpm ptr.; 12 ppm laser
	& DECnet licenses:		1	ptr.; VAX/VMS & DECn
	\$139,000		1	lic.: \$784,890
		\$603	Contact vendor	\$3,918
Monthly maintenance of surice			Contact vendor	ψυ,σ ιο
Monthly maintenance of typical	\$777	3003	I .	1
configuration	\$777		Second manual 1000	Amel 1005
configuration Date of first delivery		Second quarter 1986	Second quarter 1986	April 1985
configuration Date of first delivery Number installed to date	\$777 First quarter 1986	Second quarter 1986		<u>                                     </u>
configuration Date of first delivery	\$777  First quarter 1986  Can be configured in	Second quarter 1986 — Dual processor system;	Can be configured in	Can be configured in
configuration Date of first delivery Number installed to date	\$777 First quarter 1986	Second quarter 1986		<u>                                     </u>

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, r-t.; timeshare Principal industry application Other packages  Other packages  Other packages  Other packages  Other packages  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX DBMS, VAX Rdb General business, engineering scientific onumerous third-party packages  Office automation, numerous third-party packages  Other	MANUFACTURER & MODEL	Digital Equipment Corporation (DEC) VAX 8650	Digital Equipment Corporation (DEC) VAX 8800	Elxsi System 6400	Flexible Computer Corporation Flex/32 Series 600
19.00   5.00   10.00	WORD LENGTH	32 hite	32 hite	64 bits	32 hite
196.4 GPACHE   196.					, - : :
SOUNDESTATIONS SUPPORTED   Soo (17-2-300 typicals)   From \$400,000   Seminations   Soo (17-3-300 typicals)   From \$400,000   Seminations   Soo (17-3-300 typicals)   Soo (17			32IVID		
## RANGE T MARKET    Comparison					
ARGET MARKET  Garnel bissiness, engineering /scientific engineering /scientifi					1
ENTRAL 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 SP, DP, OP SP, DP SP, DP SP, DP SP, DP SP, DP, OP Sp, DP, Goable extended SP, DP, double extended SP, DP, d					
No. of directly addressable bytes Virtual memory Vi	ARGET MARKET			, ,	
Virtual memory   4GB	ENTRAL PROCESSOR				
Virtual memory   46B   SP, DP, OP   SP, DP, double extended   SP, DP, OP   SP, DP, double extended   SP, DP, double exte	No. of directly addressable bytes			2G	4G
Hardware floating point Balterty backty Real-time clock or rimer Real-t		4GB	4GB	4GB	4GB
Battery backup Standard Standa		SP, DP, QP	SP, DP, QP	SP, DP, double extended	SP, DP
Real-time clock or timer CPU cycle time, manoseconds MRS ORD Cycle composibility Name of the composibility Name of the cycle Oycle (access time, nanoseconds Storage protection Incorrenant size, bytes Clecken emercy; byte		<u> </u>		Optional	Optional
DEU cycle time, nanoseconds MIMPS   16./32-bit compatibility   Normal STORAGE   16./32-bit compatibility   Vis mode bit   Vis Mode    EMPLIFICATION    Vis Mode    Ver JUP VIS VIS VIS VIS VIS VIS VIS VIS VIS VIS		Standard	Standard	Standard	Standard
MINES  6. 4 (approx.)  Via mode bit  Via Mode  Standard  Standard  Standard  Standard  Standard  Via Mode Keprocessor  Ver 1,000  Self-Kir19ZK  Does not apply  Ver 1,000  Self-Kir19ZK  Does not apply  Ver 1,000  Self-Kir19ZK  Does not apply  Ver 1,000  Self-Miles Co.  Ver 1,000  Self-Via Vix by self-virial  Ver 1,000  Self-Vix by self-virial  Self-Vix by self-virial  Self-Vix by self-virial  Self-Vix by self-virial  Self-Vix by self-virial  Self-Vix by self-virial  Self-Vix by self-virial  Self-Vix by self-		l .	I .	<del>-</del>	
18-/32-bit compatibility Alm STORAGE Whee fetched per cycle Cycle/access time, nanoseconds Storage protection Storage protection Storage protection Alm 16M 18K 19A 19M 19M 19M 19M 19M 19M 19M 19M 19M 19M					
JAM STORAGE Cycle/access time, nanoseconds Storage protection Increment size, bytes AM, 16M IGN IGN IGN IGN IGN IGN IGN IGN IGN IGN				1	
Dytes fetched per cycle   —   384   351-1260   32   32   336   3		Via Hiode bit	Via mode bit	Does not apply	res
Cycle Jaccess time, nanoseconds Stardage protection Increment size, bytes Cache memory, bytes PLTY/OUTPUT CONTROL		i		10	20
Storage protection Incernent size, bytes Cache memory, bytes PUT/OUTPUT CONTROL No. of I/O channels Dear Interface PUT/OUTPUT CONTROL NO. of I/O channels Dear Interface PUT/OUTPUT CONTROL NO. of I/O channels Dear Interface PUT/OUTPUT CONTROL NO. of I/O channels Dear Interface PUT/OUTPUT CONTROL NO. of I/O channels Dear Interface PUT/OUTPUT DEAR INTERFACE PUT/OUTPU		1	<del>-</del>		
Increment size, bytes Cache memory, bytes IPUT/OUTPUT CONTROL No. of I/O channels Date transfer rate Date tr		384	135-1260		•
Cache memory, Syras No. of I/O channels No. of I/O channels Date transfer rate OMM/NICATIONS OMA, Torpine of lines Synchronous Asynchronous Asynchro		<del> </del>	<del></del>	1	l .
PUT/OUTPUT CONTROL No. of I/O channels Data transfer rate Dover Jobo by Data transfer rate Dover Jobo Data Data Data Data Data Data Data Dat	increment size, bytes	1	,		
PUT/OUTPUT CONTROL   No. of I/O channels   Date transfer rate   20MB/sec.   Deep standard of times   Symphorhoronous   Solic, HDLC, X.25, SNA, DNA, TCP/IP, LUE, 2   Ethernet   LBM 2780/3780   Vestion and price   Solic dep standard   Solic	Cache memory, bytes	16K	64K per processor	16K-192K	Does not apply
No. of I/O channels Deta transfer rate OMMUNICATIONS Max. number of fines Synchronous Asynchronous		1		1	
Data transfer rate    Ower 30MB/sec.   Over 30MB/sec.   Ower 1.00		<u> </u>	<b>]</b> —	8	4
OMMUNICATIONS Max. number of lines Synchronous Synchronous Sprictoroots supported SDLC, HDLC, X.25, SNA, LDRA, TCP/IP, LU6.2 Ethernet RUE terminals emulated RUE		20MB/sec.	Over 30MB/sec.	) =	l .
Max. number of lines Synchronous Asynchronous Asynchronous Asynchronous Asynchronous Asynchronous Asynchronous Type of LAN supported BJE Terminals emulated BJE Terminals SJE SDO, TOO BJE SJE SJE SJE SJE SJE SJE SJE SJE SJE S					
Synchronous Asynchronous Protocols supported SDLC, HDLC, X.25, SNA, DNA, TCP/IP, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780 SDLC, HDLC, X.25, SNA, DNA, Lu6.2 Ethernet IBM 2780/3780, 3770 No SERVING TO STAN STAN STAN SUPPLY SUPP		512	l	Over 1 000	80
Asynchronous Protocols supported Type of LAN supported RJC terminals emulated RJC terminals		912			
Protocols supported DNA, TCP/IP, LIG. 2 Type of LAN supported RIM 2780/3780 DNA, TCP/IP, LIG. 2 Ethernet BIM 2780/3780 BIM 2780/			<u> </u>	1 1 1	
Type of LAN supported Ethernet Opt. Opt. (types uspec'd) Opt					
RIE terminals emulated [BIM 2780/3780   Yes   No No No No No (types unspec'd) Opt. (type	Protocols supported			X.25, Bisync	SDLC, TCP/IP
RIJE terminals emulated BIM 2780/3780	Type of LAN supported	Ethernet	Ethernet	Ethernet	Ethernet
Signal printers Eiked: 121MB/456MB: rem:: 10.4MB/205MB 50-240 cps 10.4MB/205MB 50-240 cps 215-1200 lpm 50-240 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cps 215-1200 lpm 60-250 bpi; 25-125 lps 5treaming tape drives 25-50 cp			IBM 2780/3780	Hasp. 2780/3780, 3770	Opt. (types unspec'd)
ERIPHERAL EQUIPMENT Disks supported  Fixed: 121MB/456MB; rem: 10.4MB/205MB Sorial printers 50-240 cps 151-1200 lpm 800-6250 bpi, 25-125 ips Streaming tape drives 215-1200 lpm 800-6250 bpi, 25-125 ips Starfystop: 25-100 ips Chier peripherals supported Offer and printers Compilers  OFTWARE Assembler Compilers  OPETWARE Assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS, USA, Rdb General business, engineering scientific Office automation, numerous third-party packages  OPETWARE Assembler Competing system name Operating system type Operating system type Operating system type Operating system type Operating system Database management system Principal industry application  Office automation, numerous third-party packages  OPETWARE Assembler Compilers  Office automation, numerous third-party packages  OPETWARE Assembler Compilers  OPETWARE Assembler Cobol, Fortran, Pascal, Cobol, Fortran, Pascal, Cobol, Fortran, Pascal, Cobol, Fortran, Pascal, Cobol, Fortran, Pascal, Cobol, Fortran, Pasca					
Disks supported rem: 10.4MB/250MB Sorial printers Line pri		1.00		1	-   -   -   -   -   -   -   -   -   -
Serial printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers 25-50 cps 25-70 cps 25-70 cps 25-70 cps 25-7		Fixed: 121MB/ABBMB:	Fixed: 121MB/456MB:	Fixed & removable:	Winchester: 80MB 337M
Sorial printers   25-50 cps	Disks supported				
Letter-quality printers Line printers Reel-to-real tape drives Reel-to-real tape drives Streaming tape drives Streaming tape drives Other peripherals supported OFTWARE Assembler Compilers Operating system name Operating system type Operating system type Operating system type Operating system type Operating system type Operating system type Operating system type Operating system type Operating system type Operating system configuration and price Other packages  Micro assembler Compilers Office automation, numerous third-party packages RICING & AVAILABILITY Typical system configuration Other packages  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  Desc not apply Start/stop; 25-100 ips Start/stop; 26-100, ips Start/stop; 26-100, ips Start/stop; 26-100, ips Start/stop; 26-100, ips Start/stop; 26-100, ips Start/stop; 26-100, ips Start/stop; 26-100, ips Star	•			1	
Line printers Rede-to-reel tape drives Steel-to-reel tape drives Steel to the peripheral supported Steel printers, voice synthesis, graphics dev.  Macro assembler Compilers  Macro assembler Fortran, RPC II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Dparting system name Operating system type					
Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cher peripherals supported  Differ peripherals supported  Macro assembler Compilers  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal Operating system name Operating system type Operating system type Operating system type Operating system type Operating system type Operating system pagement system Office automation, numerous third-party packages  Diffice automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price  Monthly maintenance of typical configuration Date of first delivery  Monthly maintenance of typical configuration Date of first delivery  Monthly maintenance of typical configuration  Souo-6250 bpi, 25-125 jps Start/stop; 25-100 ips — Laser printers, voice synthesis, graphics dev.  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS, Unitrix-32 Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages  Assembler Cobol, Fortran, Pascal VAX/VMS Batch, realtime DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Batch, realtime No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages  Assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Batch, realtime No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages  Assembler Cobol, Fortran, Pascal, C, Basic, Mainsall, Ada Unix Sys. V, MMOS Torontal Period Start/stop; 25-100 ips  Torontal RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Batch, realtime No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages  CPU: 3MB memory; disk drive; tape drive; line frace; console; two line printer; communications lines; terminals: \$475,000  Monthly maintenance of typical Configuration Da					
Strar/stop; 25-100 ips Cassette/cartridge tape drives Chessette/cartridge tape drives Office peripherals supported Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation, numerous third-party packages Office automation of first delivery Office to be configuration Office to be configuration Office to be configured in VAXclus- Office to be configured in VAXclus- Office automation of first delivery Office to be configured in VAXclus- Office automation that office office automation of first delivery Office to be configured in VAXclus- Office automation of first delivery Office to be configured in VAXclus- Office automation of first delivery Office to a be configured in VAXclus- Office automation of the configured in VAXclus- Office automation office automation of first delivery Office automation office	Line printers				
Cassette/cartridge tape drives Other peripherals supported  Laser printers, voice synthesis, graphics dev.  DFTWARE Assembler Compilers  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS, Ultrix-32 Batch, r-t.; timeshare No VAX DBMS, VAX Rdb Operating system type Operati	Reel-to-reel tape drives	800-6250 bpi, 25-125 ips	800-6250 bpi, 25-125 ips	800-6250 bpi, 50-125 ips	800-6250 bpi, 45-75 ips
Other peripherals supported OFTWARE Assembler Compilers Operating system name Operating system type Operating	Streaming tape drives	Start/stop; 25-100 ips	Start/stop; 25-100 ips	Does not apply	Optional (type unspec'd)
Synthesis, graphics dev.  Synthesis, graphics dev.  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS, Ultrix-32 Operating system name Operating system type Oper	Cassette/cartridge tape drives	i—		Does not apply	67MB cartridge
OFTWARE Assembler Compilers  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Operating system name Operating system type Opera		Laser printers, voice	Laser printers, voice	Graphics devices, array	Graphics displays,
OFTWARE Assembler Compilers  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS; Ultrix-32 Batch, r-t.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific Office automation, numerous third-party packages  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag, tapes; console; 5 async. interfaces; 80 terminals; 1200/800 [pm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty: \$816,600  Monthly maintenance of typical configuration  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Batch, r-t.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific			ı ·		
Assembler Compilers  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  RICING & AVAILABILITY Typical system configuration and price  RICING & AVAILABILITY Typical system configuration and price  Macro assembler Fortran, RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific vacages  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag, tapes; console; 5 async. interfaces; 80 terminals; 1200/800 lpm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty; \$1 (20) (20) (20) (20) (20) (20) (20) (20)	OFTWARE	T, manager, graphilate and	-,		1
Fortran RPG II, Lisp, DSM, Cobol, Basic, C, PL/1, Ada, Pascal Operating system name Operating system type Oper		Macro assembler	Macro assembler	Assembler	Vas
DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Ultrix-32 Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific Profice automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price PLOP (BMB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 [pm tr.; 12 pm laser ptr.; VAX/VMS & DECnet configuration of the first delivery Number installed to date OMMENTS  DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS DSMS, CAX Rdb PL/1, Ada, Pascal VAX/VMS Eatch, rt. (PL/1, Ada, Pascal VAX/VMS Eatch, rt.)  DSM, Cobol, Basic, C, PL/1, Ada, Pascal VAX/VMS Eatch, rt. (PL/1, Ada, Pascal VAX/VMS Eatch, rt.)  PL/1, Ada, Pascal VAX/VMS Eatch, rt. (PL/1, Ada, Pascal VAX/VMS Eatch, rt.)  PL/1, Ada, Pascal VAX/VMS Eatch, rt. (PL/1, Ada, Pascal VAX/VMS Eatch, rt.)  Batch, realtime No VAX DBMS, VAX Rdb General business, engineering scientific semiconductor, aero-space, univ. research Numerous third-party packages  CPU; 8MB memory; disk drive; tape drive; line printer; communications lines; torminals: \$475,000 torminals: \$475,					l l
Operating system name Operating system name Operating system type	Compilers				
Operating system name Operating system type Operating system type Operating system type Database management system Database management system Principal industry application Other packages Office automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price  Principal system configuration and price  RICING & AVAILABILITY Typical system configuration and price  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  OVAX/VMS (Sutrix-32 Batch, rt.; timeshare No VAX DBMS, VAX Rdb General business, engineering scientific  OVAX DBMS, VAX Rdb General business, engineering scientific  OVAX DBMS, VAX Rdb General business, engineering scientific  Office automation, numerous third-party packages  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 [pm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty; \$1-yr. VAX/VMS & DECnet licenses: \$650,000  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  OVAX DBMS, VAX Rdb General business, engineering scientific  Office automation, numerous third-party packages  CPU; 32MB memory; hot floating point; VAX cluster port; Ethernet interface; console; two l/O channels; 1-yr. VAX/VMS license & warranty: \$1-yr. VAX/VMS & DECnet licenses: \$650,000  Contact vendor  Second quarter 1986  — Can be configured in VAXcluster with 15 other  OMMENTS  OAX/VMS (LITERAL PATICAL)  Data processor system; carrially  EDMS, OAX DBMS, VAX Rdb CAD/CAM/CAE, seismic, heracting thereous spation; carrially carrially  CDMC/M/CAE, elsmic, rt. Partially  Dpt. (package unspec'd)  CDMC-M/CAE, elsmic, nultitisk.; rt. Partially  Dpt. (package unspec'd)  CD/C AD/CAE, elsmic, nultitisk.; rt. Partially  Dpt. (package unsiv. research  Numerous third-party packages  CPU; 32MB memory; hot floating point; VAX cluster port; Ethernet interface; console; two line printer; communications lines; terminals: \$475,000  \$				C, Basic, Iviainsali, Ada	
Operating system type Operating system type Operating system type Operating system type Operating system type Operating system in the problem of the problem				le	
Operating sys. implemented in firmware Database management system Principal industry application  Office automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price  Office automation, numerous third-party packages  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 asynt. interface; 80 terminals; 1200/800 lpm ptr.; 120 ppm laser ptr.; VAX/VMS & DECnet licenses; \$650,000  Monthly maintenance of typical configuration  Date of first delivery  No VAX DBMS, VAX Rdb General business, engineering scientific  Office automation, numerous third-party packages  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 asynt. interface; console; two 1/0 channels; 1-yr. hardware warranty; 1-yr. VAX/VMS & DECnet licenses; \$650,000  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date OMMENTS  ONO  Office automation, numerous third-party packages  CPU; 32MB memory; hot floating point; VAX cluster port; Ethernet interface; console; two 1/0 channels; 1-yr. VAX/VMS & DECnet licenses; \$650,000  Contact vendor  Second quarter 1986  Can be configured in VAXcluster with 15 other  ONAC DBMS, VAX Rdb General business, engineering scientific semiconductor, aero-space, univ. research Numerous third-party packages  CAD/CAM/CAE, seismic, semiconductor, aero-space, univ. research Numerous third-party packages  CPU; 8MB main memory; disk drive; tape drive; line printer; communic cations lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communic cations lines; terminals: \$475,000  Second quarter 1986  Can be configured in VAXclus-for linear performance  Date of first delivery  Number installed to date  Office automation, numerous third-party packages  CPU; 32MB memory; hot floating point; VAX cluster warranty; 1-yr. VAX/VMS & DECnet licenses; \$650,000  Second quarter 1986  Can be configured in VAXclus-for linear performance			1	1	
Database management system Principal industry application  Other packages  Office automation, numerous third-party packages  RICING & AVAILABILITY  Typical system configuration and price  OPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 [pm ptr.; 12 ppm laser ptr.; VAX/VMS & DECnet VAX/VMS & DECnet VAX/VMS (icense & warranty; \$816,600  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; 8MB memory; doration of first delivery NaX/VMS license & warranty; 1-yr. VAX/VMS license & warranty; \$816,600  Second quarter 1986 — Can be configured in VAXcluster with 15 other  VAX DBMS, VAX Rdb General business, engineering scientific  CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, CAD/CAM/CAE, seismic, Semiconductor, aero-space, univ. research Numerous third-party packages  CPU; 8MB memory; disk drive; tape drive; line printer; communications lines; terminals; \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals; \$475,000  Second quarter 1986 — Can be configured in VAXcluster with 15 other  Office automation, numerous third-party packages  CPU; 32MB memory; hot floating point; VAX cluster warranty; 1-yr. VAX/VMS & DeCnet licenses: \$650,000  COUNTING TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO THE PROVINCE TO T		1	r		
Principal industry application  General business, engineering scientific  Other packages  Office automation, numerous third-party packages  RICING & AVAILABILITY  Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800  pm ptr.; 120 ppm laser ptr.; VAX/VMS license & warranty: \$116,600  Monthly maintenance of typical configuration  Date of first delivery  Numerous third-party packages  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800  pm ptr.; VAX/VMS license & warranty: \$1-yr. hardware warranty; 1-yr. VAX/VMS license & warranty: \$16,600  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  OMMENTS  General business, engineering scientific semiconductor, aero-space, univ. research Numerous third-party packages  CPU; 8MB memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CVPU; 2MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  COntact vendor  Specond quarter 1986  Can be configured in valve with 15 other  CAD/CAM/CAE, seismic, semiconductor, aero-space, univ. research Numerous third-party packages  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  Special state of the value of the value of the value of the value of the value of the value of the value of the v	Operating sys. implemented in firmware	1		1	
engineering scientific  Office automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800  pm ptr.; 12 ppm laser ptr.; VAX/VMS icense & warranty: \$1100/800  pm ptr.; 12 ppm laser ptr.; VAX/VMS & DECnet licenses: \$650,000  Monthly maintenance of typical configuration Date of first delivery Number installed to date  Office automation, numerous third-party packages  CPU; 32MB memory; hot floating point; VAX cluster port; Ethernet interface; console; two licenses: \$650,000  Warranty: \$816,600  \$4,273  Contact vendor  Can be configured in VAXcluster with 15 other  engineering scientific  Semiconductor, aero-space, univ. research Numerous third-party packages  Expert systems, SPAR  CPU; 32MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  **CPU; 32MB memory; hot floating point; VAX cluster vert floatin	Database management system	VAX DBMS, VAX Rdb	VAX DBMS, VAX Rdb	EDMS, Oracle, Ingres	Opt. (package unspec'd)
Other packages  Office automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 lpm ptr.; VAX/VMS license & warranty; \$16,000  Monthly maintenance of typical configuration Date of first delivery Number installed to date  Office automation, numerous third-party packages  Space, univ. research Numerous third-party packages  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  COHOMATION STATE OF THE NUMBER O	Principal industry application	General business,	General business,	CAD/CAM/CAE, seismic,	Concurrent software
Other packages  Office automation, numerous third-party packages  RICING & AVAILABILITY Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 lpm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty; \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  Office automation, numerous third-party packages  CPU; 8MB memory; hot floating point; VAX cluster port; Ethernet interface; console; two l/O channels; 1-yr. VAX/VMS & DECnet licenses: \$650,000  Contact vendor  Second quarter 1986  Can be configured in VAXcluster with 15 other  Office automation, numerous third-party packages  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  COuntact vendor  \$2,500  \$750  \$3 systems  Owvember 1985  \$3 systems  Can be configured in VAXcluster with 15 other  Office automation, numerous third-party packages  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB memory; hot floating point; VAX  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  Sometime of typical states and the printer; communications lines; terminals: \$475,000  Sometime of typical states and the printer; communications lines; terminals: \$475,000  Sometime of typical states and the printer; communications lines; terminals: \$475,000  Sometime of typical states and typical states and typical states and typical states and typical states and typical states and typical states and typical states and typical states and typical states and typical st		engineering scientific	engineering scientific	semiconductor, aero-	development tools
numerous third-party packages    Numerous third-party packages   CPU; 8MB memory; packages				space, univ. research	
numerous third-party packages  PRICING & AVAILABILITY Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 lpm ptr.; 12 ppm laser ptr.; 12 ppm laser ptr.; VAX/VMS licenses & warranty; \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date  COMMENTS  Inumerous third-party packages  CPU; 8MB memory; hot floating point; VAX cluster more; bloating point; VAX cluster with 15 other  CPU; 8MB memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  COMMENTS  Parallel proc. sys.; can be configured in VAXcluster with 15 other	Other packages	Office automation.	Office automation.	Numerous third-party	Expert systems, SPAR
RICING & AVAILABILITY Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/880  pm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty: \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date  OMMENTS  Parallel proc. sys.; can be configured in VAXcluster with 15 other  Packages  CPU; 8MB memory; hot floating point; VAX cluster with 15 other  CPU; 8MB main memory; disk drive; tape drive; line printer; communications (line printer; communications   100 console; 10	outer protegos	1	1	1	
RICING & AVAILABILITY Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800  pm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty: \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date  CPU; 8MB memory; hot floating point; VAX cluster with 15 other  CPU; 32MB memory; hot floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, four floating point; VAX cluster wort, floating point; VAX cluster port; Ethernet interface; console; two line printer; communic cations lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communic cations lines; terminals: \$475,000  CPU; 8MB main memory; disk drive; tape drive; line printer; communic cations lines; terminals: \$475,000  Second quarter 1986  ———————————————————————————————————			1 ' '		1
Typical system configuration and price  CPU; 8MB memory; disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 lpm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty: \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date  CMMENTS  CPU; 8MB memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  CPU; 8MB memory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  Contact vendor  Second quarter 1986  — Can be configured in VAXcluster with 15 other  CPU; 32MB memory; hot floating point; VAX cluster port; Ethernet interface; console; two line printer; communications lines; terminals: \$475,000  Contact vendor  \$2,500  \$750  November 1985 3 systems  Parallel proc. sys.; can be rack-mounted in ember ory; disk drive; tape drive; line printer; communications lines; terminals: \$475,000  To put a system ory; hot floating point; VAX cluster port; Ethernet interface; console; two line printer; communications lines; terminals: \$475,000  Second quarter 1986 — Dual processor system; configurable in VAXcluster with 15 other	RICING & AVAILABILITY			1	i
disk/tape contr.; four 456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1-yr. hardware warranty; 1-yr. 12 ppm laser ptr.; VAX/VMS license & warranty; \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS    disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; terminals: \$475,000     disk drive; tape drive; line printer; communications lines; line printer; communications lines; line printer; communications lines; line printer; communications lines; line printer; line printer; communications lines; line printer; line printer; l		CPU: 8MB memory:	CPLI: 32MR memory: hot	CPU: 8MB main memory:	2 CPUs: 2MR main mam
456MB disks; 4 mag. tapes; console; 5 async. interfaces; 80 terminals; 1200/800 lpm ptr.; 12 ppm laser ptr.; VAX/VMS license & warranty: \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  A56MB disks; 4 mag. tapes; console; 5 async. interface; console; two l/O channels; 1-yr. hardware warranty; 1-yr. VAX/VMS & DECnet licenses: \$650,000  Contact vendor  Second quarter 1986 ————————————————————————————————————	Typical system comiguration and price				1
tapes; console; 5 async. interface; 80 terminals; 1-yr. 1200/800  pm ptr.; 1200/800  pm ptr.; 12 pm laser ptr.; 12 pm laser ptr.; 12 pm laser ptr.; 12 pm laser ptr.; 14 pm laser ptr.; 15 pm laser ptr.; 16 pm laser ptr.; 17 pm laser ptr.; 18 pm laser ptr.; 18 pm laser ptr.; 18 pm laser ptr.; 19 pm laser ptr.; 19 pm laser ptr.; 19 pm laser ptr.; 19 pm laser ptr.; 10 pm la					1
interfaces; 80 terminals; 1-yr. hardware warranty; 1-yr. VAX/VMS & DECnet licenses: \$650,000  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  Interfaces; 80 terminals; 1-yr. hardware warranty; 1-yr. VAX/VMS & DECnet licenses: \$650,000  Contact vendor  Second quarter 1986  — Dual processor system; configurable in VAXcluser with 15 other  Iterminals: \$475,000  \$4,750  \$750  November 1985  3 systems  Parallel proc. sys.; can be rack-mounted in ember ack-mounted in em-					
1200/800 lpm ptr.;   12 ppm laser ptr.;   VAX/VMS & DECnet   VAX/VMS & DECnet   licenses: \$650,000					connections: \$75,000
12 ppm laser ptr.;   VAX/VMS & DECnet   licenses: \$650,000			1, , , , , , , , , , , , , ,	terminals: \$475,000	
VAX/VMS license & warranty: \$816,600  Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  VAX/VMS license & licenses: \$650,000  Contact vendor \$2,500 \$750  Second quarter 1986 1983 November 1985  — Dual processor system; Expandable to 12 CPUs Parallel proc. sys.; can be rack-mounted in ember 1985.		1 ' '			1
Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  Warranty: \$816,600 \$4,273  Contact vendor  Second quarter 1986 — Dual processor system; configurable in VAXcluster with 15 other  VAXcluster with 15 other  VAXcluster with 15 other  Contact vendor  \$2,500 \$750  November 1985 — 3 systems  Expandable to 12 CPUs for linear performance be rack-mounted in em-		12 ppm laser ptr.;	VAX/VMS & DECnet	1	1
Monthly maintenance of typical configuration Date of first delivery Number installed to date OMMENTS  Warranty: \$816,600 \$4,273  Contact vendor  Second quarter 1986 — Dual processor system; VAXcluster with 15 other  VAXcluster  VAXcluster  Contact vendor  \$2,500 \$750  November 1985 — 3 systems  Parallel proc. sys.; can be rack-mounted in em-		VAX/VMS license &	licenses: \$650,000	1	1
Monthly maintenance of typical configuration Date of first delivery Number installed to date  COMMENTS  Second quarter 1986  Can be configured in VAXcluster with 15 other  Configurable in VAXcluster  Contact vendor  \$2,500 \$750  November 1985  1983 November 1985 3 systems Parallel proc. sys.; can be rack-mounted in ember ack-mounted in em-			1	1	
configuration Date of first delivery Number installed to date COMMENTS  Date of first delivery Number installed to date Comparison  Can be configured in VAXcluster with 15 other  Date of first delivery November 1985  Second quarter 1986  Dual processor system; Configurable in VAXclus- For linear performance  Comparison  November 1985  Sa systems Parallel proc. sys.; can be rack-mounted in em-	Monthly maintenance of typical	1	Contact vendor	\$2,500	\$750
Date of first delivery Number installed to date COMMENTS  Description of first delivery Number installed to date Comment of the configured in VAXcluster with 15 other  Description of first delivery November 1985  Dual processor system; Configurable in VAXcluster  Dual processor system; Configurable in VAXcluster  Description of first delivery  1983  November 1985  3 systems  Parallel proc. sys.; can be rack-mounted in em-		1. 7		1	1
Number installed to date  Can be configured in VAXcluster with 15 other  OMMENTS  Dual processor system; Expandable to 12 CPUs for linear performance be rack-mounted in em-		1986	Second quarter 1996	1983	November 1985
COMMENTS  Can be configured in VAXcluster with 15 other  Can be configured in VAXcluster with 15 other  Can be configured in Dual processor system; Expandable to 12 CPUs for linear performance be rack-mounted in em-		1		1	
VAXcluster with 15 other configurable in VAXclus- for linear performance be rack-mounted in em-		<u> </u>	<u> </u>	Emandable 4 40 000	
	OMMENTS				
processors and storage liter with 15 other proc. I growth without changing. I hedded applications or			1 -		be rack-mounted in em-
processes and storage from with to other proc. I growth without changing freeded applications of			The first APP of	Large such secials and also are a	I hadded applications or

MANUFACTURER & MODEL  Corporation Flex/32 Series 1200  MANUFACTURER & MODEL  Corporation Flex/32 Series 2000  Flex/32 Series 3000  Flex/32 Series 2000  #MB-64MB	00,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation  B , DP tional
MAIN MEMORY DISK STORAGE CAPACITY         2MB-56MB 80MB-20GB         4MB-64MB 80MB-20GB         6MB-136MB 80MB-20GB         30MB-20GB 80MB-20GB           NO. WORKSTATIONS SUPPORTED PRICE RANGE - TARGET MARKET         \$68,000-\$250,000         \$150,000-\$450,000         \$200,000-\$900,000         \$90           TARGET MARKET         Realtime, eng./sci., AI, aerospace, simulation         Realtime, eng./sci., AI, Realtime, eng./sci., AI, aerospace, simulation         aerospace, simulation         aerospace, simulation           CENTRAL PROCESSOR No. of directly addressable bytes         4G         4GB	MB-200MB MB-20GB 0 00,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation B , DP tional
MAIN MEMORY DISK STORAGE CAPACITY         2MB-56MB 80MB-20GB         4MB-64MB 80MB-20GB         6MB-136MB 80MB-20GB         30MB-20GB 80MB-20GB           NO. WORKSTATIONS SUPPORTED PRICE RANGE:         160         200         400         800MB-20GB         80MB-20GB         80         80MB-20GB         80MB-20GB         80MB-20GB         80         80MB-20GB         80         80MB-20GB         80         80MB-20GB         80         80MB-20GB         80         80         80         80MB-20GB	MB-200MB MB-20GB 0 00,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation B , DP tional
BOMB-20GB	MB-20GB 0 000,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation B , DP tional
NO. WORKSTATIONS SUPPORTED PRICE RANGE:         160         200         400         800           TARGET MARKET         Realtime, eng./sci., Al, aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         aerospace, simulation         AG         4G	0 00,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation B , DP tional
PRICE RANGE - TARGET MARKET         \$68,000-\$250,000         \$150,000-\$450,000         \$200,000-\$900,000         \$90           CENTRAL PROCESSOR         AG         AG <td< td=""><td>00,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation  B , DP tional</td></td<>	00,000-\$1,800,000 altime, eng./sci., Al, rospace, simulation  B , DP tional
TARGET MARKET  Realtime, eng./sci., AI, aerospace, simulation  CENTRAL PROCESSOR  No. of directly addressable bytes  Virtual memory  Hardware floating point  SP, DP  Optional  Standard  CPU cycle time, nanoseconds  MIPS  16-/32-bit compatibility  MAIN STORAGE  Bytes fetched per cycle  Realtime, eng./sci., AI, aerospace, simulation  4G  4G  4G  4G  4G  4G  4G  4G  4G  4	altime, eng./sci., Al, rospace, simulation B , DP tional
aerospace, simulation aerospace, simulation	rospace, simulation B , DP tional
CENTRAL PROCESSOR	B , DP tional
No. of directly addressable bytes         4G         4G         4G         4G         4G         4GB	B , DP tional
Virtual memory         4GB	B , DP tional
Hardware floating point SP, DP	, DP tional
Battery backup Optional Optional Optional Optional Optional Optional Optional Optional Standard Standa	tional
Real-time clock or timer         Standard         75	
CPU cycle time, nanoseconds     75     75     75       MIPS     20 (2.5 per CPU)     25 (2.5 per CPU)     50 (2.5 per CPU)     100       16-/32-bit compatibility     Yes     Yes     Yes     Yes     Yes       MAIN STORAGE     Bytes fetched per cycle     32     32     32     32     32	
MIPS       20 (2.5 per CPU)       25 (2.5 per CPU)       50 (2.5 per CPU)       100 (2.5 per CPU)<	andard
16-/32-bit compatibility MAIN STORAGE Bytes fetched per cycle  Yes Yes Yes Yes 32 32 32 32	
16-/32-bit compatibility MAIN STORAGE Bytes fetched per cycle  Yes Yes Yes Yes 32 32 32 32	0 (2.5 per CPU)
MAIN STORAGE Bytes fetched per cycle 32 32 32 32	
Bytes fetched per cycle         32         32         32         32	
Cycle/access time, nanoseconds 75 75 75	
	andard
	1, 2M, 4M, 8M
NPUT/OUTPUT CONTROL	es not apply
No. of I/O channels 8 10 20 40	
	OMB/sec.
COMMUNICATIONS	•
Max. number of lines         160         200         300         600	
	t.; 300K bps
	d.; 19.2K bps
Protocols supported SDLC, TCP/IP SDLC, TCP/IP SDLC, TCP/IP SDLC, TCP/IP SDLC, TCP/IP	LC, TCP/IP
Type of LAN supported Ethernet Ethernet Ethernet Ethernet	nernet
RJE terminals emulated Opt. (types unspec'd) Opt. (types unspec'd) Opt. (types unspec'd) Opt.	t. (types unspec'd)
	t. (types unspec'd)
PERIPHERAL EQUIPMENT	
	inchester: 80MB, 337M
	4MB
	0 lpm
	es not apply
	0, 600 ipm
	0-6250 bpi, 45-75 ips
	t. (type unspec'd)
	MB cartridge
	aphics displays,
	tical disk storage
SOFTWARE	
Assembler Yes Yes Yes Yes	
	la, C, Fortran 77,
	ncurrent C, Concurrent
Fortran, Pascal Fortran, Pascal Fortran, Pascal For	rtran, Pascal
Operating system name Unix Sys. V; MMOS Unix Sys. V; MMOS Unix Sys. V; MMOS Unix Sys. V; MMOS Unix Sys. V; MMOS	ix Sys. V; MMOS
Operating system type   Tmshr., multitsk.; rt.	nshr., multitsk.; rt.
	rtially
	t. (package unspec'd)
	ncurrent software
	velopment tools
Other packages Expert systems, SPAR Expert systems,	pert systems, SPAR
	.,,
PRICING & AVAILABILITY	CPUs; 35MB main
	emory: \$980,000
Typical system configuration and price 4 CPUs; 4.5MB main 6 CPUs; 6.5MB main 10 CPUs; 11MB main 30	111019: 4000,000
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB disk;	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user 6 CPUs; 6.5MB main memory; 80MB disk; 67MB disk; 67MB cartridge; 8 user 10 CPUs; 11MB main memory; 337MB disk; met disk; 45 ips tape; 8 user 30 met disk; 45 ips tape; 8 user	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB disk;	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user 6 CPUs; 6.5MB main memory; 80MB disk; 67MB disk; 67MB cartridge; 8 user 10 CPUs; 11MB main memory; 337MB disk; met disk; 67MB disk;	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user 6 CPUs; 6.5MB main memory; 80MB disk; 67MB disk; 67MB cartridge; 8 user 10 CPUs; 11MB main memory; 337MB disk; met disk; 45 ips tape; 8 user 30 met disk; 45 ips tape; 8 user	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user 6 CPUs; 6.5MB main memory; 80MB disk; 67MB disk; 67MB cartridge; 8 user 10 CPUs; 11MB main memory; 337MB disk; met disk; 67MB disk;	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user 6 CPUs; 6.5MB main memory; 80MB disk; 67MB disk; 67MB cartridge; 8 user 10 CPUs; 11MB main memory; 337MB disk; met disk; 67MB disk;	
Typical system configuration and price  4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000  6 CPUs; 6.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000  10 CPUs; 11MB main memory; 337MB disk; 45 ips tape; 8 user connections: \$265,000	
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000	,800
Typical system configuration and price  4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000  6 CPUs; 6.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000  10 CPUs; 11MB main memory; 337MB disk; 45 ips tape; 8 user connections: \$265,000	,800
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000 6 configuration  Monthly maintenance of typical configuration  Date of first delivery 1985	,800 nuary 1985
Typical system configuration and price 4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000	nuary 1985
memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000 memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000 connections: \$265,000 memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000 connections: \$265,000 memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000 connections: \$265,000 connections: \$265,000 solutions: \$265,000 configuration Date of first delivery November 1985 January 1985 Januar	nuary 1985
Typical system configuration and price  4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000  4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000  5 1,700  5 2,650  8 2,650  8 2,650  8 3 ystems Parallel proc. sys.; can  8 20 CPUs; 11MB main memory; 337MB disk; 45 ips tape; 8 user connections: \$265,000  \$ 1,700  \$ 2,650  \$ 30 CPUs; 5 systems Parallel proc. sys.; all  \$ 1,200 S1,700  \$ 2,650  \$ 3 ystems Parallel proc. sys.; all  \$ 1,200 Parallel proc. sys.; all	nuary 1985 ne
Typical system configuration and price  4 CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$120,000  Monthly maintenance of typical configuration Date of first delivery Number installed to date COMMENTS  A CPUs; 4.5MB main memory; 80MB disk; 67MB cartridge; 8 user connections: \$170,000  \$1,200  \$1,700  \$2,650  \$2,650  \$3 systems Parallel proc. sys.; can be rack-mounted in embers and be rack-mounted in embers and be rack-mounted in embers and be rack-mounted in embers.	nuary 1985 ne rallel proc. sys.; all

MANUFACTURER & MODEL	Formation, Inc. F4000 Information System	Formation, Inc. F4000-AP Information System	Harris Corporation H60	Harris Corporation H700
MORD LENGTH	32 bits	22 hian	40 hisa	40 his
VORD LENGTH		32 bits	48 bits	48 bits
MAIN MEMORY	256KB-8MB	256KB-8MB	768KB-12MB	384KB-12MB
ISK STORAGE CAPACITY	70MB-5GB	70MB-5GB	80MB-1.6GB	80MB-22.7GB
O. WORKSTATIONS SUPPORTED	46		32	128
PRICE RANGE	\$75,000-\$300,000	\$100,000-\$300,000	\$69,900-\$120,000	\$49,900-\$62,000
ARGET MARKET	OEM, software develop-	OEM, software develop-	Engineering/scientific	Engineering/scientific
	ment	ment		
ENTRAL PROCESSOR			l .	
No. of directly addressable bytes	16M	16M	12M	12M
Virtual memory	16MB	16MB	48MB	48MB
Hardware floating point	DP	DP	SP, DP	SP, DP
Battery backup	None	None	None	None
Real-time clock or timer	Standard	Standard	Optional	Optional
CPU cycle time, nanoseconds	200	200	300	300
MIPS	0.225	0.4	0.88 (single precision)	0.88 (single precision)
16-/32-bit compatibility	32-bit only	32-bit only	Does not apply	Does not apply
AIN STORAGE	10- 2m 0m,	,	,	J-000 app.,
Bytes fetched per cycle	4	4	1	<u></u>
Gycle/access time, nanoseconds	800/200	800/200	335	335
			Standard	Standard
Storage protection	Standard	Standard 256KB or 1MB	1.5M	
Increment size, bytes	256KB or 1MB		,	1.5M
Cache memory, bytes	None	None	6K	6K
PUT/OUTPUT CONTROL	1.		1_	L
No. of I/O channels	4	4	5	24
Data transfer rate	5MB/sec.	5MB/sec.	19MB/sec.	19MB/sec.
OMMUNICATIONS	ľ	l	1	1
Max. number of lines	100	100	32	224
Synchronous	Opt.; 19.2K bps	Opt.; 19.2K bps	Standard	Standard
Asynchronous	Opt.; 9600 bps	Opt.; 9600 bps	Standard	Standard
Protocols supported	SDLC, BSC, ASCII	SDLC, BSC, ASCII	X.25, sync, async,	X.25, sync, async,
	1000, 200, 1100		isochronous	isochronous
Type of LAN supported	SNA	SNA	Ethernet	Ethernet
RJE terminals emulated	Hasp	Hasp	See Comments	See Comments
IBM 3270 emulation	Yes	Yes	Yes	Yes
	res	165	res	Tes
ERIPHERAL EQUIPMENT	E. 1 400/405/00514D	F:	5:	F
Disks supported	Fixed: 100/135/635MB	Fixed: 100/135/635MB	Fixed & removable: 80MB-675MB	Fixed & removable: 80MB-675MB
Serial printers	180 cps	180 cps	GOIVID-07 SIVID	OOMB-07 SIMB
		None	200 cps	200 cps
Letter-quality printers	None			1
Line printers	300/600/1000 lpm	300/600/1000 lpm	730/1000/1200 lpm	730/1000/1200 lpm
Reel-to-reel tape drives	72/200KB	72/200KB	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 i
Streaming tape drives	None	None	25 ips	25 ips
Cassette/cartridge tape drives	None	None		<u> </u>
Other peripherals supported	Card reader, byte	Card reader, byte	Card readers	Card readers
	multiplexer	multiplexer	1	1
OFTWARE		1		
Assembler	Assembler	Assembler	Macro assembler	Macro assembler
Compilers	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,	Fortran, Basic, Cobol,	Fortran, Basic, Cobol,
ž.	RPG II, PL/1	PL/1	C, Ada, Pascal, APL,	C, Ada, Pascal, APL,
· C	1	,	RPG, Snobol, Forgo	RPG, Snobol, Forgo
Operating system name	DOS/VSE; VM/SP; OS/VS1	DOS/VSE, VM/SP, OS/VS1	VOS	VOS
			Batch, multitask, rt.	Batch, multitask, rt.
Operating system type	Batch, rt., timeshare	Batch, rt., timeshare		
Operating sys. implemented in firmware	Partially	Partially	No Oracle lefe	No Oracle Info
Database management system	TMS; any 370-compatible	TMS; any 370-compatible	Oracle, Info	Oracle, Info
Principal industry application	Program development,	Program development,	Engineering administra-	Engineering administra-
	general business	general business	tion	tion
4.		l	l	1
Other packages	IBM 370-compatible	IBM 370-compatible	Numerous	Numerous
:	packages	packages		
			1	1
RICING & AVAILABILITY	1		i	1
Typical system configuration and price	CPU with 1MB main	CPU and auxiliary pro-	Contact vendor	Contact vendor
	memory; 135MB disk;	cessor; 2MB main memory;	}	]
	72KB tape; 300 lpm	135MB disk; 72KB tape;	1	I
• • • • • • • • • • • • • • • • • • •	printer; console;	300 Ipm printer; service	1	1
e	service processor;	processor; console;	1	1
*	8 workstations:	8 workstations:	1	1
	1.		}	1
•	\$100,300	\$123,800	1	1
			1	1
		lacro	la	
Monthly maintenance of typical	\$852	\$852	Contact vendor	Contact vendor
configuration	1	1		}
Date of first delivery	3rd quarter 1981	1982	June 1984	May 1983
Number installed to date	70	70		<del>-</del>
OMMENTS	Optional fault tolerant	Optional fault tolerant	Uses office power. Ter-	Terminals emulated in-
CIVIVENTS				
OWNERTS			minals emulated include	clude 2780/3780. LI100
OMINENTS	configuration. Software- compatible with IBM 370.	configuration. Software- compatible with IBM 370.	minals emulated include 2780/3780, U1004, UNTR,	clude 2780/3780, U100 UNTR, GRTS, CDC200U

MANUFACTURER & MODEL	Harris Corporation H800	Harris Corporation H1000	Harris Corporation H1200	Harris Corporation HCX-7
WORD LENGTH	48 bits	48 bits	48 bits	32 bits
MAIN MEMORY	768KB-12MB	1.5MB-12MB	1.5MB-12MB	4MB-32MB
DISK STORAGE CAPACITY	80MB-22.7GB	80MB-22.7GB	80MB-25GB	8GB
NO. WORKSTATIONS SUPPORTED	128	192	224	235
PRICE RANGE	\$139,000-\$170,000	\$250,000-\$291,000	\$294,000-\$400,000	\$275,000-\$350,000
FARGET MARKET	Engineering/scientific	Engineering/scientific	Engineering/scientific	Engineering/scientific, software development
CENTRAL PROCESSOR	1014	1014	4004	10
No. of directly addressable bytes Virtual memory	12M 48MB	12M 48MB	12M 192MB	4G 4GB
•	SP, DP	SP, DP	SP, DP, TP, QP	DP
Hardware floating point Battery backup	None	None	Optional	Standard
Real-time clock or timer	Optional	Optional	Optional	Standard
CPU cycle time, nanoseconds	180	75	75	100
MIPS	1.6 (single precision)	4.8 (single precision)	5	7.1
16-/32-bit compatibility	Does not apply	Does not apply	Proprietary	Does not apply
MAIN STORAGE		Tool not apply	, repriorally	Toda met app.y
Bytes fetched per cycle		-	6	4
Cycle/access time, nanoseconds	335	335	150	400
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1.5M	1.5M	1.5M	4M
Cache memory, bytes	6K	6K	288K	44K
NPUT/OUTPUT CONTROL			1	1
No. of I/O channels	31	31	31	25
Data transfer rate	19MB/sec.	19MB/sec.	19MB/sec.	11MB/sec.
COMMUNICATIONS		<b> </b>	1	
Max. number of lines	224	224	224	235
Synchronous	Standard	Standard	19.2K bps std./56K opt.	Opt.; 9600 baud
Asynchronous	Standard	Standard	19.2K bps std./38.4K op.	Std.; 38K baud
Protocols supported	X.25, sync, async,	X.25, sync, async,	X.25, HDLC, BSC, NTR	3270, 2780/3780
Time of LAN comported	isochronous	isochronous	Fath arm at	Fahamaa
Type of LAN supported RJE terminals emulated	Ethernet See Comments	Ethernet See Comments	Ethernet See Comments	Ethernet
IBM 3270 emulation	Yes	Yes Comments	See Comments Yes	3270, 2780/3780
PERIPHERAL EQUIPMENT	res	res	res	Yes
Disks supported	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable:
biaka aupporteu	80MB-675MB	80MB-675MB	80MB-675MB	160MB-474MB
Serial printers			80/280 cps	80-240 cps
Letter-quality printers	200 cps	200 cps	55/80 cps	55/80 cps
Line printers	730/1000/1200 lpm	730/1000/1200 lpm	300/600/1200 lpm	600-800 lpm
Reel-to-reel tape drives	800-6250 bpi, 45-125 ips	800-6250 bpi, 45-125 ips	800-6250 bpi, 25-125 ips	1600 bpi, 25 ips
Streaming tape drives	25 ips	25 ips	1600 bpi, 25/100 ips	25 ips
Cassette/cartridge tape drives	<u> </u>	_ `	30 ips	None
Other peripherals supported	Card readers	Card readers	300/600 cpm card	Laser printer, graphics
			readers	terminal
SOFTWARE	1	1		
Assembler	Macro assembler	Macro assembler	Macro assembler	AS
Compilers	Fortran, Basic, Cobol,	Fortran, Basic, Cobol,	Fortran, Cobol, C,	Fortran 77, Pascal
	C, Ada, Pascal, APL,	C, Ada, Pascal, APL,	RPG II, Basic	
Operating quotern name	RPG, Snobol, Forgo	RPG, Snobol, Forgo	Harris VOS: Units	HCX (LIX
Operating system name	VOS	VOS	Harris VOS; Unix	HCX/UX
Operating system type	Batch, multitask, rt.	Batch, multitask, rt.	Multitask, rt.	Multiprogramming
Operating sys. implemented in firmware Database management system	No Oracle, Info	No Oracle, Info	No Oracle, Info, Total	Partially Oracle
Principal industry application	Engineering administra-	Engineering administra-	Engineering/scientific	Engineering, scientific
т прорагистви у аррисацоп	tion	tion	Lingingering/scientific	research
	lion	LION	·	research
Other packages	Numerous	Numerous	_	_
PRICING & AVAILABILITY				,
Typical system configuration and price	Contact vendor	Contact vendor	CPU; 1.5MB memory;	CPU; 8MB memory; 474MB
Typical system comiguration and price	Contact Vendor	Contact vendor	CNP; console terminal:	disk; tape unit; 27
		1	operating system:	ports: \$350,000
		<b>\</b>	\$294,000	1
Manakha maintanana at sautah			<b>61 200</b>	04.000
Monthly maintenance of typical configuration	Contact vendor	Contact vendor	\$1,300	\$1,200
Date of first delivery	June 1979	July 1984	4th quarter 1985	June 1985
Number installed to date			- quarter 1905	20
COMMENTS	Terminals emulated in-	ECL-based system.	Terminals emulated in-	120
	clude 2780/3780, U1004,	Terminals emulated in-	clude 2780/3780, U1004,	
				1
	UNTR, GRTS, CDC200UT.	clude 2780/3780, U1004,	Hasp, GRTS, CDC200UT.	1

MANUFACTURER & MODEL	Hewlett-Packard Company HP 3000 Series 930	Hewlett-Packard Company HP 3000 Series 950	Honeywell Information Systems, Inc. DPS 6/85	Honeywell Information Systems, Inc. DPS 6/95
AVORD LENGTH	22 hite	22 hisa	22 hips	22 1::-
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	16MB-24MB	To 64MB	2MB-4MB	2MB-16MB
DISK STORAGE CAPACITY	9.7GB	i	To 3.3GB	67MB-4GB
NO. WORKSTATIONS SUPPORTED	400		64	128
PRICE RANGE	From \$225,000	From \$300,000	From \$106,900	From \$105,000
ARGET MARKET	General business,	General business,	General business	General business
	distributed d.p.	distributed d.p.	<b>{</b>	
CENTRAL PROCESSOR	1	·	1	}
No. of directly addressable bytes	128M	_	16M	16M
Virtual memory	256 trillion bytes		Does not apply	Does not apply
Hardware floating point	SP, DP		SP, DP	SP, DP
Battery backup	Standard	<u> </u>	Optional	Optional
	•	<u> </u>	, -,	•
Real-time clock or timer	Standard	<u> </u>	Standard	Standard
CPU cycle time, nanoseconds	125		125	125
MIPS	4.5	6.7	( <del>-</del>	i—
16-/32-bit compatibility	Via mode bit	Via mode bit	Direct	Direct
MAIN STORAGE	1		1	1
Bytes fetched per cycle	4	I—	4	4
Cycle/access time, nanoseconds	1		300	500
	Standard	1	Standard	1
Storage protection	Standard			Standard
Increment size, bytes	8M	1	2M	4M
Cache memory, bytes	128K	128K	8K	8K
NPUT/OUTPUT CONTROL		1		1
No. of I/O channels	10	ł	24	24
Data transfer rate	10MB/sec. (aggregate)		16MB/sec.	16MB/sec.
COMMUNICATIONS	(299,090,0)	1		
Max. number of lines	48	1	64	128
	\ <sup>40</sup>		1 =	•
Synchronous	1-		Optional	92 opt.; 19.2K bps
Asynchronous	<del>-</del>	<del></del>	Standard	4 std./92 opt.; 9600 bps
Protocols supported	HP Advancenet, X.25,	HP Advancenet, X.25,	SDLC, HDLC, SNA, DSA,	SDLC, HDLC, SNA, DSA,
	SNA through HP 3000 FEP	SNA through HP 3000 FEP	BSC	BSC
Type of LAN supported	IEEE 802.3	IEEE 802.3	Ethernet	Ethernet
RJE terminals emulated	Through HP 3000 FEP	Through HP 3000 FEP	IBM 2780/3780	IBM 2780/3780
IBM 3270 emulation	Through HP 3000 FEP	Through HP 3000 FEP	Yes	Yes
PERIPHERAL EQUIPMENT	Through the 3000 fee	THOUGHTH SOOD TEI	163	163
	F	1	F: 1 400 (440)4D	E: 1.400/44004D
Disks supported	Fixed: 404MB;	<del>-</del>	Fixed: 132/413MB; rem.:	Fixed: 132/413MB; rem.
	removable: 404MB		67/256MB; cart.: 40MB	67/80/256MB; cart.: 40l
Serial printers	200 cps	I—	100/400 cps	100/400 cps
Letter-quality printers	<u> </u>		35/55 cps	35/55 cps
Line printers	600/900 lpm		300/600/900/1200 lpm	300/600/900/1200 lpm
Reel-to-reel tape drives	800-6250 bpi, 75-100 ips	_	800/1600/6250 bpi	800/1600/6250 bpi
Streaming tape drives	75 ips		55 ips	55 ips
	75 lps	1		
Cassette/cartridge tape drives	I	<del>-</del>	55 ips	55 ips
Other peripherals supported	Laser printers,		650KB diskette; card	650KB diskette; card
	12/45 ppm	1	readers; doc. handlers	readers; doc. handlers
SOFTWARE				1
Assembler	None	ļ	Assembler	Assembler
Compilers	Cobol II, Fortran 77,	Cobol II, Fortran 77,	Cobol, Fortran, Basic,	Cobol, Fortran, Basic,
Compilera	Paged Page CPI PPC			
	Pascal, Basic, SPL, RPG	Pascal, Basic, SPL, RPG	Pascal, RPG, Ada, C	Pascal, RPG, Ada, C
	1	1		1
Operating system name	MPE XL	MPE XL	GCOS 6 Mod 400	GCOS 6 Mod 400
Operating system type	Multiprogramming	Multiprogramming	Realtime	Realtime
Operating sys. implemented in firmware	I— "	I— 1	No	No
Database management system	HP Allbase/XL	HP Allbase/XL	DM6, Oracle	DM6
Principal industry application	Mfr., OA, wholesale,	Mfr., OA, wholesale,	Manufacturing, distri-	Manufacturing, distri-
spar maddily application	retail, finance, legal,	retail, finance, legal,		
			bution, pharmacy,	bution, pharmacy,
0.1	insurance	insurance	medical records	medical records
Other packages	Third-party packages	Third-party packages	Office automation,	Office automation,
		1	accounting	accounting
	İ	1		1
PRICING & AVAILABILITY	-	1	1	)
Typical system configuration and price	CPU; 16MB main memory;	Contact vendor	CPU with 2MB main	CPU with 2MB main
,,,	404MB fixed disk;	1	memory; 413MB disk;	memory; 413MB disk;
		1		,
	6250 bpi tape drive;	I	cache mgt. unit; Multi-	printer port; console;
•	console; 2 I/O	}	ple Device Contr./650KB	Multiple Device Control-
	channels; LAN channel;	1	diskette; Commercial In-	ler; Commercial Instruc-
	operating system	ĺ	struction Processor;	tion Processor; Sci.
	software: \$284,500	1	Sci. Instr. Processor;	Instr. Processor; GCR
	1		GCR tape; 4 workstation	tape; 4 workstation
		1		
Administration and the second	d 475 ()	10	ports: \$106,900	ports: \$129,900
Monthly maintenance of typical	\$475 (hardware)	Contact vendor	\$654	\$767
configuration	I	1		
Date of first delivery	Late 1986	2nd half 1987	2nd quarter 1985	November 1983
Number installed to date	Does not apply	Does not apply	<u> </u>	
				I
	Here RISC-based	Higgs RISC-based		
COMMENTS	Uses RISC-based	Uses RISC-based		
	Uses RISC-based Precision Architecture	Uses RISC-based Precision Architecture		

MANUFACTURER & MODEL	IBM 4361 Model Group 3	IBM 4361 Model Group 4	IBM 4361 Model Group 5	IBM 4381 Model Group 11
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	2MB-4MB	2MB-16MB	2MB-16MB	4MB-16MB
DISK STORAGE CAPACITY	262GB	645GB	645GB	1290GB
NO. WORKSTATIONS SUPPORTED	1024	1024	1024	1024
PRICE RANGE	From \$56,500	From \$126,900	From \$169,200	From \$185,000
ARGET MARKET	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/
Anger WARKET	scientific	scientific	scientific	scientific
ENTRAL PROCESSOR				
No. of directly addressable bytes			<u>  — </u>	
Virtual memory	16MB	16MB	16MB	16MB
Hardware floating point	SP, DP, extended	SP, DP, extended	SP, DP, extended	SP, DP, extended
Battery backup			<u> </u>	Standard
Real-time clock or timer	Standard	Standard	Standard	i
CPU cycle time, nanoseconds	_	I		68
MIPS	0.38 (approx.)	0.79	1.14	
16-/32-bit compatibility			1	l
IAIN STORAGE		[	<del>-</del>	ļ —
		1		İ
Bytes fetched per cycle	<b> </b>	<u> </u>		<u> </u>
Cycle/access time, nanoseconds	Canadand	Chandrad	Ctdd	
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes		I	100	l <del></del>
Cache memory, bytes	8K	8K	16K	4K
NPUT/OUTPUT CONTROL	1.			}
No. of I/O channels	3	[6	[6	12
Data transfer rate	17KB-1.86MB/sec.	17KB-3MB/sec.	17KB-3MB/sec.	22MB/sec.
COMMUNICATIONS	1	1	1	ļ
Max. number of lines				
Synchronous	Opt.; to 64K bps	Opt.; to 64K bps	Opt.; to 64K bps	<u> </u>
Asynchronous	1—	1—		l
Protocols supported	Bisync, SDLC, X.25,	Bisync, SDLC, X.25,	Bisync, SDLC, X.25,	Bisync, SDLC, X.25,
	SNA, DIA/DCA	SNA, DIA/DCA	SNA, DIA/DCA	SNA, DIA/DCA
Type of LAN supported		_		l
RJE terminals emulated	-	<u> </u>		-
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	1	1		
Disks supported	Fixed: 64.5MB-819.7MB	Fixed: 64.5MB-5.04GB	Fixed: 64.5MB-5.04GB	Fixed: 317.5MB-5.04GB
Corial printers	90 240 or :	90 340 ar-	90.340 as -	90 340
Serial printers Letter-quality printers	80-340 cps	80-340 cps	80-340 cps	80-340 cps
Line printers	325-3600 lpm	325-3600 lpm	325-3600 lpm	1200-3600 lpm
Reel-to-reel tape drives	To 6250 bpi; to 125 ips	To 6250 bpi; to 125 ips	To 6250 bpi; to 125 ips	To 6250 bpi; to 125 ips
Streaming tape drives	Start/stop; 100 ips	Start/stop, 100 ips	Start/stop; 100 ips	Start/stop; 79 ips
Cassette/cartridge tape drives	Cart.; 75-200 ips	Cart.; 75-200 ips	Cart.; 75-200 ips	Cart.; 75-200 ips
Other peripherals supported	Laser printers (12/20	Laser printers (12/20	Laser printers (12/20	Laser printers (12/20
	ppm), doc. rdrs/hndirs	ppm), doc. rdrs/hndlrs	ppm), doc. rdrs/hndlrs	ppm), doc. rdrs/hndlrs
OFTWARE	}	1		· ·
Assembler	_			
Compilers	Pascal/VS, Fortran,	Pascal/VS, Fortran,	Pascal/VS, Fortran,	Pascal/VS, Fortran,
•	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				
Operating system type Operating sys. implemented in firmware		<u> </u>		_
Database management system	DI /1 SOI /DE IME/VE	DL/1, SQL/DS, IMS/VS	DI /1 SOL/DS IME/MS	DI /1 SOL/DS MAS/VS
	DL/1, SQL/DS, IMS/VS		DL/1, SQL/DS, IMS/VS	DL/1, SQL/DS, IMS/VS
Principal industry application	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/
	scientific	scientific	scientific	scientific
0.1			lam	1
Other packages	Office automation;	Office automation;	Office automation;	Office automation;
	third-party packages	third-party packages	third-party packages	third-party packages
RICING & AVAILABILITY				1
Typical system configuration and price	CPU; 2MB memory; console;			CPU; 4MB memory; console
	129MB disk storage; tape	193.5MB disk storage;	258MB disk storage; two	635MB disk storage &
	unit; 650 lpm ptr.; Work	tape unit; two 650 lpm	tape units; two 650 lpm	contr.; 2 tape units;
	Station Adapter; 16	printers; Work Station	ptrs.; Work Station	1200 lpm ptr.; comm.
	terminals: \$131,635	Adapter; 16 terminals:	Adapter; 16 terminals:	contr.; 32 terminals:
		\$222,585	\$296,455	\$474,285
Monthly maintenance of typical	\$784.50	\$1,265	\$1,569	\$2,182.75
configuration	December 1994	2nd quarter 1004	1ct guarter 1004	May 1096
Date of first delivery Number installed to date	December 1984	2nd quarter 1984	1st quarter 1984	May 1986
OMMENTS	Runs DOS/VSE, SSX/VSE,	Runs DOS/VSE, SSX/VSE,	Runs DOS/VSE, SSX/VSE,	Runs DOS/VSE, OS/VS1,
·=···	VM/SP, VM/370, OS/VS1,	VM/370, VM/SP, OS/VS1,	VM/370, VM/SP, MVS/370,	VM/SP, VM/XA, MVS/SP,
	IX/370	IX/370	OS/VS1, IX/370; can also	MVS/XA, IX/370; can also

MANUFACTURER & MODEL	IBM 4381 Model Group 12	IBM 4381 Model Group 13	IBM 4381 Model Group 14	IBM System/88 Model 4575-20B
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	8MB-32MB	8MB-32MB	16MB-32MB	
				4MB-8MB (duplexed)
DISK STORAGE CAPACITY	1935GB	2903GB	5160GB	7GB (duplexed)
NO. WORKSTATIONS SUPPORTED	1024	1024	1024	128
PRICE RANGE	From \$330,000	From \$440,000	From \$735,000	From \$51,700
FARGET MARKET	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/	Online transaction
	scientific	scientific	scientific	processing
CENTRAL PROCESSOR		1	1	p. coossing
No. of directly addressable bytes				İ
	10040	40.40		
Virtual memory	16MB	16MB	16MB	L.
Hardware floating point	SP, DP, extended	SP, DP, extended	SP, DP, extended	None
Battery backup	<del>  -</del>	_	1	
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	1—	· ·	156	
MIPS				0.90
16-/32-bit compatibility		l	(	Does not apply
		_	<del>-</del>	Does not apply
MAIN STORAGE		ľ	1	1
Bytes fetched per cycle	ļ <del></del>	<del></del>	<del></del>	<del>  -</del>
Cycle/access time, nanoseconds	68	56	<del></del>	125 (per 2 bytes)
Storage protection	Standard	Standard	Standard	I—
Increment size, bytes	I	I—	l —	2M, 4M
Cache memory, bytes	32K	64K	64K per processor	None
NPUT/OUTPUT CONTROL	1	1		1 31.5
	12	12	10	<u> </u>
No. of I/O channels	I .	1	18	<u> </u>
Data transfer rate	24MB/sec.	30MB/sec.	48MB/sec.	<u> </u>
COMMUNICATIONS				
Max. number of lines	<del>-</del>	( <del></del>	I—	32
Synchronous		l <u> </u>	l <u> </u>	Std.; 19.2K bps
Asynchronous	<u> </u>		l	Std.; 19.2K bps
Protocols supported	Bisync, SDLC, X.25,	Bisync, SDLC, X.25,	Bisync, SDLC, X.25,	SNA, SDLC, X.25, X.29,
i rotocois supporteu				
	SNA, DIA/DCA	SNA, DIA/DCA	SNA, DIA/DCA	Bisync, RJE
Type of LAN supported	l—	<u> </u> —	<u> </u>	<u> </u>
RJE terminals emulated				[ <del></del>
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT		i	(	į.
Disks supported	Fixed: 317.5MB-5.04GB	Fixed: 317.5MB-5.04GB	Fixed: 317.5MB-5.04GB	Removable: 142MB/448M
••	1	1	1	
Serial printers	80-340 cps	80-340 cps	80-340 cps	40-160 cps
	80-340 cps	80-340 cps	180-340 cps	40-160 cps
Letter-quality printers		<del>-</del>	T	II
Line printers	1200-3600 lpm	1200-3600 lpm	1200-3600 lpm	650 lpm
Reel-to-reel tape drives	To 6250 bpi; to 125 ips	To 6250 bpi; to 125 ips	To 6250 bpi; to 125 ips	<del></del>
Streaming tape drives	Start/stop; 79 ips	Start/stop; 79 ips	Start/stop; 79 ips	Start/stop; 25-100 ips
Cassette/cartridge tape drives	Cart.; 75-200 ips	Cart.; 75-200 ips	Cart.; 75-200 ips	None
Other peripherals supported	Laser printers 12/20	Laser printers (12/20	Laser printers (12/20	
Caller positionals capped to	ppm), doc. rdrs/hndlrs	ppm), doc. rdrs/hndlrs	ppm), doc. rdrs/hndlrs	(
SOFTWARE	pping, doc. rais/indias	ppini, doc. rais/indis	ppini, doc. rais/indis	
			ĺ	1
Assembler	<u> </u>			
Compilers	Pascal/VS, Fortran,	Pascal/VS, Fortran,	Pascal/VS, Fortran,	Cobol, PL/1, Fortran,
	Basic, VS APL, PL/1,	Basic, VS APL, PL/1,	Basic, VS APL, PL/1,	Basic, Pascal
	Cobol, RPG II	Cobol, RPG II	Cobol, RPG II	
Operating system name	See Comments	See Comments	See Comments	vos
Operating system type				Realtime
Operating system type Operating sys. implemented in firmware	L	i	L	Toolline
	DI /4 COI /DC 1840 ///C	DI /4 COL /DC IMBO///C	COL (DC 1840/1/C DD0	
Database management system	DL/1, SQL/DS, IMS/VS	DL/1, SQL/DS, IMS/VS	SQL/DS, IMS/VS, DB2	Oracle
Principal industry application	Commercial, engineering/	Commercial, engineering/	Commercial, engineering/	Transaction proc.: ATM,
	scientific	scientific	scientific	POS, shop floor, cust.
		i	1	svc.; bank/fin. switch
Other packages	Office automation;	Office automation;	Office automation;	1
. •	third-party packages	third-party packages	third-party packages	1
		, 2 part, paskagoo		1
RICING & AVAILABILITY	1	1		
	CDLL ONED	CDLL 1CNAD	l	0 000
Typical system configuration and price	CPU; 8MB memory;	CPU; 16MB memory;	CPU; 25MB memory;	2 CPUs, paired; 2MB
	console; 2.52GB disk	console; 7.5GB disk	console; 10GB disk	duplexed memory; 2 DAS
	storage & contr.; 4 tape	storage & contr.; 6 tape	storage & contr.; 8 tape	controllers; two 142MB
	units & contr.; two 1200	units & contr.; two	units & contr.; two 2200	disk drives; tape contr.
	lpm ptrs.; comm. contr.;	2200 lpm ptrs.; comm.	Ipm ptrs.; 20 ppm laser	& unit; 2 comm. contrs.;
	48 terminals: \$978,385	contr.; 64 terminals:	ptr.; comm. contr.; 80	3 line adapters; printer
	.5 .5	\$1,505,585		and printer adapter;
		Ψ1,500,500	terminals: \$2,070,295	
			1	6 workstations:
				\$221,850
Monthly maintenance of typical	\$3,678.75	\$6,104.75	\$7,084.75	\$1,424
configuration		1	1	1
Date of first delivery	April 1986	April 1986	April 1986	February 1996
	April 1986	April 1900	April 1986	February 1986
Number installed to date				I <del></del>
COMMENTS	Runs DOS/VSE, OS/VS1,	Runs DOS/VSE, OS/VS1,	Runs VM/SP, VM/XA,	Most components, incl.
	VM/SP, VM/XA, MVS/SP,	VM/SP, VM/XA, MVS/SP,	MVS/SP, MVS/XA, IX/370;	proc. & mem. boards,
	MVS/XA, IX/370; can also	MVS/XA, IX/370, can also	dual processor system	disk drives, & comm.
	use DB2 as DBMS	use DB2 as DBMS		contr. are duplexed

MANUFACTURER & MODEL	IBM System/88 Models 4576-40/-60	International Parallel Machines, Inc. IP-1	MAI/Basic Four Model 7010	MAI/Basic Four Model 7020
NORD LENGTH	32 bits	16/32/64 bits	32 bits	32 bits
MAIN MEMORY	4MB-16MB (duplexed)	O.5MB-40MB	2MB-4MB	2MB-6MB
DISK STORAGE CAPACITY	7GB (duplexed)	150MB-6GB	126MB-2.2GB	126MB-2.2GB
NO. WORKSTATIONS SUPPORTED	256	8	20	52
PRICE RANGE	From \$92,100/\$132,900	\$50,000-\$400,000	\$44,000-\$200,000	\$68,000-\$300,000
TARGET MARKET	Online transaction processing	Engineering/scientific	General business	General business
CENTRAL PROCESSOR				1
No. of directly addressable bytes		4G	16M	16M
Virtual memory		4GB	1GB	1GB
Hardware floating point	DP (4576-60 only)	32/64 bits	SP	SP
Battery backup		Optional	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds		100	160	160
MIPS	2.79/7.38	4-40	0.4	0.8
16-/32-bit compatibility	Does not apply	Standard	32-bit only	32-bit only
MAIN STORAGE		1.		1_
Bytes fetched per cycle	-	4	4	4
Cycle/access time, nanoseconds	125 (per 2 bytes)	300	160	160
Storage protection		Optional	Standard	Standard
Increment size, bytes	2M, 4M	4M	0.5M, 1M, 2M	1M, 2M, 4M
Cache memory, bytes	48K (4575-60 only)	2K	Does not apply	Does not apply
NPUT/OUTPUT CONTROL	1 "	1	1	1
No. of I/O channels		50	2	2
Data transfer rate	<u> </u>	40MB/sec.	100MB/sec.	100MB/sec.
COMMUNICATIONS	1	.5,0,000.	. 30110/ 330.	, 30(HD) 360.
Max. number of lines	1	8	20	52
	_		l ·	
Synchronous		Opt.; 10M bps	Standard	Standard
Asynchronous		Std.; 10M bps	Standard	Standard
Protocols supported	SNA, SDLC, X.25, X.29, Bisync, RJE	SDLC, SNA, BSC	IBM 3270, 2780/3780	IBM 3270, 2780/3780
Type of LAN supported		Ethernet	None	None
RJE terminals emulated	<del> </del>	Opt. (types unspec'd)	2780/3780	2780/3780
IBM 3270 emulation	Yes	Opt. (types unspec'd)	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Removable: 142MB/448MB	Winchester: 150MB-6GB	Fixed: 126MB; removable:	Fixed: 126MB; removable
• •	,	1	75MB, 285MB	75MB, 285MB
Serial printers	40-160 cps	100/400 cps	120/160 cps	120/160 cps
Letter-quality printers	то-тоо срз	45/120 cps	45 cps	45 cps
Line printers	650 lpm	160/1200 lpm	80/200/300/600/1000 lpm	
	logo ibili			
Reel-to-reel tape drives		800/1600/3200/6250 bpi	175/800/1600 bpi	800/1600 bpi, 175 ips
Streaming tape drives	Start/stop; 25-100 ips	Start/stop; 25 ips	Start/stop; 100/180 ips	Start/stop; 100/180 ips
Cassette/cartridge tape drives	_	Does not apply	90 ips	90 ips
Other peripherals supported	<u>}</u>	Graphics devices, plot-	High-speed data,	High-speed data,
		ters, sticks, mice	RS-232-C I/O	RS-232-C I/O
SOFTWARE	1	1		
Assembler		Yes	<u> </u>	<b>!</b>
Compilers	Cobol, PL/1, Fortran,	C, Fortran, Ada	Basic, Cobol	Basic, Cobol
- management	Basic, Pascal		]	
		1		1
Operating system name	vos	lpos	Boss/VS	Poss //S
Operating system name				Boss/VS
Operating system type	Realtime	Unix-like	Multitasking, realtime	Multitasking, realtime
Operating sys. implemented in firmware	<u></u>	Partially	Partially	Partially
Database management system	Oracle	DBMS	Origin	Origin
Principal industry application	Transaction proc.: ATM,	_	General-purpose inter-	General-purpose inter-
	POS, shop floor, cust.	1	active business	active business
	svc.; bank/fin. switch	1		1
Other packages		Signal/image processing,	OA, pharmacy, manufac-	OA, pharmacy, manufac-
· <del>-</del>	1	matrix equations, CAD	turing, construction,	turing, construction,
	1	(PCB)	property management	property management
PRICING & AVAILABILITY	1	1''	, and the state of	T. Sport, management
Typical system configuration and price	4576-40: 2 CPUs, paired;	9-CPU parallel proces-	1 CPU; 2.5MB memory;	2 CPUs; 4.5MB memory
Typical system comiguration and price	4MB duplexed memory;	sing system; 10MB main	126MB fixed disk;	two 126MB fixed disks;
			-	1
	2 DASD contr., two 448MB	memory; 150MB disk;	5 terminals; 80/200 lpm	25 4312 terminals;
	disk dr.; tape contr. &	9-track tape; 160MFlops	printer; MCS; Boss/VS	120 cps, 300 lpm, and
	unit; 2 comm. contr. &	floating-point accelera-	o.s.: \$57,720	600 lpm printers; MCS;
	4 adapters; ptr. adapt-	tor: \$200,000 (approx.)		Boss/VS o.s.: \$161,135
	er, tabletop ptr. & line	1	1	1
	ptr.; 10 workstations:	1		1
	\$379,665	1		
Monthly maintenance of typical	\$1,148	\$3,000	\$368	\$1,185
configuration	¥ .,130	1 , 5 - 5	1	1,100
	Echruany 1996	3rd guarter 1005	October 1985	Ostobor 1995
Date of first delivery	February 1986	3rd quarter 1985	October 1985	October 1985
Number installed to date		3 in 1985		
COMMENTS	Most components, incl.	Parallel processing	1	1
			1	i
	proc. & mem. boards,	superminicomputer		i
	proc. & mem. boards, disk drives, & comm.	superminicomputer		

MANUFACTURER & MODEL	MAI/Basic Four Model 8010	MAI/Basic Four Model 8020	MAI/Basic Four Model 8030	McDonnell Douglas Computer Systems Computer M9050
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
	2MB-4MB	2MB-6MB	4MB-8MB	
MAIN MEMORY		,		1MB-4MB
DISK STORAGE CAPACITY	144MB-2.2GB	144MB-2.2GB	144MB-2.2GB	260MB-1GB
NO. WORKSTATIONS SUPPORTED	20	52	116	128
PRICE RANGE PARGET MARKET	\$49,000-\$200,000 General business	\$78,000-\$300,000 General business	\$119,000-\$500,000 General business	From \$130,000 General business
				Control Decimos
CENTRAL PROCESSOR	4004	4004	400	1
No. of directly addressable bytes	16M	16M	16M	4M
Virtual memory	3.76GB	3.76GB	3.76GB	2GB
Hardware floating point	SP	SP	SP	Does not apply
Battery backup	Standard	Standard	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	160	160	160	150
MIPS	0.4	0.8	1.2	l
16-/32-bit compatibility	32-bit only	32-bit only	32-bit only	Yes
MAIN STORAGE		<b>,</b>		1
Bytes fetched per cycle	4	4	4	4
Cycle/access time, nanoseconds	160	160	160	600
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	0.5M, 1M, 2M	0.5M, 1M, 2M, 4M	0.5M, 1M, 2M, 4M	1M-4M
Cache memory, bytes	Does not apply	Does not apply	Does not apply	Does not apply
NPUT/OUTPUT CONTROL	1-		ا	
No. of I/O channels	2	2	2	16 DMA
Data transfer rate	100MB/sec.	100MB/sec.	100MB/sec.	840KB/sec.
COMMUNICATIONS	1		1	
Max. number of lines	20	52	116	128
Synchronous	Standard	Standard	Standard	9600 bps
Asynchronous	Standard	Standard	Standard	9600 pps
Protocols supported	2770/3770, 2780/3780	2770/3770, 2780/3780	2770/3770, 2780/3780	2780/3780, SDLC, SNA
				•
Type of LAN supported	None	None	None	None
RJE terminals emulated	2770/3770, 2780/3780	2770/3770, 2780/3780	2770/3770, 2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	1			
Disks supported	Fixed: 144/207/314MB;	Fixed: 144/207/314MB;	Fixed: 144/207/314MB;	Fixed: 260MB
• • • • • • • • • • • • • • • • • • • •	removable: 75MB, 285MB	removable: 75MB, 285MB	removable: 75MB, 285MB	
Serial printers	120/160 cps	120/160 cps	120/160 cps	120/180/300/400 cps
		45 cps	45 cps	33 cps
Letter-quality printers	45 cps			
Line printers	80/200/300/600/1000 lpm	80/200/300/600/1000 lpm	80/200/300/600/1000 lpm	150/300/600/1200 lpm
Reel-to-reel tape drives	800/1600 bpi, 175 ips	800/1600 bpi, 175 ips	800/1600 bpi, 175 ips	Does not apply
Streaming tape drives	Start/stop; 100/180 ips	Start/stop; 100/180 ips	Start/stop; 100/180 ips	Start/stop; 25-100 ips
Cassette/cartridge tape drives	90 ips	90 ips	90 ips	Does not apply
Other peripherals supported	High-speed data,	High-speed data,	High-speed data,	Does not apply
	RS-232-C I/O	RS-232-C I/O	RS-232-C I/O	1
SOFTWARE	1			
Assembler	<u> </u>	<b> </b>	<del> </del>	Yes
Compilers	Basic, Cobol	Basic, Cobol	Basic, Cobol	Basic, English, All,
	1			Natural Language
Operating system name	Boss/VS	Boss/VS	Boss/VS	Reality
Operating system type	Multitasking, realtime	Multitasking, realtime	Multitasking, realtime	Multitasking
Operating sys. implemented in firmware	Partially	Partially	Partially	Partially
Database management system	Origin	Origin	Origin	Reality
Principal industry application	General-purpose inter-	General-purpose inter-	General-purpose inter-	General business
, · · · · · · · · · · · · · · · · ·	active business	active business	active business	
Other packages	OA, pharmacy, manufac-	OA, pharmacy, manufac-	OA, pharmacy, manufac-	Office automation
	turing, construction,	turing, construction,	turing, construction,	1
	property management	property management	property management	J
PRICING & AVAILABILITY				l .
Typical system configuration and price	1 CPU; 2.5MB memory;	2 CPUs; 4.5MB memory;	3 CPUs; 7MB memory;	CPU; 1MB memory;
. , pied. e, etc garaner. and price	144MB fixed disk, five	two 285MB removable	two 285MB removable	260MB fixed disk;
ypioar eyetem comigaranem and prior		disks; 25 4312 termi-	disks; 52 4312 termi-	1/2-inch streaming tape
Typical eyetem comigatation and price	4312 terminals; 80/200		nals; three 160 cps	drive; 600 lpm printer;
Typical cyclonic collinguiation and price		I nals: 120 cps, 300 lpm		
ypod. cycom comgarata and proc	lpm printer; MCS;	nals; 120 cps, 300 lpm,	printers: 600 lpm ptr	137 norte: \$160 OVV
ypodi oyodan comgadada ano proc		and 600 lpm printers;	printers; 600 lpm ptr.;	32 ports: \$160,000
Typos. System comgatation and proc	lpm printer; MCS;		1000 lpm ptr.; Boss/VS	32 ports: \$160,000
ypod. Syddin Solligadian and proc	lpm printer; MCS;	and 600 lpm printers;		32 ports: \$160,000
	lpm printer; MCS; Boss/VS o.s.: \$77,005	and 600 lpm printers; Boss/VS o.s.: \$180,820	1000 lpm ptr.; Boss/VS o.s.: \$286,350	32 ports: \$160,000
Monthly maintenance of typical	lpm printer; MCS;	and 600 lpm printers;	1000 lpm ptr.; Boss/VS	32 ports: \$160,000
Monthly maintenance of typical configuration	lpm printer; MCS; Boss/VS o.s.: \$77,005	and 600 lpm printers; Boss/VS o.s.: \$180,820 \$1,179	1000 lpm ptr.; Boss/VS o.s.: \$286,350 \$1,920	_
Monthly maintenance of typical configuration Date of first delivery	lpm printer; MCS; Boss/VS o.s.: \$77,005 \$404 October 1983	and 600 lpm printers; Boss/VS o.s.: \$180,820 \$1,179 October 1983	1000 lpm ptr.; Boss/VS o.s.: \$286,350 \$1,920 October 1983	32 ports: \$160,000  4th quarter 1984
Monthly maintenance of typical configuration	lpm printer; MCS; Boss/VS o.s.: \$77,005	and 600 lpm printers; Boss/VS o.s.: \$180,820 \$1,179	1000 lpm ptr.; Boss/VS o.s.: \$286,350 \$1,920	_
Monthly maintenance of typical configuration Date of first delivery	lpm printer; MCS; Boss/VS o.s.: \$77,005 \$404 October 1983	and 600 lpm printers; Boss/VS o.s.: \$180,820 \$1,179 October 1983	1000 lpm ptr.; Boss/VS o.s.: \$286,350 \$1,920 October 1983	_
Monthly maintenance of typical configuration Date of first delivery Number installed to date	lpm printer; MCS; Boss/VS o.s.: \$77,005 \$404 October 1983	and 600 lpm printers; Boss/VS o.s.: \$180,820 \$1,179 October 1983	1000 lpm ptr.; Boss/VS o.s.: \$286,350 \$1,920 October 1983	_
Monthly maintenance of typical configuration Date of first delivery Number installed to date	lpm printer; MCS; Boss/VS o.s.: \$77,005 \$404 October 1983	and 600 lpm printers; Boss/VS o.s.: \$180,820 \$1,179 October 1983	1000 lpm ptr.; Boss/VS o.s.: \$286,350 \$1,920 October 1983	_

Asynchronous Protocols supported Protocols sup		McDonnell Douglas computer Systems Co. M9208	McDonnell Douglas Computer Systems Co. M9250	Modcomp Classic 32/85	NCR Corporation 9300
MAIN MEMORY   2M8-8MB   2M6-8MB   260MB 2.0B   260MB 2.	LENGTH 3	2 bits	32 bits	32 bits	32 bits
260MB-26B   260M	1	-	1		
208					
### SPRICE RANGE ### ANGET MARKET   From \$178,000   General business			•		,
Cancer   Description   Cancer   Cance	l l		, -	- ·	1
Self-process control   Self-process   Self-process					
Macro		eneral business	General business		General business
Virtual memory   4GB			0.4	CANA	400
Hardware floating point   Battery backory   Standard					
Saturdard			1 -		
Sandard   Sand					_ ·
150	•		,	, ·	None
—	i				
16-/32-bit compatibility	ycle time, nanoseconds [1	50	135		
Aux   STORACE   Vice   Aux	[-	_		2.4	0.37
Bytes fatched per cycle   4	2-bit compatibility Y	es	Yes	Direct	Direct
Cycle/specess time, ranspeconds   Storage protection   Standard	TORAGE				
Cycle/specess time, ranspeconds   Storage protection   Standard	fetched per cycle 4		4	4	4
Standard   Standard					
Increment size, bytes   Cache memory, bytes   Does not apply   Does not apply   Does not apply   G4K   None			1		
Does not apply	- [			· ·	1
No. of     Orbannels			1		1 *
16 DMA		oes not apply	Loces not apply	U+K	ivone
Data transfer rate   20MM/sec.   20MB/sec.   20MB/sec.   20MM/sec.		C DAAA	1.0 5.44	104	
208	•	· ·		I =	
208   64   210   208   64   210   208   64   210   208   64   210   208   64   210   208   64   210   208   64   210   208   2780/3780		4UKB/sec.	840KB/sec.	BMB/sec.	2MB/sec.
Synchronous 9600 bps 9600 bps 9600 bps 9780yhorhorus 9600 bps 97800 bps 97800 bps 9600 bps 97800 bps 9600 bps 9600 bps 97800 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 97800 bps 9600 bps 9600 bps 9600 bps 97800 bps 9600 bps 97800 bps 9600 bps 97800 bps 9600 bps 97800 bps 9600 bps 97800 bps			1	1	1
Asynchronous   9600 bps   2780/3780, SDLC, SNA   2780/3780, SDLC,	number of lines 2	08	208	64	210
Asynchronous   9600 bps   2780/3780, SDLC, SNA   2780/3780, SDLC,	ronous 9	600 bps	9600 bps	Optional	Std.; 9600 bps
Protocols supported Type of LAN supported REI terminals emulated IBM 3270 emulation PeiRIPHERAL EQUIPMENT Disks supported Disks supported Disks supported Disks supported Type of LAN supported REI terminals emulated IBM 3270 emulation PeiRIPHERAL EQUIPMENT Disks supported Type of LAN supported Type of LAN supported Disks supported Fixed: 260MB Fixed: 130M	hronous 9	600 bps	9600 bps	Opt.: 110-19.2K bps	
Type of LAN supported RLB terminals emulated 12/80/3780 Yes 2780/3780 12/80/3780 12/80/3780 Yes 2780/3780 18M 2780/3780 18M 2780/3780 18M 2780/3780 18M 2780/3780 Yes 2780/3780 18M 2780/3780 18M 2780/3780 Yes 2780/3780 18M 2780/3780 18M 2780/3780 18M 2780/3780 Yes 2780/3780 18M 2780					Async, bisync, X.25, 2780/3780, 3270, SNA
RJÉ terminals emulated IBM 3270 emulation Yes  IBM 3270 emulation Yes  Fixed: 260MB  Fixed: 130MD  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  Fixed: 130MB  F	of LAN supported N	one	None	None	
No   No   No   No   No   No   No   No				1	I .
Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 260MB  Fixed: 300MB  Fixed: 130MB  Fixed: 150MB  Fi	-	•	, ·	,	
Disks supported  Serial printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Letter-quality printers Reel-to-reel tape drives Stara-ming tape drives Cassette/cartridge tape drives Cother peripherals supported  Does not apply Does not ap		C3	163	140	res
Serial printers Letter-quality printers Line		inal 260MD	Fixed, 120145	I Minchard	Fired 0
Serial printers Letter-quality printers Line printer Line printers Line printer L	supported   F	xea: 260MB	Fixed: 130MB		Fixed & removable:
Letter-quality printers Line printers Line printers Line printers Line printers Line printers Line printers Line printers Line printers Line printers J 150/300/600/1200 lpm Does not apply Does not appl			l		40/81/135/279MB
Line printers Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Cassette/cartridge tape drives Combiners  SOFTWARE Assembler Compilers  Operating system name Operating system type Operating system type Operating system reprincipal industry application  Other packages  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Monthly maintenance of typical configuration  Monthly maintenance of typical configuration  Monthly maintenance of typical configuration  Its Joy/300/600/1200 lpm Does not apply Start/stop; 25-100 ips Start/stop; 26-100 ips Start/stop; 26-100 ips Start/stop; 26-100 ips Start/s				•	80-325 cps; 360-720 lpr
Does not apply   Start/stop; 25-100 ips   Cassette/cartridge tape drives   Cassette/cartridge tape drives   Obes not apply   Does not apply	quality printers [3	3 cps	33 cps	None	33 cps
Does not apply   Start/stop; 25-100 ips   Cassette/cartridge tape drives   Cassette/cartridge tape drives   Obes not apply   Does not apply	rinters 1	50/300/600/1200 lpm	150/300/600/1200 lpm	300/600/1000 lpm	300-2000 lpm
Strar/stop; 25-100 ips Cassette/cartridge tape drives Cher peripherals supported  SOFTWARE Assembler Compilers  Operating system name Operating system typ					800/1600/GCR, 45/200
Cassette/cartridge tape drives Other peripherals supported Other peripherals supported SOFTWARE Assembler Assembler Compilers  Operating system name Operating system type Operating system type Operating system pathographic disks, which is the principal industry application Other packages  Office automation  Office a					Start/stop; 25/100 ips
Obes not apply  Does not apply  Bassic, English, All, Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Natural Language  Reality Reality Reality Reality Reality Reality Partially Partially Partially Partially Partially Partially					
SOFTWARE Assembler Compilers  Proceedings system name Operating system type Operating system type Operating system type Operating system type Operating system type Operating system partially Detailing system type Operati					
Assembler Compilers  Prescription and price Other packages  Ot	peripherals supported D	des not apply	Does not apply	Data capture terminais	
Assembler Compilers  Yes Basic, English, All, Natural Language  Reality Multitasking Operating system name Operating system type Ope	ARE	ļ			AIMS
Compilers    Basic, English, All, Natural Language		'es	Ves	Assembler/macro assemb	Macro assembler
Operating system name Operating system type Operating type Operation type Operating type Operating type Operating type Operating			1		
Operating system name Operating system type	1				CODOI, Basic, Pascai
Operating system type Operating type Operation Operating type Operating type Operation Operating type Operation Operating type Operation Operating type Operation Operating type Operation Oper	l <sub>N</sub>	atural Language	Natural Language	COLST DD	
Operating system type Operating type Operation Operating type Operating type Operation Operating type Operation Operating type Operation Operating type Operation Operating type Operation Oper		l	I Para Pa		1
Operating sys. implemented in firmware Database management system Principal industry application  Other packages  Office automation  Office automa					1
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  CPU; 2MB memory; 260MB fixed disk, 1/2-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000  Monthly maintenance of typical configuration  Date of first delivery  Database management system  Reality General business  Reality General business  Infinity Factory automation  CPU, 4MB memory; 256MB disk sourcial, ret financial, indust government, ed Nome  CPU, 2MB memory; 260MB fixed disk storage; 1/2-inch streaming tape drive; 600 lpm printer; 32 ports: \$212,000  Total packages  CPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer: \$248,400  Monthly maintenance of typical configuration  Date of first delivery  Ath quarter 1984  Ath quarter 1985  June 1984					
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  CPU, 2MB memory; 260MB fixed disk, y2-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000  Monthly maintenance of typical configuration  Date of first delivery  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  CPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer: \$248,400  \$2,400  \$432  June 1984	· .	artially	1	Partially	
Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  None  Initiation applications  CPU; 2MB memory; 26OMB fixed disk; 260MB fixed disk storage; 260MB fixed dis		eality	Reality		ITX/DBS
Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  Office automation  None  CPU, 4MB memory; 256MB cPU, 1MB memory; 256MB disk storage; 256MB fixed disk storage; 256MB fixed disk storage; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer: \$248,400  Monthly maintenance of typical configuration  Date of first delivery  Office automation  Office automation  None  CPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer: \$248,400  \$2,400  \$432  June 1984	al industry application G	eneral business	General business	Factory automation	Commercial, retail,
Other packages  Office automation  OPU, 4MB memory; 256MB disk & controller; mage netic tape unit; 2 async terminal controllers; able disk; 300 printer; 12 CRT operating syste (Cobol: \$82,515) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol: \$82,400) operating syste (Cobol:	ļ.		1	1	financial, industrial,
Office automation  OPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer; 32 ports: \$212,000  In O CRTs; 2 matrix printers; 12 CRT operating system configuration  Office automation  Office automation  Office automation  Office automation  Office automation  OPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer; \$248,400  Office automation  OPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1		· ·	1	(	government, education
PRICING & AVAILABILITY Typical system configuration and price  CPU; 2MB memory; 260MB fixed disk; 1/2-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000  Monthly maintenance of typical configuration Date of first delivery  CPU; 2MB memory; 260MB fixed disk storage; 1/2-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000  CPU, 4MB memory; 256MB disk & controller; magnetic tape unit; 2 async terminal controllers; 10 CRTs; 2 matrix printers; 1 line printer: \$248,400  S2,400  \$432  June 1984  June 1983	packages	ffice automation	Office automation	None	Numerous third-party
PRICING & AVAILABILITY Typical system configuration and price  260MB fixed disk; ½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000  27	· - [~	l	1	1	
Typical system configuration and price  CPU; 2MB memory; 260MB fixed disk;   260MB fixed disk;   260MB fixed disk;   260MB fixed disk storage;	Ī				1
260MB fixed disk;   1/2-inch streaming tape drive; 600 lpm printer;   48 ports: \$208,000   29 ports: \$212,000   20 ports: \$212,000   32 ports: \$212,000	i & AVAILABILITY		1		
260MB fixed disk;   1/2-inch streaming tape drive; 600 lpm printer;   48 ports: \$208,000   29 ports: \$212,000   20 ports: \$212,000   32 ports: \$212,000	I system configuration and price C	PU; 2MB memory;	CPU; 2MB memory; 260MB	CPU, 4MB memory; 256MB	CPU, 1MB memory;
½-inch streaming tape drive; 600 lpm printer; 48 ports: \$208,000   22 ports: \$212,000   23 ports: \$212,000   24 ports: \$248,400   24 ports: \$248,400   25					195MB/20MB fixed/remo
drive; 600 lpm printer; 48 ports: \$208,000  Monthly maintenance of typical configuration Date of first delivery  drive; 600 lpm printer; 48 ports: \$208,000  drive; 600 lpm printer; 32 ports: \$212,000  terminal controllers; 10 CRTs; 2 matrix print-operating syste Cobol: \$82,518  44h quarter 1984  44h quarter 1985  June 1984  June 1983		-			
Monthly maintenance of typical configuration  Date of first delivery  48 ports: \$208,000  32 ports: \$212,000  10 CRTs; 2 matrix printers; 1 line printer: \$248,400  \$2,400  \$432  June 1984  4th quarter 1985  4th quarter 1985  June 1984  June 1983					printer; 12 CRTs; ITX
Monthly maintenance of typical configuration Date of first delivery					1.
Monthly maintenance of typical configuration Date of first delivery  S248,400	[4	8 ports: \$208,000	32 ports: \$212,000		operating system; ITX
Monthly maintenance of typical — \$2,400 \$432 configuration Date of first delivery 4th quarter 1984 4th quarter 1985 June 1984 June 1983	<b>\</b>	,	1		Cobol: \$82,515
configuration Date of first delivery 4th quarter 1984 4th quarter 1985 June 1984 June 1983	1		ļ	\$248,400	1
configuration Date of first delivery 4th quarter 1984 4th quarter 1985 June 1984 June 1983					
Date of first delivery 4th quarter 1984 4th quarter 1985 June 1984 June 1983		- !	<u> </u>	\$2,400	\$432
Date of first delivery 4th quarter 1984 4th quarter 1985 June 1984 June 1983	guration	ļ	1	1	1
		th quarter 1984	4th quarter 1985	June 1984	June 1983
			· ·	l .	
		necial hardware/micro	2003 Hot apply		Employe VI SI tachasis
	l l		}	1	Employs VLSI technology
	J.	•	1	1	Small Computer System
creases performance two Interface (SCSI) times erals		· ·	}	1	Interface (SCSI) periph-

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MANUFACTURER & MODEL	NCR Corporation 9300IP	NCR Corporation 9400	NCR Corporation 9400IP	NCR Corporation 9500
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1MB-4MB	1MB-4MB	2MB-4MB	2MB-16MB
DISK STORAGE CAPACITY	72MB-20GB	40MB-4.2GB	72MB-20GB	40MB-40GB
NO. WORKSTATIONS SUPPORTED	216	210	216	432
	\$58,000-\$210,000	\$90,000-\$300,000	\$95,000-\$350,000	\$185,000-\$1,200,000
PRICE RANGE TARGET MARKET	General business	General business	General business	General business
CENTRAL PROCESSOR				
No. of directly addressable bytes	4M	4M	4M	16M
Virtual memory	128MB	128MB	128MB	256MB
Hardware floating point	DP	DP	DP	DP
Battery backup	None	None	None	None
Real-time clock or timer	<u> </u>		l —	
CPU cycle time, nanoseconds	150	150	150	150
MIPS	0.37	0.67	0.67	1.1
16-/32-bit compatibility	Direct	Direct	Direct	Direct
MAIN STORAGE	5551	J., 501		
Bytes fetched per cycle	4	4	4	8
Cycle/access time, nanoseconds	450	450	450	450
	Standard	Standard	Standard	Standard
Storage protection		Standard 1M	1M	2M
Increment size, bytes	1M	1 * *		
Cache memory, bytes	None	None	None	None
NPUT/OUTPUT CONTROL	1		1	
No. of I/O channels	14	8	14	14
Data transfer rate	2MB/sec.	2MB/sec.	2MB/sec.	2MB/sec.
COMMUNICATIONS			ļ .	1 .
Max. number of lines	216	210	216	432
Synchronous	Std.; 9600 bps	Std.; 9600 bps	Std.; 9600 bps	Std.; 9600 bps
Asynchronous	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps
Protocols supported	Async, bisync, X.25, 2780/3780, 3270, SNA	Async, bisync, X.25, 2780/3780, 3270, SNA	Async, bisync, X.25, 2780/3780, 3270, SNA	Async, bisync, X.25, 2780/3780, 3270, SNA
Type of LAN supported	SNA	SNA	SNA	SNA
RJE terminals emulated	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
	res	res	res	res
PERIPHERAL EQUIPMENT	F: 10		Fired 8 man and the	Fired 8 company to 407
Disks supported	Fixed & removable:	Fixed & removable:	Fixed & removable:	Fixed & removable: 40/
	40/72/135/279/415MB	40/81/135/279MB	40/72/135/279/415MB	81/135/200/279/415MB
Serial printers	80-325 cps; 360-720 ipm	80-320 cps; 360-720 lpm	80-320 cps; 360-720 lpm	80-320 cps; 360-720 lpm
Letter-quality printers	33 cps	33 cps	33 cps	33 cps
Line printers	360-2000 lpm	300-2000 lpm	360-2000 lpm	360-2000 lpm
Reel-to-reel tape drives	1600/GCR, 100 ips	800/1600/GCR, 45/200 ips	1600/GCR, 100 ips	800/1600/GCR, 45/200
Streaming tape drives	Start/stop; 25/100 ips	Start/stop; 25/100 ips	Start/stop; 25-100 ips	Start/stop; 25-100 ips
Cassette/cartridge tape drives	15/90 ips	15/90 ips	15/90 ips	15/90 ips
Other peripherals supported	Card readers, sorters,	Card readers, sorters,	Card readers, sorters,	Card readers, sorters,
Canal panjanana sappana	ATMs	ATMs	ATMs	ATMs
SOFTWARE			7	[ ************************************
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
	7	Cobol, Basic, Pascal	Cobol, Basic, Pascal	Cobol, Basic, Pascal
Compilers	Cobol, Basic, Pascal	CODOI, Basic, Fascai	CODOI, Basic, Fascai	CODOI, Basic, Fascal
Operating system name	ITX	ITX	ITX	ITX
	,	Multitasking	Multitasking	Multitasking
Operating system type	Multitasking			
Operating sys. implemented in firmware	Partially	Partially	Partially	Partially
Database management system	ITX/DBS	ITX/DBS	ITX/DBS	ITX/DBS
Principal industry application	Commercial, retail,	Commercial, retail,	Commercial, retail,	Commercial, retail,
	financial, industrial,	financial, industrial,	financial, industrial,	financial, industrial,
	government, education	government, education	government, education	government, education
Other packages	Numerous third-party	Numerous third-party	Numerous third-party	Numerous third-party
	applications	applications	applications	applications
	1	}	J	1
PRICING & AVAILABILITY				
Typical system configuration and price	CPU, 1MB memory;	CPU, 3MB memory; 579MB/	CPU, 3MB memory; 554MB	CPU, 4MB memory; 815N
	207MB disk storage;	20MB fixed/removable	disk storage; 600 lpm	disk storage; two
	300 lpm printer; 45MB	disk; 600 lpm printer;	printer; 320 bpi stream-	600 lpm printers;
	streaming tape; 12 CRTs;	30 CRTs; ITX operating	ing tape drive; 30 CRTs;	3250 bpi streaming tape
	ITX operating system;	system; ITX Cobol:	ITX operating system;	drive; 64 CRTs; ITX
		\$163,483	ITX Cobol: \$167,773	
	ITX Cobol: \$77,254	Ψ 103,403	117 GODOL Ø 107,773	operating system; ITX Cobol: \$329,460
	I			
		1	1	laa
Monthly maintenance of typical	\$406	\$1,015	\$950	\$2,081
Monthly maintenance of typical configuration	\$406	\$1,015	\$950	\$2,081
configuration				
configuration Date of first delivery	February 1986	\$1,015 May 1985	\$950 May 1986	May 1986
configuration Date of first delivery Number installed to date	February 1986 Does not apply	May 1985	May 1986	May 1986 Does not apply
configuration Date of first delivery Number installed to date	February 1986 Does not apply Employs VLSI technology,	May 1985 — Employs VLSI technology,	May 1986 — Employs VLSI technology,	May 1986 Does not apply Dyadic processor; uses
configuration Date of first delivery Number installed to date	February 1986 Does not apply Employs VLSI technology, Small Computer System	May 1985 — Employs VLSI technology, Small Computer System	May 1986  Employs VLSI technology, Small Computer System	May 1986 Does not apply Dyadic processor; uses VLSI, Small Computer
configuration Date of first delivery	February 1986 Does not apply Employs VLSI technology,	May 1985 — Employs VLSI technology,	May 1986 — Employs VLSI technology,	May 1986 Does not apply Dyadic processor; uses

	Norsk Data N.A., Inc.	Norsk Data N.A., Inc.	Prime Computer, Inc.	Prime Computer, In
MANUFACTURER & MODEL	ND-530/ND-550	ND-560/ND-570	2350	2450
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	1.25MB-72MB	2.25MB-72MB	2MB-8MB	2MB-8MB
DISK STORAGE CAPACITY	70MB-7.2GB	70MB-7.2GB	240MB	240MB
NO. WORKSTATIONS SUPPORTED	128	128	16	24
PRICE RANGE	See Comments	See Comments	\$29,900-\$36,900	\$47,900-\$53,900
TARGET MARKET	Technical/scientific	Technical/scientific	General business	General business
CENTRAL PROCESSOR				
No. of directly addressable bytes	4.2G	4.2G	_	
Virtual memory	8.4GB	8.4GB	512MB per user	512MB per user
Hardware floating point	SP, DP	SP, DP	SP, DP	SP, DP
Battery backup	Auto restart	Auto restart	None	None
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	120	120	160	160
MIPS	1.2 (530)/2.7 (550)	4.3 (560)/6.8 (570)	0.85	1.3
16-/32-bit compatibility	Via multiport memory	Via multiport memory	32-bit only	32-bit only
MAIN STORAGE		1		
Bytes fetched per cycle	4	4 (ND-560)/8 (ND-570)	<del> </del>	<u> </u>
Cycle/access time, nanoseconds	400	400	180	132
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	1M, 4M	1M, 4M	2M, 4M	2M, 4M
Cache memory, bytes	None	16K (560)/64K (570)	16K	16K
NPUT/OUTPUT CONTROL			1	l
No. of I/O channels	3	3	1	<u> </u>
Data transfer rate	2.1MB/sec.	2.1MB/sec.	5MB/sec.	5MB/sec.
COMMUNICATIONS	2. 1110/ 000.	2.1110/330.	J. 110/300.	0.410/360.
Max. number of lines	64	64	20 (16 00) 10 1 100	20 /24
	1 = :	1	20 (16 async, 4 sync)	28 (24 async, 4 sync)
Synchronous	Opt.; 307.1K bps	Opt.; 307.1K bps	1.2K-65K bps	1.2K-65K bps
Asynchronous	Std.; 9600 bps	Std.; 9600 bps	50-19.2K bps	50-19.2K bps
Protocols supported	SDLC, Hasp, SNA, BSC,	SDLC, Hasp, SNA, BSC,	Hasp, HDLC X.25, SNA,	Hasp, HDLC X.25, SNA,
	IBM 2780/3780	IBM 2780/3780	Primenet, bisync, others	Primenet, bisync, others
Type of LAN supported	Ethernet, HDLC	Ethernet, HDLC	Ringnet	Ringnet
RJE terminals emulated	IBM 2780/3780, Hasp	IBM 2780/3780, Hasp	2780/3780/3270	2780/3780/3270
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT	res	165	res	Tes
	5: 10	r. 10	145 1	145 1 2000
Disks supported	Fixed & removable:	Fixed & removable:	Winchester: 60MB, 120MB	Winchester: 60MB, 120I
	70/140/288/450MB	70/140/288/450MB		
Serial printers	80/300 cps	80/300 cps	30-200 cps	30-200 cps
Letter-quality printers	38/55 cps	38/55 cps	55 cps	55 cps
Line printers	600/1000 lpm	600/1000 lpm	300-1000 lpm	300-1000 lpm
Reel-to-reel tape drives	1600/6250 bpi, 125 ips	1600/6250 bpi, 125 ips	6250 bpi, 50 ips	6250 bpi, 50 ips
Streaming tape drives	Start/stop; 90 ips	Start/stop; 90 ips	25/50/100 ips	25/50/100 ips
Cassette/cartridge tape drives	90 ips	90 ips	14-inch cartridge	14-inch cartridge
Other peripherals supported	Card reader	Card reader	Video & hardcopy termi-	Video & hardcopy termi-
OCTIVA DE		1	nals; matrix plotters	nals; matrix plotters
SOFTWARE		l .		
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
Compilers	Cobol, Fortran, Ada,	Cobol, Fortran, Ada,	Cobol, Fortran, Pascal,	Cobol, Fortran, Pascal,
	Pascal, APL, C, Simula	Pascal, APL, C, Simula	Basic, RPG II, C, PL/1	Basic, RPG II, C, PL/1
	1	1		_
Operating system name	Sintran	Sintran	Primos; Primix	Primos; Primix
Operating system type	Rt., batch, timeshare	Rt., batch, timeshare	Realtime; Unix System V	Realtime; Unix System V
Operating sys. implemented in firmware	Partially	Partially	Fully	Fully
Database management system	Sibas (Codasyl)	Sibas (Codasyl)	DBMS, Oracle	DBMS, Oracle
Principal industry application	Simulation/scientific	Simulation/scientific	CAD/CAM, engineering/	CAD/CAM, engineering/
to a set abbrevia	computing	computing	scientific, interactive	scientific, interactive
	Co.iiputing	Jos. iipatiiig	business data proc.	business data proc.
Other packages	Office automation	Office automation	Office automation	Office automation
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PRICING & AVAILABILITY			}	
	ND E00/2 CBU: 4 2554B	ND EOO/2 CDU 4 2545	CDI with 484D	CDLL said- 454D
Typical system configuration and price	ND-500/2 CPU; 4.25MB	ND-500/2 CPU; 4.25MB	CPU with 4MB memory;	CPU with 4MB memory;
	memory; ND-100/CX front	memory; ND-100/CX front	120MB Winchester disk;	120MB Winchester disk
	end; 450MB fixed disk;	end; 450MB fixed disk;	60MB cartridge tape	60MB cartridge tape
	16 terminals; 6250 bpi	16 terminals; 6250 bpi	unit; disk/tape control-	unit; disk/tape control-
	magnetic tape; 1000 lpm	magnetic tape; 1000 lpm	ler; 16 async lines;	ler; 16 async lines;
	band printer; 55 cps	band printer; 55 cps	PT200 system console;	PT200 system console;
	letter-quality printer:	letter-quality printer:	Primos o.s.: \$36,900	Primos o. s.: \$53,900
	\$275,000 (ND-530) or	\$370,000 (ND-560)/		
			1	1
Administration of the Control of the	\$315,000 (ND-550)	\$450,000 (ND-570)	0540	4000
Monthly maintenance of typical	\$2600 (530)/\$3000 (550)	\$3500 (560)/\$4400 (570)	\$516	\$606
configuration	1		1	
Date of first delivery	<del> </del>	<del> </del>	1st quarter 1986	1st quarter 1986
Number installed to date		_		
COMMENTS	ND-530 is priced from	ND-560 is priced from	Replaces Prime 2250	
CIVILLIA			neplaces Frime 2250	
	\$102,000, ND-550 from	\$195,000, ND-570 from	1	
	\$146,000. MIPS rates are	\$288,000. MIPS rates are	1	
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22   Disc   25	MANUFACTURER & MODEL	Prime Computer, Inc. 2655	Prime Computer, Inc. 9655	Prime Computer, Inc. 9755	Prime Computer, Inc. 9955 II
AMAN MEMORY  18.8 STORAGE CAPACITY  18.1 SA SEG STORAGE CAPACITY  18.1 SA SEG STORAGE CAPACITY  18.2 SA SEG STORAGE CAPACITY  18.3 SEG STORAGE CAPACITY  18.4 SAGE T MARKET  18.4 SAGE T M	MODD LENGTH	20 his-	22 hin	22 -	22 1:1-
1006   1006					l .
10. WORKSTATIONS SUPPORTED   64   291 (200-\$133.060 General business		1		1	
Self-200-5139,080   Self-200-5281,500   Self					
ARGET MARKET  General business  Spicial position  Spicial position  Spicial position  Spicial position  Spicial position  General business  Spicial position  Spicial position  Spicial position  Spicial position  Spicial position  General business  Spicial position	IO. WORKSTATIONS SUPPORTED	64	128	192	254
ENTRAL PROCESSOR No. of directly addressable bytes Virtual memory SP, DP attery backup Battery backup Standard	PRICE RANGE	\$91,200-\$133,080	\$126,700-\$158,000	\$236,100-\$261,500	\$354,400-\$428,700
No. of directly addressable bytes	ARGET MARKET	General business	General business	General business	General business
Hardware floating point Batterly hackups Real-time clock or timer Chol cycle time, nanoseconds Standard Standar		<del>-</del>	<del>-</del>	_	<del>-</del>
None   Standard   St					
Standard   Standard				SP, DP, QP	SP, DP, QP
CPU cycle time, nanoseconds	Battery backup	None	None	None	None
MIRS 1.3 3.2-bit only 3.2-bit o	Real-time clock or timer	Standard	Standard	Standard	Standard
15./32-bit competibility Alta NSTORAGE Bytes fetched per cycle Cycle/access time, nanoseconds Storage protection Cerement size, bytes PUT/OUFFUT CONTROL No. of I/O channels Data transfer rate OMMAINCATIONS Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage protection Storage protection Storage protection Max. number of lines Synchronous 1.2K SSK bps Storage Storage protection	CPU cycle time, nanoseconds	<u> </u>	160	80	64
18-/32 bit compatibility AIN STORAGE Bytes fetched per cycle Vocyle/access time, nanoseconds Storage protection Standard	MIPS	1.3	1.3	3.4	5.0
AMN STORAGE Syles fetched per cycle Cycle /access time, nanoesconds Storage protection Cache memory, bytes Syles fetched per cycle Storage protection Cache memory, bytes Syles fetched per cycle Storage protection Cache memory, bytes Syles fetched per cycle Storage protection Cache memory, bytes Syles fetched per cycle Storage protection Cache memory, bytes Syles fetched per cycle Storage protection Cache memory, bytes Syles fetched per cycle Storage protection Commonwealth of the Syles of Storage protection Commonwealth of the Syles of Storage protection Syles apported Finded Cache memory, bytes Syles fetched per cycle Syl	16-/32-bit compatibility	32-bit only		32-bit only	
Bytes fetched per cycle Cycle/access time, nanoseconds Storage protection Uncernent size, bytes Cachie mannory		02 Dit 01y	J 2.1. 51,		02 5 0,
Cycle/apcess time, nanoseconds Storage protection Increment size, bytes Cache memory, bytea PUT/OUTFUT CONTROL CACHE memory, bytea PUT/OUTFUT CONTROL TOWN Trains CAMPUNICATIONS SIMPLE of the storage of		<u> </u>	l	l	l
Storage protection increment size, bytes Cache memory, bytes PVP VIVOTUTE CONTROL CATIONS Of I/O channels Date transfer rate OMM/URCATIONS OMM		132	132	84	46
Increments size, bytes Cache memory, bytes PUT/OUTPUT CONTROL No. of I/O channels Data transfer rate ORMAINCA TIONS Max. number of lines Synchronous 1.2K-65K bps			1		1 ' =
Cache memory, bytes PMUT/OUTPUT (OTNTROL No. of I/O channels Data transfer rate OMMUNICATIONS OMMUNICATIONS OMMUNICATIONS OMMUNICATIONS ON Solid Specific Sp		Staridard	Standard		
PRUT/OUTPUT CONTROL No. of I/O channels Data transfer rate OMMUNICATIONS Max. number of lines Synchronous 1.2K 65K bps 50-19.2K bps 50-		1-04	100		
No. of I/O charnels Data transfer rate COMMUNICATIONS Max. number of lines Synchronous 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 50-19.2k bps Hasp, HDLC X.25, SNA, Primenet, blaync, others Ringnet 1.2K-65k bps 1.		16K	TOK	16K	64K
Data transfer rate  DMS. number of lines  Msx. number of lines  Msx. number of lines  Msx. number of lines  Asynchronous  1.2K-65k bps 50-19.2k bps		1	1	1	1
SOMMUNICATIONS   4 sync   1,2K-85K bps   1,2K-85K bps   50-19,2K		<del></del>	<del></del>	<u> </u>	l.
SOMMUNICATIONS   4 sync   1.2K-65K bps   1.2K-65K bps   50-19.2K		5MB/sec.	5MB/sec.	9MB/sec.	9.5MB/sec.
Max. number of lines	COMMUNICATIONS	1			1
Synchronous Asynchronous Fortocols supported Fortocols supported RIGH Eterminals emulated IBM 3270 emulation FelipherEAL EQUIMENT Disks supported FelipherEAL EQUIMENT Disks supported FelipherEAL EQUIMENT Disks supported Serial printers Se	Max. number of lines	4 svnc	4 svnc	8 svnc	8 svnc
Asynchronous Protocols supported Hasp, PIDLC X.25, SNA, Primenet, bisync, others Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primenet, bisync, others Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/3780/3270 Yes Primes Primes Ringnet 2780/					
Protocols supported Primenet, bisync, others Type of LAN supported Ringnet Type of LAN supported RING 1270 emulation REMPHERIAL EQUIMENT Disks supported  Winchester: 315MB-675MB; removable 30-200 cps 55 cps 300-1000 lpm 6250 bpi, 50 ips 25/50/100 ips 6250 bpi, 50 ips 25/50/100 i					
Type of LAN supported RJE terminals emulated RJE terminals emulation PRIPHERAL EQUIPMENT Disks supported Winchester: 315MB-675MB; removable Serial printers Source of the printers Streaming tape drives Clabe printers Streaming tape drives Clabe printers Streaming tape drives Other peripherals supported Operating system name Operating system name Poperating system name Poperating system name Poperating system name Principal industry application Other packages  Other packages  Monthly maintenance of typical configuration Date of first delivery Monthly maintenance of typical configuration Date of first delivery Monther installed in deliver in the proper in the configuration Date of first delivery Monthly maintenance of typical configuration Date of first delivery Momer installed in the marked in the proper in the configuration Date of first delivery Momer installed in the marked in the properties of the configuration Date of first delivery Momer installed in the properties in the properties of the properties					
Type of LAN supported Ringnet ZB0/3780/3270 Yes	Trotocois supported		1		
RJE terminals emulated BIBM 3270 emulation PERIPHERAL EQUIPMENT Disks supported Winchester: 315MB-675MB, removable service place of the processor, cabinet, chassis, and modern; 4MB memory; 315MB, value place of the processor, cabinet, chassis, and modern; 4MB memory; 315MB, value place of the processor, cabinet, chassis, and modern; 4MB memory; 315MB fixed disk; streaming tape subsystem configuration and price Primary and prevails of the processor, cabinet, chassis, and modern; 4MB memory; 315MB fixed disk; streaming tape subsystem: \$99,900 \$705 \$705 \$105 \$105 \$105 \$105 \$105 \$105 \$105 \$1	Time of LAN comments	1			
IBM 3270 emulation ERRIPHERAL EQUIPMENT Disks supported  Winchester: 3 15MB-675MB, removable 30-200 cps 55 cps 30-200 cps 55 cps 55 cps 30-200 cps 55 cps 55 cps 30-1000 lpm 30-200 cps 55 cps 56 cps 67 cpt with primary primary primary primary primary primary primary primary primary primary primary primary prim					
Disks supported Serial printers Serial printer					
Disks supported  Winchester: 315MB-675MB; removable and printers  Serial printers  30-200 cps 55 cps 300-1000 lpm 6250 bpi, 50 ips 6250 bpi, 5		Yes	Yes	Yes	Yes
Serial printers Letter-quality printers Line printers Line printers Line printers Line printers Line printers Line printers So 30-200 cps 55 cps 30-200 cps 55 cps 30-200 cps 55 cps 30-200 cps 55 cps 30-200 cps 55 cps 30-200 cps 55 cps 300-1000 lpm 6250 bpl, 50 lps 6250 bpl, 50	PERIPHERAL EQUIPMENT	1			}
Serial printers Line printers Line printers Line printers Line printers Line printers Line printers Signatur	Disks supported	Winchester: 315MB-675MB;	Winchester: 315MB-675MB;	Winchester: 315MB-675MB;	Winchester: 315MB-675
Letter-quality printers Line printers Reel-to-reel tape drives Reel-to-reel tape drives Streaming tape drives Compilers  Assembler Compilers  Macro assembler Compilers  Macro assembler Compilers  Macro assembler Compilers  Macro assembler Compilers  Macro assembler Copol, Fortran, Pascal, Basic, RPG II, C, PL/1 Derating system name Operating system type Operating system type Operating system type Operating system type Operating system type Operating system configuration Other packages  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; operating system: Subsystem; office peripheral cabinet; Primos operating system: Sp9,200  Monthly maintenance of typical configuration Date of first delivery Number installed to date  55 cps 300-1000 lpm 6250 bpi, 50 ips 6250 bpi, 5		removable	removable	removable	removable
Letter-quality printers Line printers Reel-to-reel tape drives Reel-to-reel tape drives Streaming tape drives Compilers  Assembler Compilers  Macro assembler Compilers  Macro assembler Compilers  Macro assembler Compilers  Macro assembler Compilers  Macro assembler Copol, Fortran, Pascal, Basic, RPG II, C, PL/1 Derating system name Operating system type Operating system type Operating system type Operating system type Operating system type Operating system configuration Other packages  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; operating system: Subsystem; office peripheral cabinet; Primos operating system: Sp9,200  Monthly maintenance of typical configuration Date of first delivery Number installed to date  55 cps 300-1000 lpm 6250 bpi, 50 ips 6250 bpi, 5	Serial printers				
Line printers Reel-to-reel tape drives Streaming tape drives Cassette /cartridge tape drives Cassette /cartridge tape drives Cassette /cartridge tape drives Cassette /cartridge tape drives Cassette /cartridge tape drives Other peripherals supported Other peripherals supported Other peripherals supported  Nacro assembler Compilers  OFTWARE Assembler Compilers  Operating system name Operating system type Operating system type Operating system type Dabbs, Oracle CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  Office automation  Office automation  Office automation  Monthly maintenance of typical configuration Date of first delivery Date of first d					
Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported Oberating system name Operating system name Operating system type Operating system type Operating system type Other packages Other packages Other packages  PRICING & AVAILABILITY Typical system configuration and price Other packages  Monthly maintenance of typical configuration Date of first delivery  Monthly maintenance of typical configuration Date of first delivery  Monthly maintenance of typical configuration Date of first delivery Number installed to date  Macro assembler Cabo bpi, 50 ips 25/50/100 ips 6400 bpi, 30 ips Video & hardcopy terminals; matrix plotters vi					
Streaming tape drives Cassette/Cartridge tape drives Cassette/Cartridge tape drives Cassette/Cartridge tape drives Cassette/Cartridge tape drives Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other peripherals supported Other packages Other packages Other peripherals supported Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other packages Other pa					
Cassette/cartridge tape drives Other peripherals supported Video & hardcopy terminals; matrix plotters Assembler Compilers  Macro assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Operating system name Operating system type Operating					
Other peripherals supported  Video & hardcopy terminals; matrix plotters  Video & hardcopy terminals; matrix plotters  Macro assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Operating system name Operating system type Operating system mame Operating system type Operating syste					
Assembler Compilers Assembler Assembler Assembler Assembler Assembler Assembler Assembler Compilers Assembler Assembler Assembler Assembler Assembler Compilers Assembler Assemb					
Assembler Compilers  Macro assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Operating system name Operating system type Operating system type Operating system path coperating system type Database management system Database management system Principal industry application Office automation  PRICING & AVAILABILITY Typical system configuration and price Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; operating system: sp9.200  Monthly maintenance of typical configuration  Macro assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; incs wise, since peripheral cabinet; primos operating system: \$99.200  Monthly maintenance of typical configuration  Monthly maintenance of typical configuration  Monthly maintenance of typical configuration  Macro assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; incs with controller; streaming tape subsystem; pripheral cabinet; color or console; \$392.00  S705  Monthly maintenance of typical configuration  More assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; two 496MB fixed disks with controller; streaming tape subsystem; pripheral cabinet; color or console; \$392.600  \$2,380  More assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1	Other peripherals supported	Video & hardcopy termi-	Video & hardcopy termi-	Video & hardcopy termi-	
Assembler Compilers  Macro assembler Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Operating system name Operating system type Ope		nals; matrix plotters	nals; matrix plotters	nals; matrix plotters	nals; matrix plotters
Compilers  Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Operating system name Operating system type Operating system type Operating system type Operating system type Database management system Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; operating system: Space operating system Operating system type  Other packages  Cobol, Fortran, Pascal, Basic, RPG II, C, PL/1  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; operating system: Space operating system: Space of first quarter 1986  Obol, Fortran, Pascal, Basic, RPG II, C, PL/1  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; is interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; is interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; two 496MB fixed disk with controller; streaming tape subsystem; is interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; two 496MB fixed disks with controller; streaming tape subsystem; is interactive business data proc. Office automation  CPU with Diagnostic Processor, cospinet	SOFTWARE	!			
Derating system name Operating system type O	Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler
Derating system name Operating system type O	Compilers	Cobol. Fortran, Pascal.	Cobol. Fortran, Pascal.	Cobol, Fortran, Pascal.	Cobol, Fortran, Pascal.
Operating system name Operating system type Operating system type Database management system Principal industry application Other packages  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPICING & AVAILABILITY Typical system configuration and price  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; AMB memory; 315MB fixed disk; streaming tape subsystem; office pe- ripheral cabinet; Primos operating system type  Operating system type  CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; AMB memory; 315MB fixed disk; streaming tape subsystem; office pe- ripheral cabinet; Primos operating system V Fully DBMS, Oracle CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; MB memory; two 496MB fixed disk; streaming tape subsystem; office pe- ripheral cabinet; Primos operating system: \$99,200  Monthly maintenance of typical configuration Date of first delivery Number installed to date  Primos; Primix Realtime; Unix System V Fully DBMS, Oracle CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; MB memory; two 496MB fixed disk; streaming tape subsystem; console; Primos o.s.:: \$99,200  \$\$\frac{30}{188}\$\$ (and modem; \$\frac{30}{188}\$\$ (insteractive) business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; \$\frac{30}{1600}\$ (fisks with controller; storaming tape subsystem; peripheral cabinet; console; Primos o.s.:: \$90/1600/6250 bpi, 50 ips tape subsystem; peripheral cabinet; console; \$\frac{30}{188}\$ (fisks with controller; storaming tape subsystem; peripheral cabine	•				
Realtime; Unix System V   Fully   Fu					
Operating system type Operating sys. implemented in firmware Database management system Principal industry application Other packages  PREALTING & AVAILABILITY Typical system configuration and price Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system:  99,200 Monthly maintenance of typical configuration  PRICT Monthly maintenance of typi	Operating system name	Primos: Primiy	Primos: Primiy	Primos: Primiy	Primos: Primiv
Operating sys. implemented in firmware Database management system Principal industry application Other packages  PRICING & AVAILABILITY Typical system configuration and price  Monthly maintenance of typical configuration Date of first delivery Number installed to date  Pully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Pully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Pully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Pully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Pully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  Pully DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; ICS2 w/32 async lines; peripheral cabinet; console; Primos o.s.:  System: \$142,100 System:					
DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  PRICING & AVAILABILITY Typical system configuration and price Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; operating system: operating system: \$99,200  Monthly maintenance of typical configuration DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system: \$99,200  Monthly maintenance of typical configuration Date of first delivery Number installed to date  DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; ICS2 w/32 async lines; peripheral cabinet; console; Primos o.s.: : peripheral cabinet; color or console: \$392,600  \$705  DBMS, Oracle CAD/CAM, engineering/scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; two 496MB fixed disk; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: : peripheral cabinet; color or console: \$392,600  \$2,380  2nd quarter 1986  — 2nd quarter 1986				r	
Principal industry application  CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPRICING & AVAILABILITY Typical system configuration and price  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system:  Sp9,200  Monthly maintenance of typical configuration  Monthly maintenance of typical configuration  Date of first delivery Number installed to date  CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; ICS2 w/32 async lines; peripheral cabinet; console; Primos o.s.: :  \$2PRICING & AVAILABILITY Typical system configuration and price  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; ICS2 w/32 async lines; peripheral cabinet; console; Primos o.s.: :  \$39,200  Monthly maintenance of typical configuration  Date of first delivery Number installed to date  CAD/CAM, engineering/ scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 9MB memory; 315MB fixed disk; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: :  \$25					
Scientific, interactive business data proc. Office automation  CPICING & AVAILABILITY Typical system configuration and price  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; pripheral cabinet; pripheral cabinet; pripheral cabinet; pripheral cabinet; processor, system: \$99,200  Monthly maintenance of typical configuration  Date of first delivery Number installed to date  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; cab.; Primos operating system: \$142,100  No charge  Scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 8MB memory; 315MB fixed disk; streaming tape subsystem; chassis, and modem; 4MB memory; 15MB fixed disk; streaming tape subsystem; cab.; Primos operating system: \$142,100  No charge  Scientific, interactive business data proc. Office automation  CPU with Diagnostic Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: :  800/1600/6250 bpi, 50 ips tape subsystem; console; Primos o.s.: :  999,200  \$705  No charge  1985  2nd quarter 1986  2nd quarter 1986	ŭ ,				
Dusiness data proc. Office automation  Description of the packages  Description of the package of the packages  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk, streaming tape subsystem; 16S2 w/32 async lines; peripheral cabinet; peripheral cabinet; console; Primos operating system: \$142,100 system: \$142,100 system: \$142,100 system: \$142,100 system: \$142,100 system: \$1,787  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  Description of the packages	Principal industry application				
Office automation  OFICE Automation  Office automation  OFICE Automati					
PRICING & AVAILABILITY Typical system configuration and price  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office pe- ripheral cabinet; Primos operating system: \$99,200  Monthly maintenance of typical configuration Date of first delivery Number installed to date  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; CS2 w/32 async lines; peripheral cab.; Primos operating system: \$142,100 No charge  CPU with Diagnostic Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsys- tem; peripheral cabinet; console; Primos o.s.: \$258,600 \$1,787  2nd quarter 1986  — 2nd quarter 1986 —		business data proc.	business data proc.	business data proc.	business data proc.
Typical system configuration and price  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system:  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; CS2 w/32 async lines; peripheral cabinet; primos operating system: \$99,200  \$705  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; two 496MB fixed disks with controller; streaming tape subsystem; cab.; Primos operating system: \$142,100  \$258,600  \$1,787  CPU with Diagnostic Processor, cabinet, chassis, and modem; 16f memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.:  \$800/1600/6250 bip, 50 bips ape subsystem; peripheral cabinet; console; Primos o.s.:  \$258,600  \$1,787  2nd quarter 1986  Znd quarter 1986	Other packages	Office automation	Office automation	Office automation	Office automation
Typical system configuration and price  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system:  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; CS2 w/32 async lines; peripheral cabinet; primos operating system: \$99,200  \$705  CPU with Diagnostic Processor, cabinet, chassis, and modem; 4MB memory; two 496MB fixed disks with controller; streaming tape subsystem; cab.; Primos operating system: \$142,100  \$258,600  \$1,787  CPU with Diagnostic Processor, cabinet, chassis, and modem; 16f memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.:  \$800/1600/6250 bip, 50 bips ape subsystem; peripheral cabinet; console; Primos o.s.:  \$258,600  \$1,787  2nd quarter 1986  Znd quarter 1986					}
Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system: \$199,200  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk, streaming tape subsystem; chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; lCS2 w/32 async lines; peripheral cabinet; console; Primos o.s.: \$800/1600/6250 bpi, 50 ips tape subsystem; console; Primos o.s.: \$258,600 cor console: \$392,600 \$2,380 configuration  Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: \$258,600 cor console: \$392,600 \$2,380 configuration  Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: \$258,600 cor console: \$392,600 \$2,380 configuration  Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: \$258,600 cor console: \$392,600 \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; \$1,787 console: \$392,600 \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2,380 correct disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$2				ļ	l
Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system: \$142,100  Monthly maintenance of typical configuration  Date of first delivery  Number installed to date  Processor, cabinet, chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; chassis, and modem; 16l memory; two 496MB fixed disks with controller; streaming tape subsystem; peripheral cabinet; console; Primos o.s.: \$258,600  \$1,787  Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: \$258,600  \$1,787  Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: \$258,600  \$2,380  2nd quarter 1986  Processor, cabinet, chassis, and modem; 8MB memory; two 496MB fixed disks with controller; streaming tape subsystem; console; Primos o.s.: \$258,600  \$2,380  2nd quarter 1986	Typical system configuration and price	CPU with Diagnostic	CPU with Diagnostic	CPU with Diagnostic	CPU with Diagnostic
chassis, and modem; 4MB memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system: \$192,00 \$705 \$1985 \$1985 \$258,600 \$2,380 \$2,380 \$200 \$1985 \$200 \$1985 \$258,600 \$2,380 \$200 \$200 \$200 \$200 \$200 \$200 \$200 \$2		Processor, cabinet,	Processor, cabinet,	Processor, cabinet,	Processor, cabinet,
memory; 315MB fixed disk; streaming tape subsystem; office peripheral cabinet; Primos operating system: \$99,200 \$705 \$1985 \$1985 \$1985 \$2nd quarter 1986 \$2n		1			
disk; streaming tape subsystem; ICS2 w/32 async lines; peripheral cabinet; Primos operating system: \$142,100 aconfiguration  Date of first delivery Number installed to date  disk, streaming tape subsystem; ICS2 w/32 async lines; peripheral cabinet; console; Primos operating system: \$142,100 async lines; peripheral cabinet; console; Primos o.s.: \$258,600 aconfiguration  Date of first delivery 1985 async lines; peripheral cabinet; color console; \$392,600 aconfiguration  Date of first delivery 1985 and quarter 1986 aconfiguration  Date of first delivery 1985 aconfiguration					
subsystem; office peripheral cabinet; Primos operating system: \$142,100 \$258,600 \$1,787 \$2,380 \$2,38					
ripheral cabinet; Primos operating system: \$99,200 system: \$142,100 system: \$142,100 system: \$1,787 system: \$1,					-
operating system: \$99,200 system: \$142,100 system: \$258,600 or console: \$392,600 system: \$142,100 system: \$1,787 system: \$392,600 system: \$1,787 system: \$1,					
\$99,200   \$ystem: \$142,100   \$258,600   or console: \$392,600   \$705   No charge   \$1,787   \$2,380					
Monthly maintenance of typical configuration  Date of first delivery Number installed to date  \$705 No charge \$1,787 \$2,380 2nd quarter 1986 2nd quarter 1986 —					
configuration Date of first delivery Number installed to date  1985 1985 2nd quarter 1986 2nd quarter 1986 —		\$99,200	system: \$142,100		or console: \$392,600
configuration Date of first delivery Number installed to date  1985 1985 2nd quarter 1986 2nd quarter 1986 —					
Date of first delivery 1985 2nd quarter 1986 2nd quarter	Monthly maintenance of typical	\$705		1	1
Number installed to date — — — — — —		\$705	,		
	configuration			2nd quarter 1986	2nd quarter 1986
The property of the property o	configuration Date of first delivery			2nd quarter 1986	2nd quarter 1986
	configuration Date of first delivery Number installed to date	1985	1985	<u> </u>	<u> </u>
	configuration Date of first delivery	1985	1985	<u> </u>	<u> </u>

MANUFACTURER & MODEL	Pyramid Technology Corporation Pyramid 90x	Pyramid Technology Corporation Pyramid 98x	Sequent Computer Systems Balance 8000	Sperry Corporation 7000/40
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	2MB-16MB	4MB-32MB	2MB-28MB	4MB-32MB
DISK STORAGE CAPACITY	150MB-13.2GB	150MB-13.2GB	72MB-64GB	
NO. WORKSTATIONS SUPPORTED	128	1	4	160MB-8.24GB
		256	192	240
PRICE RANGE	\$100,000-\$150,000	\$200,000-\$300,000	\$50,000-\$250,000	From \$180,000
FARGET MARKET	General business, engineering/scientific	General business, engineering/scientific	Software devel., govt., CAD/CAE, technical OEM	General business, govt., engineering/scientific
CENTRAL PROCESSOR		1		1
No. of directly addressable bytes	16M	32M	32M	32M
Virtual memory	4GB	4GB	16MB	4GB
Hardware floating point	DP	DP	SP, DP	Opt.; SP, DP
Battery backup	None	None	None	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	125	100	100	100
MIPS	Does not apply	Does not apply	1.4 to 8.4	7.7
16-/32-bit compatibility	32-bit only	32-bit only	Does not apply	
MAIN STORAGE	1	[		1
Bytes fetched per cycle	32	32	8	4
Cycle/access time, nanoseconds	725	700	300	100
Storage protection	1.23	1.50		
	404	404	Standard	Standard
Increment size, bytes	4M	4M	2M	4M, 16M
Cache memory, bytes NPUT/OUTPUT CONTROL	4K	4K	8K per CPU	56K
No. of I/O channels	4	4	8	25
Data transfer rate	2MB/sec.	11MB/sec.	11.2MB/sec. (cumulative)	11.2MB/sec.
COMMUNICATIONS				1
Max. number of lines	128	256	192	I—
Synchronous	Opt.; 56K bps	Opt.; 56K bps	None	Opt.; 307K bps
Asynchronous	Opt.; 19.2K bps	Opt.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps
Protocols supported	Hasp, X.25	Hasp, X.25	TCP/IP	SNA, BSC, IBM 2780/37
Type of LAN supported	Ethernet	Ethernet	Ethernet	Ethernet
RJE terminals emulated	Hasp	Hasp	None	IBM 2780/3780, 3770
IBM 3270 emulation	No	No	No	Yes
PERIPHERAL EQUIPMENT	1			F
Disks supported	Fixed & removable:	Fixed & removable:	72MB, 396MB	Fixed: 160/340/515MB;
• •	150MB-13.2GB	150MB-13.2GB	, , , , , , , , , , , , , , , , , , , ,	removable: 300MB
Serial printers			19.2K baud	160/400 cps
Letter-quality printers	<u> </u>		30 cps	50 cps
Line printers	600/1000/1500 lpm	600/1000/1500 lpm	300 lpm	600 lpm
Reel-to-reel tape drives	1600/6250 bpi, 75 ips	1600/6250 bpi, 75 ips	300 ipili	
Streaming tape drives			1600/6350 hai 100 iaa	6250 bpi, 70 ips
	Start/stop; 25/45 ips	Start/stop; 25/45 ips	1600/6250 bpi, 100 ips	Start/stop; 100/50 ips
Cassette/cartridge tape drives			¼-in. cart., 45 or 60MB	None
Other peripherals supported	<del> </del>	\ <del></del>	1—	Laser ptr. (20 ppm),
				color graphics station
SOFTWARE	1	}	1	
Assembler	Standard	Standard	Macro assembler	Macro assembler
Compilers	Optimizing Fortran,	Optimizing Fortran,	C, Fortran, Pascal,	RM/Cobol, Fortran, C
	Pascal, Franz Lisp, C	Pascal, Franz Lisp, C	Ada, Cobol	1
	1	1	i	1
Operating system name	OSx	OSx	Dynix	BSD 4.2/AT&T Sys. V U
Operating system type	Multitask., multiproc.	Multitask,, multiproc.	Multiuser Unix	Multitasking
Operating sys. implemented in firmware	Partially	Partially	Partially	Partially
Database management system	See Comments	See Comments	Unify	Oracle
Principal industry application	Various	Various		General business,
par madenty approacion	1 - 3/1000	1 5.1000	}	engineering/scientific
	I.		1	angineering/scienting
Other packages	Through Pyramid's PRISM	Through Pyramid's PRISM	1	Office system of the
Outer packages		, ,	1	Office automation,
	third-party software	third-party software		education, third-party
ODICING & AVALABILITY	program	program	1	packages
PRICING & AVAILABILITY			100	0011 0110
Typical system configuration and price	Contact vendor	Contact vendor	32-user system: 4 CPUs	CPU; 8MB main memory;
	1	{	(2 boards); 4MB RAM;	four 340MB fixed disk
	1	1	SCSI, Ethernet, Multibus	drives; 1 disk & 2 tape
		1	interfaces; 1/4-inch	controllers; 4 async
	1		cartridge tape; 400MB	I/O controllers;
	1	1	disk; ½-inch 1600 bpi	16 workstations; 600 lpr
	1		tape; 32 lines; manuals;	line printer; 50 cps
	1	I .	software license:	letter quality printer:
		1	\$118,000	\$310,000
Monthly maintenance of typical	Contact vendor	Contact vendor	Contact vendor	\$2,076
configuration	) someon	Total Volidor	Joanna Vondor	142,070
Date of first delivery	October 1983	July 100E	December 1094	1at guarte- 1005
		July 1985	December 1984	1st quarter 1985
Number installed to date	260 (approx.)	200 (approx.)	45	-
COMMENTS	Can use Oracle, Unify,	Isoprocessor system	Parallel computer; 2-12	1
	Ingres, Mistress 32,	containing two symmetric	NS32032 CPUs in tightly	
	or Britton-Lee DBMS	processors; can use same	coupled arch, under	1
	Or Britton-Lee Dolvio	processors, can use same	coupled arcii. dildei	ı

MANUFACTURER & MODEL	Stratus Computer, Inc. FT250	Stratus Computer, Inc. XA440/XA600	Tandem Computers, Inc. NonStop TXP (2-processor system)	Tandem Computers, Inc. NonStop TXP (16-processor system
WORD LENGTH	32 bits	32 bits	32 bits	32 bits
MAIN MEMORY	4MB-8MB	4MB-16MB	8MB-32MB	64MB-256MB
DISK STORAGE CAPACITY	143MB-21GB	143MB-21GB	8GB+	64GB+
NO. WORKSTATIONS SUPPORTED	128	256	No set limit	No set limit
	From \$115,000	To \$700,000	From \$293,775	From \$1,700,000
PRICE RANGE				1
FARGET MARKET	Manufacturing, financial, brokerage	Manufacturing, financial, brokerage	Online transact. proc., networking, distr. sys.	Online transact. proc., networking, distr. sys.
CENTRAL PROCESSOR				
No. of directly addressable bytes	8M	16M	32M	256M
Virtual memory	16MB	16MB	2GB	16GB
Hardware floating point	Does not apply	Does not apply	SP, DP	SP, DP
Battery backup	Standard	Standard	Standard	Standard
Real-time clock or timer	Standard	Standard	Standard	Standard
CPU cycle time, nanoseconds	I		83.3	83.3
MIPS	0.7	2/3	4	32
16-/32-bit compatibility	32-bit only	32-bit only	Direct	Direct
MAIN STORAGE	OZ 511 O,		1	2551
Bytes fetched per cycle	<u> </u>		8 (per processor)	8 (per processor)
Cycle/access time, nanoseconds		l	1116	116
	Standard	Standard	Standard	I = =
Storage protection		1		Standard
Increment size, bytes	2M	2M	2M	2M
Cache memory, bytes	None	8K	128K	1 <b>M</b>
NPUT/OUTPUT CONTROL	L	L		1.0
No. of I/O channels	[1]	1	2	16
Data transfer rate	16MB/sec.	16MB/sec.	5MB/sec.	5MB/sec.
COMMUNICATIONS			1	1
Max. number of lines	128	256	252	1792
Synchronous	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps
Asynchronous	Std.; 9600 bps	Std.: 9600 bps	Opt.; 19.2K bps	Opt.; 19.2K bps
Protocols supported	SDLC, SNA, BSC, X.25,	SDLC, SNA, BSC, X.25,	ADCCP, HDLC, SDLC,	ADCCP, HDLC, SDLC,
Trotocois supported		X.29, MAP, NASDAQ, other	SNA, X.25, MAP, LU6.2	SNA, X.25, MAP, LU6.2
Type of LAN supported	MAP	MAP	Hyperchannel, Ethernet	Hyperchannel, Ethernet
Type of LAN supported	, · · · · ·			
RJE terminals emulated	2780/3780, Hasp	2780/3780, Hasp	IBM 2780/3780, 3777	IBM 2780/3780, 3777
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				1
Disks supported	Fixed & removable:	Fixed & removable:	Winchester: 128MB-4.2GB;	Winchester: 128MB-4.2G
	143MB-448MB	143MB-448MB	removable: 240MB	removable: 240MB
Serial printers	None	None	340 cps	340 cps
Letter-quality printers	55 cps	55 cps	55 cps	55 cps
Line printers	300/600/900 lpm	300/600/900 lpm	300/600/900/1300 lpm	300/600/900/1300 lpm
Reel-to-reel tape drives		1600/6250 bpi, 100 ips	1600/6250 bpi, 200 ips	1600/6250 bpi, 200 ips
Streaming tape drives	Start/stop; 25 ips		None	None
Cassette/cartridge tape drives	_	_	None	None
Other peripherals supported	<u> </u>	l <u> </u>	Fax, OCR, mag, stripe	Fax, OCR, mag. stripe
Other peripherals supported			card & bar code readers	card & bar code readers
SOFTWARE			Card & Dar Code readers	card & bar code readers
Assembler	Yes	Yes	None	None
		Cobol, Fortran, Basic,		l '
Compilers	Cobol, Fortran, Basic,		Basic, TAL, Cobol 74,	Basic, TAL, Cobol 74,
	PL/1, C, Pascal	PL/1, C, Pascal	Cobol 85, Fortran,	Cobol 85, Fortran,
Q	luce	voc.	Mumps, Pascal, C	Mumps, Pascal, C
Operating system name	vos	vos	Guardian 90	Guardian 90
Operating system type	Multitasking	Multitasking	Multiproc./message-based	Multiproc./message-based
Operating sys. implemented in firmware	Does not apply	Does not apply	Partially	Partially
Database management system	Oracle	Oracle	Encompass	Encompass
Principal industry application	Mfrg. process control,	Mfrg. process control,	Reservations, banking,	Reservations, banking,
• • •	ATM/POS networks, cash	ATM/POS networks, cash	brokerage, telecomm.,	brokerage, telecomm.,
	mgt., brokerage sys.	mgt., brokerage sys.	POS, manufacturing	POS, manufacturing
Other packages	_	_ ,	Transaction proc.; time-	Transaction proc.; time-
	1		staged delivery sys.;	staged delivery sys.;
			elect. mail; networking	elect. mail; networking
PRICING & AVAILABILITY			J.Sot. Man, Hetworking	5.50t. mail, networking
Typical system configuration and price	4MB duplexed processing	8MB duplexed processing	2 processing modules;	Contact vendor
rypical system configuration and price		module; 40 slots; 16MB		Contact Vendor
	module; 20 slots; 16MB		8MB memory; 45 ips tape	1
	DMA bus; battery backup;	DMA bus; battery backup;	drive and controller;	1
	2 memory controllers;	2 memory controllers;	operations and service	l
	2 disk controllers; two	two C200 comm. control-	processor: \$293,775	i
	143MB Winchester disk	lers; comm. panel; tape		1
	drives; 2 comm. control-	unit and controller;	1	
	lers; VOS, TPF, FMS, and	VOS operating system:		1
	1 language: \$115,000	\$274,300		l
Monthly maintenance of typical	\$952	Contact vendor	\$1,515	Contact vendor
configuration	1		J - 1, - 1 - 1	] =
· ·	1982	1984	November 1983	November 1983
Date of first delivery	1302	1904	NOVELLIDEL 1903	November 1903
Number installed to date		<del> </del>		
'/ in an Al- NITE'	1		Can be interconnected	Same networking poten-
COMMENTS	l .			
COMMENTS			into worldwide, 4,080-	tial as 2-processor
COMMENTS			into worldwide, 4,080- processor network	tial as 2-processor NonStop TXP

			T	
MANUFACTURER & MODEL	Tandem Computers, Inc. NonStop VLX	Wang Laboratories, Inc. VS 6	Wang Laboratories, Inc. VS 65	Wang Laboratories, Inc. VS 85
VORD LENGTH	32 bits	32 bits	32 bits	32 bits
IAIN MEMORY	32MB-256MB	1MB-4MB	1MB-4MB	2MB-8MB
ISK STORAGE CAPACITY	2.7GB-2150GB	2.62GB (w/external dr.)	2.62GB	4.96GB
O. WORKSTATIONS SUPPORTED	No set limit	16	40	80
		, · ·	1	
RICE RANGE	From \$995,275	\$19,950-\$42,950 (CPU)	\$19,950-\$48,600	\$67,700-\$115,700
ARGET MARKET	Online transact. proc.,	General business, MIS,	General business, MIS,	General business, MIS,
	networking, distr. sys.	office automation	office automation	office automation
ENTRAL PROCESSOR		İ		
No. of directly addressable bytes	16M per CPU	<u> </u>	16M	16M
Virtual memory	1GB per CPU	Standard	Standard	Standard
Hardware floating point	Optional	<del></del>	SP, DP	SP, DP
Battery backup	Standard	<del></del>	]	l <del></del>
Real-time clock or timer	Standard, plus a backup	Standard	Standard	Standard
CPU cycle time, nanoseconds	83.3	200	200	160
MIPS	12-48		<u> </u>	<u>  —                                   </u>
16-/32-bit compatibility	Direct	Direct	Yes	Yes
AIN STORAGE		[		
Bytes fetched per cycle	32 (8 per processor)	<u> </u>	8	8
Cycle/access time, nanoseconds	98	400	480	480
Storage protection	Standard	Standard	Standard	Standard
Increment size, bytes	8M	1M, 2M, 4M	1M, 2M	2M, 4M
Cache memory, bytes	64K per CPU	16K	16K	32K
NPUT/OUTPUT CONTROL	D-FIX per Of O	100	l or	UZIN
No. of I/O channels	4-16	3	6	le le
	1	1 -	1 -	6 A 2MP /200
Data transfer rate	5MB/sec. per channel	5MB/sec.	5MB/sec.	4.2MB/sec.
OMMUNICATIONS	lln 40 1 700	1.	١, ،	اما
Max. number of lines	Up to 1,792	4	4+	6+
Synchronous	Opt.; 56K bps	<u> </u>	Std.; to 56K bps	Std.; to 56K bps
Asynchronous	Opt.; 19.2K bps	Standard	Std.; to 19.2K bps	Std.; to 19.2K bps
Protocols supported	ADCCP, HDLC, SDLC,	SNA, WSN, X.25, 3270,	SNA, WSN, X.25, 3270,	SNA, WSN, X.25, 3270,
	SNA, X.25, MAP, LU6.2	2780/3780, VT100, TTY	2780/3780, VT100, TTY	2780/3780, VT100, TTY
Type of LAN supported	Hyperchannel, Ethernet	WangNet	WangNet	WangNet
RJE terminals emulated	IBM 2780/3780, 3777	IBM 2780/3780/3777/Hasp	IBM 2780/3780/3777/Hasp	IBM 2780/3780/3777/Hasp
IBM 3270 emulation	Yes	Yes; bisync & SNA	Yes; bisync & SNA	Yes; bisync & SNA
ERIPHERAL EQUIPMENT				
Disks supported	Winchester: 128MB-4.2GB	Winchester: 67MB-620MB;	Winchester: 76MB-620MB;	Winchester: 76MB-620MB;
		removable: 75MB-288MB	removable: 75MB-288MB	removable: 75MB-288MB
Serial printers	340 cps	180/200 cps	180 cps	180 cps
Letter-quality printers	55 cps	20/40/55 cps	20/55 cps	20/55 cps
Line printers	300/600/900/1300 lpm	250/600/1100 lpm	250/600/1100 lpm	250/600/1100 lpm
Reel-to-reel tape drives	1600/6250 bpi, 200 ips	1600 bpi	1600 bpi	800/1600/6250 bpi
Streaming tape drives	None			
Cassette/cartridge tape drives	None	14-inch, 14MB cartridge	Optional	Optional
Other peripherals supported	Fax, OCR, mag. stripe	Laser printers (8/12/24	Laser printers (8/12/24	Laser printers (8/12/24
Other peripherals supported	card & bar code readers	ppm)	1	1
OFTWARE	card & bar code readers	ppini	ppm)	ppm)
	1	<b>N</b> 4	Macro assembler	
Assembler	Darie TAL Cabat 74	Macro assembler		Macro assembler
Compilers	Basic, TAL, Cobol 74,	Cobol, Basic, PL/1,	Cobol, Basic, PL/1,	Cobol, Basic, PL/1,
	Cobol 85, Fortran,	RPG, Fortran	RPG, Fortran	RPG, Fortran
_	Mumps, Pascal, C	1	I :.	
Operating system name	Guardian 90XF	VS-OS; Unix	VS-OS; Unix	VS-OS; Unix
Operating system type	Multiproc./message-based	Interactive	Interactive	Interactive
Operating sys. implemented in firmware	Partially	No	No	No
Database management system	Encompass	Pace/Total	Pace/Total	Pace/Total
Principal industry application	Reservations, banking,	Commercial d.p., MIS	Commercial d.p., MIS	Commercial d.p., MIS
	brokerage, telecomm.,	1	ŀ	1
	POS, manufacturing	1	1	j
Other packages	Transaction proc.; time-	Wang Office; WP Plus;	Wang Office; WP Plus;	Wang Office; WP Plus;
· =	staged delivery sys.;	graphics	graphics	graphics
	elect. mail; networking	1 -	ļ ·	<b> </b>
RICING & AVAILABILITY	l seem man, notification	ì		
Typical system configuration and price	4 processing modules;	Packaged configurations	Packaged configurations	Packaged configurations
Typical cyclom comigaration and price	32MB main memory; 2.7GB	available; contact	available; contact	available; contact
	of disk storage (8	vendor	vendor	vendor
	1	Veridoi	Veridor	Vendor
	drives & 4 controllers);	l	ĺ	
	200 ips tape subsystem;	i		
			1	1
	console: \$995,275		1	
	console: \$995,275			
Monthly maintenance of typical		Contact vendor	Contact vendor	Contact vendor
configuration	console: \$995,275  Contact vendor			
	console: \$995,275	Contact vendor April 1986	Contact vendor February 1985	Contact vendor August 1983
configuration	console: \$995,275  Contact vendor			
configuration Date of first delivery	console: \$995,275  Contact vendor		February 1985	August 1983
configuration Date of first delivery Number installed to date	console: \$995,275  Contact vendor  April 1986	April 1986	February 1985 2,500 (worldwide)	August 1983 2,510 (worldwide)
configuration Date of first delivery Number installed to date	console: \$995,275  Contact vendor  April 1986  Supports up to 16 CPUs;	April 1986 — Gateways to IBM's	February 1985 2,500 (worldwide) Gateways to IBM's	August 1983 2,510 (worldwide) Gateways to IBM's

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MANUFACTURER & MODEL	Wang Laboratories, Inc. VS 100	Wang Laboratories, Inc. VS 300		
WORD LENGTH	32 bits	22 hisa		
WORD LENGTH MAIN MEMORY	2MB-16MB	32 bits 4MB-16MB		
DISK STORAGE CAPACITY	9.92GB	19.84GB		
NO. WORKSTATIONS SUPPORTED	128	192		1
PRICE RANGE	\$99,750-\$211,750	\$178,500-\$279,300		1
TARGET MARKET	General business, MIS,	General business, MIS,		1
TANGET WIANKET	office automation	office automation		
CENTRAL PROCESSOR	Oince automation			1
No. of directly addressable bytes	16M	16M		1
Virtual memory	Standard	Standard		
Hardware floating point	SP, DP	SP, DP; accelerator opt.		[
Battery backup	31, 01	Optional		1
Real-time clock or timer	Standard	Standard		1
CPU cycle time, nanoseconds	160	120		<u> </u>
MIPS	160	120		1 1
16-/32-bit compatibility	Yes	Yes		·
MAIN STORAGE	163	1 63		]
Bytes fetched per cycle	8	8/16/32 read; 8 write		1
Cycle/access time, nanoseconds	480	480/540/900 rd.; 180 wr.		
Storage protection	Standard	Standard		1
Increment size, bytes	2M. 4M	4M		]
Cache memory, bytes	32K	32K		(
INPUT/OUTPUT CONTROL	··	l		1
No. of I/O channels	16	15		ļ .
Data transfer rate	8.3MB/sec.	16.6MB/sec.		<u> </u>
COMMUNICATIONS		1		j l
Max. number of lines	15+	32+		1
Synchronous	Std.; to 56K bps	Std.; to 56K bps		
Asynchronous	Std.; to 19.2K bps	Std.; to 19.2K bps	•	1
Protocols supported	SNA, WSN, X.25, 3270,	SNA, WSN, X.25, 3270,		
Trotosolo supportos	2780/3780, VT100, TTY	2780/3780, VT100, TTY		1
Type of LAN supported	WangNet	WangNet		į į
RJE terminals emulated	IBM 2780/3780/3777/Hasp	IBM 2780/3780/3777/Hasp		]
IBM 3270 emulation	Yes; bisync & SNA	Yes; bisync & SNA		1
PERIPHERAL EQUIPMENT	100, 210,110 & 0,01	1 50, 5.5, a 6. a .		
Disks supported	Winchester: 76MB-620MB;	Winchester: 76MB-620MB;	•	1
	removable: 75MB-288MB	removable: 75MB-288MB		1
Serial printers	180 cps	180 cps		1
Letter-quality printers	20/55 cps	20/55 cps		1
Line printers	250/600/1100 lpm	250/600/1100 lpm		]
Reel-to-reel tape drives	800/1600/6250 bpi	800/1600/6250 bpi		1
Streaming tape drives	_			ŀ
Cassette/cartridge tape drives	Optional	Optional		ĺĺ
Other peripherals supported	Laser printers (8/12/24	Laser printers (8/12/24		1
Towns Parking on Parking	ppm)	ppm)		1
SOFTWARE		FF,		
Assembler	Macro assembler	Macro assembler		1
Compilers	Cobol, Basic, PL/1,	Cobol, Basic, PL/1,		
	RPG, Fortran	RPG, Fortran		1
l				į i
Operating system name	VS-OS; Unix	VS-OS; Unix		ļ
Operating system type	Interactive	Interactive		[
Operating sys. implemented in firmware	No	No		<u> </u>
Database management system	Pace/Total	Pace/Total		<u> </u>
Principal industry application	Commercial d.p., MIS	Commercial d.p., MIS		1
1	1	1		ļ l
1				<b>!</b>
Other packages	Wang Office; WP Plus;	Wang Office; WP Plus;		1
1	graphics	graphics		1
1				<u> </u>
PRICING & AVAILABILITY	1		İ	
Typical system configuration and price	Packaged configurations	Packaged configurations		
	available; contact	available; contact		1
	vendor	vendor		1
1				j <b>1</b>
1	1			į į
1				1
1				[ ]
				j <b>!</b>
		1		Į į
Monthly maintenance of typical	Contact vendor	Contact vendor		1 I
configuration	1	1 .		j <b>i</b>
Date of first delivery	January 1981	March 1985		] [
Number installed to date	2,925 (worldwide)	170 (worldwide)		]
COMMENTS	Gateways to IBM's	Gateways to IBM's		<u> </u>
	DISOSS and PROFS avail.	DISOSS and PROFS avail.		ļ <b>!</b>
Ī	through Wang Office	through Wang Office	•	1
		]		1
L	<u> </u>	L	L	L