

All About Minicomputers

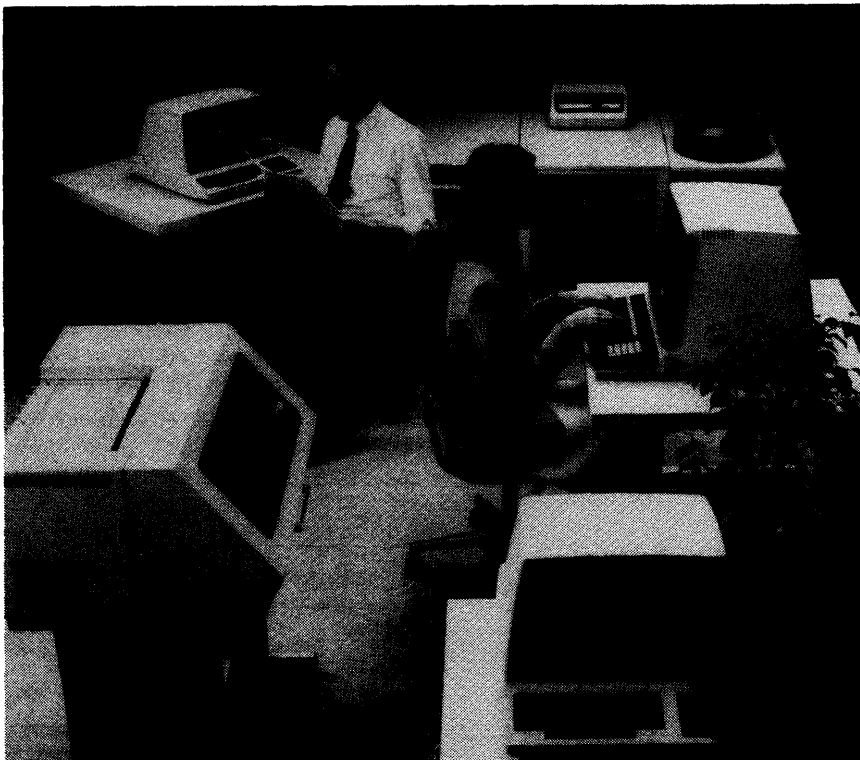
Much has changed in the computer industry with the advent of the microcomputer and the growing popularity of the superminicomputer. Due to these two trends, many predict that the micro will squeeze out the low end of the mini product line as the supermini overtakes the high end, making the demise of the minicomputer imminent. What these prophets of doom fail to consider, however, is that the minicomputer still holds distinct advantages over a microcomputer, and that those advantages ensure the continued growth of the minicomputer market. Rather than supplant the minicomputer, the microcomputer will instead find its own niche in the marketplace and the two types of computers, with their own specialized tasks, will coexist in the industry.

The minicomputer is still alive and well despite predictions that the microcomputer would encroach on its domain. The fact that most of the major minicomputer manufacturers released new systems or new models within the last year is evidence of the minicomputer's health. Through detailed comparison charts, this report presents the salient characteristics of over 120 minicomputers from 45 vendors. The text of the report discusses the current state of the minicomputer market, provides a guide to the chart entries, and guidelines for selecting minicomputer systems.

Trying to find your way through the multitudes of computers on the market today can be extremely confusing. What is the difference between a micro-, mini-, and superminicomputer anyway? Attempting to get clear definitions of these three types of systems can be worse than trying to actually choose a computer to purchase. At first, it *may* seem as if the choice is between only the micro and supermini, and that the mini is really being replaced by these two systems. Undoubtedly, the predictions of the mini's demise are an outgrowth of just such a cursory glance at the industry. But a closer look at the capabilities and costs of the three different system types can show that each has its place in the industry.

MINICOMPUTER ADVANTAGES

Despite the increasing attention given to the microcomputer, it will take time for the microcomputer to match the total power of a minicomputer. True, many business applications can execute at the same speed on a mini as on a micro, but that is not the only measure of a system's power. For instance, microcomputers cannot yet support the large number of terminals or workstations that minis currently support (for example, the HP 3000 Series 68 can support up to 400 workstations). In fact, micros can not yet match the minicomputer on a variety of issues. In addition to the ability to support more workstations, the minicomputer has the following advantages over the microcomputer: ➤



The MAI/Basic Four System 710 basic configuration consists of a central processor with 96KB of memory, one display terminal, two 35MB disk drives, and one 300 line-per-minute printer.

All About Minicomputers



Features of the Plexus P/60 include multiprocessor architecture. During operation, the job processor performs data processing and operating functions while an intelligent mass storage processor handles disk and tape I/O, and intelligent communications processors handle terminal and printer I/O and data communications.

- ▷ • faster processing speeds
- greater expandability
- greater disk storage capacities
- cost effective communications with mainframes
- greater control and security
- abundance and greater variety of proven software

The ability to expand the capabilities of a minicomputer is probably its greatest advantage. Minis can handle a large number of terminals, large capacity disk drives and multiple printers. When a user needs more disk space for example, they can usually just connect an additional drive. Often this is not possible with a micro. Micros simply cannot support the number or variety of devices that are available for minicomputers. Also, most minicomputer vendors are committed to providing product lines that allow users to easily upgrade to a more powerful system as their business needs increase. Should a user outgrow their present system, many vendors have a larger system the user can purchase. In many cases, the original peripherals and software are portable to the larger system, protecting much of the user's investment. Micro vendors are not yet supplying a product line that offers the user this type of an upgrade path. Therefore, it is important to consider this issue of upgrada-

bility if a business is expected to grow substantially in the years ahead.

The advantage of greater disk capacities is related to the issue of growth. Micros typically support Winchester or fixed disk in the range of five to thirty megabytes (if they support hard disk at all). And the number of disks that can be attached to micros is often very limited. On the other hand, minicomputers support hard disks as large as 400 megabytes and often can support multiple large-capacity disk drives. Again, this support for greater disk storage serves to protect the user's investment in their hardware since a user can usually attach another drive to their present configuration when more disk storage is needed.

Minicomputers are also ahead of microcomputers in the area of communications. Local area networks (LAN), which provide the capability to interconnect multiple devices within a company, expand the capabilities of a minicomputer beyond that of a single system. Many are calling the LAN concept the backbone to the office of the future, where individual offices in every company are interconnected for high-speed communication. Through the use of a LAN, users can share valuable company resources, such as data bases, large-capacity storage devices, and high-speed printers, that would be too expensive to justify for each system alone. The many other advantages to local area networks provide numerous benefits to the user. Due to the increasing popularity of LANs, an entry has been added to the comparison charts indicating the LAN supported by the various systems in this report. Many systems are adopting the use of Xerox's Ethernet (at least 11 vendors listed in this report are using Ethernet), and it is viewed as the defacto standard by many. Networking software is beginning to emerge for microcomputers, but it will take time for the micros to reach the level that minicomputers have already achieved in the area of communications. In addition to the use of LANs, mini vendors are also giving their systems the ability to communicate with other systems and mainframes. Just glancing at the entry for protocols supported in the comparison charts shows that most minis can talk with IBM mainframes or support IBM's System Network Architecture (SNA). Microcomputer communication capabilities are growing and changing rapidly, but still have a long way to go before they match the capabilities of the minicomputer.

The problem of security has been receiving a great deal of attention lately. With a minicomputer information is centralized, preventing duplication of data. If a change or correction needs to be made, only one copy of the data needs to be maintained. The correction can be made quickly and easily, ensuring the integrity of the data. With micros, the data is often duplicated on multiple floppy disks because different individuals need the same information. Correcting data may be difficult because of these multiple copies. Someone needs to ensure that a correction is made on *all* the copies in order to maintain the integrity of the whole system.

The software issue is a particularly important one. Probably the greatest strength of the minicomputer is the soft- ▷

All About Minicomputers

ware available, both operating system and application software. Again, most of the major mini vendors are protecting their current user's investments by building in compatibility to their software. Data General, for instance, employs the instruction set of the earlier Nova computers in the Eclipse computer's operating system allowing programs written on the Nova to be run on the larger Eclipse systems. For micros to penetrate the established markets of the minicomputer, the vendors will have to be able to save the user's present application software.

The incredible wealth of application software written for minicomputers is astounding. Every possible application is available for most of the major computer systems. Minicomputer vendors that don't supply software are heavily involved in programs that encourage third-party software vendors to write application software for the mini vendor's systems. Through specific software programs, mini vendors have carved out market segments for their systems that will be hard to compete against. Microcomputer vendors are still trying to do all things for all users. Until these vendors determine their particular market segments and strengths, the minicomputer will continue to dominate in vertical markets.

The existing software base of the minicomputer is also helping the mini to hold its ground against the superminicomputer. Users have a substantial interest in trying to protect their software investment because it is very expensive to convert existing applications to the longer word length. To determine whether a 32-bit system would benefit an application, the raw performance of the application must be considered. If the application is performance driven rather than memory driven, then a 16-bit system may give the application more performance for the same price. This is true because more of the circuitry of a 16-bit system can be dedicated to processing speed and parallelism rather than to managing the longer word length and

larger instruction set. If the cost of two systems is close, and if the 32-bit instruction set does not benefit the application, then the 16-bit system will generally give more performance for a specific application.

So how does a prospective user of computers determine which system will fit the needs of their company? In general, a minicomputer would be better than a microcomputer if your applications require:

- large amounts of data
- a large number of users on the same application simultaneously
- several different applications accessing several sets of data
- several applications accessing the same core of data

The minicomputer with many workstations will meet the needs of such a business more effectively than a multitude of micros. Micros simply cannot handle the storage and communications requirements demanded to meet such needs—yet.

Despite these advantages, the threat posed by microcomputers is real. The market will continue to change in the months ahead and minicomputer vendors will have to revise their strategies to fight the tide of micros trying to infiltrate their ranks. The micro vendors are well aware of their shortcomings and it is guaranteed that they will address those areas in the near future. Micro manufacturers already rely heavily on standard microprocessors and operating systems so that attaching peripherals will become easier. The use of generic software by these systems makes it easier to transport programs from one system to another, also. ▷



The Microdata Reality 4700 starts with a single base unit that can be configured by the user to meet a wide range of requirements. The base configuration includes 64KB of memory, 32MB of disk storage, and one single-density 1600 bpi streaming tape drive.

All About Minicomputers

- ▷ Some of the advantages offered by microcomputers are already finding their way into the systems offered by traditional mini vendors. Systems are becoming smaller, more compact, yet maintaining software compatibility. Production costs are being lowered, resulting in declining hardware prices, in order to directly attack the micro's approach into the small business market.

THE MINICOMPUTER MARKET

A minicomputer, for the purposes of this report, can generally be characterized as a computer that is distinguished by:

- a word length of 8 or 16 bits
- a main memory capacity of less than six million bytes
- a purchase price for the basic configuration, including peripherals and controls, of \$35,000 and up

The minicomputer market saw a great deal of activity in the last year despite the dire predictions of the minicomputer's demise. All the major minicomputer manufacturers released new systems or new models in the last 12 months.

IBM's big announcement was the System/36, finally filling the gap between the System/34 and System/38. The System/36 provides source code and data file compatibility with the System/34, providing an easy migration path for existing System/34 users. Announced in May 1983, IBM has already enhanced the product line with four new models that double the disk storage capacity and increase main memory capacity to one megabyte for all models.

Other vendors repackaged existing processors into smaller, more compact configurations, in a direct response to the growing interest in microcomputers. Hewlett-Packard expanded its HP 1000 product line with the introduction of the HP 1000 Micro systems: Micro 26, 27, and 29. Each is based on the existing HP 1000 processors, the A600, A700, and A900, respectively. The new Micro 1000 systems offer the same processing capabilities as the other HP 1000 systems, but can be packaged in a floor accessory stand small enough to fit under a desk. DEC released the Micro PDP-11, a repackaged version of the PDP-11/23 processor. The Micro PDP-11 is packaged to fit easily under a desk, on a worktable, or as a rack mountable box enclosure.

Some vendors completely replaced a product line with all new systems. The Texas Instruments Business Systems series now consists of the 600A, 800A, and 800B computers. TI claims that reliability in these new systems has been increased by reducing the number of chips in the CPU. The 600A is up to 1.5 times faster than the TI's previous mid-range computer and the 800A and 800B are twice as fast as the 600A. Hewlett-Packard also completely replaced the HP 3000 line with the announcements of the Series 39, 42, 48, and 68. These four systems replaced the earlier Series 40SX, 40, 44, and 64, respectively. The new HP 3000 systems support a new version of the MPE operating system, more terminals, and offer a disk caching feature to speed I/O transfers.

Honeywell brought out three new models in the DPS 6 family, the DPS/40, 45, and 75. A new version of the operating system increases portability of applications across the entire DPS 6 line and provides expanded capabilities for data base management and transaction processing. While Honeywell is continuing to market all 18 members of the DPS 6 family, emphasis is being placed on these three systems, as well as three other new models introduced last year.

Single model introductions were made from Burroughs, Data General, and Sperry. Burroughs announced the B 95, an entry-level system for the B 90 series. Burroughs is also following the trend toward small packaging, offering the B 95 in three modules, each measuring only 6.88-by-14-by-14.25 inches. In some configurations, Burroughs claims that the user can install the system on-site without assistance from service engineers. Data General released the Eclipse S/280, their most powerful 16-bit member of the Eclipse product line. The S/280 offers a choice of three operating systems, compatibility with the other Eclipse computers, and a wide range of options. Again, compact configurations are offered, with the CPU and system cache incorporated on a single 15-by-15 inch board. Sperry actually announced the System 80 Model 8 in 1982, but did not begin delivering the system until 1983. The Model 8 is the top-of-the-line System 80 and Sperry claims it gives twice the performance of the Model 6.

The large computer manufacturers were not the only vendors hard at work this past year. During 1983, six other vendors delivered products for the first time including vendors represented in this report for the first time: Rexon Business Machines Corp., Perq Systems Corp. (formally Three Rivers Computers), and Computone Computer Systems. Systems first delivered in the first quarter of 1984 included models from PolyMorphic Systems, Point 4 Computer Corp., and Modcomp. Two other vendors, Dimis, Inc. and Plexus Computer, Inc. indicated they will be shipping new systems in 1984, also.

THE COMPARISON CHARTS

The key functional characteristics of 125 commercially available minicomputers from 45 vendors are presented in the accompanying comparison charts. Most of the information in the charts was supplied or verified by the vendors during January 1984. Every attempt was made to include all the major suppliers of minicomputers in this report. The absence of any company's product from these comparison charts means either that the company was unknown to us or that it failed to respond to our repeated requests for information. The staff at Datapro Research Corporation greatly appreciates the cooperation of the vendors that did respond, in the preparation of these charts.

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 minicomputer for specific applications. ▷

All About Minicomputers

▷ WORD LENGTH

Probably the single most important distinguishing characteristic 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—and the higher its price tag.

Most of the minicomputers currently on the market have a 16-bit word length; this size neatly accommodates two 8-bit bytes (characters) and has been shown to yield an attractive balance between economy and performance for many applications. Other systems use an 8-bit word length. These 8-bit systems are suitable for many functions where low cost is more important than high precision or sophisticated instruction repertoires.

Many minicomputers are now featuring 16/32-bit word lengths. These systems generally are based on the Motorola MC68000 microprocessor. The MC68000 has a 16-bit bus with 32-bit internal architecture.

Systems providing word length architectures of more than 16 bits (generally 32 bits) are featured in the Report *Supermini Systems (70C-010-40)*. This report includes an introduction to "superminicomputers," as well as comparison columns describing the specifications of the superminis currently available.

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 on-line storage capacities offered by the system. The indicated storage capacities are shown in millions of bytes (MB) and indicate the range of disk storage capacities available for the systems or simply the maximum disk storage capacity of the system.

NO. 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 or teletypewriter, but in a manufacturing or distribution environment, the workstation could be a sensor or transmission unit that simply transmits signals back to the computer for processing.

PRICE RANGE

Ideally, these figures represent the upper and lower prices for system hardware, from the minimum processor complex to a fully configured system. The figures actually

presented in the columns can vary according to vendor response. In cases in which only one figure is quoted (e.g., "From \$100,000"), the price is usually that of the minimum processor complex only.

TARGET MARKET

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

CENTRAL PROCESSOR

CPU manufacturer and model identifies the manufacturer and model of the minicomputer or microprocessor used as the system's central processing unit (CPU). An entry of "proprietary" indicates that the vendor supplies their own CPU and the model is generally identical to the model designated at the top of the chart.

Hardware floating-point facilities are included in the standard instruction repertoires of many currently available minicomputers. 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, or double-precision, or a combination of the both. 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 real-time clock or timer is another essential element in most "time-conscious" systems. A real-time 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 ▷

All About Minicomputers

▷ that data from a storage device by the I/O section of the processor.

MAIN STORAGE

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

Memory access indicates the number of bits transferred per second from auxiliary storage to main memory.

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. 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 of the cache memory unit, in bytes, if applicable to the system.

INPUT/OUTPUT CONTROL

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

The *data transfer rate*, sometimes referred to as the "I/O bandwidth," is a measure of the computer's ability to transfer data to and from peripheral devices or other external sources through all available I/O channels, buses, and ports. The transfer rate is indicated in thousands or

millions of bits per second (M or K bps) or thousands or millions of bytes per second (KB/second or MB/second).

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 5-8 bits) of data pass through the line in blocks at a relatively constant rate regulated by synchronizing characters at the beginning of each block.

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

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

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

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

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

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 ▷

All About Minicomputers

▷ matrix and daisy wheel 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 usually used with larger systems. This entry indicates the speeds of the serial printers available for the system.

Letter-quality printers are low-speed serial printers (generally 30-55 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 and the speed in inches per second (ips) of tape drives that accommodate industry-standard 1/2-inch wide magnetic tape.

Streaming tape drives permit data to be transferred to a tape without the tape stopping between data blocks; this high-speed transfer makes streaming tape drives valuable as backup media for fixed 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. In some cases, the capacity of the cassette/cartridge in millions of bytes (MB) is given.

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

SOFTWARE

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

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

An *assembler* is a special-purpose program that uses the computer's power to facilitate the preparation of other programs. It enables the programmer to write his or her own programs in a simplified format that uses mnemonic operation codes and symbolic operand addresses. The assembler program then converts these symbolic instructions into their machine-language equivalents, producing computer programs ready for loading and execution. Entries here indicate the availability of an assembler, a macro assembler, or both. A macro assembler is another software tool to make the programmer's job easier. Macro routines can be called by the programmer and copied right into the program. This saves the programmer from having to re-code the routine each time it is used, and also eliminates the possibility of keying errors when that part of the program is entered. As usual, there is a price to pay; macros usually consume large quantities of memory space.

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

Entries in this section of the charts may include widely used high-level programming languages like Cobol (Common Business Oriented Language), RPG (Report Program Generator), Fortran (Formula Translator), Basic (Beginners All-purpose Symbolic Instruction Code), Algol (Algorithmic Language), APL, PL/1, and Pascal, or proprietary languages that are available from a vendor for use on a particular system.

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

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

This entry indicates the types of operating systems available for the computer. Typical entries describing the available operating systems include: "batch," which means that the system processes one or more jobs sequentially and requires all data to be supplied before initiation; "interactive," which means that the system allows data and parameters to be entered as the job is executing; "real-time," ▷

All About Minicomputers

▷ which means that the system responds to external demands on a priority basis; or "time-sharing," 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 minicomputers are capable of supporting two, three, or all four of the above modes of operation simultaneously.

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

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

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

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

PRICING & AVAILABILITY

Basic 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, many 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. 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 sizable discounts from their list prices on orders for multiple computers. Discounts of up to 40 percent are not unusual on large orders.

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

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

Number installed to date shows how many systems of each type had been delivered to customers as of December 1983/January 1984.

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.

MANUFACTURERS

Listed below, for your convenience in obtaining additional information, are the names, addresses, and telephone numbers of the 45 vendors whose products are listed in the comparison charts that follow.

Alpha Microsystems, 17332 Von Karman, P.O. Box 18347, Irvine, CA 92714. Telephone (714) 957-8500.

Applied Systems Corporation, 26401 Harper Avenue, St. Clair Shores, MI 48081. Telephone (313) 779-8700.

August Systems, 18277 S.W. Boones Ferry Rd., Tigard, OR 97223. Telephone (503) 684-3550.

Barrister Information Systems Corp., One Technology Center, 45 Oak St., Buffalo, NY 14203. Telephone (716) 845-5010.

BTI Computer Systems, Inc., 870 West Maude Avenue, Sunnyvale, CA 94076. Telephone (408) 733-1122. ▷

All About Minicomputers

- **Burroughs Corporation**, Burroughs Place, Detroit, MI 48232. Telephone (313) 972-7000.
- CADO Systems Corporation**, 2055 W. 190th St., Torrance, CA 90503. Telephone (213) 323-8170.
- Centurion Computer Corporation**, 1780 Jay Ell Dr., Richardson, TX 75081. Telephone (214) 699-8400.
- Chislin Industries, Inc. Comp. Prod. Div.**, 31352 Via Colinas #102, Westlake Village, CA 91361. Telephone (213) 991-2254.
- Chromatics, Inc.**, 2558 Mountain Industrial Blvd., Tucker, GA 30084. Telephone (404) 493-7000.
- Computer Automation Inc.**, 1800 Jay Ell Drive, Richardson, Tx. 75081. Telephone (214) 783-0993.
- Computer Designed Systems, Inc.**, 10911 Olson Memorial Hwy., Minneapolis, MN 55441. Telephone (612) 545-2855.
- Computer Extension Systems, Inc.**, 17511 El Camino Real, Houston, TX 77058. Telephone (713) 488-8830.
- Computone Systems Inc.**, One Perimeter Road, Manchester, NH 03101. Telephone (603) 624-2700.
- Cyberchron Corp.**, Route 9, P.O. Box 164, Garrison, NY 10524. Telephone (914) 424-3755.
- Data General Corporation**, 4400 Computer Dr., Westboro, MA 01581. Telephone (617) 366-8911.
- Datapoint Corporation**, 9725 Datapoint Drive, San Antonio, TX 78284. Telephone (512) 690-7000.
- Digital Equipment Corporation**, 146 Main St., Maynard, MA 01754. Telephone (617) 897-5111.
- Dimis, Incorporated**, 1806 Highway 35, P.O. Box 2293, Ocean, NJ 07712. Telephone (201) 531-2300.
- Four-Phase Systems, Inc.**, 10700 N. DeAnza Blvd., Cupertino, CA 95014. Telephone (408) 255-0900.
- General Automation**, 1045 S. East St., P.O. Box 4883, Anaheim, CA 92803. Telephone (714) 778-4800, (800) 854-3148.
- General Robotics Corporation**, 55-57 North Main Street, Hartford, WI 53027. Telephone (414) 673-6800.
- Hewlett-Packard Co.**, 3000 Hanover St., Palo Alto, CA 94304. Telephone (415) 857-1501.
- Honeywell Information Systems, Inc.**, 200 Smith St., Waltham, MA 02154. Telephone (617) 895-6000.
- International Business Machines Corporation (IBM)**, Old Orchard Rd., Armonk, NY 10504. Contact your local IBM representative.
- MAI/Basic Four Corporation**, 14101 Myford Road, Tustin, CA 92680. Telephone (714) 731-5100.
- MDS/Qantel Business Computers**, 4142 Point Eden Way, Hayward, CA 94545. Telephone (415) 887-7777.
- Microdata Corporation**, P.O. Box 19501, Irvine, CA 92713. Telephone (213) 829-6781.
- Mitsubishi Electronics America, Inc.**, 991 Knox St., Torrence, CA 90502. Telephone (213) 515-3993.
- Modular Computer Systems, Inc. (MODCOMP)**, 1650 West McNab Road, Ft. Lauderdale, FL 33310. Telephone (305) 974-1380.
- NCR Corporation**, 1700 S. Patterson Blvd., Dayton, OH 45479. Telephone (513) 445-5000.
- Northern Telecom Systems Corp.**, P.O. Box 1222, Minneapolis, MN 55440. Telephone (612) 932-8000.
- Perq Systems Corporation**, 2600 Liberty Ave., Pittsburgh, PA 15230. Telephone (412) 621-6250.
- Plexus Computer, Inc.**, 2230 Martin Ave., Santa Clara, CA 95050. Telephone (408) 988-1755.
- Point 4 Computer Corporation**, 2569 McCabe Way, Irvine, CA 92714. Telephone (714) 863-1111.
- Polycomputers**, 3822 E. LaPalma, Anaheim, CA 92807. Telephone (714) 632-0144.
- PolyMorphic Systems**, 5730 Thornwood Drive, Santa Barbara, CA 93117. Telephone (805) 967-0468.
- Rexon Business Machines Corp.**, 5800 Uplander Way, Culver City, CA 90203. Telephone (213) 641-7110.
- Sentinel Computer Corporation**, 9902 Carver Road, Cincinnati, OH 45242. Telephone (513) 984-6622.
- Sperry Corporation**, P.O. Box 500, Blue Bell, PA 19424. Telephone (215) 542-4011.
- STC Systems, Inc.**, 4 North St., Waldwick, NJ 07643. Telephone (201) 445-5050.
- Tandem Computers, Inc.**, 19333 Vallico Parkway, Cupertino, CA 95014. Telephone (408) 725-6000.
- Texas Instruments, Inc.**, P.O. Box 202146, Dallas, TX 75220. Telephone (512) 250-7363.
- The Ultimate Corp.**, 77 Brant Ave., Clark, NJ 07066. Telephone (201) 388-8800.
- Wang Laboratories, Inc.**, 1 Industrial Avenue, Lowell, MA 01851. Telephone (617) 459-5000. □

All About Minicomputers

MANUFACTURER AND MODEL	Alpha Micro 1042E	Alpha Micro AM-1072	Alpha Micro AM-1082	Alpha Micro 1092
WORD LENGTH	16/32 bits	16/32 bits	16/32 bits	16/32 bits
MAIN MEMORY	512KB-3MB	512KB-4MB	512KB-4MB	512KB-4MB
DISK STORAGE CAPACITY	60MB	70MB	140MB	400MB
NO. WORKSTATIONS SUPPORTED	26	Over 40	Over 40	Over 40
PRICE RANGE	\$21,700-\$25,400	\$30,500-\$34,166	\$48,000-\$60,600	\$56,000-\$68,600
TARGET MARKET	Small business	Small business	Small business	Small business
CENTRAL PROCESSOR				
CPU manufacturer and model	Motorola 68000	Motorola 68000	Motorola 68000	Motorola 68000
Hardware floating point	No	No	No	No
Battery backup	Std.	Std.	Std.	Std.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	500	500	500	500
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	2
Memory access	150ns	150ns	150ns	150ns
Cycle/access time, nanoseconds	500	500	500	500
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	128K; 512K	128K; 512K	128K; 512K	128K; 512K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	8	8	8	8
Data transfer rate	.333KB/second	.333KB/second	.333KB/second	.333KB/second
COMMUNICATIONS				
Max. number of lines	26	over 40	over 40	over 40
Synchronous	9.6K bps	9.6K bps	9.6K bps	9.6K bps
Asynchronous	19.2K bps	19.2K bps	19.2K bps	19.2K bps
Protocols supported	2780/3780	2780/3780	2780/3780	2780/3780
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	No	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 60MB	Winchester: 70-400MB	Winchester: 70, 140, 400MB	Winchester: 70, 140 400MB
Serial printers	Any RS-232	Any RS-232	Any RS-232	Any RS-232
Letter quality printers	40 cps	40cps	40cps	40cps
Line printers	to 900 lpm	to 700 lpm	to 900 lpm	to 900 lpm
Reel-to-reel tape drives	1600 bpi	1600 bpi	1600 bpi	1600 bpi
Streaming tape drives	30 ips	30 ips	30 ips	30 ips
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported	VCR: 100MB	VCR: 100MB	VCR: 100MB	VCR: 100MB
SOFTWARE				
Assembler	Assembler	Assembler	Assembler	Assembler
Compilers	Alpha Basic, Alpha Pascal, Fortran	Alpha Basic, Alpha Pascal, Fortran	Alpha Basic, Alpha Pascal, Fortran	Alpha Basic, Alpha Pascal, Fortran
Operating system	AMOS/L	AMOS/L	AMOS/L	AMOS/L
Operating sys. implemented in firmware	No	No	No	No
Database management system	Third Party	through dealers	through dealers	through dealers
Principal industry application	Accounting, word processing	Accounting, word processing	Accounting, word processing	Accounting, word processing
Other packages		Wide variety of industry applications sold through dealers	Wide variety of industry applications sold through dealers	Wide variety of industry applications sold through dealers
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, 60MB Winchester, VCR interface, 2 ports, 9-slot chassis—\$21,700	CPU, 512KB memory, 70MB high-speed Winchester, VCR interface, 2 ports, 19-slot chassis—\$30,500	CPU, 512KB memory, 140MB high-speed Winchester VCR interface, 2 ports, 19-slot chassis—\$48,000	CPU, 512KB memory, 400MB high-speed Winchester, VCR interface, 2 ports, 19-slot chassis—\$56,000
Mo. maintenance of basic configuration	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Date of first delivery	1983	1983	1983	1983
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS	Prices quoted are suggested retail	Prices quoted are suggested retail	Prices quoted are suggested retail	Prices quoted are suggested retail

All About Minicomputers

MANUFACTURER AND MODEL	Applied Systems Corp. ASC/68	August Systems Inc. Series 300 Tri-Gard System	August Systems Inc. Series 300 TRI-DAC System	Barrister Information Systems Corporation Barrister System 121
WORD LENGTH	16/32 bits	16-bits	16-bits	16-bits
MAIN MEMORY	256K to 2MB	256KB to 1MB	256KB to 1MB	1MB-2MB
DISK STORAGE CAPACITY	30 to 500MB	Not Required (*)	Not Required (*)	13MB-104MB
NO. WORKSTATIONS SUPPORTED	16/32	Not Applicable	4 or more Colorgraphic	16
PRICE RANGE	\$30,000-\$75,000	\$50,000 to \$200,000	\$125,000 to \$600,000	\$35,000-\$80,000
TARGET MARKET	Business/Communications/ Technical/CAD	Industrial control & Safety shutdown	Industrial control & Critical Data Acquisition	Legal Industry
CENTRAL PROCESSOR				
CPU manufacturer and model	M68000	Intel SBC 86/30	Intel SBC 86/30	Proprietary
Hardware floating point	Double; Opt.	Double	Double	No
Battery backup	Opt.	Opt.	Opt.	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	100	500	500	400
MAIN STORAGE				
Bytes fetched per cycle	2/4	2	2	2
Memory access	9MB	32 bits/microsec.	32 bits/microsec.	16
Cycle/access time, nanoseconds	100	200	200	150
Storage protection	Opt.	None	None	Std.
Increment size, bytes	128K	128K	128K	1024K
Cache memory, bytes	2/4K	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	8	up to 7000 Digital I/O	4K Digital, 12K Analog	10
Data transfer rate	1MB/sec	50KB/sec	50KB/sec	2500KB/sec.
COMMUNICATIONS				
Max. number of lines	16/32	40	40	8
Synchronous	Opt.; 56K bps	Opt.	Opt.	Std.
Asynchronous	Std.; 19.2K bps	Opt.; 38.4K bps	Opt.; 38.4K bps/channel	Std., 38.4K bps
Protocols supported	TTY, 2780, SNA	SDLC, HDLC	SDLC, HDLC	None
Type of LAN supported	Ethernet	None	None	Ethernet
RJE terminals emulated	3780	None	None	None
IBM 3270 emulation	Yes	No	No	None
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 10MB-90MB Remov.: 50MB-500MB	Fixed: 10MB	Fixed: 10MB	Cartridge: 13MB, 40MB
Serial printers	30 to 200 cps	150 cps	150 cps	40-200 cps
Letter quality printers	30 to 150 cps	None	None	40 cps
Line printers	300 to 900 lpm	300 lpm	300 lpm	430-1000lpm
Reel-to-reel tape drives	800/1600 bpi	None	None	None
Streaming tape drives	Opt.	None	None	None
Cassette/cartridge tape drives	10MB	None	None	None
Other peripherals supported	Floppy Disk: 1MB	Diskette: 640KB, 1.2MB	Diskette: 640KB, 1.2MB	Xerox 2700 Laser Printer Optical Character Reader
SOFTWARE				
Assembler	Macro	ASM86	ASM86	No
Compilers	C, Cobol, Basic, Pascal, Fortran, APL	Fortran 77, PLM 86	Fortran 77, PLM 86	None
Operating system	Multitasking, UNIX	Real Time, Process Ctrl.	Real Time, Process Ctrl.	Multi-programming
Operating sys. implemented in firmware	Varies	Partially or fully	Partially or fully	Partially
Database management system	UNIF/INGRS	None	None	BIMS
Principal industry application	Network Computing, Business, CAD/CAM	Process, critical HVAC control, safety shutdown	Process safety shutdown, crit. HVAC w/colorgraph.	Legal word processing, billing, litigation sup.
Other packages	Office Automation, Accounting, Prof. Mgmt., Engineering/Graphics	Modbus protocol, Data Base builder, Ladder logic builder	Modbus protocol, ladder, database, & graphics builder	Docketing, Attorney work, Product Retrieval, Financial Modeling
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 1MB Memory, 80M disk drive, 1MB floppy drive, printer/terminals —\$35,000	Series 300 triple CPU and I/O, Video Program; —\$45,000; with 100 digital I/O—\$50,000; with 100 Analog I/O— \$61,000	Series 300 triple CPU and I/O basic—\$40,000; with 100 digital I/O— \$46,000; with 100 Analog I/O—\$56,000; with 1000 Analog I/O— \$154,000; each colorgraphic work- station—\$25,000	CPU, 1024KB Memory, 13MB disk, visual display terminal, 200 cps matrix printer, word processing & Financial management software—\$35,550
Mo. maintenance of basic configuration	Contact vendor	Opt.	Opt.	\$345
Date of first delivery	1983	November 1981	June 1983	August 1983
Number installed to date	Not supplied	9	2	45
COMMENTS	Multi-processing, UNIX- based computer system with Color/Graphics and networking options.	On-Line workstation not typically implemented. (*) Disk not required for on-line control operation (all-RAM, portions EPROM)	Multiple units in star network configuration with multiple color graphic workstations also available at system price of \$1.5-\$2.0M (*) Disk not required for on-line control.	

All About Minicomputers

MANUFACTURER AND MODEL	BTI Computer Systems BTI 5000, Mark II	Burroughs Corp. B 90 Series	Burroughs Corp. B 900 Series	Burroughs Corp. B 1900 Series
WORD LENGTH	16 bits	8 bits	8 bits	16 bits
MAIN MEMORY	64KB	128KB-1.5MB	608KB-3.3MB	131KB-2MB
DISK STORAGE CAPACITY	up to 400 MB	18MB-231MB	37MB-1.7GB	65MB-8GB
NO. WORKSTATIONS SUPPORTED	32	4-12	36	Not supplied
PRICE RANGE	From \$9,000	From \$14,000	From \$23,000	From \$62,000
TARGET MARKET	Business	Business/Commercial	Business/Commercial	Business/Commercial
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Proprietary
Hardware floating point	No	No	No	No
Battery backup	Std.	No	No	No
Real-time clock or timer	Std.	Opt.	Std.	Opt.
CPU cycle time, nanoseconds	Not supplied	Not supplied	Not supplied	167/250
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	Not supplied	Not supplied	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	Not supplied	Not supplied	210	300-500
Storage protection	None	Std.	Std.	Std.
Increment size, bytes	Not applicable	128K, 512K	128K	131K, 262K, 524K, 1M
Cache memory, bytes	None	None	None	8K-16K
INPUT/OUTPUT CONTROL				
No. of I/O channels	5	6-11	Not supplied	15
Data transfer rate	Not supplied	Not supplied	Not supplied	Not supplied
COMMUNICATIONS				
Max. number of lines	32	2-4	4-18	8-32
Synchronous	No	Opt.: 9.2K bps	Opt.: 9.6K bps	Opt.: 19.2K bps
Asynchronous	9.6K bps	Opt.: 38.4K bps	Opt.: 38.4K bps	Opt.: 50K bps
Protocols supported	2780/3780	2780/3780, BDLC, SNA, X.25	2780/3780, SNA, BDLC, SNA, X.25	2780/3780, X.25, BDLC, BNA
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	No	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 2MB-54MB Pack: 80-252MB	Cartridge: 4.6MB, 9.2MB Fixed: 18MB-37MB	Fixed: 18MB-77MB Pack: 65MB, 130MB	Pack: 65MB, 130MB Fixed: 402MB-1608MB
Serial printers	20-120cps	180-230 cps	180-230 cps	None
Letter quality printers	None	None	None	None
Line printers	300 lpm	85-600 lpm	160-1250 lpm	270-2000 lpm
Reel-to-reel tape drives	45 ips	None	None	50 ips; 1600 bpi
Streaming tape drives	None	25/100 ips	25/100 ips	25/100 ips
Cassette/cartridge tape drives	10MB	10 ips cassette	10 ips cassette	10 ips cassette
Other peripherals supported		Super mini disk: 6MB Winchester: 9.6, 14.4MB	Cartridge: 4.6-9.2MB, Mini disk, card readers	Card equipment
SOFTWARE				
Assembler	No	Not supplied	Not supplied	Not supplied
Compilers	Basic	Cobol, RPG, MPL II, NDL	Cobol, RPG, NDL, MPL II	Cobol, Fortran, Basic, RPG, NDL, Gemcos, SDL
Operating system	Multitasking	Real-time, Multitasking	Real-time, multitasking	Real-time, multitasking
Operating sys. implemented in firmware	Partially	Fully	Fully	Fully
Database management system	None	None	None	DMS II
Principal industry application	Accounting	General Business	General Business	Business
Other packages		Mfg., Hospital, Educ., Word Management, Reporter, Domain	Mfg., Hospital, Educ., Word Mgmt, Reporter, Domain	Mfg., Banking, Educ., Distribution
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, tape cartridge, 27MB disk—\$38,950	B 96 with 512KB memory, 80MB fixed disk, tape streamer, and controls— \$40,615	B930 with 2 processors, 256KB memory module, Data comm. I/O extender— \$23,228	B1990-SP with 512KB memory, 4 comm. inter- faces, Maintenance Access Processor and ET1100 workstation—\$59,300
Mo. maintenance of basic configuration	\$270 plus peripherals	Not supplied	Not supplied	Not supplied
Date of first delivery	1978	December, 1979	August, 1980	1980
Number installed to date	3500	Not supplied	Not supplied	Not supplied
COMMENTS	BTI 6000, supporting from 128KB to 1MB main memory, will replace the BTI 5000, 3rd quarter 1984.	B 90 Series consists of 5 models: B 91, B 92, B 93, B 95 and B 96.		5 models: B 1905, B 1915 B 1985, B 1990-SP, and B 1990-DP

All About Minicomputers

MANUFACTURER AND MODEL	Cado System Corp. TIGER ATS 32	Cado System Corp. TIGER ATS 64	Centurion Computer Corp. 6400/6500	Chrislin Industries Inc. CI-Micro-11
WORD LENGTH	16 bits	16 bits	8, 16 bits	16 bits
MAIN MEMORY	256KB-512KB	256KB-1.1MB	128KB-512KB	256KB-4MB
DISK STORAGE CAPACITY	15MB-60MB	30MB-1,144MB	64MB-288MB	up to 140MB
NO. WORKSTATIONS SUPPORTED	32	64	20/8	10
PRICE RANGE	\$24,000-\$150,000	\$31,400-\$300,000	\$28,308-\$32,475	\$35,000-\$40,000
TARGET MARKET	Business, professions	Business, professions		Technical, business
CENTRAL PROCESSOR				
CPU manufacturer and model	Intel 8086, 8089	Intel 8086, 8089	Centurion CPU6	DEC LSI 11/23
Hardware floating point	None	None	No	Double
Battery backup	None	None	None	Opt.
Real-time clock or timer	Std.	Std.	Std.	Opt.
CPU cycle time, nanoseconds	500	500	200	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2	2	1	4
Memory access	Not supplied	Not supplied	8	1.2MB
Cycle/access time, nanoseconds	625	625	800	400/240
Storage protection	None	None	Std.	Std.
Increment size, bytes	128K	128K	128K	256K
Cache memory, bytes	None	None	None	8K
INPUT/OUTPUT CONTROL				
No. of I/O channels	32	64	32	4
Data transfer rate	5M bits/second	7.7M bits/second	19.2KB/sec.	512KB/second
COMMUNICATIONS				
Max. number of lines	4	8	1	32
Synchronous	Std.; 19.2K bps	Std.; 19.2K bps	No	Opt.
Asynchronous	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 9600 bps	Std.
Protocols supported	IBM 3741, 2770, 2780, 3780, BSC, TTY	IBM 3741, 2770, 2780, 3780, BSC, TTY	3780	Any DEC supported
Type of LAN supported	None	None	none	DECnet
RJE terminals emulated	IBM 3741,2770,2780,3780	IBM 3741,2770,2780,3780	3780	VT100
IBM 3270 emulation	No	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Micro-Winchester: 15MB	Winchester: 30MB, 60MB or 143MB	64-96MB	Fixed: 10-140MB
Serial printers	100-400 cps	100-400 cps	120 cps-150 cps	50-100 cps
Letter quality printers	20,35,55 cps	20,35,55 cps	45 cps	Not supplied
Line printers	300lpm, 600lpm	300lpm, 600lpm	None	Not supplied
Reel-to-reel tape drives	None	None	1600 bpi	Not supplied
Streaming tape drives	90ips; 20MB	90ips; 20MB	55 ips	Not supplied
Cassette/cartridge tape drives	None	None	40mb	Not supplied
Other peripherals supported	Diskette: 1.2MB; OCR reader	Diskette: 1.2MB, OCR reader		
SOFTWARE				
Assembler	None	None	Assembler	Macro
Compilers	CADOL III (Basic) Level II Cobol	CADOL III (Basic) Level II Cobol	BASIC, CPL	Fortran, Basic, Pascal, Cobol
Operating system	Real-time; multitasking	Real-time; multitasking	Real-time, Batch	Multitasking
Operating sys. implemented in firmware	Resides in ROM	Resides in ROM	Partially	Fully
Database management system	Just Ask III	Just Ask III	None	Various
Principal industry application	Business	Business	Financial	Manufacturing
Other packages	Word/data processing; message proc. accounting forecasting/modeling	Word/data processing; message proc. accounting forecasting/modeling	Service Industry, Accounting	Accounting
PRICING & AVAILABILITY				
Basic system configuration and price	256KB memory, 1 trans. processor, 1 intranet processor, 1 control Bi-processor, 15MB disk, 7 Keyboard/CRTs, 1 dual mode printer—\$37,360	256KB memory, 1 trans. processor, 1 Intranet processor, 1 control Bi-processor, 30MB disk 7 Keyboard/CRTs, 1 dual-mode printer—\$44,760	6400: CPU, 96MB disk, video, 150 cps printer—\$32,475 6500: CPU, 64MB disk, video, 150 cps printer—\$28,475	CPU, 4MB memory, terminal, 140MB Winchester, 2MB floppy and RSC11-M software—\$36,995
Mo. maintenance of basic configuration	1.2% of purchase price	1.2% of purchase price	\$440/\$400	Contact vendor
Date of first delivery	10/83	3/83	October 1979	Jan. 83
Number installed to date	Not supplied	500	130/40	54
COMMENTS	Utilizes multiple, interactive processors in a tri-level architecture. Capacity can be added in 8-port increments by modular addition of microprocessor and memory cards in expansion slots.	Utilizes multiple, interactive processors in a tri-level architecture. Capacity can be added in 8-port increments by modular addition of microprocessor and memory cards in expansion slots.	6400—cabinet model 6500—desk model	

All About Minicomputers

MANUFACTURER AND MODEL	Chromatics, Inc. CGC 7900	Computer Automation Inc. SyFA 200	Computer Automation Inc. SyFA 300	Computer Automation, Inc. SyFA 1000
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	128KB-9MB	64K-128KB	64K-512KB	128KB-384KB
DISK STORAGE CAPACITY	10MB-81MB	32-96MB	32-96MB	32MB-2.4GB
NO. WORKSTATIONS SUPPORTED	1	8	24	32
PRICE RANGE	\$20,000-\$40,000	Not supplied	Not supplied	Not supplied
TARGET MARKET	Color Graphics	Business	Business	Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Motorola 68000	Proprietary	Proprietary	Proprietary
Hardware floating point	No	No	No	No
Battery backup	Opt.	None	None	None
Real-time clock or timer	Opt.	Std.	Std.	Std.
CPU cycle time, nanoseconds	Not supplied	150/100	150/100	100
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	1 or 2	1 or 2	1 or 2
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	Not supplied	750/550	750/550	750/550
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	128K/512K	128K	128K	128K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	Up to 16	12	13	44
Data transfer rate	500K words/sec.	Not supplied	Not supplied	Not supplied
COMMUNICATIONS				
Max. number of lines	18	9	9	34
Synchronous	No	Opt.; 9.6K bps	Opt.; 9.6K bps	Opt.; 9.6K bps
Asynchronous	Std., 19.2K bps	9.6K bps	9.6K bps	Opt.; 9.6K bps
Protocols supported	RS-232 & RS-449			2780/3780, HASP, SNA, X.25, BSC
Type of LAN supported	No	SyFAnet	SyFAnet	SyFAnet
RJE terminals emulated	No	2780/3780/HASP	2780/3780/HASP	2780/3780, HASP
IBM 3270 emulation	No	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed—10, 40, or 80MB	Fixed: 32-300 MB	Fixed: 32-300 MB	Fixed: 32-300MB
Serial printers	Interface supported	120-200 cps	120-200 cps	120-200 cps
Letter quality printers	Interface supported	30 cps	30 cps	30 cps
Line printers	Interface supported	300-1000 lpm	300-1000 lpm	300-1000 lpm
Reel-to-reel tape drives	800 & 1600 bpi	None	800-1600 bpi	800/1600 bpi
Streaming tape drives	No	None	None	None
Cassette/cartridge tape drives	No	None	None	None
Other peripherals supported	500KB diskette	None	None	None
SOFTWARE				
Assembler	MC68000	None	None	No
Compilers	C, Pascal, Fortran 77	SyBol	SyBol	SyBOL
Operating system	Idris OS, UNIX-comp.	Realtime/batch/multitask	Realtime/batch/multitask	Realtime/batch/multitask
Operating sys. implemented in firmware	Partially	RAM memory resident	RAM memory resident	Partially
Database management system	No	SyMple	SyMple	SyMple
Principal industry application	CAD/CAM, Business Graphics	Business	Business	Manufacturin, Insurance Distribution
Other packages				
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 19" CRT, 8-color overlay, 128K RAM, 64K ROM, 2 serial I/O ports, 4 refresh memory planes, 24-slot card cage—\$18,995	Contact vendor	Contact vendor	Contact Vendor
Mo. maintenance of basic configuration	Contact vendor	Contact vendor	Contact vendor	Contact Vendor
Date of first delivery	December, 1980	7/80	5/80	July, 1975
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS		Virtual memory system, high level host interface	Virtual memory system, high level host interface, Telenet, Tymnet certified.	Virtual memory system, high-level host interface, Telenet-, Tymnet-certified

All About Minicomputers

MANUFACTURER AND MODEL	Computer Automation, Inc. SyFA 1700	Computer Automation, Inc. SyFA 2000	Computer Designed Systems Adviser 100	Computer Designed Systems Adviser 600
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	256KB	128KB-384KB	64KB-512KB	64KB-512KB
DISK STORAGE CAPACITY	32MB-96MB	32MB-2.4GB	23MB-288MB	
NO. WORKSTATIONS SUPPORTED	24	32	8	16
PRICE RANGE	Not supplied	Not supplied	\$30,000-100,00	\$80,000-250,000
TARGET MARKET	Business/Office	Business	manufacturing, distribution	Manufacturing, distribution
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Not supplied	Not supplied
Hardware floating point	No	No	single	Double
Battery backup	None	None	Opt.	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	100	100	200	150
MAIN STORAGE				
Bytes fetched per cycle	1 or 2	1 or 2	4	6
Memory access	Not supplied	Not supplied	64 bits/second	64
Cycle/access time, nanoseconds	750/550	500	100	100
Storage protection	Std.	Std.	Opt.	Opt.
Increment size, bytes	Not applicable	128K	32K	64K
Cache memory, bytes	1K	1K	None	2K
INPUT/OUTPUT CONTROL				
No. of I/O channels	25	44	8	16
Data transfer rate	800KB/second	800KB/second	256KB/sec.	512KB/sec.
COMMUNICATIONS				
Max. number of lines	25	34	12	24
Synchronous	Opt.; 9.6K bps	Opt.; 9.6K bps	Opt.	Opt.
Asynchronous	Opt.; 9.6K bps	Opt.; 9.6K bps	Std.	Std.
Protocols supported	2780/3780, HASP, SNA, X.25, BSC	2780/3780, HASP, SNA, X.25, BSC	All IBM	All IBM
Type of LAN supported	SyFAnet	SyFAnet	None	
RJE terminals emulated	2780/3780, HASP	2780/3780, HASP	No	2780/3780
IBM 3270 emulation	Yes	Yes	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 32MB, Diskette	Fixed: 32MB-300MB	Pack: 32-96MB	Pack: 32-96MB Fixed: 80-300MB
Serial printers	120-200 cps	120-200 cps	20-350cps	20-350cps
Letter quality printers	30 cps	30 cps	20-250cps	20-250cps
Line printers	300-1000 lpm	300-1000 lpm	300-600-1200 lpm	300-600-1200 lpm
Reel-to-reel tape drives	None	None	800-1600 bpi	800-1600 bpi
Streaming tape drives	90 ips; 6400 bpi	None	Opt.	None
Cassette/cartridge tape drives	10MB	None	Opt.	None
Other peripherals supported				
SOFTWARE				
Assembler	No	No	No	Yes
Compilers	SyBOL	SyBOL	Abol	Abol, Cobol, Basic, Fortran, Pascal, RPG
Operating system	Realtime/batch/multitask	Realtime/batch/multitask	Realtime,multitask,batch	Realtime,multitask,batch
Operating sys. implemented in firmware	Partially	Partially	Partially	Partially
Database management system	SyMple	SyMple	Advisor +	Advisor +
Principal industry application	Manufacturing, Insurance Distribution	Manufacturing, Insurance Distribution	Manufacturing, distribution	Manufacturing, distribution
Other packages			Medical, construction, fixed assets	Medical, construction, fixed assets
PRICING & AVAILABILITY				
Basic system configuration and price	Contact Vendor	Contact Vendor	64K memory, 1 CRT, 23MB disk, 1600 lpm printer— \$30,000	CPU, 128K memory, 2 CRTs 80MB disk, 300 lpm printer—\$80,000
Mo. maintenance of basic configuration	Contact Vendor	Contact Vendor	\$300.00	\$750.00
Date of first delivery	1984	April, 1981	1975	1977
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS	Virtual memory system, high-level host interface, Telenet- Tymnet-certified	Virtual memory system, high-level host interface, Telenet- Tymnet-certified		

All About Minicomputers

MANUFACTURER AND MODEL	Computer Designed Systems Adviser 900	Computer Extension Systems, Inc. OMNIPAC	Computone Systems Inc. Control Center 3 (CC3)	Computone Systems, Inc. Control Center 3-MP (CC3-MP)
WORD LENGTH	16 bits	12 bits	16 bits	16 bits
MAIN MEMORY	512KB-6MB	8KB-1MB	128KB-512KB	128KB-512KB
DISK STORAGE CAPACITY		10MB-240MB	15MB	43MB
NO. WORKSTATIONS SUPPORTED	32	16	4	104
PRICE RANGE	\$150,000-\$500,000	\$15,000-\$28,000	\$15,00-30,000	From \$30,000
TARGET MARKET	Manufacturing, distribution	Business	Insurance, Accounting	Insurance, Accounting, Fuel Oil, Gen. Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Not supplied	Proprietary	Intel 8086	Intel 8086
Hardware floating point	Double	No	Double	Double
Battery backup	Opt.	None	None	None
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	100	980	125	125
MAIN STORAGE				
Bytes fetched per cycle	6	2	2	2
Memory access	64	15	80 million	80M/second
Cycle/access time, nanoseconds	100	980	750	750
Storage protection	Opt.	None	None	None
Increment size, bytes	64K	8K	128K	128K
Cache memory, bytes	4K	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	32	32	5	130
Data transfer rate	512KB/second	1M Word/Sec.	Not supplied	Not supplied
COMMUNICATIONS				
Max. number of lines	64	32	4	104
Synchronous	Opt.	Opt.	Std., 19.2K bps	Std.: 19.2K bps
Asynchronous	Std.	Opt.	Std. 19.2K bps	Std.: 19.2K bps
Protocols supported	All IBM	Not supplied	None	None
Type of LAN supported		DECnet	None	None
RJE terminals emulated	3780	Not supplied	None	None
IBM 3270 emulation	Yes	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 80-300MB	Winchester: 120MB	5 1/4" floppy: 740KB Winchester: 5-15MB	Winchester: 43MB
Serial printers	20-350cps	120 cps	None	None
Letter quality printers	20-250cps	40 cps	None	None
Line printers	300-600-1200 lpm	300 lpm	None	None
Reel-to-reel tape drives	800-1600 bpi	None	None	None
Streaming tape drives	None	None	90 ips 23MB	90 ips; 23MB
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported		Floppy disk	None	
SOFTWARE				
Assembler	Yes	PAL	Opt.	Opt.
Compilers	Abol, Cobol, Basic, Fortran, Pascal, RPG	Dibol, Pascal, Basic, WPS8, Fortran IV	Basic, Fortran, Cobol, Pascal, C & HIBOL	Basic, Fortran, Cobol, Pascal, C & HIBOL
Operating system	Realtime, multitask, batch	Multi processing	Real-time, multitasking	Real-time, multitasking
Operating sys. implemented in firmware	Partially	No	Partially	Partially
Database management system	Advisor +	None	D.B.M.S.	D.B.M.S.
Principal industry application	Manufacturing, distribution	Office automation	Business	Business
Other packages	Medical, construction, fixed assets		Order Entry, Payroll, TAB, Amort. & Dep. Accts. Rec., Accts. Pay	Order Entry, Payroll, TAB, Amort. & Dep. Accts. Rec., Accts. Pay
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 128KB memory, 2CRTs 80MB disk, 300 lpm printer—\$150,000	CPU, 40MB disk, 128K word memory—\$15,000	CPU, 128K memory, 15MB disk, 730K floppy, 340 cps printer and intelligent terminal*	CPU, 256K memory, SMD interface for 43MB disk, 23MB streaming tape, 340 cps printer & intelligent terminal*
Mo. maintenance of basic configuration	\$1,025.00	Contact vendor	*	*
Date of first delivery	1977	1980	June 1983	August, 1983
Number installed to date	Not supplied	200	Not available	Not available
COMMENTS		Supports all DEC compatible peripherals.	*Systems are marketed and sold through an independent dealer network. Contact vendor for dealer names.	*Systems are marketed and sold through an independent dealer network. Contact vendor for dealer names.

All About Minicomputers

MANUFACTURER AND MODEL	Cyberchiron Corp. C11/23	Cyberchiron Corp. C11/73	Data General Corp. Eclipse S/120	Data General Corp. Eclipse S/140
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	128KB-4MB	128KB-4MB	128KB-512KB	128KB-2MB
DISK STORAGE CAPACITY	20MB-600MB	20MB-600MB	5MB-32GB	5MB-32GB
NO. WORKSTATIONS SUPPORTED	16	32	48	64
PRICE RANGE	\$10,000-\$60,000	\$15,000-\$100,000	\$12,000-\$150,000	\$22,000-\$180,000
TARGET MARKET	Tech./Business	Technical/Business	Technical/Business	Technical/Business
CENTRAL PROCESSOR				
CPU manufacturer and model	DEC PDP-11	DEC PDP-11	Proprietary	Proprietary
Hardware floating point	Double	Double	Double	Double
Battery backup	Opt.	Opt.	Opt.	Std.
Real-time clock or timer	Opt.	Opt.	Std.	Std.
CPU cycle time, nanoseconds	750	300	500	200
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	2
Memory access	Not supplied	Not supplied	32 bits/sec	160 bits/sec
Cycle/access time, nanoseconds	150	210	500	100/400
Storage protection	None	None	Std.	Std.
Increment size, bytes	128K	128K	128K	128K
Cache memory, bytes	None	8K	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	4	4	24	24
Data transfer rate	512KB/second	750KB/second	2MB/sec.	2MB/sec.
COMMUNICATIONS				
Max. number of lines	32	32	160	160
Synchronous	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps
Asynchronous	Opt.; 38.4K bps	Opt.; 38.4K bps	Opt.; 19.2K bps	Opt.; 19.2K bps
Protocols supported	2780/3780, X.25, Bisync. SDLC, SNA	2780/3780, X.25, Bisync. SDLC, SNA	2780/3780 SDLC, X.25, SNA	2780/3780 SDLC, X.25, SNA
Type of LAN supported	Ethernet, DECnet	Ethernet, DECnet	Xodiac	Xodiac
RJE terminals emulated	2780/3780	2780/3780	2780/3780, HASP	2780/3780, HASP
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 10MB-500MB Cartridge: 10MB-80MB	Fixed: 10MB-500MB Cartridge: 10MB-80MB	Fixed: 5-147MB Cartridge: 10MB-192MB	Fixed: 5-354MB Cartridge: 10MB-277MB
Serial printers	20-300 cps	20-300 cps	20-180 cps	20-180 cps
Letter quality printers	20-45 cps	20-45 cps	55 cps	55 cps
Line printers	300-1000 lpm	300-1000 lpm	to 1200 lpm	to 1200 lpm
Reel-to-reel tape drives	15-125 lps	15-125 lps	75ips; 800/1600/6250bpi	75ips; 800/1600/6250bpi
Streaming tape drives	45 ips	45 ips	30ips; 1600bpi	30ips; 1600bpi
Cassette/cartridge tape drives	25 ips	25 ips	15MB; 6400 bpi	15MB; 6400 bpi
Other peripherals supported	Floppy: .5-1MB	Floppy: .5-1MB		
SOFTWARE				
Assembler	Macro	Macro	Macro	Macro
Compilers	Basic, Fortran, Cobol, Pascal, C	Basic, Fortran, Cobol, Pascal, C	Basic, Fortran, Pascal, Cobol, Algol, PL/1, DG/L	Basic, Fortran, Pascal, Cobol, Algol, PL/1, DG/L
Operating system	Batch/Realtime/multitask	Batch/Realtime/multitask	Real-time, batch	Real-time, batch
Operating sys. implemented in firmware	Partially	Partially	No	No
Database management system	Datatrieve	Datatrieve	INFOS	INFOS
Principal industry application	OEM/scientific	OEM/scientific	CAD/CAM, Commercial	CAD/CAM, Commercial
Other packages	Data acquisition & data encryption	Data acquisition & data encryption		
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 256KB memory, 20MB disk, 240 cps printer terminal—\$12,500	CPU, 1MB memory, 80MB disk, 90MB streaming tape, 240 cps printer terminal—\$22,500	CPU, 512KB memory, 50MB disk, streaming tape—\$32,300	CPU, 512KB memory, 50MB disk, streaming tape—\$42,050
Mo. maintenance of basic configuration	\$250	\$350	\$299	\$308
Date of first delivery	January 1979	December 1983	March, 1982	December 1979
Number installed to date	Over 500	Not supplied	Not supplied	Not supplied
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	Data General Corp. Eclipse S/280	Data General Corp. Eclipse C/30	Datapoint Corp. 8800	Digital Equipment Corp. PDP-11/23
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	512KB-2MB	512KB-2MB	256KB-1024KB	128KB-256KB
DISK STORAGE CAPACITY	5MB-32GB	150MB	202-1012MB	Not supplied
NO. WORKSTATIONS SUPPORTED	64	16	24	127
PRICE RANGE	\$30,000-\$250,000	From \$10,300	\$67,000-\$81,000	Not supplied
TARGET MARKET	Technical/Business	Commercial/Business	Business/Office Auto- mation	Commercial/technical
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Proprietary
Hardware floating point	Double	Double	None	Opt.
Battery backup	Opt.	Opt.	None	No
Real-time clock or timer	Std.	Std.	Std.	Opt.
CPU cycle time, nanoseconds	150	500	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	4	2	4	Not supplied
Memory access	100 bits/sec	32M bits/second	Not supplied	Not supplied
Cycle/access time, nanoseconds	150/400	500	Not supplied	Not supplied
Storage protection	Std.	Std.	Not supplied	None
Increment size, bytes	512K	256K, 512K	128K	128K
Cache memory, bytes	4K	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	24	2	8	Not supplied
Data transfer rate	11MB/sec	to 4MB/second	1.2MB/sec.	Not supplied
COMMUNICATIONS				
Max. number of lines	160	18	3	Not supplied
Synchronous	Opt.; 56K bps	Opt.; 56K bps	Opt. 40.8K bps	Opt.; 1M bps
Asynchronous	Opt.; 19.2K bps	Std.; 19.2K bps		Opt.; 9.6K bps
Protocols supported	2780/3780 SDLC, X.25, SNA	2780/3780 SDLC, X.25, SNA	2780/3780 HASP Datapoll, 3278	DDCMP, DNA
Type of LAN supported	Xodiac	Xodiac	ARC*	DECnet
RJE terminals emulated	2780/3780, HASP	2780/3780, HASP	2780/3780	None
IBM 3270 emulation	Yes	Yes	Yes	No
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 5-354MB Cartridge: 10MB-277MB	Fixed: 15-50MB, cartridge 150 cps	Fixed: 135-270MB Removable: 67MB	Cartridge: 5.2MB-41.6MB Floppy: 256KB-512KB
Serial printers	20-180 cps	35, 55 cps	35-160 cps	180 cps
Letter quality printers	55 cps	200-300 lpm	35 cps	Not supplied
Line printers	to 1200 lpm	None	300-600 lpm	300-600 lpm
Reel-to-reel tape drives	75ips; 800/1600/6250bpi	30 ips; 1600bpi	25 ips	None
Streaming tape drives	30ips; 1600bpi	15MB; 6400 bpi	None	None
Cassette/cartridge tape drives	15MB; 6400 bpi		20MB	562 cps cassette
Other peripherals supported			Laser printer, color bus. graphics	
SOFTWARE				
Assembler	Macro	Macro	SNAP3 Macro	Assembler and Macro
Compilers	Basic, Fortran, Pascal, Cobol, Algol, PL/1, DG/L	Basic, Fortran, Pascal, Cobol, Algol, PL/1, DG/L, RPG II	Basic PLS, Fortran, Databus, Datashare, Cobol, RPG Plus, Chain	Basic, Fortran, Cobol, Corol
Operating system	Real-time, batch	Real-time, batch	Multitasking	Batch, real-time
Operating sys. implemented in firmware	No	No	Not supplied	No
Database management system	INFOS	DG/DBMS	None	None
Principal industry application	CAD/CAM, Commercial	Commercial	Office automation	
Other packages		Office automation		Graphics, Datatrieve, word processing
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, 50MB disk, streaming tape—\$47,300	CPU, 512KB memory, power supply, hardware floating point unit, chassis—\$10,300	CPU, 256K memory, 202MB disk, console, 8 port serial interface, 2 peripheral processors —\$67,000	Contact vendor
Mo. maintenance of basic configuration	\$403	\$112	\$530	Contact vendor
Date of first delivery	March 1983	February 1983	1981	July, 1979
Number installed to date	Not supplied	Not supplied	500	Not supplied
COMMENTS			*36,780 workstations supported with local area network	

All About Minicomputers

MANUFACTURER AND MODEL	Digital Equipment Corp. Micro PDP-11 and PDP-11/23-Plus	Digital Equipment Corp. PDP-11/24	Digital Equipment Corp. PDP-11/34A	Digital Equipment Corp. PDP-11/44
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	256KB-4MB	1MB-4MB	16KB-124KB	1MB-4MB
DISK STORAGE CAPACITY	Not supplied	Not supplied	Not supplied	Not supplied
NO. WORKSTATIONS SUPPORTED	127	127	127	127
PRICE RANGE	From \$10,000	From \$26,000	Not supplied	From \$44,000
TARGET MARKET	Business/technical	Business/technical	Business/technical	Business/technical
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Proprietary
Hardware floating point	Opt.	Std.	Std.	Opt.
Battery backup	No	Opt.	Opt.	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	Not supplied	Not supplied	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	Not supplied	Not supplied	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	59/26	Not supplied	725	96/48
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	256KB, 512KB	1M	Not supplied	1M
Cache memory, bytes	None	None	None	8K
INPUT/OUTPUT CONTROL				
No. of I/O channels	14	9	Not supplied	14
Data transfer rate	Not supplied	Not supplied	Not supplied	1M/second
COMMUNICATIONS				
Max. number of lines	2	Not supplied	Not supplied	Not supplied
Synchronous	Opt.; 1M bps	Opt.; 1M bps	Opt.; 1M bps	Opt.; 1M bps
Asynchronous	Opt.; 9.6K bps	Opt.; 9.6K bps	Opt.; 9.6K bps	Opt.; 9.6K bps
Protocols supported	DDCMP, DNA, X.25	DDCMP, DNA	DDCMP, DNA	DDCMP, DNA
Type of LAN supported	DECnet, Ethernet	DECnet, Ethernet	DECnet, Ethernet	DECnet, Ethernet
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 10MB, Floppy Cartridge: 21MB-41MB	Winchester: 121KB-456KB Pack: 205MB, floppy	Cart/pack: 2.5-1400MB Fixed: 512KB-8MB	Winchester: 121MB-456MB Pack: 205MB
Serial printers	180 cps	30-180 cps	30-180 cps	30-180 cps
Letter quality printers	Not supplied	Not supplied	Not supplied	Not supplied
Line printers	300-600 lpm	300-1200 lpm	230-1200 lpm	300-1200 lpm
Reel-to-reel tape drives	None	45 ips; 800/1600 bpi	45/125 ips; 800/1600 bpi	45/125 ips; 800/1600 bpi
Streaming tape drives	None	25/100 ips; 40MB	25/100 ips; 40MB	25/100 ips; 40MB
Cassette/cartridge tape drives	562 cps cassette	30 ips; 800 bpi	30 ips; 800 bpi	30 ips; 800 bpi
Other peripherals supported		Card readers		
SOFTWARE				
Assembler	Assembler and macro	Assembler and macro	Assembler and macro	Assembler and macro
Compilers	Cobol, Fortran, Basic, Corol, Pascal	Cobol, Fortran, Basic, Corol, Dibol	Cobol, Fortran, Basic, Corol, Dibol	Cobol, Basic, Fortran, Corol, Dibol, Pascal
Operating system	Batch, real-time	Real-time, multitasking	Batch, real-time	Batch, real-time
Operating sys. implemented in firmware	No	No	No	No
Database management system	None	None	None	None
Principal industry application				
Other packages	Graphics, Datatrieve, word processing	Graphics, Datatrieve, Word processing	Graphics, Datatrieve, word processing	Graphics, Datatrieve word processing
PRICING & AVAILABILITY				
Basic system configuration and price	PDP-11/23-Plus with 512KB memory, two 10MB cartridge disks and controller, operating system license—\$20,750	CPU with 1MB memory, four system units for expansion, I/O connector panel, cabinet and power controller—\$14,000	Contact vendor	CPU with 1MB memory, 3 system units for expansion, I/O connection panel, cabinet and power controller—\$29,950
Mo. maintenance of basic configuration	\$287	\$105	Contact vendor	\$154
Date of first delivery	1981	1981	March, 1976	June, 1980
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS	Utilizes DEC's RSX-11M, RSX-11M-Plus, RSX-11S, RSTS-E, CTS-500, RT11, and DSM11 operating systems.	Utilizes DEC's RT-11, RSX-11M, RSTS/E, CTS-300 DSM-11, and Unix-based operating systems	Uses similar technology to PDP-11/04; includes memory mgmt. for greater addressing capability.	Optional CIS processor & 1MB memory increment available; enhanced main-table features & intelligent console subsystem.

All About Minicomputers

MANUFACTURER AND MODEL	Dimis, Inc. D153	Dimis, Inc. D253	Dimis, Inc. D453	Dimis, Inc. D754
WORD LENGTH	16 bit	16 bit	16 bit	16 bit
MAIN MEMORY	512KB	512KB	512KB	1,024KB
DISK STORAGE CAPACITY	80MB	300MB	300MB	300MB
NO. WORKSTATIONS SUPPORTED	10	28	50	50
PRICE RANGE	\$75,000-\$110,000	\$120,000	\$130,000	\$160,000
TARGET MARKET	Wholesale Distributor	Wholesale Distributor	Wholesale Distributor	Wholesale Distributor
CENTRAL PROCESSOR				
CPU manufacturer and model	MODCOMP Classic II	MODCOMP Classic II	MODCOMP Classic II	MODCOMP Classic II
Hardware floating point	Double	Double	Double	Double
Battery backup	Opt.	Opt.	Opt.	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	250	250	250	250
MAIN STORAGE				
Bytes fetched per cycle	480	Not supplied	Not supplied	Not supplied
Memory access	480	250	125	125
Cycle/access time, nanoseconds	Std.	250	125	125
Storage protection	None	Std.	Std.	Std.
Increment size, bytes	Not applicable	512K	512K	512K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	16	16	16-48	16-48
Data transfer rate	650KB/second	650KB/second	650KB/second	650KB/second
COMMUNICATIONS				
Max. number of lines	32	32	32	32
Synchronous	Opt.	Opt.	Opt.	Opt.
Asynchronous	Std.; 9.6K bps	Std.; 9.6K bps	Std.; 9.6K bps	Std.; 9.6K bps
Protocols supported				
Type of LAN supported	None	None	None	None
RJE terminals emulated	No	No	None	None
IBM 3270 emulation	No	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 80MB	Fixed: 80, 200 & 300MB	Fixed: 80, 200 & 300MB	Fixed: 80, 200 & 300MB
Serial printers	None	None	None	None
Letter quality printers	None	None	None	None
Line printers	300 lpm	300 lpm	600 lpm	600 lpm
Reel-to-reel tape drives	None	None	None	None
Streaming tape drives	800-1600 bpi	800-1600 bpi	800-1600 bpi	800-1600 bpi
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported				
SOFTWARE				
Assembler	Assembler	Assembler	Assembler	Assembler
Compilers	Fortran	Fortran	Fortran	Fortran
Operating system	Real-time, batch	Real-time, batch	Real-time, batch	Real-time, batch
Operating sys. implemented in firmware	No	No	No	No
Database management system	None	None	None	None
Principal industry application	Distribution	Distribution	Distribution	Distribution
Other packages				
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, 80MB disk, 300 lpm printer, streaming tape—\$110,000	CPU, 512KB memory, 300MB disk, 600 lpm printer, streaming magnetic tape—\$120,000	CPU, 512KB-1,024KB memory, 300MB disk—\$130,000	CPU, 1,024KB-2,048KB memory, 300MB disk—\$160,000
Mo. maintenance of basic configuration	\$440	\$440	\$440	\$440
Date of first delivery	New Product	September 1980	June 1974	December 1978
Number installed to date	New Product	Not supplied	Not supplied	Not supplied
COMMENTS	Includes training, support and all applications software.	Includes training, support and all applications software.	Includes training, support, and all applications.	Includes training, support and all applications.

All About Minicomputers

MANUFACTURER AND MODEL	Dimis, Inc. D755	Four-Phase Systems, Inc. Model 260	General Automation, Inc. ZEBRA 3000	General Automation, Inc. ZEBRA 3500
WORD LENGTH	16 bit	16 bits	16 bits	16 bits
MAIN MEMORY	2,048KB	1.75MB	1MB-1.5MB	256KB-1MB
DISK STORAGE CAPACITY	300MB	15MB-105MB	64MB-256MB	64MB-256MB
NO. WORKSTATIONS SUPPORTED	100	8	16	24
PRICE RANGE	\$195,000	\$14,000-\$36,000	\$28,900-\$75,000	\$32,450-\$60,000
TARGET MARKET	Wholesale Distributor	OEM/End user	Small Business	Small Business
CENTRAL PROCESSOR				
CPU manufacturer and model	MODCOMP Classic II	Motorola 68000	Motorola 68000	Motorola 68000
Hardware floating point	Double	None	No	No
Battery backup	Opt.	None	Std.	Std.
Real-time clock or timer	Std.	Std.	None	None
CPU cycle time, nanoseconds	250	125	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	2	2	2
Memory access	125	21.3MB	Not supplied	Not supplied
Cycle/access time, nanoseconds	125	625	Not supplied	Not supplied
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	1M	512K	512K	768K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	32-64	56	Not supplied	Not supplied
Data transfer rate	650KB/second	2MB/second	Not supplied	Not supplied
COMMUNICATIONS				
Max. number of lines	32	16	18	26
Synchronous	Opt.	Opt.; 19.2K bps	Opt. 9.6K bps	Opt. 9.6K bps
Asynchronous	Std.; 9.6K bps	Opt.; 9.6K bps	Std., 19.2K bps	Std., 19.2K bps
Protocols supported		2780/3780, 3770 3270 BSC/SNA TTY	2780/3780	2780/3780
Type of LAN supported	None	None	Arcnet	Arcnet
RJE terminals emulated	None	2780/3780 3770	2780/3780	None
IBM 3270 emulation	No	Yes	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 80, 200 & 300MB	Fixed: 15MB Diskette: .65MB	Fixed: 64MB	Fixed 64MB
Serial printers	None	150-200 cps	200 cps	200 cps
Letter quality printers	None	35 cps	not supplied	not supplied
Line printers	600 lpm	300/600 lpm	150-600 lpm	150-600 lpm
Reel-to-reel tape drives	None	None	None	None
Streaming tape drives	800-1600 bpi	None	25 ips; 1600 bpi	25 ips; 1600 bpi
Cassette/cartridge tape drives	None	None	90 ips; 20MB	90 ips; 20MB
Other peripherals supported				
SOFTWARE				
Assembler	Assembler	Macro	Not supplied	Not supplied
Compilers	Fortran	Cobol, Basic, Pascal, C, MUMPS	C, Basic, Cobol	Pick Basic
Operating system	Real-time, batch	Multitasking	XENIX Multitasking	Pick Multitasking
Operating sys. implemented in firmware	No	Partially	Partially	Partially
Database management system	None	MUMPS	Informix	ACCESS
Principal industry application	Distribution	General business,	General Business	General Business
Other packages		Office automation	Office Automation, Word processing	Word processing, graphics, spreadsheet
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 2048-4096KB memory, 300MB disk— \$195,000	CPU, 500KB memory, 15MB disk, 65MB floppy disk, 1 display; \$15,620	CPU, 1MB memory, 64MB disk, cartridge tape drive, 10 I/O ports, Operating System, Word Processing UPS—\$28,900	CPU, 256KB memory, 64MB disk, cartridge tape drive, 10 I/O ports, Operating System, UPS, ACCU-PLOT, JET, and COMPUSHEET—\$32,450
Mo. maintenance of basic configuration	\$440	\$145	Contact vendor	Contact vendor
Date of first delivery	New product	Dec. 83	April, 1983	April, 1983
Number installed to date	Not supplied	New product	Not supplied	Not supplied
COMMENTS	Includes training, support and all appli- cations.			

All About Minicomputers

MANUFACTURER AND MODEL	General Automation, Inc. ZEBRA 5500	General Robotics Micro-main Frame	Hewlett-Packard Co. HP250	Hewlett-Packard Co. HP 1000 E/F Series
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	1MB-1.5MB	64KB-4MB	256KB-896KB	256KB-2MB
DISK STORAGE CAPACITY	142MB-568MB	10MB-300MB	4.7MB-262MB	10MB-3.2GB
NO. WORKSTATIONS SUPPORTED	48	32	10	*
PRICE RANGE	\$55,300-\$100,000	\$13,000K-\$20,000	\$16,000-\$160,000	\$23,750-\$32,750
TARGET MARKET	Small Business	Technical/business	Small business	Scientific/Technical
CENTRAL PROCESSOR				
CPU manufacturer and model	Motorola 68000	LSI-11/23-11/73	proprietary	Proprietary
Hardware floating point	No	Double	No	None/opt.
Battery backup	Std.	Opt.	None	Opt.
Real-time clock or timer	None	Std.	Std.	None
CPU cycle time, nanoseconds	Not supplied	Std.	170	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2	4	Not supplied	2
Memory access	Not supplied	64	Not supplied	Not supplied
Cycle/access time, nanoseconds	Not supplied	Not supplied	Not supplied	665/420
Storage protection	Std.	Not supplied	Std.	Std.
Increment size, bytes	512K	64K	64K	128K
Cache memory, bytes	None	None	Directory Cache	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	Not supplied	Not supplied	8	9-14
Data transfer rate	Not supplied	Not supplied	1MB/second	900KB/sec.
COMMUNICATIONS				
Max. number of lines	50	32	10	Not supplied
Synchronous	Opt. 9.6K bps	No	Opt.; 19.2K bps	Opt., 9.6K bps
Asynchronous	Std., 19.2K bps	Opt.; 19.2K bps	Std.; 9.6K bps	Opt., 19.2K bps
Protocols supported	2780/3780		2780/3780, ENQ/ACK, XON/XOFF	2780/3780, X.25, HDLC
Type of LAN supported	Arcnet	Ethernet, DECnet	None	None
RJE terminals emulated	None	2780/3780, HASP	IBM 2780/3780	2780/3780
IBM 3270 emulation	No	No	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 142MB	10MB-300MB	Fixed/Cart.: 16MB-262MB	Fixed, 16MB-404MB
Serial printers	200 cps	Diskettes: 600KB-1MB	Integrated: 14.7MB	Removable, 50MB-404MB
Letter quality printers	not supplied	30-180 cps	80,100,200 cps	30-108 cps
Line printers	150-600 LPM	45 cps	20,40,100/200 cps	40 cps
Reel-to-reel tape drives	None	300-1500 lpm	300 lpm	250-1000 lpm
Streaming tape drives	25 ips; 1600 bpi	800/1600 bpi	None	800/1600 bpi
Cassette/cartridge tape drives	90 ips; 20MB	20MB	None	None
Other peripherals supported			16MB & 67MB	None
			Laser printer, 1.2MB	Diskettes, plotters,
			floppy disk, bar code	graphics tablet
SOFTWARE				
Assembler	Not supplied	Macro	Assembler	MACRO/1000
Compilers	Pick Basic	any DEC-compatible	HP250 Extended Business Basic	Basic, Fortran, Pascal
Operating system	Pick Multitasking	Real-time, Batch	HP (Prop.) B.06.00	Real-Time
Operating sys. implemented in firmware	Partially	Fully	None	Not supplied
Database management system	ACCESS	None	IMAGE/250	Image/1000
Principal industry application	General Business	Manufacturing, wholesale	Manufacturing, accting.	Manufacturing,
Other packages	Word processing, graphics, spreadsheet	Office	Distribution, medical	engineering, measurement
			Real Estate, Non-profit,	Manufacturing, process
			Bank/Finance, Utilities,	control, graphics
			Trans., Energy, Constr.	
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 1MB memory, 142MB disk, streaming tape drive, 10 I/O ports, Operating System, UPS, ACCU-PLOT, COMPU-SHEET, JET—\$55,300	CPU, 512KB memory, 20MB disk, ¼" streaming tape, 4 I/O ports—\$13,000	Processor, 256KB memory, system software, 14.7MB Integrated disk storage, 1 workstation, 80cps printer—\$15,985	E-Series CPU, 256KB memory, operating system, 10 I/O ports—\$23,750
Mo. maintenance of basic configuration	Contact vendor	Not supplied	\$550	\$155
Date of first delivery	April, 1983	January 1982	Feb. 1978	December 1981
Number installed to date	Not supplied	Not supplied	8,500+	Not supplied
COMMENTS			Over 1000 Third Party software programs are available for the HP250.	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.

All About Minicomputers

MANUFACTURER AND MODEL	Hewlett-Packard Co. HP 1000 Micro 26	Hewlett-Packard Co. HP 1000 Micro 27	Hewlett-Packard Co. HP 1000 Micro 29	Hewlett-Packard Co. HP 1000 Model 6 MicroSystem
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	512KB-4MB	512KB-4MB	768KB-1.5MB	512KB-4MB
DISK STORAGE CAPACITY	10MB-10GB	10MB-10GB	10MB-10GB	16MB-10GB
NO. WORKSTATIONS SUPPORTED	*	*	*	*
PRICE RANGE	\$16,240-\$32,000	From \$14,000	From \$24,600	From \$14,000
TARGET MARKET	Scientific/Technical	Scientific/Technical	Scientific/Technical	Scientific/Technical
CENTRAL PROCESSOR				
CPU manufacturer and model	HP A600	HP A700	HP A900	HP A600
Hardware floating point	None	Double	Double	No
Battery backup	Opt.	Opt.	Opt.	Opt.
Real-time clock or timer	None	Not supplied	Not supplied	Not supplied
CPU cycle time, nanoseconds	Not supplied	Not supplied	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2	2	4	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	454	500	181	Not supplied
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	128K	128K, 256K, 512K, 1M	768K, 1.5MB, 3MB	128K, 256K, 512K, 1M
Cache memory, bytes	None	None	4K	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	14	12	11	3-5
Data transfer rate	900KB/sec.	4.27MB/sec.	900KB/sec.	900KB/sec.
COMMUNICATIONS				
Max. number of lines	Not supplied	Not supplied	Not supplied	Not supplied
Synchronous	Opt., 57.2K bps	Opt., 57.6K bps	Opt., 57.2K bps	Opt., 57.2K bps
Asynchronous	Opt., 19.2K bps	Opt., 19.2K bps	Opt., 19.2K bps	Opt., 19.2K bps
Protocols supported	2780/3780, X.25, HDLC	2780/3780, X.25, HDLC	2780/3780, X.25, HDLC	2780/3780, X.25, HDLC
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed, 16MB-404MB Removable, 50MB-404MB	Fixed, 16MB-404MB Removable, 50MB-404MB	Fixed, 16MB-404MB Removable, 50MB-404MB	Fixed, 16MB-404MB Removable, 50MB-404MB
Serial printers	30-108 cps	30-108 cps	30-108 cps	30-108 cps
Letter quality printers	40 cps	40 cps	40 cps	40 cps
Line printers	250-1000 lpm	250-1000 lpm	250-1000 lpm	250-1000 lpm
Reel-to-reel tape drives	800/1600 bpi	800/1600 bpi	800/1600 bpi	800/1600 bpi
Streaming tape drives	None	None	None	None
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported	Diskettes, plotters, graphics tablet	Diskettes, plotters, graphics tablet	Diskettes, plotters, graphics tablet	Diskettes, plotters, graphics tablet
SOFTWARE				
Assembler	MACRO/1000	MACRO/1000	MACRO/1000	MACRO/1000
Compilers	Basic, Fortran, Pascal	Basic, Fortran, Pascal	Basic, Fortran, Pascal	Basic, Fortran, Pascal
Operating system	Real-Time	Real-Time	Real-Time	Real-Time
Operating sys. implemented in firmware	Not supplied	Not supplied	Not supplied	Not supplied
Database management system	Image/1000	Image/1000	Image/1000	Image/1000
Principal industry application	Manufacturing, engineering, measurement	Manufacturing, engineering, measurement	Manufacturing, engineering, measurement	Manufacturing, engineering, measurement
Other packages	Mfg., process control, graphics	Mfg., process control, graphics	Mfg., process control, graphics	Mfg., process control, graphics
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, operating system, 10 I/O ports; \$10,000	CPU, RTE-A operating system, 512KB memory, 512KB memory, 8 available I/O channels— \$13,100	CPU, RTE-A operating system, 768KB ECC memory, 7 available I/O channels—\$24,600	CPU, RTE-A operating system, 512KB memory, 3 available I/O channels—\$14,220
Mo. maintenance of basic configuration	\$61	\$57	\$85	\$61
Date of first delivery	August 1983	August 1983	August 1983	May 1982
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.

All About Minicomputers

MANUFACTURER AND MODEL	Hewlett-Packard Co. HP 1000 Model 26	Hewlett-Packard Co. HP 1000 Model 27	Hewlett-Packard Co. HP 1000 Model 29	Hewlett-Packard HP 3000 Series 39
WORD LENGTH	16 bits	16 bits	16 bits	16-bits
MAIN MEMORY	512KB-4MB	512KB-4MB	768KB-6MB	512KB-3MB
DISK STORAGE CAPACITY	16MB-50GB	16.5MB-50GB	16.5MB-50GB	28MB-3.2GB
NO. WORKSTATIONS SUPPORTED	*	*	*	92
PRICE RANGE	From \$16,000	From \$24,000	From \$34,000	From \$33,200
TARGET MARKET	Scientific/Technical	Scientific/Technical	Scientific/Technical	Business/Commercial
CENTRAL PROCESSOR				
CPU manufacturer and model	HP A600+	HP A700	HP A900	Proprietary
Hardware floating point	No	Double	Double	Double
Battery backup	Opt.	Opt.	Opt.	Std.
Real-time clock or timer	Not supplied	Not supplied	Not supplied	Std.
CPU cycle time, nanoseconds	Not supplied	Not supplied	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2	2	4	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	454	500	181	430
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	128K, 256K, 512K, 1M	128K, 256K, 512K, 1M	768K, 1.5M, 3M	512K, 1M
Cache memory, bytes	None	None	4K	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	18	16	15	2
Data transfer rate	4.27MB/sec.	4.27MB/sec.	4.27MB/sec.	1MB/sec.
COMMUNICATIONS				
Max. number of lines	Not supplied	Not supplied	Not supplied	3 synch.
Synchronous	Opt., 57.2K bps	Opt., 57.2K bps	Opt., 57.2K bps	Std.: 19.2K bps
Asynchronous	Opt., 19.2K bps	Opt., 19.2K bps	Opt., 19.2K bps	Opt.: 9.6K bps
Protocols supported	2780/3780, X.25, HDLC	2780/3780, X.25, HDLC	2780/3780, X.25, HDLC	HDLC/SDLC, X.25, RS-232-C, RS-422
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	No
PERIPHERAL EQUIPMENT				
Disks supported	Fixed, 16MB-404MB Removable, 50MB-404MB	Fixed, 16MB-404MB Removable, 50MB-404MB	Fixed, 16MB-404MB Removable, 50MB-404MB	Winchester: 28-132MB Disk Pack: 50-404MB
Serial printers	30-108 cps	30-108 cps	30-108 cps	40-200 cps
Letter quality printers	40 cps	40 cps	40 cps	25-40 cps
Line printers	250-1000 lpm	250-1000 lpm	250-1000 lpm	300-1000 lpm
Reel-to-reel tape drives	800/1600 bpi	800/1600 bpi	800/1600 bpi	45 ips-75 ips
Streaming tape drives	None	None	None	50/100 ips
Cassette/cartridge tape drives	None	None	None	132MB
Other peripherals supported	Diskettes, plotters, graphics tablet	Diskettes, plotters, graphics tablet	Diskettes, plotters, graphics tablet	Diskettes; laser printers, plotters
SOFTWARE				
Assembler	MACRO/1000	MACRO/1000	MACRO/1000	Not supplied
Compilers	Basic, Fortran, Pascal	Basic, Fortran, Pascal	Basic, Fortran, Pascal	Basic, Cobol, Pascal, Fortran, RPG, SPL
Operating system	Real-Time	Real-Time	Real-Time	Real-time, batch
Operating sys. implemented in firmware	Not supplied	Not supplied	Not supplied	Not supplied
Database management system	Image/1000	Image/1000	Image/1000	Image/3000
Principal industry application	Manufacturing, engineering, measurement	Manufacturing, engineering, measurement	Manufacturing, engineering, measurement	Manufacturing
Other packages	Mfg., process control, graphics	Mfg., process control, graphics	Mfg., process control, graphics	Distribution, Mat's & Prod. Mgmt., Graphics
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, RTE-A operating system, 512KB memory, 16 available I/O channels—\$16,240	CPU, RTE-A operating system, 512KB memory, hardware floating point processor, 13 available I/O channels— \$24,000	CPU, RTE-A operating system, 768KB ECC memory, hardware floating point processor, 13 available I/O channels—\$34,000	CPU, 512KB memory, 2 general I/O channels, operating system— \$33,200
Mo. maintenance of basic configuration	\$67	\$72	\$90	\$243
Date of first delivery	March 1982	March 1982	December 1982	April 1982
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.	*Maximum dependent on the specific combination of communications interfaces and/or peripheral devices attached.	

All About Minicomputers

MANUFACTURER AND MODEL	Hewlett-Packard HP 3000 Series 42	Hewlett-Packard HP 3000 Series 48	Hewlett-Packard HP 3000 Series 68	Honeywell DPS 6/40
WORD LENGTH	16-bits	16-bits	16-bits	16 bits
MAIN MEMORY	1MB-3MB	1MB-4MB	3MB-8MB	512KB-2MB
DISK STORAGE CAPACITY	28MB-3.2GB	28MB-4.2GB	50MB-9.7GB	1GB
NO. WORKSTATIONS SUPPORTED	92	152	400	28
PRICE RANGE	From \$42,400	From \$79,500	From \$186,000	From \$27,000
TARGET MARKET	Business/Commercial	Business/Commercial	Business/Commercial	
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Proprietary
Hardware floating point	Double	Double	Double	Single/double
Battery backup	Std.	Std.	Std.	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	Not supplied	Not supplied	Not supplied	250
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	Not supplied	Not supplied	2
Memory access	Not supplied	Not supplied	Not supplied	425
Cycle/access time, nanoseconds	430	430	134	500
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	512K, 1M	1M	1M	256K
Cache memory, bytes	None	None	8K	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	2	5	15	3
Data transfer rate	1MB/sec.	1MB/sec.	56MB/sec.	Not supplied
COMMUNICATIONS				
Max. number of lines	3 synch.	7 synch.	24 synch.	28
Synchronous	Std.; 19.2K bps	Std.; 19.2K bps	Std.; 19.2K bps	Opt.
Asynchronous	Opt.; 9.6K bps	Opt.; 9.6K bps	Opt.; 9.6K bps	Std.
Protocols supported	HDLC/SDLC, X.25, RS-232-C, RS-422	HDLC/SDLC, X.25, RS-232-C, RS-422	HDLC/SDLC, X.25, RS-232-C, RS-422	BSC, SDLC, HDLC, HASP
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780, HASP
IBM 3270 emulation	No	No	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 28-132MB Disk Pack: 50-404MB	Winchester: 28-132MB Disk Pack: 50-404MB	Winchester: 28-132MB Disk Pack: 50-404MB	Fixed: 67MB-256MB Cartridge: 40MB-80MB
Serial printers	40-200 cps	40-200 cps	40-200 cps	80-400 cps
Letter quality printers	25-40 cps	25-40 cps	25-40 cps	35 cps, 55 cps
Line printers	300-1000 lpm	300-1000 lpm	300-1000 lpm	300-1200 lpm
Reel-to-reel tape drives	45 ips-75 ips	45 ips-75 ips	45 ips-75 ips	75/125 ips; 1600/6250 bpi
Streaming tape drives	50/100 ips	50/100 ips	50/100 ips	None
Cassette/cartridge tape drives	132MB	132MB	132MB	None
Other peripherals supported	Diskettes; laser printers, plotters	Diskettes; laser printers, plotters	Diskettes; laser printers, plotters	Diskette: 650KB
SOFTWARE				
Assembler	Not supplied	Not supplied	Not supplied	Macro
Compilers	Basic, Cobol, Pascal, Fortran, RPG, SPL	Basic, Cobol, Pascal, Fortran, RPG, SPL	Basic, Cobol, Pascal, Fortran, RPG, SPL	Cobol, Basic, RPG, Fortran, Pascal
Operating system	Real-time, batch	Real-time, batch	Real-time, batch	Real-time
Operating sys. implemented in firmware	Not supplied	Not supplied	Not supplied	None
Database management system	Image/3000	Image/3000	Image/3000	DM6
Principal industry application	Manufacturing	Manufacturing	Manufacturing	Manufacturing, distri- bution, pharmacy
Other packages	Distribution, Mat's & Prod. Mgmt., Graphics	Distribution, Mat's & Prod. Mgmt., Graphics	Distribution, Mat's & Prod. Mgmt., Graphics	Office automation, accounting
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 1MB memory, 2 general I/O channels, disk caching, operating system—\$42,400	CPU, 2MB memory, 2 general I/O channels, disk caching, operating system—\$79,500	CPU, 3MB memory, 2 general I/O channels, 1 intermodule bus, disk caching, operating system—\$186,100	512KB memory, 40MB disk 650KB diskette, communications controller, 4 RS-422 ports, 2 megabus slots, console—\$27,000
Mo. maintenance of basic configuration	\$259	\$297	\$765	\$162
Date of first delivery	December 1983	December 1983	December 1983	April, 1983
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	IBM Series 1 Model 4956	IBM System/34	IBM System 36 Models Axx	IBM System 36 Models Bxx
WORD LENGTH	16-bit	8 bits	8-bit	8-bit
MAIN MEMORY	256K-1M	32KB to 256KB	128KB-256KB	256KB-1MB
DISK STORAGE CAPACITY	256MB per I/O attachment	8.6MB to 257MB	30MB-60MB	200MB-800B
NO. WORKSTATIONS SUPPORTED	8 per I/O attachment	16 local, 64 remote	100	100
PRICE RANGE	From \$14,000	\$14,770-\$76,625	\$21,000-\$32,200	\$41,000-\$100,000
TARGET MARKET	Business	Business	General Business	General Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Proprietary
Hardware floating point	Double	Opt.	No	No
Battery backup	Opt.	No	Not supplied	Not supplied
Real-time clock or timer	Opt.	Std.	Not supplied	Not supplied
CPU cycle time, nanoseconds	Not supplied	Not supplied	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	1	Not supplied	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	550	600	Not supplied	Not supplied
Storage protection	Std.	None	Std.	Std.
Increment size, bytes	256K	32K, 128K	128K, 256K	256K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	3-13	1	4	4
Data transfer rate	2.4MB/second	Not supplied	2.5MB/second	2.5MB/second
COMMUNICATIONS				
Max. number of lines	Not supplied	4	4	4
Synchronous	Opt.; 56K bps	Opt.; 9.6K bps	Std.; 56K bps	Std.; 56K bps
Asynchronous	Opt.; 19.2K bps	Opt.	Opt.	Opt.
Protocols supported	BSC, X.25, HDLC/SDLC, SNA	SDLC, BSC, SNA	X.25, SNA, BSC, SDLC	X.25, SNA, BSC, SDLC
Type of LAN supported	None	SSP-ICF	None	None
RJE terminals emulated	2780/3780	HASP	Yes	Yes
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 9.3-200MB	Fixed: 8.6MB-257MB Diskette: 246KB-1.2MB	Fixed: 30MB-400MB	Fixed: 30MB-400MB
Serial printers	40-160 cps	140 cps	40-120 cps	40-120 cps
Letter quality printers	None	40-60 cps	None	None
Line printers	140-560 lpm	44-650 lpm	95-650 lpm	95-650 lpm
Reel-to-reel tape drives	45/75 ips; 800/1600 bpi	None	None	None
Streaming tape drives	50/100 ips; 80M	None	12.5/100 ips; 1600 bpi	12.5/100 ips; 1600 bpi
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported	Diskette	None	Diskette	Diskette
SOFTWARE				
Assembler	Macro	Assembler	Assembler	Assembler
Compilers	Cobol, Fortran IV, PL/1	Basic, Fortran IV, Cobol, RPG II	Basic, Cobol, Fortran IV, RPG II	Basic, Cobol, Fortran IV, RPG II
Operating system	Multitasking	Partially	Multitasking	Multitasking
Operating sys. implemented in firmware	No	System/34 BRADS	Not supplied	Not supplied
Database management system	None	Accounting, retail	None	None
Principal industry application			Manufacturing, Distribution	Manufacturing, Distribution
Other packages		Office automation	Office automation	Office automation
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, 3 I/O slots, diskette drive—\$19,355	CPU, 32KB memory, 246KB diskette, 8.6MB disk, 300 lpm printer—\$24,395	Model A11, 128KB memory, diskette drive, 30MB disk—\$21,000	Model B15, 256KB memory, diskette drive, 600MB disk—\$79,000
Mo. maintenance of basic configuration	\$73	\$241	\$96	\$242
Date of first delivery	1983	December 1977	1983	July 1983
Number installed to date	Not supplied	35,000	Not supplied	Not supplied
COMMENTS				Four new models with 256KB memory. The B15 & B25 include 600MB disk; the B16 & B26 include 800MB disk.

All About Minicomputers

MANUFACTURER AND MODEL	Honeywell DPS 6/45	Honeywell DPS 6/75	IBM Series 1 Model 4952	IBM Series 1 Model 4954
WORD LENGTH	16 bits	16 bits	16-bit	16-bit
MAIN MEMORY	512KB-2MB	1MB-2MB	32K-128K	64K-256K
DISK STORAGE CAPACITY	1GB	1GM	256MB per I/O attachment	256MB per I/O attachment
NO. WORKSTATIONS SUPPORTED	32	96	8 per I/O attachment	8 per I/O attachment
PRICE RANGE	From \$45,500	\$60,000 + up	From \$5,000	From \$10,000
TARGET MARKET			Business	Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	proprietary	Proprietary	Proprietary
Hardware floating point	Single/double	Double	Double	Double
Battery backup	Opt.	Opt.	Opt.	Opt.
Real-time clock or timer	Std.	Std.	Opt.	Opt.
CPU cycle time, nanoseconds	250	220	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2	2	Not supplied	Not supplied
Memory access	425	425	Not supplied	Not supplied
Cycle/access time, nanoseconds	500	500	2.1 ms	1.4 ms
Storage protection	Std.	Std.	None	None
Increment size, bytes	256K	256K	32K	64K
Cache memory, bytes	None	8K	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	3	8	4-14	3-13
Data transfer rate	Not supplied	Not supplied	2.4MB/second	2.4MB/second
COMMUNICATIONS				
Max. number of lines	32	96	Not supplied	Not supplied
Synchronous	Opt.	Opt.; 19.2K bps	Opt.; 56K bps	Opt.; 56K bps
Asynchronous	Std.	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; 19.2K bps
Protocols supported	BSC, SDLC, HDLC, HASP	BSC, PUE, HDLC, SDLC	BSC, X.25, HDLC/SDLC, SNA	BSC, X.25, HDLC/SDLC, SNA
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780, HASP	IBM 2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 67MB-256MB Cartridge: 40MB-80MB	Fixed: 67MB, 258MB Removable: 40MB, 80MB	Fixed: 9.3-200MB	Fixed: 9.3-200MB
Serial printers	80-400 cps	80-400 cps	40-160 cps	40-160 cps
Letter quality printers	35 cps, 55 cps	35, 55 cps	None	None
Line printers	300-1200 lpm	300-1200 lpm	140-560 lpm	140-560 lpm
Reel-to-reel tape drives	75/125 ips, 1600/6250 bpi	75/125 ips; 1600/6250 bpi	45/75 ips; 800/1600 bpi	45/75 ips; 800/1600 bpi
Streaming tape drives	None	None	50/100 ips; 80M	50/100 ips; 80M
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported	Diskette: 650KB	Diskette: 650KB	Diskette	Diskette
SOFTWARE				
Assembler	Macro	Macro	Macro	Macro
Compilers	Cobol, Basic, RPG, Fortran, Pascal	Cobol, Basic, RPG, Fortran, Pascal	Cobol, Fortran IV, PL/1	Cobol, Fortran IV, PL/1
Operating system	Real-time	Real-time	Multitasking	Multitasking
Operating sys. implemented in firmware	None	None	No	No
Database management system	DM6	DM6	None	None
Principal industry application	Manufacturing, distribution, pharmacy	Manufacturing, Distribution, Pharmacy		
Other packages	Office automation, accounting	Office Automation, Accounting		
PRICING & AVAILABILITY				
Basic system configuration and price	512KB memory, 80MB cart. disk, 650KB diskette communications controller, 4 workstation ports, printer port, console—\$45,500	CPU, 1MB memory; 80MB disk, printer port; 4 workstation ports; 650KB diskette, console—\$60,000	CPU, 96KB memory, 4 I/O features, diskette drive—\$10,346	CPU, 256KB memory, 3 I/O feature slots, diskette drive—\$12,845
Mo. maintenance of basic configuration	\$258	\$458	\$74	\$65
Date of first delivery	November, 1983	November 1983	1979	1982
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	MAI/Basic Four 310	MAI/Basic Four 510	MAI/Basic Four 710	MDS Qantel Business Computers Systems 10, 20 & 40
WORD LENGTH	16 bits	8 bits	16 bits	8 bits
MAIN MEMORY	128-256KB	96-256KB	96-512KB	96K-1MB
DISK STORAGE CAPACITY	50-120MB	40-600MB	150-600MB	20-900MB
NO. WORKSTATIONS SUPPORTED	2-16	2-16	2-32	4/32/64
PRICE RANGE	\$43,760-\$90,000	\$50,565-\$100,000	\$62,360-\$120,000	\$14,000-\$25,000
TARGET MARKET	Business	Business	Business	Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Basic Four proprietary	Basic Four proprietary	Basic Four proprietary	2901 bit slice
Hardware floating point	No	No	No	no
Battery backup	Std.	Std.	Std.	none
Real-time clock or timer	Std.	Std.	Std.	Opt.
CPU cycle time, nanoseconds	200	200	200	100/100/91
MAIN STORAGE				
Bytes fetched per cycle	8	8	8	1
Memory access	8 bits	8 bits	8 bits	Not supplied
Cycle/access time, nanoseconds	600	600	600	1000/1000/585
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	32K	32K	32K	32K/32K/128K
Cache memory, bytes	Option-32K	Option-32K	Option-32K	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	16	16	32	15
Data transfer rate	20KB/second	20KB/second	20KB/second	38.4KB/sec.
COMMUNICATIONS				
Max. number of lines	16	16	32	30
Synchronous	Opt.: 9.6K bps	Opt.: 9.6K bps	Opt.: 9.6K bps	Opt. 38.4K bps
Asynchronous	Std.: 9.6K bps	Std.: 9.6K bps	Std.: 9.6K bps	Opt. 38.K bps
Protocols supported	2780/3780, 2770/3770, 3270, X.25	2780/3780, 2770/3770, 3270, X.25	2780/3780, 2770/3770, 3270, X.25	2780, 3780, 3740, HASP, RJE
Type of LAN supported	B4NET	B4NET	B4NET	BEST NET
RJE terminals emulated	2770/2780, 3770/3780	2770/2780, 3770/3780	2770/2780, 3770/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 50-120MB	Removable: 20,35,75MB	Removable: 20,35,75MB	Fixed: 20-400MB
Serial printers	120,160 cps	120,160 cps	120,160 cps	150 cps
Letter quality printers	40 cps	40 cps	40 cps	35 cps
Line printers	150,300 lpm	150,300 lpm	150,300 lpm	300-1000 lpm
Reel-to-reel tape drives	175 ips	175 ips	175 ips	45 ips
Streaming tape drives	100 ips	100 ips	100 ips	125 ips, 16/3200 bpi
Cassette/cartridge tape drives	30 ips	None	None	18MB cartridge
Other peripherals supported				2.6MB Diskette
SOFTWARE				
Assembler	None	None	None	Macro
Compilers	Basic	Basic	Basic	QIC BASIC, COBOL
Operating system	Multitasking	Multitasking	Multitasking	Multitasking
Operating sys. implemented in firmware	Fully	Fully	Fully	Partially
Database management system	Origin	Origin	Origin	None
Principal industry application	Various business	Various business	Various business	Manuf., Retail and Distribution
Other packages	Electronic mail, Word processing	Electronic mail, Word processing	Electronic mail, Word processing	Spread sheet, Word processing
PRICING & AVAILABILITY				
Basic system configuration and price	CPU w/128K memory, 50MB disk, streamer tape, terminal, & operating system—\$43,760	CPU, 96K memory, two 20MB disk drives, 150 lpm printer, 2 terminals & operating system— \$50,565	CPU, 96K memory, two 35MB disk drives, 150 lpm printer, terminal, & operating system— \$62,360	System 10: CPU, 96K memory, 20MB disk, diskette, terminal, 150 cps printer—\$13,950
Mo. maintenance of basic configuration	\$472	\$478	\$562	\$199
Date of first delivery	April 1982	September 1980	April 1982	1981
Number installed to date	Not supplied	Not supplied	Not supplied	3,000
COMMENTS	Systems 110, 210 available beginning at \$16,250	No significant conversion to 32-bit system - Operating system compatibility	No significant conversion to 32-bit system - Operating system compatibility	

All About Minicomputers

MANUFACTURER AND MODEL	MDS Qantel Business Computers System 64	Microdata Corp. Reality 4700	Mitsubishi Electronics America, Inc. Model 816	Modular Computer Systems Classic II/15
WORD LENGTH	8 bits	8 bits	16 bits	16 bits
MAIN MEMORY	512K-4MB	64KB-512KB	256-896KB	512KB
DISK STORAGE CAPACITY	75-2.5GB	32MB-514MB	100MB	13MB-1.2GB
NO. WORKSTATIONS SUPPORTED	100	48	8	16
PRICE RANGE	From \$85,000	From \$27,000	\$7,500-\$50,000	\$12,000-\$35,000
TARGET MARKET	Business	Business	Business	
CENTRAL PROCESSOR				
CPU manufacturer and model	2901 bit slice	Microdata 1600	Intel 8086/8087	Proprietary
Hardware floating point	No	None	None	Single/Double
Battery backup	None	Std.	None	Opt.
Real-time clock or timer	Opt.	Std.	Std.	Std.
CPU cycle time, nanoseconds	Not supplied	150	200	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	8	1	8	2
Memory access	Not supplied	Not supplied	16	Not supplied
Cycle/access time, nanoseconds	400	600	500	400
Storage protection	Std.	Std.	None	Std.
Increment size, bytes	512K	32K, 64K, 128K	256K	Not supplied
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	15	12	8	Not supplied
Data transfer rate	38.4KB/sec.	500KB/second	833KB/second	800KB/second
COMMUNICATIONS				
Max. number of lines	30	48	4	16
Synchronous	Opt. 38.4K bps	No	Opt.; 9.6K bps	Std.
Asynchronous	Opt. 38.K bps	Std.; 9.6K bps	Opt.; 9.6K bps	Std.
Protocols supported	2780, 3780, 3740, HASP, RJE	2780/3780, 2770, 3741	2780/3780, SDLC*	X.25, 2780/3780
Type of LAN supported	BEST NET	None	SNA*	None
RJE terminals emulated	2780/3780	2780/3780, HASP	2780/3780*	2780/3780
IBM 3270 emulation	Yes	No	Yes	No
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 75-400MB	Fixed: 257MB	Fixed: 10M, 20M, & 50M*	Fixed: 60, 67MB Cartridge: 13.5-283MB
Serial printers	150 cps	33-180 cps	Not supplied	None
Letter quality printers	35 cps	33-180 cps	Not supplied	None
Line printers	300-1000 lpm	150,300,600,1200 lpm	Not supplied	300,600,1000 lpm
Reel-to-reel tape drives	45 ips	45 ips	None	75ips; 800/1600 bpi
Streaming tape drives	100 ips; 16/3200 bpi	100/50ips; 1600/3200 bpi	None	100/25 ips; 1600 bpi
Cassette/cartridge tape drives	18MB cartridge	None	None	None
Other peripherals supported			Diskettes: 1.6MB	1MB diskette
SOFTWARE				
Assembler	Macro	Macro	ASM86	Macro
Compilers	QIC BASIC, COBOL	Basic, English	Basic, Cobol	Cobol 74, Fortran 66 & 77, Pascal, Cobol 66
Operating system	Multitasking	Multitasking	Multitasking	Real-time
Operating sys. implemented in firmware	Partially	Partially	Not supplied	Not supplied
Database management system	None	Reality Database Mgmt.	None	Infinity
Principal industry application	Manuf., Retail and Distribution	Mfg., Accounting, Distribution	General Business	Factory Automation
Other packages	Spread sheet, Word processing	Office Automation		Transaction Processing
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512K memory, 2 work station controllers—\$85,000	CPU, 64K memory, 32MB disk, streaming tape—\$27,000	Contact vendor	CPU, 512KB memory, 20MB disk, operating system—\$21,000
Mo. maintenance of basic configuration	\$340	Contact vendor	Contact vendor	\$150
Date of first delivery	August, 1983	Nov. 1973	Not supplied	Feb. 1984
Number installed to date	70	8000	Not supplied	New Product
COMMENTS			*under development	

All About Minicomputers

MANUFACTURER AND MODEL	Modular Computer Systems Classic II/25	Modular Computer Systems Classic II/45	Modular Computer Systems Classic II/75	NCR Corporation Tower 1632
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	512KB	128KB-2MB	128KB-4MB	512KB-2MB
DISK STORAGE CAPACITY	13MB-1.2GB	13MB-1.2GB	13MB-1.2GB	30MB-230MB
NO. WORKSTATIONS SUPPORTED	32	128	128+	16
PRICE RANGE	\$27,000-\$100,000	\$43,000-\$130,000	\$75,000-\$150,000	\$16,000-\$60,000
TARGET MARKET			Process, Scientific, Factory	Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Motorola M68000
Hardware floating point	Single/Double	Single/Double	Single/Double	Double
Battery backup	Opt.	Opt.	Opt.	Std.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	Not supplied	Not supplied	320	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	250	250	600	Not supplied
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	Not applicable	128K	128K	512K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	Not supplied	64	64	7
Data transfer rate	1MB/second	4MB/second	8MB/second	5MB/sec.
COMMUNICATIONS				
Max. number of lines	32	256	256	16
Synchronous	Std.	Std.	Opt.; 25K bps	Opt.
Asynchronous	Std.	Std.	Opt.; 19.2K bps	Std.
Protocols supported	X.25, 2780/3780	X.25, 2780/3780	X.25, 2780/3780	2780/3780, SDLC, SNA, Asynch, X.25
Type of LAN supported	None	None	None	Ethernet
RJE terminals emulated	2780/3780	2780/3780	2780/3780	3770, 2780/3780
IBM 3270 emulation	No	No	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 60, 67MB Cartridge: 13.5-283MB	Fixed: 60, 67MB Cartridge: 13.5-283MB	Fixed: 60, 67MB Cartridge: 13.5-283MB	Fixed: 30MB or 84MB
Serial printers	None	None	None	35-125 cps
Letter quality printers	None	None	None	33 cps
Line printers	300,600,1000 lpm	300,600,1000 lpm	300,600,1000 lpm	360-720 lpm
Reel-to-reel tape drives	75ips; 800/1600 bpi	75ips; 800/1600 bpi	75ips; 800/1600 bpi	None
Streaming tape drives	100/25 ips; 1600 bpi	100/25 ips; 1600 bpi	100/25 ips; 1600 bpi	30 ips, 800 bpi
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported	1MB diskette	1MB diskette	1MB diskette	650KB diskettes
SOFTWARE				
Assembler	Macro	Macro	Macro	68000
Compilers	Cobol 74, Fortran 66 & 77, Pascal, Cobol 66	Cobol 74, Fortran 66 & 77, Pascal, Cobol 66	Cobol 74, Fortran 66 & 77, Pascal, Cobol 66	RM/COBOL, BASIC, FORTRAN, PASCAL, C
Operating system	Real-time	Real-time	Real-time	Multitasking
Operating sys. implemented in firmware	Not supplied	Not supplied	Not supplied	No
Database management system	Infinity	Infinity	Infinity	Ingres Relational DBMS
Principal industry application	Factory Automation	Factory Automation	Factory Automation	Com'l., Med., Educ., Gov't., Fin., Retail
Other packages	Transaction Processing	Transaction Processing	Transaction Processing	Color Graphics, Elec. Spreadsheets, Word Proc- essing, Office Auto.
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, 13.5Mb disk, operating system—\$39,075	CPU, 512KB memory, 67MB disk, operating system—\$65,300	CPU, 512KB memory, 67MB disk, tape, operating system— \$126,500	CPU, 512KB memory, 30MB disk, 1MB diskette, 8 I/O ports, 1 CRT, 125 lpm printer, Operating System, COBOL—\$23,600
Mo. maintenance of basic configuration	\$351	\$612	\$1,069	\$92.00 (w/o peripherals)
Date of first delivery	1979	1978	April 1978	December, 1982
Number installed to date	500+	500+	1500+	Not supplied
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	Northern Telecom Inc. 503	Northern Telecom Inc. 565	Northern Telecom Inc. 585	PERQ Systems Corporation PERQ 2
WORD LENGTH	8 bits	8 bits	8 bits	16 bits
MAIN MEMORY	256KB	256KB-512KB	256KB-512KB	512K-2MB
DISK STORAGE CAPACITY	1.6MB-10.8MB	22MB	22MB-342MB	35MB
NO. WORKSTATIONS SUPPORTED	1	1-4	1-16	1
PRICE RANGE	From \$5,250	From \$14,950	From \$19,950	\$25,000-\$40,000
TARGET MARKET		Office Automation	Office Automation	Tech. Publishing, CAD/CAM, Fed. Sys.
CENTRAL PROCESSOR				
CPU manufacturer and model	Intel 8085	Intel 8085	Intel 8085	Proprietary
Hardware floating point	None	None	None	None
Battery backup	None	None	None	None
Real-time clock or timer	None	None	None	Std.
CPU cycle time, nanoseconds	286	167	167	170
MAIN STORAGE				
Bytes fetched per cycle	Not supplied	Not supplied	Not supplied	4
Memory access	Not supplied	Not supplied	Not supplied	200M bits/sec.
Cycle/access time, nanoseconds	Not supplied	Not supplied	Not supplied	680
Storage protection	None	None	None	Std.
Increment size, bytes	Not applicable	128K	128K	512K-1M
Cache memory, bytes	None	None	None	16K
INPUT/OUTPUT CONTROL				
No. of I/O channels	Not supplied	Not supplied	Not supplied	6
Data transfer rate	Not supplied	Not supplied	Not supplied	10M bits/sec.
COMMUNICATIONS				
Max. number of lines	2	6	6	2
Synchronous	Opt., 9.6K bps	Std., 9.6K bps	Std., 9.6K bps	Std., 19.2K bps
Asynchronous	Opt., 9.6K bps	Std., 9.6K bps	Std., 9.6K bps	Std., 19.2K bps
Protocols supported	2770/2780/3780, TC3500, SNA, SDLC	2770/2780/3780, TC3500, SNA, SDLC	2770/2780/3780, TC3500, SNA, SDLC	2780/3780
Type of LAN supported	None	Omnalink	Omnalink	Ethernet
RJE terminals emulated	2780/3780, Hasp	2780/3780, Hasp	2780/3780, Hasp	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	No
PERIPHERAL EQUIPMENT				
Disks supported	.8MB Floppys, 10MB Winchester	22MB Winchester	22MB Winchester, 74.5MB disk pack	Fixed: 35MB
Serial printers	120 cps & 180 cps	120 cps & 180 cps	120 cps & 180 cps	200 cps
Letter quality printers	40 cps	40 cps	40 cps	40 cps
Line printers	300 lpm	300/600/1000 lpm	300/600/1000 lpm	1000 lpm
Reel-to-reel tape drives	None	None	800/1600 bpi	None
Streaming tape drives	None	None	None	45 ips, 22MB
Cassette/cartridge tape drives	None	1MB per minute	1MB per minute	None
Other peripherals supported	None	None	300 cpm card reader	1MB Diskettes
SOFTWARE				
Assembler	Only in CP/M 3.0	Only in CP/M 2.2	Only in CP/M 2.2	PERQ Microcode
Compilers	ACOBOL3/AL2000, CP/M 3.0	ACOBOL3/AL2000, CP/M 2.2	ACOBOL3/TAL2000, CP/M 2.2	Pascal, Fortran 77, C
Operating system	Multitasking	Multitasking	Multitasking	Real-time
Operating sys. implemented in firmware	No	No	No	No
Database management system	dBASE II using CP/M	dBASE II using CP/M	dBASE II using CP/M	No
Principal industry application				CAD/CAM, Elec. Pub., Univ., Gov't.
Other packages	Word processing	Word processing, Electronic mail	Word processing, Electronic mail	Decision support sys., CAD/CAM, Elec. Pub., Research and Education
PRICING & AVAILABILITY				
Basic system configuration and price	256K RAM, 15" CRT, CP/M and 2 (.8MB) diskettes—\$5,250	256K RAM, O/S 4.1, memory parity, 22MB disk, 15" CRT, 1 cartridge—\$14,950	256K RAM, O/S 4.1, memory parity, 22MB disk, 15" CRT, 1 cartridge tape—\$19,950	CPU, 1MB memory, 35MB disk, tablet, detachable keyboard, Ethernet— \$35,500
Mo. maintenance of basic configuration	\$173	\$507	\$696	\$210
Date of first delivery	1981	1983	1981	March 1983
Number installed to date	Not supplied	Not supplied	Not supplied	Over 2000
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	Plexus Computers, Inc. P/35	Plexus Computers, Inc. P/60 and P/65	Point 4 Data Corp. Mark 2T	Point 4 Data Corp. Mark 3
WORD LENGTH	16 bits	16 bits	16-bits	16-bits
MAIN MEMORY	512KB-2MB	512KB-4MB	64KB-128KB	64KB-128KB
DISK STORAGE CAPACITY	288MB	1.14GB	19MB-92MB	35MB-336MB
NO. WORKSTATIONS SUPPORTED	16	40	7	7
PRICE RANGE	\$20,000-\$40,000	\$45,000-\$160,000	\$22,695	\$38,100
TARGET MARKET	Commercial	Commercial	Business	Business
CENTRAL PROCESSOR				
CPU manufacturer and model	MC68000	MC68000	POINT 4 MARK 2	POINT 4 MARK 3
Hardware floating point	Opt.	Opt.	No	No
Battery backup	None	None	None	None
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	80	80	600	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	4	4	2	2
Memory access	80M bits/sec.	80M bits/sec.	16	16
Cycle/access time, nanoseconds	400	400	600/200	600/200
Storage protection	Std.	Std.	None	None
Increment size, bytes	512K or 1024K	512K or 1024K	64K	64K
Cache memory, bytes	4K	4KB	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	4	8	63	63
Data transfer rate	1MB/sec.	1MB/sec.	2MB/second	2MB/second
COMMUNICATIONS				
Max. number of lines	16	40	7	7
Synchronous	19.2K bps	19.2K bps	No	No
Asynchronous	19.2K bps	19.2K bps	Std., 9.6K bps	Std., 9.6K bps
Protocols supported	None	None	None	None
Type of LAN supported	Ethernet/NOS	Ethernet/NOS	None	None
RJE terminals emulated	No	No	None	None
IBM 3270 emulation	No	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 4-145MB	Winchester: 4-285MB	Winchester 19MB-46MB	Winchester 35MB-168MB
Serial printers	Any RS-232 device	Any RS-232 device	20-180 cps	20-180 cps
Letter quality printers	Any RS-232 device	Any RS-232 device	75 cps	75 cps
Line printers	Any Centronics device	Any Centronics device	200-600 lpm	200-600 lpm
Reel-to-reel tape drives	None	None	None	None
Streaming tape drives	25/100 ips	25/100 ips	30 ips; 20MB	90 ips; 45MB
Cassette/cartridge tape drives	None	None	None	None
Other peripherals supported				Diskette
SOFTWARE				
Assembler	Assembler	Yes	Assembler	Assembler
Compilers	COBOL, FORTRAN, PASCAL, SMC BASIC	COBOL, FORTRAN, PASCAL, SMC BASIC	Basic	Basic
Operating system	UNIX III	UNIX III	IRIS time-sharing	IRIS time-sharing
Operating sys. implemented in firmware	Not supplied	Not supplied	No	No
Database management system	UNIFY	UNIFY	None	None
Principal industry application			General Purpose Business	General Purpose Business
Other packages	Word processing, Spreadsheet	Word processing, Spreadsheet	Electronic Office, FORCE Application generator	Electronic Office, FORCE Application generator
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 512KB memory, 22MB Winchester, and cartridge tape—\$17,950	CPU, 512KB memory, 72MB Winchester, and tape drive—\$42,950 for the P/60 and \$47,950 for the P/65	CPU, 64KB memory, 19MB disk, 20MB streaming tape, 4 ports—\$9,995	CPU, 64KB memory, 35MB disk, 20MB streaming tape, 4 ports—\$13,990
Mo. maintenance of basic configuration	\$225	\$450	Contact vendor	Contact vendor
Date of first delivery	April, 1983	April, 1983	December 1983	June 1981
Number installed to date	200	100	200	2,000
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	Point 4 Data Corp. Mark 5	Point 4 Data Corp. Mark 9	Point 4 Data Corp. Mark 8	PolyComputers Inc. Polyette
WORD LENGTH	16-bits	16-bits	16-bits	16 bit
MAIN MEMORY	128KB	256KB-512KB	128KB	256KB-1.7MB
DISK STORAGE CAPACITY	35MB-672MB	35MB-672MB	35MB-672MB	10MB-160MB
NO. WORKSTATIONS SUPPORTED	32	72	64	16
PRICE RANGE	\$26,700-\$100,000	\$30,900-\$100,000	\$28,700-\$100,000	\$15,000-\$25,000
TARGET MARKET	Business	Business	Business	Trans. Process./On-line Business Applications
CENTRAL PROCESSOR				
CPU manufacturer and model	POINT 4 MARK 5	POINT 4 MARK 9	POINT 4 MARK 8	AMD-290 bit slice
Hardware floating point	No	No	None	No
Battery backup	Std.	Std.	None	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	400	300	400	200
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	2
Memory access	16	16	16	90MB/second
Cycle/access time, nanoseconds	400/200	300/150	400/200	400/200
Storage protection	None	Std.	None	Std.
Increment size, bytes	Not applicable	256K	Not applicable	512K
Cache memory, bytes	None	None	None	2K
INPUT/OUTPUT CONTROL				
No. of I/O channels	64	64	64	32
Data transfer rate	2MB/second	2MB/second	2MB/sec.	1MB/second
COMMUNICATIONS				
Max. number of lines	32	72	64	100
Synchronous	No	No	None	Opt.; 9.6K bps
Asynchronous	Std., 19.2K bps	Std., 19.2K bps	Std., 19.2K bps	Std.; 19.2K bps
Protocols supported	None	None	None	2780/3780/SDLC
Type of LAN supported	None	None	None	Polynet
RJE terminals emulated	No	No	No	2780/3780
IBM 3270 emulation	No	No	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 35MB-168MB	Fixed: 35MB-168MB	Fixed: 35MB-168MB	Winchester: 10-160MB
Serial printers	20-180 cps	20-180 cps	20-180 cps	up to 2400 cps
Letter quality printers	75 cps	75 cps	75 cps	up to 200 cps
Line printers	200-600 lpm	200-600 lpm	200-600 lpm	up to 1200 lpm
Reel-to-reel tape drives	None	None	None	None
Streaming tape drives	90 ips; 45MB	90 ips; 45MB	90 ips; 45MB	None
Cassette/cartridge tape drives	None	None	None	90 ips; 8120 bpi
Other peripherals supported	Diskette	Diskette	Diskette	
SOFTWARE				
Assembler	Assembler	Assembler	Assembler	Assembler
Compilers	Basic	Basic	Basic	Cobol, Fortran, Pascal
Operating system	IRIS time-sharing	IRIS time-sharing	IRIS time-sharing	Multitasking
Operating sys. implemented in firmware	No	No	No	Partially
Database management system	None	None	None	Included in software
Principal industry application	General Purpose Business	General Purpose Business	General Purpose Business	Business systems
Other packages	Electronic Office, FORCE Application generator	Electronic Office, FORCE Application generator	Electronic Office, FORCE Application generator	Word Proc., Applications gen., BLIS Cobol Trans- lator, Accounting
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 128KB memory, 35MB disk, 8 ports, 20MB streaming tape— \$26,700	CPU, 256KB memory, 35MB disk, 20MB stream- ing tape, 8 ports— \$30,900	CPU, 128KB memory, 35MB disk, 8 ports, 20MB streamer— \$28,700	256KB, HOST processor, 10MB disk, 20MB tape cassette, high speed printer port, TTY port, 4 RS-232 asynch. ports; operating system plus one compiler—\$14,950
Mo. maintenance of basic configuration	Contact vendor	Contact vendor	Contact vendor	\$150
Date of first delivery	June 1979	January 1984	September 1981	December, 1983
Number installed to date	5,000	New product	300	3
COMMENTS	Disk caching feature optional.	Disk caching feature optional.	Disk caching feature optional.	User processor may be added or deleted without software changes— provides expansion from one to 7 CPUs

All About Minicomputers

MANUFACTURER AND MODEL	PolyComputers Inc. Poly-X	PolyMorphic Systems System 8813	Rexon Business Machines Corp. RX100	Rexon Business Machines Corp. RX200
WORD LENGTH	16-bits	16 bits	16 bits	16 bits
MAIN MEMORY	4.3MB	256K-4MB	128KB—960KB	128KB-960KB
DISK STORAGE CAPACITY	2GB	1.6MB-300MB	10MB—30MB	28MB-56MB
NO. WORKSTATIONS SUPPORTED	256	16	1-8	1-12
PRICE RANGE	\$30,000-\$100,000	\$6,000-\$80,000	\$15,000-\$27,000	\$20,000-\$37,000
TARGET MARKET	Transaction Processing/ On-line Bus. Applica.	Business, Education	Business & professional data processing	Business & professional data processing
CENTRAL PROCESSOR				
CPU manufacturer and model	AMD-2901 bit slice	Intel iAPX186	Intel 8086-2	Intel 8086-2
Hardware floating point	No	None	No	No
Battery backup	Opt.	Opt.	No	No
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	200	125	137	137
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	2
Memory access	90MB/second	4M bytes/sec.	7.38 Mbits/sec.	7.38 Mbits/sec.
Cycle/access time, nanoseconds	400/200	500	542	542
Storage protection	Std.	None	None	None
Increment size, bytes	512K	256K	128KB	128K
Cache memory, bytes	2K	None	64KB (opt.)	64K (opt.)
INPUT/OUTPUT CONTROL				
No. of I/O channels	32	2	14	18
Data transfer rate	1MB/second	2MB/sec.	To 625K bytes/sec.	To 625K bytes/sec.
COMMUNICATIONS				
Max. number of lines	100	16	9	13
Synchronous	Opt.; 9.6K bps	Opt., 250K bps	Opt., 2,400 bps	Opt., 2.4K bps
Asynchronous	Std.; 19.2K bps	Std., 19.2K bps	Std., 19.2K bps	Std., 19.2K bps
Protocols supported	2780/3780/SDLC	SDLC/HDLC	2780/3780	2780/3780
Type of LAN supported	Polynet	PolyNet, Ethernet	None	None
RJE terminals emulated	2780/3780	None	2780/3780	2780/3780
IBM 3270 emulation	Yes	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	160-500MB	Cart: 5MB-80MB; floppys; Fixed:18MB-110MB	Fixed: 10MB-30MB	Fixed: 28MB-56MB
Serial printers	up to 2400 cps	Not offered by mfr.	150 cps	150 cps
Letter quality printers	up to 200 cps	Not offered by mfr.	35 cps	35 cps
Line printers	up to 1200 lpm	Not offered by mfr.	300 LPM	300 lpm
Reel-to-reel tape drives	75 ips	None	None	None
Streaming tape drives	25ips; 1600 bpi	Available 1st qtr. 84	None	None
Cassette/cartridge tape drives	90 ips; 8120bpi	None	90 ips	90 ips
Other peripherals supported			Diskettes: 1.2MB	1.2MB Diskettes
SOFTWARE				
Assembler	Assembler	Macro	Intel	Intel
Compilers	Basic, Iris Basic, C	BASIC, FORTRAN, PASCAL, COBOL, C	BASIC (interpretive)	BASIC (interpretive)
Operating system	Multitasking	Multitasking	Multi-tasking	Multitasking
Operating sys. implemented in firmware	Partially	Not supplied	No	No
Database management system	Included in software	Third party	IDOL	IDOL
Principal industry application	Business systems	General	General accounting	General accounting
Other packages	Word Proc., Applications generator, BLIS Cobol Translator, Accounting	Accounting, Office Automation, CAD/CAM	Medical, spreadsheet, word processing	Medical, spreadsheet, word processing
PRICING & AVAILABILITY				
Basic system configuration and price	756KB, HOST processor, two user processors, 34MB Winchester, streaming tape, high speed printer port, TTY port, 8 RS-232 ports, operating system & one compiler—\$35,950	CPU, 2MB memory, 8 users, 55MB disk, terminals w/high res. graphics, concurrent CP/M86 and GSX graphics software—\$36,000	CPU, 128KB memory, 10MB disk, streaming tape, 1 CRT, 150 cps printer— \$15,445	CPU, 128KB memory, 28MB disk, streaming tape, 1 CRT, 150 cps printer—\$19,995
Mo. maintenance of basic configuration	\$300	Not supplied	\$149	\$192
Date of first delivery	June, 1983	January 1984	November, 1982	November 1983
Number installed to date	10	Not supplied	850	160
COMMENTS	User processor may be added or deleted without software changes— provides expansion from one to 17 CPUs	System unit will support an additional 8 users after which systems of up to 16 users can be tied together		

All About Minicomputers

MANUFACTURER AND MODEL	Rexon Business Machines Corp. RX400	Sentinel Computer Corp. Model 40	Sentinel Computer Corp. Model 80	Sperry Corp. System 80 Models 4 & 6
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	128KB-960KB	160KB-1MB	160KB-1MB	524KB-4MB
DISK STORAGE CAPACITY	56MB-280MB	29-1200MB	80-1200MB	128MB-1.3GB
NO. WORKSTATIONS SUPPORTED	1-16	17	32	40
PRICE RANGE	\$26,000-\$75,000	\$36,650-\$100,000	\$49,800-\$150,000	\$66,082-\$300,000
TARGET MARKET	Business & professional data processing	Business	Business	Commercial
CENTRAL PROCESSOR				
CPU manufacturer and model	Intel 8086-2	Intel 8086	Intel 8086	Proprietary
Hardware floating point	No	No	No	Single/Double
Battery backup	No	No	No	Not supplied
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	137	125	125	180
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	4
Memory access	7.38 Mbits/sec.	29 bits/sec.	29 bits/sec.	Not supplied
Cycle/access time, nanoseconds	542	460	460	400
Storage protection	None	Std.	Std.	Std.
Increment size, bytes	128K	32K	32K	262K, 524K
Cache memory, bytes	64K (opt.)	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	22	17	32	3
Data transfer rate	To 625K bytes/sec.	1200KB/sec.	1200KB/sec.	6MB/second
COMMUNICATIONS				
Max. number of lines	17	17	32	8
Synchronous	Opt., 2.4K bps	19.2K bps	19.2K bps	Opt.; to 56K bps
Asynchronous	Std., 19.2K bps	19.2K bps	19.2K bps	Opt.; to 19.2K bps
Protocols supported	2780/3780	2780/3780	2780/3780	BSC, TTY, Univac, BC-7 X.25, DCA, 3270, UTS
Type of LAN supported	None	No	No	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	HASP
IBM 3270 emulation	No	No	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 56MB-140MB	Fixed: 14.5-29MB Removable: 80-300MB	Fixed: 14.5-29MB Removable: 80-300MB	Fixed: 118.2MB-491MB Removable: 72.3MB
Serial printers	150 cps	55-200 cps	55-200 cps	80-200cps
Letter quality printers	35 cps	55 cps	55 cps	55cps
Line printers	300 lpm	300-600 lpm	300-600 lpm	180-1200lpm
Reel-to-reel tape drives	None	45 ips; 800, 1600 bpi	45 ips; 800/1600 bpi	Not supplied
Streaming tape drives	None	25 ips; 1600 bpi	25 ips; 1600 bpi	Start/stop; 100/25ips
Cassette/cartridge tape drives	90 ips	None	No	25 ips; 200-1600 bpi
Other peripherals supported	1.2MB Diskettes	Diskettes	Diskettes	Card equipment, diskette
SOFTWARE				
Assembler	Intel	Macro (DBL)	Macro (DBL)	Basic assembler
Compilers	BASIC (interpretive)	Basic, Cobol, Pascal, Fortran	Basic, Cobol, Pascal, Fortran	Cobol, Fortran IV, Basic, RPGII, Escort
Operating system	Multitasking	Multitasking, batch	Multitasking, batch	Batch, Real-time
Operating sys. implemented in firmware	No	Partially	Partially	Partially
Database management system	IDOL	DBOS	DBOS	DMS
Principal industry application	General accounting	Industrial, Distribution	Industrial, Distribution	Office automation, decision support
Other packages	Medical, spreadsheet, word processing	Hospitals, Credit Union, Personnel, Construction	Hospitals, Credit Union, Personnel, Construction	Accounting, wholesale/distribution
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 256KB memory, 56MB disk, streaming tape, 1 CRT, 150 cps printer—\$26,795	CPU, 160KB memory, 29MB disk, 2 terminals, 150 cps printer, Data Base Operating System—\$36,650	CPU, 160KB memory, 80MB disk, 2 terminals, 150 cps printer, Data Base Operating System—\$49,800	Model 4: CPU, 524KB memory; 118.2MB disk; console w/keyboard; 2 workstations w/keyboards 1MB diskette; 180 lpm printer—\$91,689
Mo. maintenance of basic configuration	\$270	\$435	\$485	\$618
Date of first delivery	June 1982	July 1979	September, 1980	July 1982
Number installed to date	720	Not supplied	Not supplied	Not supplied
COMMENTS		Fully integrated data base system; can have multiple CPUs.	Fully integrated Data Base system; can have multiple CPUs.	

All About Minicomputers

MANUFACTURER AND MODEL	Sperry Corp. System 80 Model 8	STC Systems, Inc. System 5000	STC Systems, Inc. System 6000	Tandem Computers Inc. NonStop I Plus
WORD LENGTH	16 bits	16 bits	16 bits	16-bits
MAIN MEMORY	1MB-8MB	64KB-256KB	512KB-1024KB	2MB/processor
DISK STORAGE CAPACITY	617MB-12GB	1.2GB	1.2GB	64MB min.
NO. WORKSTATIONS SUPPORTED	120	113	113	No set limit
PRICE RANGE	\$123,900-\$700,000	\$53,000	\$138,000	From \$94,000
TARGET MARKET	Commercial	Distr., Publishing, Bldg. Matls. Suppliers	Distr., Publishing, Bldg. Matls. Suppliers	On-line transaction processing
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	DG NOVA 4	DG NOVA 4	Proprietary
Hardware floating point	Single/Double	Double	Double	Double
Battery backup	Not supplied	Std.	Std.	Std.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	120	400	400	100
MAIN STORAGE				
Bytes fetched per cycle	8	2	2	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	480	400	400	500
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	1MB, 2MB	32K	256K	384K
Cache memory, bytes	None	None	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	6	12	12	13
Data transfer rate	8MB/second	10M words/sec.	10M words/sec.	5MB/second
COMMUNICATIONS				
Max. number of lines	28	113	113	252
Synchronous	Opt.; to 56K bps	Opt.; to 9.6K bps	Opt.; to 9.6K bps	Opt.; 56K bps
Asynchronous	Opt.; to 19.2K bps	Opt.; to 9.6K bps	Opt.; to 9.6K bps	Opt.; 19.2K bps
Protocols supported	BSC, TTY, Univac, BC-7 X.25, DCA, 3270, UTS	Bisync IBM 2780/3780	Bisync IBM 2780/3780	SNA, X.25, SDLC/HDLCL, 2780/3780
Type of LAN supported	None	None	None	FOX
RJE terminals emulated	HASP	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Yes	No	No	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Fixed: 118.2MB-491MB Removable: 29MB-200MB	Cart: 50MB, 80MB, and 300MB	Cart: 50MB, 80MB, and 300MB	Winchester: 64MB-264MB Removable: 240MB
Serial printers	80-200 cps	180 cps (64 lpm)	180 cps (64 lpm)	340 cps
Letter quality printers	55 cps	None	None	55 cps
Line printers	180-1200 lpm	300-1000 lpm	300-1000 lpm	600-1300 lpm
Reel-to-reel tape drives	Not supplied	800/1600 bpi	800/1600 bpi	125 ips, 800/1600 bpi
Streaming tape drives	Start/stop; 100/25 ips	None	None	None
Cassette/cartridge tape drives	25-125ips; 200-1600 bpi	None	None	None
Other peripherals supported	Card equipment, diskette			FAX, OCR, video monitors
SOFTWARE				
Assembler	Basic assembler	Assembler	Assembler	None
Compilers	Cobol, Fortran IV, Basic, RPGII, Escort	BASIC, RPG	BASIC, RPG	TAL, Cobol, Fortran, Extended Basic, MUMPS
Operating system	Batch, Real-time	Real-time	Real-time	Multitasking
Operating sys. implemented in firmware	Partially	No	No	Partially
Database management system	DMS	None	None	Encompass
Principal industry application	Office automation, decision support	Distribution	Distribution	On-line applications
Other packages	Accounting, wholesale/ distribution	Accts. Rec., Accts. Pay., Gen'l. Ledger	Accts. Rec., Accts. Pay., Gen'l. Ledger	Transfer, Pathway, Expand
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, 1MB memory; 3MB add-on memory; two 1MB diskette drives; four 491MB disk drives; four tape units; eight 200 cps printers; 1200 lpm printers; 40 terminals/ keyboards—\$651,914	CPU with 64KB memory, 50MB Disk, 1 CRT, 64 lpm printer, DISTRIBU-DATA PKG., and 5-Days Training— \$53,000	CPU with 256KB memory, 600MB disk, 10 CRTs, 300 lpm printer, DISTRIBU-DATA PKG., and 5-Days Training— \$138,000	2 processor system, each with 384KB memory, console, tape drive & controller—\$94,975
Mo. maintenance of basic configuration	\$3,761	\$397	\$1,155	\$726
Date of first delivery	December 1983	1973	1982	May 1976
Number installed to date	Not supplied	180	10	Not supplied
COMMENTS	Supports variety of Series 90 peripherals	System price includes hardware, software, training and 30-days hardware warranty with six-months software warranty.	System price includes hardware, software, training and 30-days hardware warranty with six-months software warranty.	Can be expanded from 2 to 16 processors, and in a network with up to 255 nodes, without re- programming.

All About Minicomputers

MANUFACTURER AND MODEL	Tandem Computers Inc. NonStop II	Texas Instruments, Inc. Business System 600A Series	Texas Instruments, Inc. Business System 800A Series	Texas Instruments, Inc. Business System 800B Series
WORD LENGTH	16-bits		16-bit	16-bit
MAIN MEMORY	Up to 16MB	512KB-1MB	512KB-2MB	512KB-2MB
DISK STORAGE CAPACITY	8GB-64GB	18.5-126MB	43MB-476MB	43MB-476MB
NO. WORKSTATIONS SUPPORTED	No set limit	16	40	40
PRICE RANGE	From \$195,000	\$38,850-\$50,350	\$56,800-\$85,300	\$57,550-\$86,050
TARGET MARKET	On-line transaction processing	Business	Business	Business
CENTRAL PROCESSOR				
CPU manufacturer and model	Proprietary	Proprietary	Proprietary	Proprietary
Hardware floating point	Double	No	No	No
Battery backup	Std.	None	None	None
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	100	Not supplied	Not supplied	Not supplied
MAIN STORAGE				
Bytes fetched per cycle	2 per processor	Not supplied	Not supplied	Not supplied
Memory access	40M bits/second	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	400	600	430/380	430/380
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	512K or 2M	256K, 512K	512K, 768K, 1M	512K, 768K, 1M
Cache memory, bytes	None	None	4K	4K
INPUT/OUTPUT CONTROL				
No. of I/O channels	23	13	13	13
Data transfer rate	5MB/second	3MB/second	3MB/second	3MB/second
COMMUNICATIONS				
Max. number of lines	252	4	4	4
Synchronous	Opt.: 56K bps	Std., 19.2K bps	Std., 19.2K bps	Std., 19.2K bps
Asynchronous	Opt.: 19.2K bps	Opt., 9.6K bps	Opt., 9.6K bps	Opt., 9.6K bps
Protocols supported	SNA, X.25, SDLC/HDLC, 2780/3780	SNA, X.25	SNA, X.25	SNA, X.25
Type of LAN supported	FOX	None	None	None
RJE terminals emulated	2780/3780	3780/2780	3780/2780	3780/2780
IBM 3270 emulation	Yes	Yes	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 64MB-540MB Removable: 240MB	Fixed/Removable: 10MB to 125MB	Fixed/Removable: 43MB to 300MB	Fixed/Removable: 43MB to 300MB
Serial printers	340 cps	75-150 cps	75-150 cps	75-150 cps
Letter quality printers	55 cps	45 cps	45 cps	45 cps
Line printers	600-1300 lpm	300-600 lpm	300-600 lpm	300-600 lpm
Reel-to-reel tape drives	125 ips, 800/1600 bpi	45 ips; 1600 bpi	45 ips; 1600 bpi	45 ips; 1600 bpi
Streaming tape drives	None	None	None	None
Cassette/cartridge tape drives	None	14.5MB	14.5MB	14.5MB
Other peripherals supported	FAX, OCR, video monitors			
SOFTWARE				
Assembler	None	Assembler	Assembler	Assembler
Compilers	TAL, Cobol, Fortran, Extended Basic, MUMPS	Cobol, Basic, Fortran, RPG II, Pascal	Cobol, Basic, Fortran, RPG II, Pascal	Cobol, Basic, Fortran, RPG II, Pascal
Operating system	Multitasking	Multitasking	Multitasking	Multitasking
Operating sys. implemented in firmware	Partially	No	No	No
Database management system	Encompass	DBMS	DBMS	DBMS
Principal industry application	On-line applications			
Other packages	Transfer, Pathway, Expand	Word processing	Word processing	Word processing
PRICING & AVAILABILITY				
Basic system configuration and price	2 processor system, each with 512KB memory, console, operations & service processor, tape drive, 256MB disk, operating system, Encompass & Cobol—\$195,000.	CPU, 512KB memory, 80MB disk, 13 I/O slots—\$38,850	CPU, 512KB memory, 126MB disk, 13 I/O slots—\$65,840	CPU, 512KB memory, 476MB disk, 13 I/O slots—\$86,050
Mo. maintenance of basic configuration	Not supplied	\$296	\$602	\$707
Date of first delivery	April 1981	September 1983	September 1983	September 1983
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS	Can be expanded from 2 to 16 processors, and in a network with up to 255 nodes, without re-programming.			

All About Minicomputers

MANUFACTURER AND MODEL	The Ultimate Corp. Model 750	The Ultimate Corp. Model 1000	The Ultimate Corp. Model 2000/2000S	The Ultimate Corp. Model C/2
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	128KB-256KB	128KB-256KB	128KB-512KB	256K-2MB
DISK STORAGE CAPACITY	19MB-40MB	35MB-70MB	33MB-308MB	80MB-2.3GB
NO. WORKSTATIONS SUPPORTED	8	16	32	126
PRICE RANGE	\$20,000—\$28,000	\$32,000-\$40,000	\$36,000-\$50,000	\$80,000-\$150,000
TARGET MARKET	Small Business	Small Business	Small Business	Medium Size Business
CENTRAL PROCESSOR				
CPU manufacturer and model	DEC LSI 11/2	DEC LSI 11/2	DEC LSI 11/2	Honeywell DPS 6
Hardware floating point	Single	Single	Single	Double
Battery backup	None	None	Opt.	Opt.
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	165	165	165	300
MAIN STORAGE				
Bytes fetched per cycle	2	2	2	4
Memory access	175 ns.	175 ns.	175	Not supplied
Cycle/access time, nanoseconds	375	375	375	420/520
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	128K	128K	128K	256K
Cache memory, bytes	None	None	None	4K words
INPUT/OUTPUT CONTROL				
No. of I/O channels	Not supplied	Not supplied	Not supplied	1024
Data transfer rate	Not supplied	Not supplied	Not supplied	16MB/second
COMMUNICATIONS				
Max. number of lines	8	16	32	124
Synchronous	Opt.	Opt.	Opt. 19.2K bps	Opt.
Asynchronous	Std., 9.6K bps	Std., 9.6K bps	Std., 9.6K bps	Std.
Protocols supported	Asynch	Asynch	Asynch	Asynch
Type of LAN supported	None	None	None	None
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	No	No	No	No
PERIPHERAL EQUIPMENT				
Disks supported	Winchester: 19MB	Winchester: 35MB	Winchester: 33MB-308MB	75MB-1GB
Serial printers	20-180 cps	20-180 cps	20-180 cps	180 cps
Letter quality printers	35-55 cps	35-55 cps	35-55 cps	35-55 cps
Line printers	300-600 lpm	300-600 lpm	300-600 lpm	150-900 lpm
Reel-to-reel tape drives	None	None	None	45/75 bpi
Streaming tape drives	None	None	25 ips	None
Cassette/cartridge tape drives	30 ips, 7600 bpi	30 ips, 7600 bpi	None	None
Other peripherals supported	None	None	None	None
SOFTWARE				
Assembler	Macro	Macro	Macro	Macro
Compilers	Basic, Recall	Basic, Recall	Basic, Recall	Basic, Recall
Operating system	Multitasking	Multitasking	Multitasking	Multitasking
Operating sys. implemented in firmware	Fully	Fully	Fully	Fully
Database management system	ULTIMATE (PICK)	ULTIMATE (PICK)	ULTIMATE (PICK)	ULTIMATE (PICK generic)
Principal industry application	Various Commercial and Industrial Applications	Various Commercial and Industrial Applications	Various Commercial and Industrial Applications	Various Commercial and Industrial Applications
Other packages	UltiWord, UltiPlot, UltiCalc	UltiWord, UltiPlot, UltiCalc	UltiWord, UltiPlot, UltiCalc	UltiWord, UltiPlot, UltiCalc
PRICING & AVAILABILITY				
Basic system configuration and price	Model 750 CPU, Rev. 100, UltiWord, UltiPlot, 8-quad slot chassis, Power Supply, table-top cabinet, 128KB memory, 19MB disk & controller, cartridge tape, 3 open ports—\$20,000	Model 1000 CPU, Rev.100, UltiWord, UltiPlot, 8-quad slot chassis, power supply, table-top cabinet, 128KB memory, 35MB disk & controller, cart.tape controller, 7 open ports—\$32,000	Model 2000 CPU, Rev.100, UltiWord, UltiPlot, 8-quad slot chassis, power supply, 36" cabinet, 128KB Memory, 33MB disk, & controller, 7 open ports, streaming tape & controller—\$34,000	CPU, Release 10, Ulti-Word, UltiPlot, Full Control Panel, 10-slot chassis, power supply, Two 60" cabinets, 256KB Memory, 80MB disk & controller, tape drive & Controller—\$107,000
Mo. maintenance of basic configuration	\$245	\$345	\$365	\$610
Date of first delivery	January, 1982	January, 1982	January, 1982	April, 1979
Number installed to date	45	61	220/160	Not supplied
COMMENTS			Model 2000S has same configuration as 2000 w/ the Ultimate Peripheral Processor "S Version". Cost: \$36,000, MMC 375.	

All About Minicomputers

MANUFACTURER AND MODEL	The Ultimate Corp. Model D/2	The Ultimate Corp. Model E/2	Wang Laboratories Inc. VS 25	Wang Laboratories Inc. VS 45
WORD LENGTH	16 bits	16 bits	16 bits	16 bits
MAIN MEMORY	256K-2MB	1MB-2MB	512KB-1MB	512KB-1MB
DISK STORAGE CAPACITY	80MB-2.3GB	80-2.3GB	34-76MB	34MB-2.5GB
NO. WORKSTATIONS SUPPORTED	126	126	10	20
PRICE RANGE	\$107,000-\$250,000	\$180,000-\$400,000	\$25,000-\$40,500	\$26,000-\$61,000
TARGET MARKET	Medium Size Business	Medium Size Business	DDP, networked office auto., elec. comm.	DDP, networked office auto., elec. comm.
CENTRAL PROCESSOR				
CPU manufacturer and model	Honeywell DPS 6	Honeywell DPS 6	Proprietary	Proprietary
Hardware floating point	Double	Double	Double	Double
Battery backup	Opt.	Opt.	Not supplied	Not supplied
Real-time clock or timer	Std.	Std.	Std.	Std.
CPU cycle time, nanoseconds	300	300	500	500
MAIN STORAGE				
Bytes fetched per cycle	4	4	Not supplied	Not supplied
Memory access	Not supplied	Not supplied	Not supplied	Not supplied
Cycle/access time, nanoseconds	420 read/520 write	420 read/520 write	480	480
Storage protection	Std.	Std.	Std.	Std.
Increment size, bytes	256K	256K	256K	256K
Cache memory, bytes	4K words	4K words	None	None
INPUT/OUTPUT CONTROL				
No. of I/O channels	1024	1024	6	7
Data transfer rate	16MB/sec.	16MB/second	Not supplied	Not supplied
COMMUNICATIONS				
Max. number of lines	124	124	68	68
Synchronous	Opt.	Opt.	Opt.; 9.6K bps	Opt.; 9.6K bps
Asynchronous	Std.	Std.	Opt.; 9.6K bps	Opt.; 9.6K bps
Protocols supported	Asynch	Asynch	2780/3780; 3270; 3274, 3777; TTY	2780/3780; 3270; 3274, 3777; TTY
Type of LAN supported	None	None	WangNet	WangNet
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	No	No	Yes	Yes
PERIPHERAL EQUIPMENT				
Disks supported	75MB-1GB	75MB-1GB	Fixed: 34-76MB	Fixed/cartridge 90MB Removable: 75MB-288MB
Serial printers	180 cps	180 CPS	120-192 cps	120-192 cps
Letter quality printers	35-55 cps	35-55 cps	20; 35 cps	20; 35 cps
Line printers	150-900 lpm	150-900 lpm	250-1100 lpm	250-1100 lpm
Reel-to-reel tape drives	45/75 bpi	45/75 bpi	30-75ips	30-75 ips
Streaming tape drives	None	None	None	None
Cassette/cartridge tape drives	None	None	30 ips	30 ips
Other peripherals supported			Laser printer 12ppm	Laser printer 12ppm Fixed disk: 640MB
SOFTWARE				
Assembler	Macro	Macro	Assembler	Assembler
Compilers	Basic, Recall	Basic, Recall	Cobol, Basic, Fortran, PL/1, RPG	Cobol, Basic, Fortran, PL/1, RPG
Operating system	Multitasking	Multitasking	Real-time	Real-time
Operating sys. implemented in firmware	Fully	Fully	No	No
Database management system	ULTIMATE (PICK generic)	ULTIMATE (PICK generic)	VS DMS; Wang Total	VS DMS; Wang Total
Principal industry application	Various Commercial and Industrial Applications	Various Commercial and Industrial Applications	Accounting, Pension, Personnel	Accounting, Pension, Personnel
Other packages	UltiWord, UltiPlot, UltiCalc	UltiWord, UltiPlot, UltiCalc	Modeling and Simulation	Modeling and Simulation
PRICING & AVAILABILITY				
Basic system configuration and price	CPU, Release 10, full control panel, 10-slot chassis, power supply, 512K memory, 288MB disk & controller, tape drive two 60" cabinets, Ulti- Word, & UltiPlot \$107,000	CPU, Release 10, Ulti- Word, UltiPlot, Full Control Panel, 20-slot chassis, power supply, Two 60" cabinets, 1MB memory, 288MB disk & controller, tape drive & controller—180,000	CPU, 512KB memory, 34MB disk, 1.2MB DSDD diskette drive, 16-port serial device controller 250 lpm printer, Assembler, Operating system—\$34,000	CPU, 512KB memory, 34MB disk, 1.2MB DSDD diskette drive, 32-port serial device controller Assembler, 250lpm printer, Operating system—\$42,000
Mo. maintenance of basic configuration	\$650	\$1,030	\$238	\$247
Date of first delivery	April, 1979	April, 1979	July 1982	September 1982
Number installed to date	Not supplied	Not supplied	Not supplied	Not supplied
COMMENTS				

All About Minicomputers

MANUFACTURER AND MODEL	Wang Laboratories Inc. VS 80			
WORD LENGTH MAIN MEMORY DISK STORAGE CAPACITY NO. WORKSTATIONS SUPPORTED PRICE RANGE TARGET MARKET	16 bits 256KB-512KB 90MB-5.1GB 32 \$19,000-\$29,000 DDP, networked office auto., elec. comm.			
CENTRAL PROCESSOR CPU manufacturer and model Hardware floating point Battery backup Real-time clock or timer CPU cycle time, nanoseconds MAIN STORAGE Bytes fetched per cycle Memory access Cycle/access time, nanoseconds Storage protection Increment size, bytes Cache memory, bytes	Proprietary Double Not supplied Std. 660 Not supplied Not supplied 660 Std. 128K None			
INPUT/OUTPUT CONTROL No. of I/O channels Data transfer rate COMMUNICATIONS Max. number of lines Synchronous Asynchronous Protocols supported Type of LAN supported RJE terminals emulated IBM 3270 emulation	8 I/O Processors Not supplied 21 Opt.; 9.6K bps Opt.; 9.6K bps 2780/3780; 3270; 3274, 3777; TTY WangNet 2780/3780 Yes			
PERIPHERAL EQUIPMENT Disks supported Serial printers Letter quality printers Line printers Reel-to-reel tape drives Streaming tape drives Cassette/cartridge tape drives Other peripherals supported	Fixed/cartridge: 90MB Removable: 75MB-288MB 120-192 cps 20; 35 cps 250-1100 lpm 30 ips None 30 ips Laser printer 12ppm Fixed disk: 640MB			
SOFTWARE Assembler Compilers Operating system Operating sys. implemented in firmware Database management system Principal industry application Other packages	Assembler Cobol, Basic, Fortran, PL/1, RPG Real-time No VS DMS; Wang Total Accounting, Pension, Personnel Modeling and Simulation			
PRICING & AVAILABILITY Basic system configuration and price Mo. maintenance of basic configuration Date of first delivery Number installed to date	CPU, 256KB memory, 75MB disk, 300KB diskette, 16-port serial IOP, 250 lpm printer, Assembler, Operating system—\$40,000 \$593 1978 Not supplied			
COMMENTS				