All About Small Business Computers

The small business computer market continues to grow unabated, and indications are that this trend will continue for at least the next five years. Based on the latest available information from International Data Corporation:

- The value of small business computers shipped in 1977 was approximately $930 million, and by 1982 this figure will increase to about $3.9 billion.

- The number of small business computers shipped in 1982 will approach the 50,000 mark, almost three times the number shipped in 1977.

There is no doubt that the small business computer will be a common sight in most small business firms—perhaps as commonplace as an office copier or telephone switchboard. The ever-increasing costs and complexities of doing business are forcing small businessmen to find new ways to cut their labor costs and gain tighter control over their operations, and a wisely chosen small computer system can help immeasurably in both these critical areas.

In price and performance, the small business computers span a wide range that fills the gap between conventional accounting machines at one extreme and medium-scale computer systems at the other. Though the current small business systems differ widely in their architecture, data formats, peripheral equipment, and software, they are generally characterized by purchase prices in the $5,000 to $100,000 range and by a strong orientation, in both their equipment and software, toward conventional business data processing applications.

In its basic configuration, today's small business computer typically consists of a central processor, a keyboard/ CRT unit for data entry, a disk unit for file storage, and a serial printer for hard-copy output. Beyond that, the increasing number and diversity of systems on the market

This comprehensive report is designed to help you select and apply low-cost business data processing systems. The characteristics and prices of 289 current systems from 84 vendors are reported in detailed comparison charts, and the report also explains the current technology and provides straightforward buying guidance.

make it difficult to generalize about components, speeds, capacities, and expansion possibilities. A capsule summary of some of the key characteristics of the 289 models represented in this year's report is as follows:

- Approximately one-half of the systems offered are based on 16-bit central processors and one-third use 8-bit machines. Also represented are 12-bit, 18-bit, 24-bit, 32-bit, 48-bit, and 64-bit computers.

- Approximately 68 percent of the systems offer MOS memory, and all the rest use core memory, with the exception of two older NCR models that use thin-film memory.

- Minimum memory capacities range from 4K to 480K bytes. Approximately 14 percent have a minimum of 16K bytes, 24 percent a minimum of 32K bytes, 20 percent a minimum of 64K bytes, and 10 percent a minimum of 128K bytes.

- Maximum memory capacities range from 8K to 8 million bytes. Approximately 26 percent of the systems offered have a maximum capacity of 64K bytes, 12 percent a maximum of 128K bytes, and 19 percent a maximum of 256K bytes. ▷

Representative of the growing trend toward multi-user small business computer systems, the SyFA system from Computer Automation can support up to 304K bytes of main memory, eight disk drives with a total storage capacity of 1760 megabytes, 32 local or remote terminals, and two serial or line printers. SyFA packaged systems range in price from $45,000 up to $302,000.

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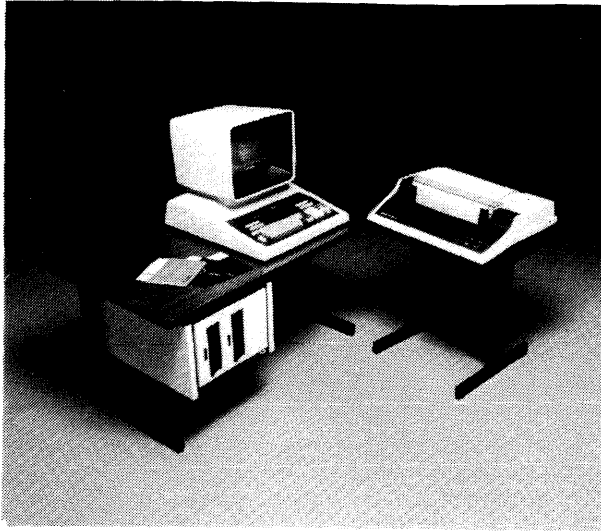
The Cado System 20 desktop computer is built around an Intel 8080A microprocessor. The smallest offering in Cado's line, the System 20 is priced at $13,995 with 5K bytes of main memory, 3.6 megabytes of floppy disk storage, a 1920-character CRT, and a 150-cps serial printer. Optionally available are 9.5-megabyte and 19-megabyte cartridge disk units and both reel-to-reel and cassette tape units.

▷ ● To provide random-access storage for data files and programs, 71 percent of the systems offer floppy disk units, 73 percent offer cartridge disk units, 52 percent offer pack disk drives, and 27 percent offer fixed-head disk or drum units.

● To produce printed reports, 42 percent of the systems offer a serial printer and 18 percent offer a line printer as part of their basic configurations.

● To provide for communication with remote terminals and/or larger computers, 97 percent of the systems offer at least one data communications line, and about one-third can be equipped with from two to eight lines.

The business data processing systems included in this report are known by various names, such as business minicomputers, electronic accounting machines, office computers, or electronic billing computers. To simplify matters, we have chosen to use the term "small business computers" (SBC's) throughout this report.

This report is designed to bring you, in concise comparison-chart form, the up-to-date hardware and software characteristics of the small business computer systems that are currently being marketed in the United States. You'll find 58 pages of detailed comparison charts containing the specifications of 289 systems from 84 suppliers, and the accompanying text is designed to aid you in understanding the features and functions of today's small business computers and choosing the one that will most effectively meet your needs.

The Small Business Computer Marketplace

The small business computer market is served by four distinct types of vendors. The first type is the "Fortune 500" companies such as Burroughs, Honeywell, IBM, Litton, NCR, and Sperry Rand, all of whom have vast product lines and resources. For these companies, the small business computer is just one of a broad line of products (although in the cases of NCR and Burroughs, business minicomputers now account for a very sizeable portion of total corporate sales revenues).

A second group consists of minicomputer manufacturers such as Digital Equipment Corporation (DEC), Data General, Computer Automation, Harris, Hewlett-Packard, Microdata, Wang Laboratories, and others. This group has watched the small business computer marketplace mushroom in size, and now wants a piece of the action. Their answer to this segment of the marketplace is a packaged configuration consisting of a minicomputer and associated peripherals from their current product line, usually accompanied by some applications software. Most minicomputer vendors also offer assemblers and compilers for the user who wants to do his own programming or solve business problems that cannot be handled by packaged software.

System houses or turnkey vendors, such as Mini-Computer Systems, Qantel, STC Systems, and many others, comprise the third group of suppliers of small business computers. This group is very similar to the second group except that the turnkey vendors generally buy minicomputers and/or peripheral devices from the manufacturers, package the configurations, and supply their own software. The prime appeal of a full turnkey system is that all software is written by the vendor; therefore, the user is not required to employ a high-priced programming staff. Basic/Four Corporation, which started out as a systems house using Microdata minicomputers, is now building its own central processors and is one of the leading suppliers of small business computers.

Microcomputer companies are beginning to appear on the scene as the fourth group of SBC suppliers. Companies such as Applied Data Communications, Applied Systems Corporation, Cado Systems Corporation, and others are offering microprocessor-based small business systems that sell for $20,000 or less. This group is still in its infancy, but seems destined to be a major force in the SBC marketplace in the near future.

Most of the current members of the last two groups sell small business computers and services exclusively, and in many cases are themselves small businesses. However, what they lack in size and resources is often more than compensated for by their quick reaction time to problems, general expertise, and eagerness to satisfy.

IBM, a long-time laggard in the small business computer sector of the EDP marketplace, has climbed into its ▷

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> accustomed position of market leadership during the last few years on the strength of three highly significant product offerings: the System/3, System/32, and System/34.

The IBM System/3, introduced in 1969, now occupies a position at the upper end of the SBC market segment. It is offered in numerous models at system purchase prices ranging from about $40,000 to more than $300,000. With over 40,000 installations worldwide, the System/3 ranks as one of the fastest-selling computers in history.

The IBM System/32 was unveiled in January 1975 as the smallest and lowest-priced general business computer ever announced by the industry giant. All components of the System/32—processor, main storage, keyboard, display, printer, disk storage unit, and diskette drive—are housed in a single compact, desk-sized cabinet. What's more, IBM is billing the System/32 as a "programmerless" machine whose software, for most users, will consist entirely of preprogrammed Industry Application Packages supplied by IBM. With equipment purchase prices beginning at $33,560 and monthly rentals (on a 3-year lease) beginning at $714, the System/32 has already convinced thousands of small businesses that its'time to take their first step into computer usage. The availability of the System/32, backed by IBM's powerful marketing forces, has substantially enlarged the total market for small business computers and generated increased sales for both IBM and many of its competitors.

The IBM System/34, introduced in April 1977, represents the next logical step in IBM's succession of small business computer systems. As compared with the System/32, the new system features more processing power, larger memory capacity, larger disk storage capacity, and the ability to attach a number of independent multiprogramming workstations to the basic system. This last feature is the most significant difference between the two systems, since the biggest single drawback to the System/32 for most potential users has been the fact that it is rigidly restricted to serving one user at a time. Thus, with the System/34, IBM has strongly endorsed the concept of multi-user, multi-terminal SBC systems of the type that have long been offered, with considerable success, by vendors such as Basic Four, Datapoint, and Microdata.

Burroughs and NCR, the perennial leaders in the SBC marketplace until the recent IBM onslaught, are still strong contenders. Both firms offer a broad range of products backed by extensive marketing and service organizations.

Sperry Rand is the latest of the "Fortune 500" companies to announce a bold thrust into the SBC market. The firm's Sperry Univac Division, which had long lacked an effective SBC to complement its strong line of larger computers, corrected that oversight by introducing the Univac BC/7 in January 1977. A cardless system designed for turnkey operations, the BC/7 can consist of a processor with 48K, 64K, or 128K bytes of MOS main memory; an operator's console; up to six workstations, each with CRT display and optional non-impact page printer; up to

6 million bytes of floppy disk storage; up to 40 million bytes of cartridge disk storage; one or two tape drives; and one or two printers. Purchase prices for the BC/7 packaged systems range from about $22,000 up to about $51,000. Sperry Univac's new commitment to the SBC field is underscored by the fact that at the time of the BC/7 announcement, nearly $25 million had already been invested in the associated organization, facilities, people, and product. Then, in June 1977, Sperry Univac purchased Varian Data Machines, a major manufacturer of minicomputers since 1967. There's little doubt that the technology developed by Varian will show up in future Univac offerings in the small business computer marketplace.

Digital Equipment Corporation, the leading builder of scientific minicomputers, offers business-oriented users its Datasystem 300 and 500 Series systems based upon the popular DEC PDP-8 and PDP-11 minicomputers. In January 1975, just 10 days after IBM introduced its System/32, DEC countered with the Datasystem 310, a complete business data processing system priced at just $14,095. The basic Datasystem 310 includes a PDP-8/A minicomputer with 8,192 12-bit words of core storage, two diskette ("floppy disk") drives, CRT display unit, and typewriter-style keyboard. Optional extras include a printer, a communications interface, and expanded main or diskette storage. DEC is marketing the Datasystem 310 in two ways: directly to end users who are prepared to write their own applications programs, and through a distributorship network of software houses that will do the applications programming for less sophisticated users. A floppy disk version of the Datasystem 310, designated the Datasystem 308, was introduced in May 1978. Employing DEC's LSI-based PDP-8 video data processor, the VT-78, the Datasystem 308 has a base price of $12,600 including training credit and support services.

Hewlett-Packard, General Automation, Harris, and Microdata are other major suppliers of scientific minicomputers that now offer "packaged" hardware/software configurations oriented toward business data processing applications. Wang Laboratories, which has elected to specialize in serving the SBC market, is now one of the foremost suppliers of these systems.

European-made equipment is making a much greater impact upon the small business computer market than in any other segment of the U.S. computer market. ICL, Olivetti, Philips, and Nixdorf are marketing equipment which they manufacture in Great Britain, Italy, the Netherlands, and Germany, respectively.

Buying Guidance

As with all categories of data processing equipment, the watchword in selecting a small business computer is "Buyer beware." These machines come in a wide range of types, sizes, and capabilities—with price tags to match—and there's a great deal to be gained through systematic selection of the most appropriate system for your particular needs. ▷

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▷ But all too often, the buyers of this class of equipment have little or no understanding of data processing principles and are likely to buy the wares of the salesman who arrives first or sells hardest.

No company should *ever* buy a computer from the first salesman who comes through the door. It's always far wiser to check out the offerings of at least a few of the other major suppliers, and you shouldn't hesitate to play one vendor against another in an effort to get the most for your money. Just remember that all promises of extra software, technical support, or other concessions should be specifically included in the final contract.

Before seriously considering the acquisition of any business minicomputer, you should demand:

● Detailed specifications of all the pertinent hardware and software.

● A full-scale demonstration of the equipment on at least one of your own principal applications—or, if that's not practical, on a demonstration program whose functions are similar enough to your own needs so that you can draw realistic conclusions about the system's processing speed and ease of programming and operation.

● A detailed proposal that spells out exactly what *equipment, software,* and *technical support* will be supplied, estimated processing times for each of your applications, all responsibilities of both the vendor and the buyer, and the total purchase price or monthly rental price.

● A list of users in your geographical area who are employing the system for applications similar to yours. Talk to several of these users and find out as much as you can about their experiences. While they may not be able to give you much help in developing a sophisticated comparison to other alternative systems, they *can* give you a good idea of what pitfalls to watch out for in installing and using that particular system.

A critically important area to be evaluated is *software*—the programming packages and languages used to program the computer and thereby direct its operations. It is important that you carefully investigate the available software. This investigation should include the programming languages, preprogrammed utility packages such as sorts and file maintenance, and application packages such as payroll, inventory, control, general ledger, etc.

Vendors' claims and promises concerning the availability and capability of software should be carefully checked. This is particularly true of software that has been announced but not yet released. Vendors have frequently failed to live up to their marketing publicity.

Since SBC users typically start with no programming staffs of their own, it is important that appropriate program packages be available to fit your specific requirements. If not, you should require the vendor to take on full responsibility to write and test the initial programs you'll need. Otherwise, you'll have to either recruit and train your own programmers or pay an outside software firm to develop your programs. If not kept under strictest control, software costs can accumulate until they equal, or even exceed, hardware costs. Potential dollar savings can be quickly devoured by software costs.

The availability of reliable and qualified vendor support for both equipment maintenance and software aid is another vitally important factor in the business minicomputer environment. The limited resources generally available to small computer users make you depend heavily on your vendor for such assistance. In many cases the vendor will even design the initial system and make any required changes to his program packages for you. Thus, the ability of the vendor to render competent and continuing service in these matters is a vital concern to you.

Some vendors do not offer equipment maintenance and/or software to complement their hardware offerings. In this case, the user must deal with independent firms in order to complete the package. In one respect this is good, because overall costs may well be lower. However, when a problem occurs, the finger-pointing game can begin: one vendor blaming the other for the system's malfunction. Fortunately, this kind of reaction is in the minority, and despite the potential for problems, the multi-vendor approach can work well. If it didn't, the independent equipment maintenance and software firms would disappear, and that just isn't happening.

Most potential users of an SBC naturally raise the question of purchase versus lease. The single most important consideration is the length of time that this particular system is likely to be able to handle the data processing requirements of your company. Is there room for system expansion, with regard to both the processor and the peripherals, or is this the top of the line? In most cases, it is not a wise decision to make your first system the most powerful system offered by a particular vendor. If your company's operations expand, how will you expand the system? Will you have to acquire a new and more expensive processor? Or, worse yet, will you have to change vendors? Generally, if you are confident that a particular system can handle your data processing needs for five years or more, then purchasing the system will be advantageous. However, if you have selected the top of the line or if there are fewer than five years of potential life in the system, you will probably be better off to lease. ▷

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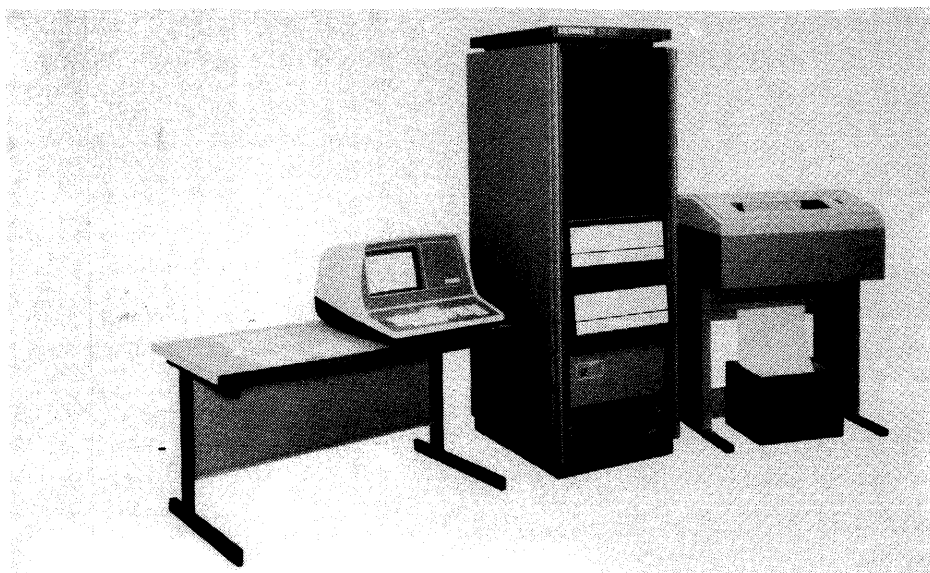
This Ultimacc 2010 from STC Systems has a basic system purchase price of $41,000. The configuration shown includes a Data General Nova 3/12 processor with 32K bytes of memory, a 40-megabyte cartridge disk drive, a 1920-character CRT with an alphanumeric keyboard, and a 165-cps serial printer. Standard software includes COBOL, BASIC, an assembler, and STC's ENGLISH 210. The system can handle an unlimited number of communications lines and supports IBM's 2780/3780 and 3270 line protocols.

▷ Alternatives

There are several other alternatives you might want to consider before deciding that a small computer system is the answer to all your problems. Many small companies (fewer than 200 employees and sales of less than $5 million) have selected programmable calculators, computer service bureaus, or time-sharing companies to provide the same or comparable services. Each user must decide which alternative provides the most cost-effective solution to his problems. Beyond that, decisions must be made regarding expandability, flexibility, ease of operation, reliability, turnaround time, compatibility with present operations, and the desirability of keeping all operations in-house. After careful consideration is given to these aspects and any other factors peculiar to your operations, an informed decision can be made as to which approach will work best in your company.

The Comparison Charts

The principal characteristics of 289 small business computers from 84 vendors are presented in the accompanying comparison charts. All of these systems are currently being marketed in the United States. Nearly all of the information in the charts was supplied and/or verified by the manufacturers or U.S. suppliers during June and July 1978; their close cooperation with the Datapro Research staff in the preparation of these charts is gratefully acknowledged.

No report on today's small business computers could be totally complete. The field of suppliers is just too large and growing too fast. We have, however, made every reasonable effort to include all of the major suppliers and a high proportion of the smaller ones as well. The absence of any company's products 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 comparison chart entries and their significance to potential users of small business computers are explained in the following paragraphs, together with some useful guidelines for selecting the equipment that will most effectively meet your needs.

Data Formats

This section of the comparison charts describes the formats used to store and process data within each system.

Word length is the number of bits (binary digits) of data that can be stored in or retrieved from the internal storage unit during a single cycle. Some SBC's have a "fixed word length," meaning that each machine word or operand always has the same number of bits, digits, or characters. Others have a "variable word length," meaning that their operands may consist of a variable number of bits, digits, or characters. In the latter case, the "word length" entry shows the number of data bits used to represent each byte or character within the variable-length operands.

Digits per word is the number of decimal digits that can be represented within each machine word as defined above. At least four binary bits are required to represent each decimal digit, and in some systems six or eight bits are used.

Bytes (characters) per word is the number of alphanumeric characters that can be represented within each machine word as defined above. Most systems use either six or eight bits to represent each character.

Operand length is the length of each data element upon which such basic internal processing operations as addition and subtraction are performed. Fixed-word-length computers usually have an operand length of one word. For variable-word-length computers, the ranges of ▷

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▷ permissible operand lengths for addition and subtraction are shown.

Instruction length is the number of words (or bits) used to specify each operation to be performed by the system. In general, each instruction indicates the specific operation to be executed (add, multiply, move, print, etc.) and the storage locations of one or more of the operands involved.

CPU

Model indicates the manufacturer and model of the minicomputer used as the system's central processing unit (CPU). In some cases this entry will be identical with the entry at the top of the chart; however, in the case of a packaged turnkey system, the entries will differ.

Add time is the time required, in microseconds, to develop the arithmetic sum of two operands. It is a widely used measure of computer performance—but a figure that turns out to be of comparatively little importance in the selection of many SBC's. The reason is that the overall speed of many of these systems is largely determined by the operator's keying speed. Add times for the systems covered in our survey span the range from a few microseconds to more than half a second—yet in many applications the key question is still whether the operator can "beat the machine." If not, the machine is probably as fast as it needs to be for these keyboard-oriented business applications. (It should be noted that for larger equipment configurations, in applications where there are two or more operators at separate terminals or where the transaction data is prerecorded on cards, or tape, add times—and internal speeds in general— become highly significant considerations.)

Number of programmable registers. A register is a device that stores a small quantity of data (usually one word) and serves some special purpose. Most computers have one or more accumulators (in which arithmetic operations are performed), an instruction register, and a sequence counter. Multiple registers can facilitate programming and increase program execution speeds. In many small computers, reserved locations in internal storage, rather than special hardware elements, serve as registers in order to keep the cost down. The comparison charts show the number of programmable registers and their capacities in all cases where the manufacturers have released this information.

Number of I/O ports is an indication of the input/output capability and expandability of the system. Generally, each port allows the user to interface one peripheral device to the system, although multiple disks, CRT's or communication lines are often interfaced to one I/O port. Two numbers are given wherever possible, the first indicating the number of ports included on the basic system and the second showing the maximum number of ports that can optionally be included. Some of the figures are quite large and indicate that the vendors took into consideration the use of multiple-device interfaces and the

maximum number of terminal devices theoretically connectable. It should be noted that additional hardware, in the form of expansion chassis and power supplies, may have to be added to achieve the maximum I/O capability.

Internal Storage

One of the principal characteristics that distinguishes computers from adding machines and conventional accounting machines is the provision of an internal storage unit capable of holding and selectively retrieving a significant quantity of data and/or instructions. This section of the comparison charts describes each system's internal storage facilities.

Type indicates whether the system uses core or MOS (semiconductor) memory. Magnetic core storage has been widely used for more than a decade, and has proved to be fast, flexible, and reliable. Semiconductor storage, which is rapidly superseding core storage as the principal storage medium for large computers, is becoming quite popular in business minicomputers as well. When both types of memory are available for a system, we've made every attempt to denote the specifications for both.

Capacity of basic system specifies the amount of memory, in bytes, included in the basic system. The amount of internal storage is one of the most significant characteristics in appraising the power of any computer. The amount of productive processing that a computer can perform during any one run is largely determined by the number of instructions and/or operands it can hold.

Maximum capacity, bytes shows the largest memory size available for this model; *increment size, bytes* indicates the size of the memory modules that can be added to expand the basic system.

Cycle time, microseconds is the minimum time interval that must elapse between the starts of two successive accesses to any one storage location. The storage cycle time normally ranges with word length as one of the most significant individual indicators of a computer's performance potential. However, as discussed earlier, the throughput of the equipment covered in this report is frequently determined by the operator's keying speed rather than by the machine's internal performance.

Access time, microseconds is the actual elapsed time between the CPU's request for data and the time when that data is received (read). In core memory, the access time is usually one-half the cycle time; MOS memories do not display a similar relationship.

Mass Storage Capabilities

The inclusion of mass storage devices (magnetic disk units) can greatly increase the data storage and processing capabilities of a business data processing system. Disk units enable millions of characters of information to be ▷

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➤ constantly accessible to the computer. Moreover, any desired record can be retrieved, updated, and re-recorded on the disk, usually within a fraction of a second.

By replacing or augmenting slower, less flexible file storage media such as punched cards, paper tape, or magnetic ledger cards, disk units can enable small business computers to handle applications and processing volumes that would otherwise be impossible. The principal disadvantages of disk units are their comparatively high costs and the software complexities that are encountered by users who attempts to harness their full potential. One or both of these considerations may make disk units impractical for many small computer buyers, despite the obvious appeal of disk-oriented data processing.

The diskette, or "floppy disk," is an innovation that can significantly reduce the cost of disk-oriented data processing. The diskette itself consists of a flexible Mylar disk, about 8 inches in diameter, that is permanently housed in a plastic envelope. It can serve as an input/output and/or random-access storage medium that is considerably smaller in capability and slower in performance than conventional disk units—but also far lower in cost. Introduced by IBM in 1972, diskettes and diskette drive units are now being produced by dozens of vendors and are finding their way into numerous small business computer systems, such as the IBM System/32 and DEC Datasystem 310. Recent enhancements to the floppy disk concept include more concentrated data storage and "flippies" (floppy disks that utilize both sides of the diskette), allowing more data to be stored on-line.

The other, more conventional types of mass storage devices, cartridge and disk pack drives, provide access to far more data and at significantly faster rates. Unfortunately, they also carry price tags several times higher than their floppy counterparts. Most of these units employ cartridges or disk packs that can easily be removed from the drive units and interchanged in much the same manner as magnetic tape reels.

Some cartridge-type units either use nonremovable media or use two cartridges, one fixed and the other removable. Nonremovable disks impose two important limitations. First, the system's file storage capacity is effectively limited to the amount of information that can be stored on-line. Second, disk dumps to create backup files for efficient restart procedures in case of catastrophe are not available to the user.

Interchangeable disks, conversely, provide great flexibility and make it practical to use small business computers effectively for both sequential and random data processing applications. In sequential applications, files of virtually unlimited size can be handled through the use of multiple disk packs or cartridges.

Fixed-head (head-per-track) disk and drum units can provide much faster access to on-line data than any other type of mass storage device. The reason is that there is no loss of time due to head positioning because a head is provided for each track. The only delay is rotational delay (latency), or the time required for the desired data to move under the read/write head. But the price of this type of equipment is higher than that of the preceding varieties, and less data can be stored on-line. Fixed-head devices are used when data bases are relatively small and very rapid access to the information is required. Most SBC users are not faced with such demanding requirements, but for those who need them, the devices are offered by some vendors.

Entries in this section of the charts fall into four categories: *floppy disk drive, cartridge disk drive, pack disk drive,* and *fixed-head disk/drum.* The entries indicate which devices are standard on the basic system and which ones are optional or not available.

Some SBC's are not marketed as packaged systems; thus, the user is required to pick and choose the particular devices that best suit his needs. In this case, all peripherals are indicated as optional, and this should be reflected in a lower "basic system" price.

These entries also specify the maximum quantity of disk-stored information that is directly accessible to the computer at any one time. The indicated figure may be the capacity of a single disk drive or the total capacity of two or more (typically, four to eight) drives that can be connected to one controller. It is difficult to imagine an SBC user wanting more disk storage; but if an I/O slot is open, theoretically, another controller and its associated drives can be added.

Keyboard Input

The principal source of input to most small business computers is data keyed in by a human operator. Therefore, the keyboard facilities for on-line data entry deserve careful consideration. Entries denote whether each type of keyboard is standard on the basic system, optional, or not available.

Alphanumeric (typewriter) keyboard. Virtually all of the systems covered in our survey include a keyboard, arranged in the conventional typewriter format, that permits direct entry of both alphabetic and numeric information.

10-key numeric keyboard. A 10-key adding-machine-style keyboard, standard in many of the systems and optional in others, permits all-numeric data to be entered at considerably higher speeds than via a typewriter-style keyboard. The numeric keys are usually accompanied by control keys which activate various machine functions.

Full accounting keyboards, with multiple columns of 9 or 10 keys each, have nearly disappeared from the SBC field, though they are still available for a few machines. ➤

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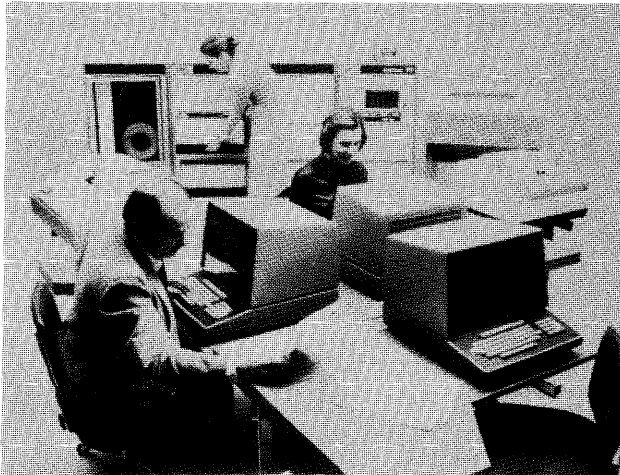
This GRI System 99 configuration includes the CPU with 64K bytes of memory, four 10.6-megabyte disk drives, one 9-track magnetic tape drive, three terminals with 1920-character screens, two serial printers, and a line printer. A basic System 99 including 32K bytes of memory, one 10.6-megabyte cartridge disk drive, one 100-cps matrix printer, and one 1920-character CRT is priced at $32,600.

Input/Output Devices

Many SBC's can be equipped with additional input/output devices such as a *paper tape reader, paper tape punch, punched card reader, punched card punch, punched card reader/punch, serial printer, line printer, reel-to-reel tape drive, cassette tape drive, cartridge tape drive, magnetic ledger card device,* and *CRT.* Chart entries depict which devices are standard on the basic system and which ones are optional or not available. Once again, non-packaged systems will have all the available I/O devices listed as optional. The comparison charts also indicate the rated speed, or range of speeds, available for each peripheral device wherever that information could be obtained.

Punched tape, punched cards, and magnetic tape can be used to store master file records or to accumulate previously recorded transaction data. It's worth noting that many of the paper tape readers and punches employed in these systems can also accommodate edge-punched cards, which represent an effective unit-record storage medium for many applications. Also, many tape drives in use on SBC's are now of the cassette or cartridge variety. Cassettes and cartridges offer increased convenience in that they can be transported and stored with little fear of damaging the data which has been recorded. What's more, price tags for cassette and cartridge drives are significantly lower than those of the more conventional reel-to-reel variety, but once again the trade-off of slower transfer rates and reduced on-line storage must be accepted.

Serial (character-at-a-time) printers are enjoying increased popularity with the prolific growth of the small business computer marketplace. The main reason is price; serial printers can provide excellent-quality hard-copy reports

for far less money than the line-at-a-time printers used with larger computers. However, for users who require faster printing capabilities, line printers are also available for many SBC's. Serial printers generally range in speed from about 30 to 600 or more characters per second (cps), while line printers operate at speeds of 100 to 2000 or more lines per minute (lpm). The user who needs faster printed output can obviously get it, but he must be willing to pay the higher price tag associated with the line printers.

Magnetic ledger cards have long been a popular input/output medium for business/accounting mini-computers, though they are now decreasing in popularity. Their principal attraction is that they enable small businesses to retain the individual, hard-copy ledger records they have long been accustomed to using. In addition, machine-readable data can be recorded on the cards, usually on one or more vertical magnetic "stripes." Identity and status information about each account can be recorded on the appropriate card in both printed and magnetically encoded form, and the encoded data can be re-read and updated whenever necessary. Thus, magnetic ledger cards combine many of the advantages of both traditional visible records and machine-readable media such as punched cards or magnetic tape. Their chief disadvantage is that the low speed of most of the available card-handling equipment precludes the use of magnetic ledger cards in high-volume data processing applications.

CRT's are becoming increasingly important to the small business computer. Many systems now include a CRT display and its associated keyboard as the principal means of entering data into the system. In fact, on many SBC's, one or more CRT/keyboard units represent the *only* way to enter data into the system. The comparison charts indicate the capacity of the CRT, in number of lines and characters per line, whenever possible.

Communications Capabilities

Communications capabilities enable some of the small business computers to function as "intelligent terminals" in data communications networks. An interface equips the small computer to send and receive data over a common-carrier communications link, usually to a larger central computer installation. The small computer's internal processing and storage capabilities enable it to do some data processing locally and to handle a variety of code translation, editing, and control functions in connection with the data communications activities.

Maximum no. of lines indicates how many communications lines can be handled by a particular system. The types of lines are specified in the next two entries.

Synchronous and *asynchronous* have entries of standard, optional, or no, indicating their availability, and also a notation as to the speed of each line in bits per second (bps). Most entries will be of the type "to 4800 bps," ▷

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indicating one or more transmission speeds up to a maximum of 4800 bps.

Software Support

Virtually as important as the computer hardware are the software and technical support each manufacturer furnishes to aid the user in utilizing the hardware effectively. The available software (if any), together with the pricing policies for both software and support, are summarized in this section of the comparison charts.

COBOL (COmmon Business Oriented Language), *RPG* (Report Program Generator), *FORTRAN* (FORmula TRANslator), and *BASIC* (Beginners All-purpose Symbolic Instruction Code) entries specify whether a particular compiler is available or not.

A *compiler* is a software tool designed to 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 the small business computers. This trend is possible because of the more powerful central processors now being used, since compilation is an intricate process that requires more storage space and processing power than the earlier small business computers provided. Where compilers are offered, however, they frequently limit the programmer to restricted subsets of the standard programming languages and/or require the use of a larger computer to perform the compilation process.

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 own program 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 or, in some cases, a macro assembler.

A macro assembler is another software tool to aid the programmer and make his job a little easier. Macro routines can be called by the programmer and copied right into his program. This saves the programmer from having to recode the routine each time it is used and also eliminates the possibility of keying errors when that part of the program is entered. As usual, there is a price to pay: the use of macros usually wastes memory space.

Other programming languages specifies languages such as ALGOL, SNOBOL, or proprietary languages that are available from a vendor for use on a particular SBC. The key word of warning here is that if you use a language

that is unique to a vendor, you will be faced with a big problem if someday you decide to change vendors. Your investment in software will be lost, since the programs will not operate on any other system without extensive conversion work.

Multiprogramming gives an indication as to the power of the small business computer. Entries here stipulate yes or no, and, if multiprogramming is available, the number of partitions in memory. Multiple partitions allow for concurrent operation of several programs, thus permitting more processing to be accomplished in less time.

Some responses indicate the actual number of hardware partitions, generally two or three, while other responses are geared to the number of independent jobs that can be functioning at one particular time. The difference lies in the fact that multiple jobs may be able to function within the same partition. Although the responses differ, they are all important and help to describe the overall capabilities of the systems.

Language implemented in firmware and *operating system implemented in firmware* tell the reader whether or not the language processor and/or the operating system are contained in microcode. The entries stipulate yes, partially, or no to indicate the extent of firmware implementation. An advantage to the user is that a language and/or operating system implemented in firmware frees up more memory space for the user's programs and data. Also, the microcode is usually inaccessible to the user (generally contained in read-only memory), eliminating any possible tampering with the language processor or operating system and reducing chances for error. A third advantage derived from firmware implementation is the ability to create more sophisticated and complex system functions at the hardware level. Microcode routines can be substituted for often-used subroutines, thereby increasing system performance.

General accounting packages indicates the availability of already-written software to handle the normal accounting functions of a company. The most common business functions include payroll, accounts payable, accounts receivable, inventory control, and general ledger accounting. If available, and if these programs can be tailored to meet the requirements of a particular company, they will allow the user to become operational in far less time and at a substantial saving in software development costs.

Industry application areas denotes specific areas where each vendor specializes. Turnkey vendors often take one segment of the marketplace and develop in-house expertise to the point that their hardware and software combination becomes a ready-made answer to the problems of a large class of users. Some current areas of specialization include hospitals, automobile dealers, the distribution industry, trucking firms, and the financial industry. If the vendor's specialized software can be tailored to the user's exact needs, or if the user can learn ▷

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▷ to live within the constraints of the existing software, thousands of dollars worth of programming effort can be saved. A library of pertinent applications programs can be a valuable asset when selecting an SBC. Space precludes a complete listing of available applications software in the charts, so the entries attempt to summarize and present the vendor's areas of heaviest concentration.

The availability of a *data base management system* is becoming more important to users of small business computers. A DBMS is a software system that is intended to manage and maintain data in a nonredundant structure for the purpose of being processed by multiple applications. It organizes data elements in some predefined structure and retains relationships between different data elements within the data base. The main advantage to the user of a data base management system is that information retrieval and report generation are made much easier with one common data base.

File access methods supported tells the user which methods are supported by the software available for a particular system. The entries include random, sequential, indexed sequential, and direct access. These four file access methods are the most popular, but there are others in use. In most instances it is desirable to have several access methods supported so that you can choose the one most suitable for each application.

Software separately priced tells whether the software described in the preceding entries, and any other available software, is included in the equipment price or offered at some additional cost. Some systems have the entry "some," which usually indicates that the company provides the operating systems and language processors bundled with the hardware, but charges for applications software packages. Separate pricing of software was virtually unheard of in the computer field until June 1969, when IBM "unbundled" by placing separate price tags on many of its software products and professional services. Since then, the various manufacturers have adopted a wide range of software pricing policies. Separate pricing of software, of itself, is neither good nor bad; the buyer must carefully assess the cost of the total package consisting of the equipment and all the software and support his installation will require.

Technical help separately priced indicates whether the services of the manufacturer's technical support staff are included in the equipment cost or separately priced. Nearly every company that is installing a computer for the first time will need a good deal of help from the equipment maker's systems analysts, programmers, and/or instructors (or, alternatively, from an independent consulting firm). In fact, the equipment supplier does *all* the programming for the majority of small business computer installations (more than 90 percent, in the case of one major supplier). The additional cost of these services, if any, should be carefully estimated and considered in all equipment comparisons.

Pricing and Availability

Purchase price of basic system shows the minimum purchase price of a system equipped to perform basic business data processing functions. All of the facilities identified as "standard" in the charts (but none of the "optional" ones) are included in the listed prices. The addition of expanded storage capacities or optional input/output capabilities can lead to large price increases in nearly every case. Any additional information about the basic system or packaged system (if one exists) not covered in specific chart entries appears in the *Comments* section. For detailed pricing information, the manufacturers should be contacted directly.

Monthly rental of basic system specifies the monthly rental for the basic configuration of each system, as described above. All rental prices are based on a one-year lease and include equipment maintenance unless otherwise indicated. Longer-term leases are frequently available at lower monthly charges. Some systems are not available on a rental basis from the vendor and are so specified by an entry of "purchase only." In such cases, a prospective user can nearly always obtain a full-payout lease for the SBC of his choice from an independent leasing firm.

Date of first U.S. delivery tells when the first production models of each system were delivered (or are scheduled to be delivered) to customers in the United States.

Number installed in U.S. to date shows how many systems of each type had been delivered to U.S. customers as of approximately June 30, 1978. Nearly all of the figures were supplied by the manufacturers themselves.

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, or applications.

Suppliers

Listed below, for your convenience in obtaining additional information, are the full names, addresses, and telephone numbers of the 84 suppliers whose products are listed in the comparison charts that follow.

Advanced Information Design, 1240 Elko Drive, Sunnyvale, California 94022. Telephone (408) 744-0900.

A. K. Industries, P.O. Box 286, Skippack, Pennsylvania 19474. Telephone (215) 659-2510.

Applied Data Communications, 1509 East McFadden, Santa Ana, California 92705. Telephone (714) 547-6954.

Applied Data Processing, Inc., 33 Bernhard Road, North Haven, Connecticut 06473. Telephone (203) 787-4107. ▷

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The System/4 from Decision Data includes 48K bytes of main memory, 2 megabytes of floppy disk storage, and a 1920-character CRT terminal in its basic configuration. The memory capacity can be expanded to 64K bytes. Options include up to 40 megabytes of cartridge disk storage, punched card devices, and line printers with speeds up to 600 lpm. The basic system price is $22,000.

▷ *Applied Digital Communications*, 214 West Main Street, Moorestown, New Jersey 08057. Telephone (609) 234-3666.

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

J. Baker & Associates, 5135 West Golf Road, Skokie, Illinois 60076. Telephone (312) 677-9760.

Basic/Four Corporation, 14101 Myford St. Road, Tustin, California 92680. Telephone (714) 731-5100.

Binary Data Systems, Inc., 88 Sunnyside Boulevard, Plainview, New York 18803. Telephone (516) 822-1585.

BTI Computer Systems, 650 North Mary Avenue, Sunnyvale, California 94086. Telephone (408) 733-1122.

Burroughs Corporation, Burroughs Place, Detroit, Michigan 48232. Telephone (313) 972-7000.

Business Controls Corporation, 507 Boulevard, Elmwood Park, New Jersey 07407. Telephone (201) 791-7661.

Business Systems Products, Inc., 16782 Red Hill Avenue, Irvine, California 92714. Telephone (714) 957-1851.

Cado Systems Corporation, 2730 Monterey Street, Torrance, California 90503. Telephone (213) 320-9660.

CDA, Inc., 470 Commercial Avenue, Palisades Park, New Jersey 07650. Telephone (201) 944-2500.

Century Computer Corporation, 1601 North Main Street, Walnut Creek, California 94596. Telephone (415) 798-8000.

Cincinnati Milacron, Electronic Systems Division, Mason/Marrow Road, Lebanon, Ohio 45036. Telephone (513) 494-1200.

Complete Computer Systems, 159 Gibraltar Road, Prudential Business Campus, Horsham, Pennsylvania 19044. Telephone (215) 441-4200.

Compucorp, 1901 South Bundy Drive, Los Angeles, California 90025. Telephone (213) 820-2503.

Compudata Systems, Inc., 772 Post Road East (East State Street), Westport, Connecticut 06880. Telephone (203) 226-4791.

Computer Automation, Inc., 18651 Von Karman Avenue, Irvine, California 92664. Telephone (714) 833-8830.

Computer Covenant Corporation, 749 Farmington Avenue, Farmington, Connecticut 06032. Telephone (203) 667-6563.

Computer Hardware, Inc., 4111 North Freeway Boulevard, Sacramento, California 95834. Telephone (916) 929-2020.

Computer Horizons Corporation, 375 Sylvan Avenue, Englewood Cliffs, New Jersey 07632. Telephone (212) 371-9600.

Computer Interactions, Inc., P.O. Box 1354, Roslyn Heights, New York 11577. Telephone (516) 365-9833.

Control Data Corporation, P.O. Box 0, Minneapolis, Minnesota 55440. Telephone (616) 853-4656.

Corstar Business Computing Co., Inc., One Aqueduct Road, White Plains, New York 10606. Telephone (914) 428-5550.

Data Communications Corp., Minicomputer Division, 3000 Directors Row, Memphis, Tennessee 38131. Telephone (901) 345-3544.

Data General Corporation, Route 9, Southboro, Massachusetts 01581. Telephone (617) 366-8911.

Datapoint Corporation, 9725 Datapoint Drive, San Antonio, Texas. Telephone (512) 690-7000.

Decision Data Computer Corporation, 100 Witmer Road, Horsham, Pennsylvania 19044. Telephone (215) 674-3300.

Diablo Systems Inc., 1270 East Arques Avenue, Sunnyvale, California 94086. Telephone (408) 733-2300.

Digital Computer Controls, Inc., 12 Industrial Road, Fairfield, New Jersey 07006. Telephone (201) 575-9100.

Digital Equipment Corporation (DEC), Parker Street, PK 3-2, Maynard, Massachusetts 01754. Telephone (617) 897-5111.

Digital Scientific Corporation, 11455 Sorrento Valley Road, San Diego, California 92121. Telephone (714) 453-6050.

Digital Systems Corporation, P.O. Box 396, Walkersville, Maryland 21793. Telephone (301) 845-4141.

Dimis, Inc., 1060 Highway 35, Middletown, New Jersey 07748. Telephone (201) 671-1011.

Display Data Corporation, Executive Plaza IV, Hunt Valley, Maryland 21031. Telephone (301) 667-9211. ▷

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▷ *Distribution Management Systems Inc.*, 11 DeAngelo Drive, Bedford, Massachusetts 01730. Telephone (617) 275-2000.

Financial Computer Corporation, 412 West Redwood Street, Baltimore, Maryland 21201. Telephone (301) 837-9510.

Four-Phase Systems, Inc., 19333 Vallco Parkway, Cupertino, California 95014. Telephone (408) 255-0900.

General Information Systems, Inc., P.O. Box 17388, Irvine, California 92713. Telephone (714) 834-0220.

General Robotics Corporation, 57 West Main Street, Hartford, Wisconsin 53027. Telephone (414) 673-6800.

GRI Computer Corporation, 320 Needham Street, Newton, Massachusetts 02164. Telephone (617) 969-0800.

Harris Corporation, Computer Systems Division, 1200 Gateway Drive, Fort Lauderdale, Florida 33309. Telephone (305) 974-1700.

Hewlett-Packard, Data Systems Division, 11000 Wolfe Road, Cupertino, California 95014. Telephone (408) 257-7000.

Hewlett-Packard, Desktop Computer Division, P.O. Box 1550, Fort Collins, Colorado 80522. Telephone (303) 226-3800.

Hewlett-Packard, GSD Division, 5303 Stevens Creek Road, Santa Clara, California 95050. Telephone (408) 249-7020.

Honeywell Information Systems Inc., Small/Medium Information Systems Division, 300 Concord Road, Billerica, Massachusetts 08121. Telephone (617) 667-3111.

IBM Corporation, General Systems Division, P.O. Box 2150, Atlanta, Georgia 30301. Telephone (404) 256-7000.

ICL, Inc., Turnpike Plaza, 197 Highway 18, 3rd Floor, East Brunswick, New Jersey 08816. Telephone (201) 246-3400.

Infotecs Computer Systems, One Perimeter Road, Manchester, New Hampshire 03103. Telephone (603) 668-6750.

Jacquard Systems, 1639 11th Street, Santa Monica, California 90404. Telephone (201) 575-8100.

Katcard Systems Ltd., Suite 306, 376 Churchill Avenue, Ottawa, Ontario, Canada K1Z 5C3. Telephone (613) 731-8432.

Keydata Corporation, 20 William Street, Wellesley, Massachusetts 02181. Telephone 237-6930.

Litton Industries, Inc., Sweda International Division, 34 Maple Avenue, Pine Brook, New Jersey 07058. Telephone (201) 575-8100.

Lockheed Electronics Company, Inc., Data Technology Division, U.S. Highway 22, Plainfield, New Jersey 07061. Telephone (201) 757-1600.

Logical Machine Corporation, 1294 Hammerwood Avenue, Sunnyvale, California 94086. Telephone (408) 744-1290.

Microdata Corporation, 17481 Red Hill Avenue, Irvine, California 92705. Telephone (714) 540-6730.

Mini-Computer Systems, Inc., 525 Executive Boulevard, Elmsford, New York 10523. Telephone (914) 592-8812.

Minuteman Computer Corporation, 230 Second Avenue, Waltham, Massachusetts 02154. Telephone (617) 890-4070.

Mylee Digital Sciences, Inc., 155 Weldon Parkway, Maryland Heights, Missouri 63043. Telephone (314) 567-3420.

NCR Corporation, Main and K Streets, Dayton, Ohio 45409. Telephone (513) 449-2000.

Nixdorf Computer Inc., 168 Middlesex Turnpike, Burlington, Massachusetts 01803. Telephone (617) 273-0480.

Northrop Data Systems, 19000 South Vermont Avenue, Torrance, California 90502. Telephone (213) 637-1533.

Olivetti Corporation of America, 500 Park Avenue, New York, New York 10022. Telephone (212) 371-5500.

Philips Business Systems, Inc., 175 Froelich Farm Boulevard, Woodbury, New York 11797. Telephone (516) 921-9310.

Prime Computer, Inc., 40 Walnut Street, Wellesley Hills, Massachusetts 02181. Telephone (617) 237-6990.

Programmed Control Corporation, 2 East Broad Street, Hopewell, New Jersey 08525. Telephone (609) 466-2100.

QI Corporation, 6 Dubon Court, Farmingdale, New York 11735. Telephone (516) 543-7800.

Qantel Corporation, 3525 Breakwater Avenue, Hayward, California 94545. Telephone (415) 783-3410.

Quodata Corporation, 196 Trumbull Street, Hartford, Connecticuit 06103. Telephone (203) 728-6777.

Randal Data Systems, Inc., 365 Maple Avenue, Torrance, California 90503. Telephone (213) 320-8550.

Raytheon Data Systems Company, 1415 Boston-Providence Turnpike, Norwood, Massachusetts 02062. Telephone (617) 762-6700.

Span Management Systems, 1 Catamore Boulevard, East Providence, Rhode Island 02914. Telephone (401) 438-2200.

Sperry Univac Division, Sperry Rand Corporation, P.O. Box 500, Blue Bell, Pennsylvania 19424. Telephone (215) 542-4011.

STC Systems, Inc., E-210 Route 4, Paramus, New Jersey 07652. Telephone (201) 843-0560.

Sycor, Inc., 100 Phoenix Drive, Ann Arbor, Michigan 48104. Telephone (313) 995-8527.

Systems Approach, Ltd., 1257 Alzoma Road, Ottawa, Canada. Telephone (613) 741-9500.

Tal-Star Computer Systems, Inc., P.O. Box T-100, Princeton Junction, New Jersey 08550. Telephone (609) 799-1111.

Tandem Computers, Inc., 19333 Vallco Parkway, Cupertino, California 95014. Telephone (408) 996-6000.

Terak Corporation, 14405 North Scottsdale Road, Suite 100, Scottsdale, Arizona 85260. Telephone (602) 991-1580.

Wang Laboratories, Inc., 836 North Street, Tewksbury, Massachusetts 08176. Telephone (617) 851-4111.

Warrex Computer Corporation, 12505 North Central Expressway, Dallas, Texas 75243. Telephone (214) 233-8400.□

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MANUFACTURER & MODEL	Advanced Information Design System 2000 Model 40	Advanced Information Design System 2000 Model 80	Advanced Information Design System 3000 Model 60	Advanced Information Design System 4000 Model 80	Advanced Information Design System 5000 Model 60
DATA FORMATS					
Word length, bits	16	16	16	32	16
Decimal digits per word	8	8	8	16	8
Bytes (characters) per word	2	2	2	4	2
Operand length, words	¼-2	¼-2	¼-2	¼-2	¼-2
Instruction length, words	1, 2	1, 2	1, 2	½-1	1, 2
CPU					
Model	Interdata 5/16	Interdata 5/16	Interdata 6/16	Interdata 7/32	Interdata 8/16E
Add time, microseconds	0.9	0.9	0.9	1.0	0.85
No. of programmable registers	16	16	16	32	16
No. of I/O ports on basic system and maximum	2-256	2-256	2-256	2, 1024	2-256
INTERNAL STORAGE					
Type	MOS	MOS	MOS	Core	Core
Capacity of basic system, bytes	32K	32K	32K	128K	32K
Maximum capacity, bytes	256K	256K	256K	2048K	256K
Increment size, bytes	16, 32, 64K	16, 32, 64K	16, 32, 64K	32, 64K	16, 32, 64K
Cycle time, microseconds	0.6	0.6	0.6	0.75	0.75
Access time, microseconds	0.3	0.3	0.3	0.35	0.35
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; (4) 4.8M bytes	Opt.; (4) 4.8M bytes	Opt.; (4) 4.8M bytes	Opt.; (4) 4.8M bytes	Opt.; (4) 4.8M bytes
Cartridge disk drive	Opt.; (4) 40M bytes	Opt. (4) 128M bytes	Std.; (4) 40M bytes	Opt.; (4) 128M bytes	Std.; (4) 40M bytes
Pack disk drive	Opt.; (4) 200M bytes	Std.; (4) 1200M bytes	Opt.; (4) 200M bytes	Std.; (4) 1200M bytes	Opt.; (4) 1200M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	Standard	Standard	Standard	Standard	Standard
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 3000 cps
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps
Punched card reader	Opt.; 400-1000 cpm	Opt.; 400-1000 cpm	Opt.; 400-1000 cpm	Opt.; 400-1000 cpm	Opt.; 400-1000 cpm
Punched card punch	Opt.; 100 cpm	Opt.; 100 cpm	Opt.; 100 cpm	Opt.; 100 cpm	Opt.; 100 cpm
Punched card reader/punch	Optional	Optional	Optional	Optional	Optional
Serial printer	Opt.; 165 cps	Opt.; 165 cps	Opt.; 165 cps	Std.; 165 cps	Opt.; 165 cps
Line printer	Opt.; 200-1200 lpm	Opt.; 200-1200 lpm	Opt.; 200-1200 lpm	Opt.; 200-1200 lpm	Opt.; 200-1200 lpm
Reel-to-reel tape drive	Opt.; 800/1600 bpi	Opt.; 800/1600 bpi	Opt.; 800/1600 bpi	Opt.; 800/1600 bpi	Opt.; 800/1600 bpi
Cassette tape drive	Optional	Optional	Optional	Optional	Optional
Cartridge tape drive	Optional	Optional	Optional	Optional	Optional
Magnetic ledger card device	Optional	Optional	Optional	Optional	Optional
CRT	Std.; up to 1920 char.	Std.; up to 1920 char.	Std.; up to 1920 char.	Std.; up to 1920 char.	Std.; up to 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	32	32	32	128	64
Synchronous	Opt.; to 3000 bps	Opt.; to 3000 bps	Opt.; to 3000 bps	Opt.; to 3000 bps	Opt.; to 3000 bps
Asynchronous	Std.; to 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps
Protocols supported	IBM 2780/3780/SDLC	IBM 2780/3780/SDLC	IBM 2780/3780/SDLC	IBM 2780/3780/SDLC	IBM 2780/3780/SDLC
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	Yes
RPG	Yes	Yes	Yes	Yes	Yes
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes (IBM 370 type)
Assembler	Yes (IBM 370 type)	Yes (IBM 370 type)	Yes (IBM 370 type)	Macro assembler	Macro assembler
Other programming languages	Macro assembler	Macro assembler	Macro assembler	No	Yes (24 partitions)
Multiprogramming	Yes (3 partitions)	Yes (3 partitions)	Yes (3 partitions)	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes (integrated sys.)	Yes	Yes	Yes	Yes
Industry application areas	Dist., mfg., CPA's, retail ops., word proc.	Dist., mfg., CPA's, retail ops., word proc.	Dist., mfg., CPA's, retail ops., word proc.	—	Dist., mfg., CPA's, retail ops., word proc.
Data base management system	Yes	Yes	Yes	No	Yes
File access methods supported	Random, sequential, index seq., hashed	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	No	No	No	Yes	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$15,800	$37,800	$22,800	$75,000	$27,980
Monthly rental of basic system, $	$290 (60 mo. lease/purch.)	$690 (60-mo. lease/purch.)	$420 (60-mo. lease/purch.)	$1,380 (60-mo. lease/purch.)	$520 (60-mo. lease/purch.)
Date of first U.S. delivery	March 1975	February 1976	September 1975	—	October 1977
Number installed in U.S. to date	45	45	45	NA	NA
COMMENTS	Price includes terminal, 5/16 CPU, two 640K-byte floppy disks, BASIC, time-sharing OS supporting up to 40 users, detached tasks, virtual arrays, etc.	Price includes terminal, 5/16 CPU, two 50M-byte disk packs, BASIC, time-sharing OS supporting up to 40 users, detached tasks, virtual arrays	Price includes terminal, 6/16 CPU, one 20M-byte disk, BASIC, time-sharing OS supporting up to 40 users, detached tasks, virtual arrays	Price includes terminal, 7/32 CPU, two 50M-byte disk drives, OS supporting multiple users and jobs	Price includes terminal, 8/16E CPU, one 20M-byte disk, BASIC, time-sharing OS supporting up to 80 users, detached tasks, virtual arrays

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Advanced Information Design System 5000 Model 80	Advanced Information Design System 6000 Model 80	A.K. Industries Inc. AKI-91	Applied Data Communications Event 1000	Applied Data Communications Event 2000
DATA FORMATS					
Word length, bits	16	32	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	8	16	2 per byte	1 per byte	1 per byte
Bytes (characters) per word	2	4	1 per byte	1 per byte	1 per byte
Operand length, words	¼-2	¼-2	1-2 bytes	1 byte	1 byte
Instruction length, words	1, 2	½-1	1-3 bytes	1-3 bytes	1-3 bytes
CPU					
Model	Interdata 8/16E	Interdata 8/32	8080A	Intel 8080A	Intel 8080A
Add time, microseconds	0.75	0.6	—	2 (1 byte)	2 (1 byte)
No. of programmable registers	16	128	7	7	7
No. of I/O ports on basic system and maximum	2-256	2, 1024	256	1; 256	1; 256
INTERNAL STORAGE					
Type	Core	Core (Cache memory)	MOS	MOS	MOS
Capacity of basic system, bytes	32K	128K	32K	48K	65K
Maximum capacity, bytes	256K	2048K	64K	65K	65K
Increment size, bytes	16, 32, 64K	32, 64K	4K	16K	16K
Cycle time, microseconds	0.75	0.75	0.5	2	2
Access time, microseconds	0.35	0.35	0.45	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; (4) 4.8M bytes	Opt.; (4) 4.8M bytes	No	2 std.; 8 opt.	2 std.; 8 opt.
Cartridge disk drive	Opt.; (4) 128M bytes	Opt.; (4) 128M bytes	No	4 of 10M bytes ea.	4 of 10M bytes ea.
Pack disk drive	Std.; (4) 1200M bytes	Std.; (4) 1200M bytes	Std.; 80M bytes	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Teleprinter or CRT	Teleprinter or CRT
10-key numeric keyboard	Standard	Standard	Standard	Optional	Optional
Full accounting keyboard	Standard	Standard	No	Optional	Optional
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 300 cps	No	Optional; 300 cps	Optional; 300 cps
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	No	Optional; 75 cps	Optional; 75 cps
Punched card reader	Opt.; 400-1000 cpm	Opt.; 400-1000 cpm	No	No	No
Punched card punch	Opt.; 100 cpm	Opt.; 100 cpm	No	No	No
Punched card reader/punch	Optional	Optional	No	No	No
Serial printer	Opt.; 165 cps	Std.; 165 cps	Std.; 165 cps	Opt.; to 1200 cps	Opt.; to 1200 cps
Line printer	Opt.; 200-1200 lpm	Opt.; 200-1200 lpm	Opt.; 125-600 lpm	Opt.; to 1400 lpm	Opt.; to 1400 lpm
Reel-to-reel tape drive	Opt.; 800/1600 bpi	Opt.; 800/1600 bpi	No	Opt.; to 8 units	Opt.; to 8 units
Cassette tape drive	Opt.	Optional	No	No	No
Cartridge tape drive	Opt.	Optional	No	Opt.; to 8 units	Opt.; to 8 units
Magnetic ledger card device	Opt.	Optional	No	No	No
CRT	Std.; up to 1920 char.	Std.; up to 1920 char.	Std.; 24 x 80 char.	Std.; 1024/1920 char.; opt. 8 units	Std.; 1024/1920 char.; opt. 8 units
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	64	128	8	8	8
Synchronous	Opt.; to 3000 bps	Opt.; to 3000 bps	Opt.; to 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	Std.; to 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps	Opt.; 19.2K bps	Opt.; 19.2K bps
Protocols supported	IBM 2780/3780/SDLC	IBM 2780/3780/SDLC	IBM 2780	Bisync.	Bisync.
SOFTWARE SUPPORT					
COBOL	Yes	Yes	No	No	No
RPG	Yes	Yes	No	No	No
FORTRAN	Yes	Yes	No	No	No
BASIC	Yes	Yes (IBM 370 comp.)	Yes	MicroDOS/BASIC	MicroDOS/BASIC
Assembler	Yes (IBM 370 type)	Macro assembler	Yes	Yes	Yes
Other programming languages	Macro assembler	No	None	None	None
Multiprogramming	Yes; (24 partitions)	Yes; mult. partitions	Yes; 2 partitions	Yes; 8 partitions	Yes; 8 partitions
Language implemented in firmware	No	No	Partially	No	No
Operating system implemented in firmware	No	No	Partially	Partially (opt.)	Partially (opt.)
General accounting packages	Yes (integrated)	No	Yes	Yes	Yes
Industry application areas	Dist., mfg., CPAs, word proc., prop. mgt.	—	Inventory	None currently	None currently
Data base management system	Yes	Yes	No	Yes	Yes
File access methods supported	Random, indexed, index seq., hashed	Random, sequential, index sequential	Random, sequential, index sequential	Random, index seq., sequential	Random, index seq., sequential
Software separately priced	Yes	Yes	No	Yes	Yes
Technical help separately priced	Yes	Yes	No	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$42,800	$125,000	$30,000	$10,300	$10,300
Monthly rental of basic system, $	$790 (60-mo. lease/purch.)	$2300 (60-mo. lease/purch.)	$600	—	—
Date of first U.S. delivery	October 1977	January 1979	August 1976	September 1978	September 1978
Number installed in U.S. to date	45	NA	NA	NA	NA
COMMENTS	Price includes terminal, 8/16E CPU, two 50M-byte disk drives; BASIC and time-sharing system to support up to 80 users has detached tasks, virtual arrays	Price includes terminal, 8/32 CPU, two 50M-byte disk drives, OS/32 MT OS to support multiple users and jobs	Turnkey system; does not require data processing professional for operation	Includes microprocessor with 84K RAM, 1K PROM, dual single-density floppy disks, 60-cps teleprinter, and workstation desk	Same configuration as Event 1000 —

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Applied Data Communications Event 3000	Applied Data Processing Resource/100	Applied Digital Communications 102	Applied Digital Communications 103	Applied Digital Communications 202
DATA FORMATS					
Word length, bits	8-bit byte	16	16	16	16
Decimal digits per word	1 per byte	2	2	2	2
Bytes (characters) per word	1 per byte	2	2	2	2
Operand length, words	1 byte	Variable	Up to 4	1	4
Instruction length, words	1-3 bytes	1	1	1	1
CPU					
Model	Intel 8080A	DG Nova 3	DG MicroNova	Interdata 5/16	DG Nova 3
Add time, microseconds	2 (1 byte)	1.35 (1 word)	2.4 (1 word)	1.2	1.2
No. of programmable registers	7	4	8	16	8
No. of I/O ports on basic system and maximum	1; 256	8; 16	9; 18	1; 256	12 Std.;
INTERNAL STORAGE					
Type	MOS	Core	MOS RAM	MOS RAM	MOS RAM
Capacity of basic system, bytes	65K	64K	64K	64K	64K
Maximum capacity, bytes	65K	256K	64K	64K	256K
Increment size, bytes	16K	32K	—	8K	16K
Cycle time, microseconds	2	1.0	—	0.6	—
Access time, microseconds	—	0.5	0.160	0.4	0.16
MASS STORAGE CAPABILITIES*					
Floppy disk drive	2 std.; 8 opt.	No	2 std.; 6 max.	2 std.	Optional
Cartridge disk drive	4 of 10M bytes ea.	No	Opt. 10M bytes	—	10M bytes std.
Pack disk drive	No	Std., 320M bytes	—	—	—
Fixed-head disk/drum	No	No	—	—	—
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Teleprinter or CRT	Standard	Standard	Standard	Standard
10-key numeric keyboard	Optional	Optional	Standard	Standard	Standard
Full accounting keyboard	Optional	Yes	—	—	—
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional; 300 cps	Optional	Optional	Optional	Optional
Paper tape punch	Optional; 75 cps	Optional	Optional	Optional	Optional
Punched card reader	No	Optional	Optional	Optional	Optional
Punched card punch	No	Optional	Optional	Optional	Optional
Punched card reader/punch	No	Optional	Optional	Optional	Optional
Serial printer	Opt.; to 1200 cps	Std.; 165, 330 cps	Std.; 120 cps	Std.; 120 cps	Std.; 120 cps
Line printer	Opt.; to 1400 lpm	Opt.; 300, 600 lpm	Optional	Opt.; 600 lpm	Opt.; to 600 lpm
Reel-to-reel tape drive	Opt.; to 8 units	Optional	—	Optional	Optional
Cassette tape drive	No	No	—	Optional	—
Cartridge tape drive	Opt.; to 8 units	No	—	—	—
Magnetic ledger card device	No	No	—	—	—
CRT	Std.; 1024/1920 char.; opt. 8 units	Standard; 27 x 74 char.	Standard; 1920 char.	Standard; 1920 char.	Standard; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8	7	—	256	64
Synchronous	Opt.; 9600 bps	No	—	Opt.	—
Asynchronous	Opt.; 19.2K	Std., 1200 bps	—	Opt.	—
Protocols supported	Bisync	IBM 2780	IBM 2780/3870, HASP II	IBM 2780, HASP	IBM 2780/3780, HASP II
SOFTWARE SUPPORT					
COBOL	No	No	Yes	No	Yes
RPG	No	No	No	No	No
FORTRAN	No	No	Yes	Yes	Yes
BASIC	MicroDOS/BASIC	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	None	Extended BASIC	—	No	Algol
Multiprogramming	Yes; 8 partitions	Yes	Yes	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	Partially (opt.)	No	No	Partially	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	None currently	Yes, dist., mfg.	Manufacturing	—	Restaurant, mfg.
Data base management system	Yes	Yes	No	No	No
File access methods supported	Random, index seq., sequential	Random, sequential, index sequential	Random, index sequential	Random, sequential	Random, sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$10,300	$39,300	$23,750	$22,645	$31,500
Monthly rental of basic system, $	—	$865	—	—	—
Date of first U.S. delivery	September 1978	June 1976	1978	1978	1978
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Same configuration as Event 1000	Resource/100 Extended Operating Systems are said to meet 95% of most users' needs for business applications	For accounting, manufacturing, distribution, etc.; price includes accounting software	Accounting system	Same as Model 102, but faster, greater capacity; price includes accounting software

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Applied Digital Communications 400	Applied Digital Communications 401	Applied Systems Corp. ASC 80	J. Baker & Associates Distribution System 11/03	J. Baker & Associates Distribution System
DATA FORMATS					
Word length, bits	12	16	8, 16	16	16
Decimal digits per word	2	2	1, 2	2	2
Bytes (characters) per word	2	2	1	2	2
Operand length, words	1	1	1, 2	1	1
Instruction length, words	1	1	1, 2, 3	1-3	1-3
CPU					
Model	DEC PDP-8	Interdata 8/16E	Intel 8080/85	DEC PDP-11/03	DEC PDP-11/34
Add time, microseconds	1	0.75 (½ word)	2.0	7.7 (1 word)	4.9 (1 word)
No. of programmable registers	0	16	7	8	8
No. of I/O ports on basic system and maximum	Unibus	4, 256	4 to 64	3; 16	3; 32
INTERNAL STORAGE					
Type	MOS, Core	Core	MOS	MOS	MOS, core
Capacity of basic system, bytes	8K	64K	4 to 64K	32K	128K
Maximum capacity, bytes	32K	256K	64K plus	56K	256K
Increment size, bytes	4K	8	4K	8K	32K
Cycle time, microseconds	1	0.75	0.5	—	0.51
Access time, microseconds	1	0.275	0.5	—	1.00
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 4—1M bytes	Optional	Opt.; 300K/500K	Opt.; 1024K bytes	Opt.; 512K bytes
Cartridge disk drive	Optional	Std.; 10M bytes	Opt.; RPQ	Std.; 4.8M bytes	Std.; 14M bytes
Pack disk drive	Optional	—	Opt.; RPQ	No	No
Fixed-head disk/drum	Optional	—	Opt.; 15M bytes	No	Opt.; 2M bytes
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Optional	Standard	Standard
Full accounting keyboard	Optional	—	Optional	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Standard	Standard	Opt.; 300	No	Opt.; 300 cps
Paper tape punch	Standard	Standard	Opt.; 100 cps	No	Opt.; 50 cps
Punched card reader	—	Optional	Opt.; 200 cpm	No	Opt.; 1200 cpm
Punched card punch	—	Optional	Opt.; 100 cpm	No	No
Punched card reader/punch	—	Optional	RFQ	No	Opt.; 285 cpm
Serial printer	Std.; 120 cps	Std.; 120 cps	Opt.; to 30 cps	Std.; 180 cps	Opt.; 30 cps
Line printer	Opt.; to 600 lpm	Opt.; 600 lpm	Opt.; 100/300 lpm	Std.; 230, 300 lpm	Opt.; 230, 300 lpm
Reel-to-reel tape drive	Opt.; DECtape	Optional	Opt.; RFQ	No	Opt.; 9 KBS
Cassette tape drive	—	Optional	Optional	No	Opt.; 562 cps
Cartridge tape drive	—	—	Optional	No	No
Magnetic ledger card device	—	—	No	No	No
CRT	Optional	Standard; 1920 char.	Opt.; to 80 x 24 char. graphic	Optional; 24 x 80 char.	Optional; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	NA	256	16, 32	3	32
Synchronous	—	Opt.	Opt. to 50K	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	—	Opt.	Opt.; to 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	—	2780, HASP	IBM—Bisync; DECnet (RPQ)	IBM 2780	IBM 2780
SOFTWARE SUPPORT					
COBOL	No	No	RFQ	No	Yes
RPG	No	No	No	No	Yes
FORTRAN	Yes	Yes	Optional	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	No	No	PL/M optional	DIBOL (COBOL)	DIBOL (COBOL)
Multiprogramming	No	No	Optional	Yes	Yes; 4 partitions
Language implemented in firmware	No	No	Optional	Partially	Partially
Operating system implemented in firmware	No	Partially	Optional	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Manufacturing	—	Mfg., control, communications, DP opt.	Manufacturing, distribution	Manufacturing, distribution
Data base management system	No	Total	No	No	Yes
File access methods supported	Random, sequential	Random, sequential	Sequential, random	Sequential, random, index seq.	Sequential, random, index seq.
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$12,500	$49,230	$1,000 (basic sys.)	$34,995	$45,000
Monthly rental of basic system, $	—	—	$75	Contact vendor	Contact vendor
Date of first U.S. delivery	—	1978	1976	May 1977	September 1975
Number installed in U.S. to date	NA	NA	NA	9	35
COMMENTS	NC tape plotting and verification, graphic overlays, customer drawings, part inspection and quality control operations	Acctg. software and NC tape verification system, NC tape generation, NC tape translation, inc. plotter	Basic computer system for business and data communications with modular expansion and peripheral units		Software costs $7K to $9.5K for plumbing, soft drinks, auto parts, or hardware distribution; full manufacturing system also available

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	J. Baker & Associates Distribution System 2	Basic Four Corporation Model 200	Basic Four Corporation Model 400	Basic Four Corporation Model 610	Basic Four Corporation Model 730
DATA FORMATS					
Word length, bits	16	8 bit byte	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	2	1 per byte	1 per byte	1 per byte	1 per byte
Bytes (characters) per word	2	1 per byte	1 per byte	1 per byte	1 per byte
Operand length, words	1	16, 32 bits	—	16, 32 bits	—
Instruction length, words	1-3	2 bytes	2 bytes	2 bytes	2 bytes
CPU					
Model	DEC PDP-11/70	BFC 1340	BFC 1320	BFC 1320	BFC 1350
Add time, microseconds	1.8 (1 word)	7.4	7.4	7.4	3
No. of programmable registers	8	3	3	3	3
No. of I/O ports on basic system and maximum	3; 64	—	11 (above req.)	11 (above req.)	9 (above req.)
INTERNAL STORAGE					
Type	MOS, core	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	128K	32K	32K	40K	96K
Maximum capacity, bytes	4M	40K	64K	128K	256K
Increment size, bytes	32K	—	8K, 16K	8K, 16K, 32K	16K, 32K
Cycle time, microseconds	0.41	0.6	0.6	0.6	0.6
Access time, microseconds	0.99	0.4	0.4	0.4	0.4
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 512K bytes	No	No	No	No
Cartridge disk drive	Std.; 88M bytes	Std.; 10M bytes	Std.; 10M bytes	No	No
Pack disk drive	Opt.; 176M bytes	No	No	Opt.; 35M bytes	Std.; 150M bytes
Fixed-head disk/drum	Opt.; 2M bytes	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	No	Opt.; 300 cps	No	No
Paper tape punch	Opt.; 50 cps	No	Opt.; 75 cps	No	No
Punched card reader	Opt.; 1200 cpm	No	Opt.; 300-400 cpm	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 285 cpm	No	No	No	Opt.; 160 cps
Serial printer	Opt.; 30 cps	Std.; 120 cps	Std.; 160 cps	Std.; 160 cps	Opt.; 160 cps
Line printer	Opt.; 300, 900 lpm	No	Opt.; 150-600 lpm	Opt.; 150-600 lpm	Std.; 300 lpm
Reel-to-reel tape drive	Opt.; 9 KBS	No	Opt.; 10 KBS	Opt.; 10 KBS	Opt.; 10 KBS
Cassette tape drive	Opt.; 562 cps	—	No	No	No
Cartridge tape drive	No	Std.; 2.3M bytes	No	Opt.; 9.2M bytes	No
Magnetic ledger card device	No	No	No	No	No
CRT	Optional; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80, 16 x 32 char.	Std.; 24 x 80, 16 x 32 char.	Std.; 24 x 80, 16 x 32 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	64	No	8	8	—
Synchronous	Opt.; 9600 bps	No	No	Opt.; 2400 bps	Opt.; 2400 bps
Asynchronous	Opt.; 9600 bps	No	Std.; 9600 bps	Std.; 9600 bps	Std.; 9600 bps
Protocols supported	IBM 2780	None	None	IBM 2780	IBM 2780
SOFTWARE SUPPORT					
COBOL	Yes	No	No	No	No
RPG	Yes	No	No	No	No
FORTRAN	Yes	No	No	No	No
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	No	No	No	No
Other programming languages	DIBOL (COBOL)	None	—	—	—
Multiprogramming	Yes; 4 partitions	No	Yes; 8 partitions	Yes; 8 partitions	Yes; 16 partitions
Language implemented in firmware	Partially	No	No	No	No
Operating system implemented in firmware	No	Partially	Partially	Partially	Partially
General accounting packages	Yes	Standard	Yes	Yes	Yes
Industry application areas	Manufacturing, distribution	General business	Medical, insurance, general business	Medical, insurance, general business	Medical, insurance, general business
Data base management system	Yes	No	No	No	No
File access methods supported	Sequential, random, index seq.	Sequential, random	Sequential, random	Sequential, random	Sequential, random
Software separately priced	Yes	No	Yes	Yes	Yes
Technical help separately priced	Yes	No	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$100,000+	$29,000	$36,900	$51,400	$110,000
Monthly rental of basic system, $	Contact vendor	$653	$830	$1,157	$2,475
Date of first U.S. delivery	September 1975	January 1978	1971	1978	1978
Number installed in U.S. to date	6	5,000 (all models)	5,000 (all models)	5,000 (all models)	5,000 (all models)
COMMENTS	See Distribution System comments; developed with major brewery	Turnkey acctg. system; price includes gen. acctg. application software; system is pre-programmed; disk storage to 20M bytes	Available as packaged systems only; system price also includes cartridge disk subsystem, serial or line printer, and CRT terminal; disk storage to 40M bytes	Available as packaged systems only; system price also includes disk subsystem, serial or line printer, and CRT terminal; disk storage to 225M bytes	600-lpm printer available as an option; available only as package system including pack disk, line printer, and CRT; disk storage to 300M bytes

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Binary Data Systems UCOM I	Binary Data Systems UCOM II	Binary Data Systems UCOM III	BTI 5000/30	BTI 5000/60
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2, 4	2, 4	2, 4	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1, 2	1, 2	1, 2	1	1
Instruction length, words	1	1	1	1	1
CPU					
Model	DG Nova 3/D	DG Dual Eclipse S/130	DG Eclipse C/330	BTI 5010	BTI 5010
Add time, microseconds	10 (1 word)	10 (1 word)	10 (5 digits)	20	20
No. of programmable registers	5	5	8	2	2
No. of I/O ports on basic system and maximum	3, 10	3, 10	64	7	7
INTERNAL STORAGE					
Type	Core	Core	Core	MOS	MOS
Capacity of basic system, bytes	64K	128K each	256K	64K	64K
Maximum capacity, bytes	256K	256K each	512K	64K	64K
Increment size, bytes	32K	32K	32K	None	None
Cycle time, microseconds	0.8	0.8	0.8	0.65	0.65
Access time, microseconds	0.4	0.4	0.4	0.3	0.3
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Optional	Optional	Optional	No	No
Cartridge disk drive	Std.; 40M bytes	Std.; 40M bytes	Std.; 40M bytes	Std.; 30M bytes	Std.; 60M bytes
Pack disk drive	Opt.; 800M bytes	Opt.; 800M bytes	Opt.; 800M bytes	Opt.; 120M bytes	Opt.; 240M bytes
Fixed-head disk/drum	Optional	Optional	Optional	—	—
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	No	No
10-key numeric keyboard	Standard	Standard	Standard	No	No
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 400 cps	Opt.; 400 cps	Opt.; 400 cps	No	No
Paper tape punch	Opt.; 75	Opt.; 75 cps	Opt.; 75 cps	No	No
Punched card reader	Opt.; 1000 cpm	Opt.; 1000 cpm	Opt.; 1000 cpm	No	No
Punched card punch	Opt.; 150 cpm	Opt.; 150 cpm	Opt.; 150 cpm	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 165 cps	Opt.; 165 cps	Opt.; 165 cps	No	No
Line printer	Std.; 200-1500 lpm	Std.; 200-1500 lpm	Std.; 200-1500 lpm	Opt.; 300-900 lpm	Opt.; 300-900 lpm
Reel-to-reel tape drive	Opt.; 10-72 KBS	Opt.; 10-72 KPS	Opt.; 10-72 KBS	Opt.; to 72 KBS	Opt.; to 72 KBS
Cassette tape drive	Opt.; 1.6 KBS	Opt.; 1.6 KBS	Opt.; 1.6 KBS	No	No
Cartridge tape drive	No	No	No	Std.; 192 KBS	Std.; 192 KBS
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 cps	Std.; 1920 cps	Std.; 1920 cps	No	No
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	256	256	256	8 std.; 32 opt.	8 std., 32 opt.
Synchronous	Opt.; to 48K bps	Opt.; to 48K bps	Opt.; to 48K bps	No	No
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	9600 bps	9600 bps
Protocols supported	IBM 2780/3780 SDLC	IBM 2780/3780 SDLC	IBM 2780/3780 SDLC	User-programmable	User-programmable
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	No	No
RPG	No	No	No	No	No
FORTRAN	Yes	Yes	Yes	No	No
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	No	No
Other programming languages	—	—	—	No	No
Multiprogramming	Yes; 64 partitions	Yes; 64 partitions	Yes; 2 partitions	No	No
Language implemented in firmware	No	No	No	Partially	Partially
Operating system implemented in firmware	No	No	No	Partially	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Whlsl./dist., real estate, medical	Basic accounting	Basic accounting	Mfg., dist., gen. bus., school admin.	Mfg., dist., gen. bus., school admin.
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Random, sequential, ISAM	Random, sequential ISAM	Random, sequential, ISAM	Random, sequential, KSAM	Random, sequential, KSAM
Software separately priced	No	No	No	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$45,000	$150,000	$175,000	$38,950	$42,950
Monthly rental of basic system, $	—	—	—	—	—
Date of first U.S. delivery	July 1973	May 1975	March 1976	March 1978	September 1978
Number installed in U.S. to date	NA	NA	NA	750 (all models)	750 (all models)
COMMENTS	Price includes all software	Price includes all software	Price includes all software	Up to 32 user terminals concurrently	Up to 32 user terminals concurrently

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	BTI 8000	Burroughs B 80	Burroughs B 730/B 720	Burroughs B 801	Burroughs B 810/B 820
DATA FORMATS					
Word length, bits	32	8	64	64	64
Decimal digits per word	4	2	15	16	16
Bytes (characters) per word	4	1	8	8	8
Operand length, words	Variable	Variable	Variable	1	1
Instruction length, words	1	Variable	Variable	2, 3, 4, 5 bytes	2, 3, 4, 5 bytes
CPU					
Model	BTI 8110 (8 CPU's)	B 80/20/30/40/50/60	Burroughs B 731	Burroughs B 800	Burroughs B 800
Add time, microseconds	3.2	—	430	—	—
No. of programmable registers	8 per CPU	None	4	20	20
No. of I/O ports on basic system and maximum	4 to 32 max.	8, 11	6, 8	7	7
INTERNAL STORAGE					
Type	Core	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	256K	32K/60K	32K	32K	64K
Maximum capacity, bytes	100M	60K/124K	80K	80K	131K
Increment size, bytes	128K	4K/16K	8K	8K	8K
Cycle time, microseconds	0.75	1.0	1.0	1.0	1.0
Access time, microseconds	0.4	0.5	0.5	0.5	0.5
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Opt.; 6M bytes	Opt.; 243K bytes	Opt.; 486K bytes	Opt.; 2M bytes
Cartridge disk drive	Std.; 32M bytes	Opt.; 27.6M bytes	Opt.; 36.8M bytes	Opt.; 36.8M bytes	Opt.; 368M bytes
Pack disk drive	Opt.; 66, 126M bytes	No	No	No	Opt.; 521M bytes
Fixed-head disk/drum	—	Opt.; 37.6M bytes	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	No	Standard	Standard	Standard	Standard
10-key numeric keyboard	No	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	Opt.; 40 cps	No	No
Paper tape punch	No	No	Opt.; 40 cps	No	No
Punched card reader	No	No	Opt.; 600 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	Opt.; 600/60 cpm	Opt.; 300/60,200/45	Opt.; 300/60,200/45
Serial printer	No	Std.; 60, 180 cps	Std.; 60 cps	Std.; 120 cps	Opt.; 120 cps
Line printer	Opt.; 300-900 lpm	Opt.; 160, 250 lpm	Opt.; 85-400 lpm	Opt.; 85-400 lpm	Opt.; 85-750 lpm
Reel-to-reel tape drive	Opt.; to 72 KBS	No	Opt.; 10 KBS	Opt.; 10 KBS	Opt.; 10 KBS
Cassette tape drive	No	Std.; 1 KBS	Opt.; 1 KBS	Opt.; 1 KBS	Opt.; 1 KBS
Cartridge tape drive	Std.; 192 KBS	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	No	Standard; 8 x 32 char.	Optional; 24 x 80, 12x40, 8x32 char.	Opt.; 256-1920 char.	Opt.; 256-1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8 std.; 512 opt.	4	1	4	4
Synchronous	No	Opt.; to 4800 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	19.2 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	User-programmable	Basic mode, bisync. BDLC	Basic mode, bisync., 3780, BDLC	Basic mode, bisync., 3780	Basic mode, bisync., 360/20 HASP
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	Yes
RPG	Yes	Yes	Yes	Yes	Yes
FORTRAN	Yes	No	No	No	No
BASIC	Yes	No	No	No	No
Assembler	Yes	No	No	No	No
Other programming languages	PASCAL	DSC/MPL/NDL	AEL	AEL, MPL, NDL	AEL, MPL, NDL
Multiprogramming	Demand-paged VM	Yes; to 3 programs	Yes; see comments	Yes	Yes
Language implemented in firmware	Partially	Fully	Fully	Fully	Fully
Operating system implemented in firmware	Partially	Fully	Fully	Fully	Fully
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mfg., dist., gen. bus., school admin.	Whlsl., dist., med., financial	All business	All business acct'g applications	All business acc'tg. applications
Data base management system	Yes	No	No	No	No
File access methods supported	Random, sequential, KSAM	Random, sequential, index seq.	Sequential	Random, indexed seq., index random	Random, indexed seq., index random
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	No	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$86,850	$18,510	$30,400	$32,400	$37,400
Monthly rental of basic system, $	—	$617	$968	$880	$975
Date of first U.S. delivery	September 1978	April 1976	May 1973	April 1977	April 1977
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Variable resource architecture permits expansion to mainframe capacity; up to 512 concurrent users		AEL programs can execute concurrently with RPG or COBOL programs; B 730 supports up to 4 Direct Data Entry stations		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Burroughs B 1825	Burroughs B 1835	Burroughs B 1865	Burroughs B 1870 Series	Business Controls System 80/8
DATA FORMATS					
Word length, bits	16	16	16	16	12
Decimal digits per word	4	4	4	4	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	Variable	Variable	Variable	Variable	1
Instruction length, words	Variable	Variable	Variable	Variable	1
CPU					
Model	Burroughs B 1825	Burroughs B 1835	Burroughs B 1865	Burroughs B 1870	DEC PDP-8/A, E
Add time, microseconds	—	—	—	—	2.6-3.0 (word)
No. of programmable registers	—	—	—	—	8
No. of I/O ports on basic system and maximum	1, 14	1, 14	1, 14	1, 14	2, 12
INTERNAL STORAGE					
Type	MOS/LSI	MOS/LSI	MOS/LSI	MOS/LSI	Core
Capacity of basic system, bytes	98K	131K	262K	96K	32K
Maximum capacity, bytes	256K	524K	1M	512K	256K
Increment size, bytes	32K, 64K, 131K	131K, 262K	262K	32K, 128K	16K
Cycle time, microseconds	1.2	1.2	0.333	0.333	1.2
Access time, microseconds	0.4	0.4	0.167	0.167	0.6
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 486K bytes	Opt.; 486K bytes	Opt.; 486K bytes	Opt.; 486K bytes	Opt.; 670K bytes
Cartridge disk drive	Opt.; 74.4M bytes	Opt.; 74.4M bytes	Opt.; 74.4K bytes	Opt.; 74.4K bytes	Std.; 40M bytes
Pack disk drive	Opt.; 697.6M bytes	Opt.; 697.6M bytes	Opt.; 697.6M bytes	Opt.; 697.6M bytes	No
Fixed-head disk/drum	No	Opt.; 18M bytes	No	Opt.; 18M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	No	No	No	No	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	Opt.; 300 cps
Paper tape punch	No	No	No	No	Opt.; 50 cps
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 600 cpm	Opt.; 1400 cpm	Opt.; 200 cpm
Punched card punch	Opt.; 150, 300 cpm	Opt.; 150, 300 cpm	Opt.; 150, 300 cpm	Opt.; 300 cpm	No
Punched card reader/punch	Opt.; 200/45, 300/60	Opt.; 200/45, 300/60	Opt.; 200/45, 300/60	Opt.; 200/45, 300/60	No
Serial printer	No	No	No	No	Opt.; 180 cps
Line printer	Opt.; 400 lpm	Opt.; 400 lpm	Opt.; 750 lpm	Opt.; 1500 lpm	Opt.; 250-600 lpm
Reel-to-reel tape drive	Opt.; 10-120 KBS	Opt.; 10-120 KBS	Opt.; 10-120 KBS	Opt.; 80 KBS (4)	Opt.; 36 KBS
Cassette tape drive	Opt.; 1 KBS	Opt.; 1 KBS	Opt.; 1 KBS	Opt.; 1 KBS	Opt.; 3 KBS
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	4	4	32	8 std.; 24 opt.	16
Synchronous	Opt.; 50,000 bps	Opt.; 50,000 bps	Opt.; 50,000 bps	Opt.; 50,000 bps	Opt.; to 4800 bps
Asynchronous	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; to 9600 bps
Protocols supported	Basic mode bisync, BDLC	Basic mode, bisync, BDLC	Basic mode, bisync, BDLC	Basic mode, bisync, BDLC	IBM 2780
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	No
RPG	Yes	Yes	Yes	Yes	No
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	No	No	No	No	Yes
Other programming languages	NDL, UPL, AEL	NDL, UPL, AEL	NDL, UPL, AEL	NDL, UPL, AEL	DIBOL, COM
Multiprogramming	Yes	Yes	Yes	Yes	Yes; 15 partitions
Language implemented in firmware	Fully	Fully	Fully	Fully	No
Operating system implemented in firmware	Fully	Fully	Fully	Fully	No
General accounting packages	Yes	Yes	Yes	Yes	
Industry application areas	All business acct'g. applications	All business acct'g. applications	All business acct'g. applications	All business acct'g. applications	Retail, mfg., dist., whlsl., list maint.
Data base management system	Yes	Yes	Yes	Yes	No
File access methods supported	Random, index seq., index random	Random, index seq. index random	Random, index seq., index random	Random, index seq., index random	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	No
Technical help separately priced	Yes	Yes	Yes	Yes	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$48,500	$69,700	$140,090	$148,320	$29,990
Monthly rental of basic system, $	$1,575	$2,260	$4,540	$4,965	$600
Date of first U.S. delivery	June 1978	June 1978	June 1978	2nd quarter 1977	1971
Number installed in U.S. to date	NA	NA	NA	NA	130
COMMENTS				150 cpm card punch, 300-1400 cpm card readers, 85-1500 lpm line printers, 10-120KB mag tapes opt.; see Report 70C-112-05 for more details	

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Business Controls System 80/11	Business Systems Products Adviser II	Business Systems Products Adviser III	Cado Systems Corporation System 20	Cado Systems Corporation System 20/IV
DATA FORMATS					
Word length, bits	16	16 bits	16 bits	8 bit byte	8 bit byte
Decimal digits per word	5	2	2	2 per byte	2 per byte
Bytes (characters) per word	2	2	2	1 per byte	1 per byte
Operand length, words	1, 2	2	2	1-3	1-3
Instruction length, words	1	1, 2, 3	1, 2, 3	—	—
CPU					
Model	DEC PDP/11-34-60-70	CA LSI-2/60	CA LSI-2/60	Intel 8080A	Intel 8085A
Add time, microseconds	2.7-7.3 (word)	8.24 msec (8 digits)	8.24 msec (8 digits)	1.2 (1 byte)	1.3 (1 byte)
No. of programmable registers	8-16	8	8	6	6
No. of I/O ports on basic system and maximum	2; 64	4; 24	8; 24	2	4
INTERNAL STORAGE					
Type	Core, MOS, bipolar	Core	Core	MOS	MOS
Capacity of basic system, bytes	64K	64K	64K	5K	16K
Maximum capacity, bytes	204K	64K	304K	9K	48K
Increment size, bytes	16K	—	16K	4K	16K
Cycle time, microseconds	0.98	0.98	0.98	0.45	0.50
Access time, microseconds	0.49	0.52	0.52	0.45	0.45
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 2048K bytes	No	No	Std.; 3.6M bytes	Std.; 4.8M bytes
Cartridge disk drive	Std.; 1.4B bytes	Std.; 40M bytes	No	Opt.; 19M bytes	Opt.; 19M bytes
Pack disk drive	Opt.; 1400M bytes	No	Std.; 640M bytes	No	No
Fixed-head disk/drum	Opt.; 8M bytes	No	No	Optional	Opt.; 10M bytes
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 1300 cps	Opt.; 1300 cps	Optional	Optional
Paper tape punch	Opt.; 50 cps	Opt.; 60 cps	Opt.; 60 cps	Optional	Optional
Punched card reader	Opt.; 300-1200	Opt.; 300 cpm	Opt.; 300 cpm	Optional	Optional
Punched card punch	No	Opt.; 50 cpm	Opt.; 50 cpm	No	No
Punched card reader/punch	No	None	None	No	No
Serial printer	Std.; 180 cps	1 Std.; 120 cps	Std.; 120 cps	Std.; 150 cps	Std.; 150 cps
Line printer	Opt.; 250-1200 lpm	Opt.; 300-600 lpm	Opt.; 300-600 lpm	No	No
Reel-to-reel tape drive	Opt.; 10-72 KBS	Opt.; 20-40 KCS	Opt.; 20-40 KCS	Optional	Optional
Cassette tape drive	Opt.; 4 KBS	No	No	Optional	Optional
Cartridge tape drive	No	No	No	—	—
Magnetic ledger card device	No	No	No	—	—
CRT	Std.; 12 x 80 char.; opt.; 24 x 80 char	Std.; 1920 char.	Std.; 1920 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	64	24	24	1	2
Synchronous	Opt.; to 50K bps	Opt.; 4800 bps	Opt.; 4800 bps	Std.; to 9600 bps	Std.; to 9600 bps
Asynchronous	Opt.; to 9600 bps	Std.; 9600 bps	Std.; 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps
Protocols supported	IBM 2780, SDLC	IBM 2780, 3780, SDLC	IBM 2780, 3780, SDLC	IBM 2770, 2780, 3780, 3270, 3741	IBM 2770, 2780, 3270, 3741, 3780
SOFTWARE SUPPORT					
COBOL	Yes	No	No	No	No
RPG	Yes	No	No	No	No
FORTRAN	Yes	Yes	Yes	No	No
BASIC	Yes	No	No	Yes (CADOL)	Yes (CADOL)
Assembler	Yes	No	No	Yes	Yes
Other programming languages	DIBOL, DECform	ABOL	ABOL	No	No
Multiprogramming	Yes; 63 partitions	Yes; 24 partitions	Yes; 24 partitions	No	Yes, 4
Language implemented in firmware	No	No	No	Partially	Partially
Operating system implemented in firmware	No	Partially	Partially	Partially	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Retail, mfg., dist., whsl., list maint.	Distribution	Distribution	Retail, mfg., dist., med., word proc.	Retail, mfg., dist., med., word proc.
Data base management system	DBMS-11	Yes	Yes	Yes	Yes
File access methods supported	Random, sequential, index sequential	Seq., random, ISAM	Seq., random, ISAM	Random, index sequential	Random, index sequential
Software separately priced	No	Yes	Yes	Yes	Yes
Technical help separately priced	No	Yes	Yes	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$40,000	$38,700	$65,800	$13,995	$17,795
Monthly rental of basic system, $	$800	$850	$1,450	—	3rd party
Date of first U.S. delivery	1976	July 1976	December 1976	—	June 1978
Number installed in U.S. to date	40	NA	NA	NA	NA
COMMENTS	Supports all DEC operating systems, sorts, etc.	Single-source responsibility for software & service; applications program packages library	Single-source responsibility for software & service; applications program packages library		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Cado Systems Corporation System 40	Cado Systems Corporation System 40/IV	CDA, Inc. 100A	CDA, Inc. 400A	CDA, Inc. 500B
DATA FORMATS					
Word length, bits	8 bit byte	8 bit byte	16	16	16
Decimal digits per word	2 per byte	2 per byte	4	4	4
Bytes (characters) per word	1 per byte	1 per byte	2, 3	2, 3	2, 3
Operand length, words	1-3	1-3	½	½	½
Instruction length, words	—	1 byte	1	1	1
CPU					
Model	Intel 8080A	Intel 8085A	DG Nova 1200/D-116	DG Nova 1200/D-116	DG Nova 1200/D-116
Add time, microseconds	2.0 (1 byte)	1.3 (1 byte)	1.35	1.35	1.35
No. of programmable registers	6	6	4	4	4
No. of I/O ports on basic system and maximum	2	4	2; 13	2; 13	4; 4
INTERNAL STORAGE					
Type	MOS	MOS	Core	Core	Core
Capacity of basic system, bytes	5K	16K	32K	32K	64K
Maximum capacity, bytes	9K	48K	32K	32K	128K
Increment size, bytes	4K	16K	16K	16K	16K
Cycle time, microseconds	0.45	0.50	1.35	1.35	1.35
Access time, microseconds	0.45	0.45	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 3.6M bytes	Std.; 4.8M bytes	Std.; 0.6M bytes	Std.; 1.8M bytes	Std.; 2.4M bytes
Cartridge disk drive	Opt.; 19M bytes	Opt.; 19M bytes	No	No	No
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	Opt.; 10M bytes	Opt.; 10M bytes	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Optional	Optional	Optional
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	Optional	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps
Paper tape punch	Optional	Optional	Opt.; 10 cps	Opt.; 10 cps	Opt.; 10 cps
Punched card reader	Optional	Optional	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Optional	Optional	Std.; 30 cps	Std.; 30 cps	Std.; 120 cps
Line printer	Std.; 150 cps	Std.; 300 lpm	No	No	No
Reel-to-reel tape drive	No	Optional	No	No	No
Cassette tape drive	Optional	Optional	No	No	No
Cartridge tape drive	—	—	No	No	No
Magnetic ledger card device	—	—	No	No	No
CRT	Standard; 24 x 80 char.	Standad; 24 x 80 char.	Std.; 1920 char.	Std.; 1920 char.	Std.; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	2	—	—	—
Synchronous	Std.; to 9600 bps	Std.; to 9600 bps	—	—	—
Asynchronous	Std.; to 9600 bps	Std.; to 9600 bps	—	—	—
Protocols supported	IBM 2770, 2780, 3780	IBM 2770, 2780, 3270, 3741, 3780	—	—	—
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes (CADOL)	Yes (CADOL)	No	No	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	No	No	No	No	No
Multiprogramming	No	Yes, 4	No	No	No
Language implemented in firmware	Partially	Partially	No	No	No
Operating system implemented in firmware	Partially	Partially	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Retail, Mfg., dist., med., word proc.	Retail, mfg., dist., med., word proc.	Auto parts dist., inventory acctg.	Auto parts dist., inventory acctg.	Auto parts dist., inventory acctg.
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Random, indexed sequential	Random, indexed sequential	Seq., index seq.	Seq., index seq.	Seq., index seq.
Software separately priced	Yes	Yes	Some	Some	Some
Technical help separately priced	No	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$11,995	$20,500	$19,800	$23,000	$33,000
Monthly rental of basic system, $	3rd party	3rd party	—	—	—
Date of first U.S. delivery	—	June 1978	November 1974	June 1978	NA
Number installed in U.S. to date	—	—	—	—	—
COMMENTS		Operates 4 devices	Turnkey system; auto parts distribution a specialty	Turnkey system; auto parts distribution a specialty	Turnkey system; auto parts distribution a specialty

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	CDA, Inc. 500C	Century Computer Century 300	Century Computer Century 400	Century Computer Century 700	Century Computer Century 900
DATA FORMATS					
Word length, bits	16	8	16	8, 16	8, 16
Decimal digits per word	4	2	4	4	4
Bytes (characters) per word	2, 3	1	2	2	2
Operand length, words	½	1	1	2	2
Instruction length, words	1	1-3	½ to 1½	½ to 3	½ to 3
CPU					
Model	DG Nova 1200/D-116	Century 200	Century 400	Century 400	Century 400
Add time, microseconds	1.35	2, 6 (5 digits)	2.6 (5 digits)	2.6 (5 digits)	2.6 (5 digits)
No. of programmable registers	4	16	16	16	16
No. of I/O ports on basic system and maximum	8; 8	2; 256	2; 256	2; 256	2; 256
INTERNAL STORAGE					
Type	Core	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	128K	32K	32K	32K	96K
Maximum capacity, bytes	128K	60K	240K	256K	512K
Increment size, bytes	16K	16K, 32K	32K	64K	64K
Cycle time, microseconds	1.35	0.6	0.6	0.5	0.5
Access time, microseconds	—	0.2	0.2	1.4	1.2
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 2.4M bytes	Opt.; 376K bytes	Opt.; 384K bytes	Opt.; 376K	Opt.; 376K
Cartridge disk drive	No	Std.; 20M bytes	Std.; 20M bytes	Std.; 20M bytes	Opt.; 40M bytes
Pack disk drive	No	Opt.; 100M bytes	Opt.; 100M bytes	Opt.; 200M bytes	Opt.; 600M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Optional	Optional
10-key numeric keyboard	Optional	Standard	Standard	Optional	Optional
Full accounting keyboard	No	Optional	Optional	Optional	Optional
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 300, 400 cps	Opt.; 300, 400 cps	Opt.; 400 cps	Opt.; 400 cps
Paper tape punch	Opt.; 10 cps	No	No	Opt.; 150 cps	Opt.; 150 cps
Punched card reader	No	Opt.; 300, 600 cpm	Opt.; 300/600 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	Opt.; 600 cpm	Opt.; 600 cpm	Opt.; 600 cpm	Opt.; 600 cpm
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 120 cps	Std.; 165 cps	Opt.; 165 cps	Opt.; 300 lpm	Opt.; 600 lpm
Line printer	No	Opt.; 300, 600 lpm	Std.; 300, 600 lpm	Opt.; 120K bytes	Opt.; 120K bytes
Reel-to-reel tape drive	No	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 300 cps	Opt.; 300 cps
Cassette tape drive	No	Opt.; 300 cps	Opt.; 300 cps	No	No
Cartridge tape drive	No	No	No	No	Opt.; 200/600
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	—	256	256	256	256
Synchronous	—	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	—	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	—	CCS	CCS	CCS	CCS
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	No	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	No	CPL	CPL	CPL, MOD, Fortran	CPL
Multiprogramming	No	Yes; 10 partitions	Yes; 10 partitions	Yes; 20 partitions	Yes; 20 partitions
Language implemented in firmware	No	No	No	Partial	Partial
Operating system implemented in firmware	No	No	Partially	Partial	Partial
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Auto parts dist., inventory acctg.	Bus. acct'g., dist.	Bus. acct'g.,, dist.	Distribution, business, finance	Business, finance, hotel
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Seq., index seq.	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.
Software separately priced	Some	Yes	Yes	Yes	Yes
Technical help separately priced	No	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$55,000	$20,000	$36,000	$35,000	$42,000
Monthly rental of basic system, $	—	Purchase only	Purchase only	Purchase/lease	Purchase/lease
Date of first U.S. delivery	NA	February 1971	March 1975	April 1976	February 1977
Number installed in U.S. to date	—	Over 800	250	120	140
COMMENTS	Turnkey system; auto parts distribution and computer billing	Turnkey system or business account- ing; all software sold separatly	Turnkey business accounting system with communica- tions capability	Designed for gen- eral bus., distribu- tion, & finance mar- kets, expandable with software/ hardware	Designed for large data base process- ing, real-time operating environ- ment, finance, hotels, inventory control

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Century Computer Century 1000	Cincinnati Milacron GEORGE (Series 40)	Cincinnati Milacron GEORGE B (Series 60)	Cincinnati Milacron GEORGE C (Series 70)	Cincinnati Milacron GEORGE D (Series 80)
DATA FORMATS					
Word length, bits	8, 16, 24	16	16	16	16
Decimal digits per word	4	2	2	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	2	½ to 2, string	½ to 2, string	½ to 2, string	½ to 2, string
Instruction length, words	½ to 3	½ to 4	½ to 4	½ to 4	½ to 4
CPU					
Model	Century 400	CIP/2200B	CIP/2200B	CIP/2200B	CIP/4400
Add time, microseconds	2.6 (5 digits)	10.3 (1 word)	10.3 (1 word)	10.3 (1 word)	2.1 (1 word)
No. of programmable registers	16	3	3	3	3
No. of I/O ports on basic system and maximum	2; 256	7; 14	7; 14	7; 14	7; 14
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	128K	32K	32K	32K	64K
Maximum capacity, bytes	512K	64K	64K	64K	256K
Increment size, bytes	64K	16K	16K	16K	32K
Cycle time, microseconds	1.2	1.1	1.1	1.1	0.8
Access time, microseconds	0.5	0.66	0.66	0.66	0.6
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 376K	Std.; 2.52M bytes	Opt.; 1.26M bytes	Opt.; 1.26M bytes	Opt.; 1.26M bytes
Cartridge disk drive	Opt.; 40M bytes	No	Std.; 40M bytes	Std.; 40M bytes	Std.; 40M bytes
Pack disk drive	Opt.; 900M bytes	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Optional	Standard	Standard	Standard	Standard
10-key numeric keyboard	Optional	Optional	Optional	Optional	Standard
Full accounting keyboard	Optional	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 400 cps	No	No	No	No
Paper tape punch	Opt.; 150 cps	No	No	No	No
Punched card reader	Opt.; 600 cpm	Optional; 600 cpm	Optional; 600 cpm	Optional; 600 cpm	Optional; 600 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 200/600 cpm	No	No	No	No
Serial printer	—	Std.; 60 cps	Opt.; 60 cps	Opt.; 60 cps	Opt.; 60 cps
Line printer	—	Opt.; 60-600 lpm	Std.; 60-600 lpm	Std.; 60-600 lpm	Std.; 60-600 lpm
Reel-to-reel tape drive	—	No	Opt.; 20 KBS	Opt.; 20 KBS	Opt.;
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 960 char. Opt.; 1920 char.	Std.; 960 char. Opt.; 1920 char.	Std.; 960 char. Opt.; 1920 char.	Std.; 960 char. Opt.; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	256	4	9	9	32
Synchronous	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	CCS	IBM 2780	IBM 2780	IBM 2780	IBM 2780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	Yes	Yes	Yes	Yes
FORTRAN	No	No	No	No	No
BASIC	Yes	No	No	No	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	CPL, ALGOL	None	None	None	Sys. Prog. Lang.
Multiprogramming	Yes; 20 partitions	Yes	Yes	Yes	Yes
Language implemented in firmware	Partially	Yes	Yes	Yes	Yes
Operating system implemented in firmware	Partially	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Bus., fin., dist., hotel, medicine	Bus. acctg.	Bus. acctg.	Bus. acctg.	Bus. acctg. wholesale dist.
Data base management system	Yes	No	No	No	No
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Some	Some	Some	Some
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$50,000	$16,100	$30,200	$30,300	$45,900
Monthly rental of basic system, $	Purchase lease	NA	NA	NA	NA
Date of first U.S. delivery	June 1977	February 1977	1973	1973	December 1976
Number installed in U.S. to date	60	590 (all models)	590 (all models)	590 (all models)	590 (all models)
COMMENTS	Large data base management systems, real-time batch processing, credit union, savings and loan	In June 1978, CM announced that it will drop its business computer line, but will supply its distributors for the next 2 years	In June 1978, CM announced that it will drop its business computer line, but will supply its distributors for the next 2 years	In June 1978, CM announced that it will drop its business computer line, but will supply its distributors for the next 2 years	In June 1978, CM announced that it will drop its business computer line, but will supply its distributors for the next 2 years

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Complete Computer Systems #10	Complete Computer Systems #11	Complete Computer Systems #12	Complete Computer Systems #14	Complete Computer Systems #26
DATA FORMATS					
Word length, bits	16 + 1	16 + 1	16 + 1	16 + 1	16 + 1
Decimal digits per word	4	4	4	4	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1	1	1	1	1
Instruction length, words	1	1	1	1	1
CPU					
Model	DG Nova 3/12	DG Nova 3/12	DG Nova 3/12	DG Nova 3/12	DG Nova 3/12
Add time, microseconds	0.7 (1 word)	0.7 (1 word)	0.7 (1 word)	0.7 (1 word)	0.7 (1 word)
No. of programmable registers	32	32	32	32	32
No. of I/O ports on basic system and maximum	3; 34	4; 34	10; 4; 34	4; 34	10; 34
INTERNAL STORAGE					
Type	MOS	MOS	MOS or core	MOS or core	MOS or core
Capacity of basic system, bytes	64K	64K	64K	64K	128K
Maximum capacity, bytes	256K	256K	256K	256K	256K
Increment size, bytes	32K	32K	32K	32K	32K
Cycle time, microseconds	0.70	0.70	0.70	0.70	0.70
Access time, microseconds	0.35	0.35	0.35	0.35	0.35
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Opt.; 1.2M bytes
Cartridge disk drive	Std.; 10M bytes	Std.; 10M bytes	Std.; 10M bytes	Std.; 10M bytes	Std.; 40M bytes
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Std.; 1; opt.; 5	Std.; 2; opt.; 5	Std.; 2; opt.; 5	Std.; 2; opt.; 9	Std.; 4; opt.; 32
10-key numeric keyboard	Std.; 1 opt.; 5	Std.; 2 opt.; 5	Std.; 2; opt.; 5	Std.; 2; opt.; 9	Std.; 4; opt.; 32
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 400 cps	Opt.; 400 cps	Opt.; 400 cps	Opt.; 400 cps	Opt.; 400 cps
Paper tape punch	Opt.; 60 cps	Opt.; 60 cps	Opt.; 60 cps	Opt.; 60 cps	Opt.; 60 cps
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 60 cps	Std.; 120 cps	Std.; 180 cps	Std.; 180 cps	Std.; 60-180 cps
Line printer	Opt.; 300-600 lpm	Opt.; 300-600 lpm	Opt.; 300-600 lpm	Opt.; 300-600 lpm	Std.; 300 lpm; opt.;
Reel-to-reel tape drive	Opt.; 60,000 cps	Opt.; 60,000 cps	Opt.; 60,000 cps	Opt.; 60,000 cps	Opt.; 60,000 cps
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.; additional units opt.	Std.; 1920 char.; additional units opt.	Std.; 1920 char.; additional units opt.	Std.; 1920 char.; additional units opt.	Std.; 1920 char.; additional units opt.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	16	16	16	16	16
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	Opt.; 2780 via DG RSTCP	Opt.; 2780 via DG RSTCP	Opt.; 2780 via DG RSTCP	Opt.; 2780 via DG RSTCP	Opt.; 2780 via DG RSTCP
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	"CREATE" DBMS	"CREATE" DBMS	"CREATE" DBMS	"CREATE" DBMS	"CREATE" DBMS
Multiprogramming	Yes	Yes	Yes	Yes	Yes, dynamic
Language implemented in firmware	Partially	Partially	Partially	Partially	Partially
Operating system implemented in firmware	Partially	Partially	Partially	Partially	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mfg., dist., prop. mgt.	Mfg., dist., prop. mgt.	Mfg., dist., prop. mgt.	Mfg., dist., prop. mgt.	Word proc., BOM, MRP
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Seq., random, ind. seq.	Seq., random, ind. seq.	Seq., random, ind. seq.	Seq., random, ind. seq.	Multi-index seq., random
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$30,940	$33,605	$33,825	$45,275	$77,495
Monthly rental of basic system, $	$425	$462	$492	$622	$1,064
Date of first U.S. delivery	1974 (Nova 2/10)	1974 (Nova 2/10)	1975 (Nova 2/10)	1976	1976
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Property management, rent and maintenance control, multi-entity financials	Inventory control incl. LIFO, FIFO, avg. lot ctrl., serial no. ctrl., bulk qty.	Municipal budget Acctg., traffic violation system, encumbrance, tax billing, vehicle maintenance	HMO membership control, mail-order prospect control; CREATE report generator	Mfg. and construction systems oriented to job costing, estimating, projected completion cost, labor, cost ctr. efficiency

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Complete Computer Systems #22	Compucorp 625	Compucorp 625 Mk. II	Compudata Systems (DEC 500 Series)	Compudata Systems (IBM Series/1)
DATA FORMATS					
Word length, bits	16 + 1	48	64	16 + 2	16
Decimal digits per word	4	12	13	5	5
Bytes (characters) per word	2	6	8	2	2
Operand length, words	1	—	1	1, 2	1
Instruction length, words	1	1, 4	1, 2	1, 2, 3	1, 2, 3
CPU					
Model	DG Nova 3/12	Zilog Z-80	Zilog Z-80	DEC PDP-11/34, 70	IBM 4953/4955
Add time, microseconds	0.7 (1 word)	50	50	0.30-1.20	4.2
No. of programmable registers	32	—	—	12	32
No. of I/O ports on basic system and maximum	10; 34	256	256	1-64	4-56
INTERNAL STORAGE					
Type	MOS or core	MOS	MOS	Core	MOS
Capacity of basic system, bytes	96K	32K	32K	128K	64K
Maximum capacity, bytes	256K	65K	60K	512K	128K
Increment size, bytes	32K	16K	16K	32K	32K
Cycle time, microseconds	0.7	1.6	—	0.98	0.66
Access time, microseconds	0.35	0.4	—	0.36	0.50
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 1.2M bytes	Std.; 630K bytes	Std.; 630K bytes	Opt.; 310K bytes	Opt.; 2.5M bytes
Cartridge disk drive	Std.; 30M bytes	Optional	Opt.; 12M bytes	Std.; 5M bytes	Opt.; 13M bytes
Pack disk drive	No	No	Opt.; 12M bytes	Opt.; 14, 88, 176 MB	No
Fixed-head disk/drum	No	No	No	Opt.; 512M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Std.; 3; opt.; 16	Standard	Standard	Standard	Standard
10-key numeric keyboard	Std.; 3; opt.; 16	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 400 cps	No	Optional	Optional	No
Paper tape punch	Opt.; 60 cps	No	Optional	Optional	No
Punched card reader	Opt.; 300 cpm	No	No	Optional	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	Opt.; 300, 1200 cpm	No
Serial printer	Std.; 180 cps	Std.; 80 cps	Standard	Std.; 180 cps	Opt.; 120 cps
Line printer	Opt.; 300 lpm	Optional	Optional	Opt.; 300 lpm	Opt.; 155 lpm
Reel-to-reel tape drive	Opt.; 60,000 cps	Optional	Optional	Opt.; 800/1600 bpi	No
Cassette tape drive	No	Optional	Optional	No	No
Cartridge tape drive	No	Optional	Optional	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.; 16 extra units opt.	Std.; 1280 char.	Std.; 1920 char., 80 x 16	Std.; 1920 char.	Std.; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	16	9	9	64	256
Synchronous	Opt.; to 9600 bps	Optional	Opt.; 9600 bps	Opt.; 2400 bps	Opt.; 2400 bps
Asynchronous	Opt.; to 9600 bps	Standard	Opt.; 9600 bps	Std.; 9600 bps	Std.; 9600 bps
Protocols supported	Opt.; 2780 via DG RSTCP	RS-232C, Bisync	RS-232/2780	IBM 2780/3780	IBM 2780/3780
SOFTWARE SUPPORT					
COBOL	No	No	No	Yes	Yes
RPG	No	No	No	Yes	No
FORTRAN	Yes	No	No	Yes	Yes
BASIC	Yes	Yes	Extended BASIC	Yes	No
Assembler	Yes	Yes	Yes	No	Yes
Other programming languages	"CREATE" DBMS	—	—	DIBOL	No
Multiprogramming	Yes, dynamic	No	No	Yes	Yes
Language implemented in firmware	Partially	No	No	No	No
Operating system implemented in firmware	Partially	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Prop. mgt., constr., mfg., dist., HMO	Gen. acctg., bonds, auto finance, estim.	Auto bonds, estimating, mail list	Manuf., distrib., services, retail	Manuf., distrib., services, retail
Data base management system	Yes	Yes	Yes	Yes	No
File access methods supported	Multi-index seq., random	Random, sequential	Random, sequential	Sequential, random, index sequential	Sequential, random, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$63,605	$7,000	$7,000	$60,000	$26,000
Monthly rental of basic system, $	$874	—	—	$1,250	$540
Date of first U.S. delivery	1976	July 1977	July 1977	1976	1977
Number installed in U.S. to date	NA	200	300	30	8
COMMENTS	CREATE operates in shared-logic mode with business application; word processing with variable text fill-in and preprinted forms fill-in		Single desktop enclosure contains CRT/keyboard, disks, printer, logic		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Compudata Systems (DEC 300 Series)	Computer Automation SyFA	Computer Covenant CPBS 1	Computer Covenant CPBS 2	Computer Covenant CPBS 3
DATA FORMATS					
Word length, bits	16 + 2	16	16	16	16
Decimal digits per word	5	2	2	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1, 2	1 bit to 255 bytes	1, 2	1, 2	1, 2
Instruction length, words	1, 2, 3	1, 2	1	1	1
CPU	DEC LSI-11,				
Model	PDP-11/34	CA LSI-2/60	DEC PDP-11/04	DEC PDP-11/34	DEC PDP-11/70
Add time, microseconds	2.03	76 (5 digits)	3.2 (1 word)	3.2 (1 word)	0.40 (1 word)
No. of programmable registers	6	2	8	9	10
No. of I/O ports on basic system and maximum	1-8	2, 6	9	4	26
INTERNAL STORAGE					
Type	MOS	Core/MOS	MOS	MOS	MOS
Capacity of basic system, bytes	32K	64K	56K	56K	256K
Maximum capacity, bytes	256K	304K	56K	248K	2048K
Increment size, bytes	32K	16K	None	16K	64K, 256K
Cycle time, microseconds	0.98; 0.725	0.7	0.98	0.51	0.38
Access time, microseconds	0.51/0.635	0.5	0.49	0.26	0.19
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 310K bytes	No	Opt.; 512K bytes	Opt.; 512K bytes	Opt.; 512K bytes
Cartridge disk drive	Std.; 2.5 or 5M bytes	Std.; 40M bytes	Opt.; 10M bytes	Std.; 10M bytes	Opt.; 10M bytes
Pack disk drive	Opt.; 14M bytes	Opt.; 640M bytes	No	Opt.; 1408M bytes	Std.; 1408M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Optional	Standard	Standard	Standard
10-key numeric keyboard	Standard	Optional	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	No	No	No	No
Paper tape punch	Optional	No	No	No	No
Punched card reader	No	No	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 300 cpm	No	No	No	No
Serial printer	Std.; 180 cps	Opt.; 100, 165 cps	Std.; 30, 180 cps	Std.; 30, 180 cps	Std.; 30, 180 cps
Line printer	Opt.; 300 lpm	Opt.; 300, 600 lpm	Opt.; 300 lpm	Opt.; 300-1200 lpm	Opt.; 300-1200 lpm
Reel-to-reel tape drive	Opt.; 800/1600 bpi	No	Opt.; 10-120 KBS	Opt.; 10-120 KBS	Opt.; 10-120 KBS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.	Optional; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	32	34	4	16	60
Synchronous	Opt.; 2400 bps	Opt.; to 9600 bps	Opt.; to 19.2 bps	Opt.; to 19.2K bps	Opt.; to 19.2K bps
Asynchronous	Std.; 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM 2780/3780	2780, 3780, HASP, 3790, 3720, SDLC	IBM 2780, bisync, SDLC, DDCMP	IBM 2780, bisync, SDLC, DDCMP	IBM 2780, bisync, DLC, DDCMP
SOFTWARE SUPPORT					
COBOL	No	No	No	Yes	Yes
RPG	No	No	No	Yes	Yes
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	No	Yes	Yes	Yes	Yes
Assembler	No	No	Yes	Yes	Yes
Other programming languages	DIBOL	SYBOL	DIBOL-11	DIBOL-11	DIBOL-11
Multiprogramming	Yes	Yes; 54 partitions	Yes; 4 partitions	Yes; 16 partitions	Yes; 60 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	No	Yes	Yes	Yes
Industry application areas	Manuf., distrib., services, retail	Distributed processing	Manufacturing, dist./wholesale	Manufacturing, dist./wholesale	Manufacturing, dist./wholesale
Data base management system	Yes	No	RMS-11	RMS-11	RMS-11/DBMS-11
File access methods supported	Sequential, random, index sequential	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	No	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$17,000	$45,000	$24,000	$42,000	$100,000
Monthly rental of basic system, $	$350	NA	$530 (5-yr. lease)	$910 (5-yr. lease)	$2,150 (5-yr. lease)
Date of first U.S. delivery	1975	1976	June 1976	September 1976	December 1976
Number installed in U.S. to date	150	NA	10	12	1
COMMENTS		Supports up to 32 terminals and up to 45 peripherals	Includes 180-cps serial printer	Includes 180-cps serial printer	High-speed controllers and dual-access disk drives; cache memory

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Computer Hardware Inc. 2130	Computer Hardware Inc. 3230	Computer Hardware Inc. 4210	Computer Horizons CHC Distribution System	Computer Interactions Compro II
DATA FORMATS					
Word length, bits	16	16	16	16	12
Decimal digits per word	2	2	2	2	3
Bytes (characters) per word	2	2	2	2	2 (6-bit)
Operand length, words	1, 2	1, 2	1, 2	½ or 1	1
Instruction length, words	1	1	1	1-3	1, 2
CPU					
Model	CHI 2130	CHI 3230	CHI 4210	DEC PDP-11/34	DEC PDP-8/E or F
Add time, microseconds	1.6 (1 word)	2.7	4.6	2 (1 word)	15 (5 digits)
No. of programmable registers	8	8	16	8	8
No. of I/O ports on basic system and maximum	21; 128	21	12	3; 7	3; 32
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS, core	Core, MOS
Capacity of basic system, bytes	16K bytes	16K bytes	8K bytes	16K	16K
Maximum capacity, bytes	4M bytes	4M bytes	64KB	248K	64K
Increment size, bytes	16K bytes	16K bytes	8K bytes	16K, 32K, 64K	8K
Cycle time, microseconds	0.8	1.6	1.2	0.49, 0.725, 0.98	1.2
Access time, microseconds	—	—	—	—	0.6
MASS STORAGE CAPABILITIES*					
Floppy disk drive	—	No	Std.; 1.0M bytes	No	Opt.; 256K bytes
Cartridge disk drive	Opt.; 2M bytes	Opt.; 2M bytes	Opt.; 3M bytes	No	Std.; 256M bytes
Pack disk drive	Std.; 1200M bytes	Opt.; 80M bytes	—	Std.; 88M bytes	Opt.; 90M bytes
Fixed-head disk/drum	Opt.; 2M bytes	Opt.; 2M bytes	—	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Optional	Standard	No	Yes
10-key numeric keyboard	Optional	Optional	Optional	No	Yes
Full accounting keyboard	Optional	Optional	Optional	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Optional	No	No	Opt.; 300 cps
Paper tape punch	Opt.; 110 cps	Optional	No	No	Opt.; 60 cps
Punched card reader	Opt.; 1000 cpm	Optional	Optional	No	Opt.; 600-1200 cpm
Punched card punch	Optional (IBM 1442)	Optional	No	No	—
Punched card reader/punch	Optional (IBM 1442)	Optional	No	No	No
Serial printer	Opt.; 60 cps	Optional	Opt.; 30, 180 cps	Std.; 180 cps	Opt.; 165, 300 cps
Line printer	Opt.; 600 lpm	Optional	No	Opt.; 1200 lpm	Std.; 300 lpm
Reel-to-reel tape drive	Opt.; 75 ips	Optional	No	Std.; 75 ips	Opt.; 20, 40 KBS
Cassette tape drive	No	No	Standard	No	No
Cartridge tape drive	No	No	No	No	Opt.; 40 KBS
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 50 char.	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	32 async.; 4 sync.	32 async.; 4 sync.	8 async.; 1 sync.	64	32
Synchronous	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 2400 bps
Protocols supported	IBM 3270, 2780, 3780, 3741	IBM 3270, 2780, 3780, 3741	IBM 3780	HDLC, ADDCP, DDCMP, SDLC	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	No	Yes	No
RPG	Yes	Yes	No	No	No
FORTRAN	Yes	Yes	Yes	No	Yes
BASIC	Yes	Yes	No	Yes	Yes
Assembler	Yes	Yes	Yes	No	Yes
Other programming languages	ALGOL, SNOBOL	ALGOL, SNOBOL	—	None	None
Multiprogramming	Yes; 32 partitions	Yes	Yes; 8 partitions	Yes; 32 partitions	Yes; 4 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	Partially	Partially	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	General accounting	General accounting	General accounting	Inv., order proc., business acct'g.	Wholesale dist., pharm., medical
Data base management system	Yes	Yes	No	No	No
File access methods supported	Random, sequential, index seq.	Random, sequential, index seq.	Sequential, random	Sequential, index sequential	Random, sequential, index seq.
Software separately priced	Some	Some	Yes	No	No
Technical help separately priced	Yes	No	No	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	Consult factory	Consult factory	Consult factory	$150,000-200,000	$50,000
Monthly rental of basic system, $	Consult factory	Consult factory	Consult factory	No	$1,200 (5-yr. lease)
Date of first U.S. delivery	1974	1976	1977	NA	2nd quarter 1972
Number installed in U.S. to date	NA	NA	NA	0	77
COMMENTS	Hardware floating-point available	Hardware floating-point available		DEC PDP-11/70 CPU can also be used	System has paged memory; can also add word processing OS to convert to WORDPRO II, system; introduced in 1977

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Control Data Cyber 18-10	Control Data Cyber 18-20	Corstar Business Computing Co. Corstar 310	Corstar Business Computing Co. Corstar 350	Corstar Business Computing Co. Corstar 534
DATA FORMATS					
Word length, bits	16	16	12	16	16
Decimal digits per word	—	—	2	2	2
Bytes (characters) per word	2	2	2 (6-bit)	2	2
Operand length, words	—	—	1, 2	1, 2	1, 2
Instruction length, words	1-3	1-3	1, 2	1, 2	1, 2
CPU					
Model	Cyber 18-10	Cyber 18-20	DEC Datasystem 310	DEC Datasystem 350	DEC Datasystem 534
Add time, microseconds	1.76 (1 word)	1.76 (1 word)	2.8	7.0 (11/10); 1.0 (11/40)	6.0
No. of programmable registers	22	22	8	8; 10	10
No. of I/O ports on basic system and maximum	2 per memory mod.	2 per memory mod.	—	—	—
INTERNAL STORAGE					
Type	Core, MOS	MOS	Core, MOS	Core	Core, MOS
Capacity of basic system, bytes	32K	32K	16K (6-bit)	32K	64K
Maximum capacity, bytes	64K	256K	64K (6-bit)	256K	248K
Increment size, bytes	16K	32K, 64K	16K (6-bit)	32K	16K
Cycle time, microseconds	0.75	0.75	1.4	0.98	0.98; 0.725
Access time, microseconds	0.3	0.3	0.7	0.49	0.49; 0.500
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 560K bytes	Opt.; 560K bytes	Std.; 1.2M bytes	Std.; 1.2M bytes	No
Cartridge disk drive	No	No	Opt.; 1.28M bytes	Std.; 19.2M bytes	Std.; 19.2M bytes
Pack disk drive	No	Opt.; 400M bytes	No	Opt.; 160M bytes	Opt.; 704M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Optional	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	Optional	Optional	Optional
Paper tape punch	No	No	Optional	Optional	Optional
Punched card reader	Std.; 300, 600 cps	Std.; 300, 600 cps	Optional	Optional	Optional
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	No	No	Std.; 180 cps	Std.; 180 cps	Opt.; 180 cps
Line printer	Opt.; 300, 600 lpm	Opt.; 300, 600 lpm	Opt.; 300 lpm	Opt.; 300 lpm	Std.; 300 lpm
Reel-to-reel tape drive	Opt.; 20 KBS	Opt.; 20 KBS	No	Optional	Optional
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 12 x 80, 24 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	—	—	1	4	32
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 2200 bps	Opt.; to 2200 bps	Opt.; to 2200 bps
Asynchronous	Opt.; to 19.2K bps	Opt.; to 19.2K bps	No	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM 2780/3780, HASP, CDC 200	—	IBM 2780	IBM 2780	IBM 2780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	Yes
RPG	No	No	No	No	RPG II
FORTRAN	No	Yes	No	No	Yes
BASIC	No	Yes	No	No	BASIC Plus II
Assembler	Yes	Macro assembler	No	No	No
Other programming languages	None	None	DIBOL	DIBOL	None
Multiprogramming	No	Yes; 16 partitions	No	Yes; 4 partitions	Yes; 32 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	No	No	Yes	Yes	Yes
Industry application areas	Under development	Manufacturing distribution	Manufacturing, distribution	Manufacturing, distribution	Advert. agency; financial
Data base management system	No	No	No	No	No
File access methods supported	—	—	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$27,840	$29,940	$13,000-$23,000	$36,000-$65,000	$75,000-$125,000
Monthly rental of basic system, $	$933 (3-yr. lease)	$981 (3-yr. lease)	Purchase only	Purchase only	Purchase only
Date of first U.S. delivery	May 1976	August 1976	1972	October 1975	November 1973
Number installed in U.S. to date	NA	NA	10	4	14
COMMENTS	Lower prices for quantity purchasers; full-payout 5-yr. lease plans also available	Lower prices for quantity purchasers; full-payout 5-yr. lease plans also available			

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Corstar Business Computing Co. Corstar 570	Data Communications Corp. TPS	Data Communications Corp. DPS	Data Communications Corp. DCS	Data Communications Corp. RTS
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2	4	4	4	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1, 2	1	1, 2	1	1
Instruction length, words	1, 2	1	1, 2	1	1
CPU					
Model	DEC Datasystem 570	See Comments	See Comments	See Comments	DG Micro/Nova 3/12
Add time, microseconds	2.7	0.800 (1 word)	0.600 (1 word)	0.800 (1 word)	0.800 (1 word)
No. of programmable registers	16	4	16	4	4
No. of I/O ports on basic system and maximum	—	4; 24	5; 59	4; 24	4; 24
INTERNAL STORAGE					
Type	Core	Core	Core	Core	Core
Capacity of basic system, bytes	128K	96K	32K, 64K	8K	8K
Maximum capacity, bytes	1024K	256K	256K	32K	32K
Increment size, bytes	64K	32K	16K	8K	8K
Cycle time, microseconds	0.98	0.800	0.800	0.800	0.800
Access time, microseconds	0.49	0.400	0.400	0.400	0.400
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Opt.; 500K bytes	Opt.; 500K bytes	Opt.; 500K bytes	Opt.; 500K bytes
Cartridge disk drive	Std.; 19.2M bytes	Std.; 10M bytes	Std.; 10M bytes	Std.; 100M bytes	Std.; 10M bytes
Pack disk drive	Std.; 1408M bytes	Opt.; 92M bytes	Opt.; 92M bytes	Opt.; 92M bytes	Opt.; 92M bytes
Fixed-head disk/drum	No	Opt.; 2M bytes	Opt.; 2M bytes	Opt.; 2M bytes	Opt.; 2M bytes
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Optional	Standard	Optional	Optional
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	Opt.; 400 cps	Opt.; 400 cps	Opt.; 400 cps	Opt.; 400 cps
Paper tape punch	Optional	Opt.; 70 cps	Opt.; 70 cps	Opt.; 70 cps	Opt.; 70 cps
Punched card reader	Optional	Opt.; 150-1000 cpm	Opt.; 150-1000 cpm	Opt.; 150-1000 cpm	Opt.; 150-1000 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 180 cps	Std.; 165 cps	Std.; 165 cps	Std.; 165 cps	Std.; 165 cps
Line printer	Std.; 300 lpm	Opt.; 300-1200 lpm	Opt.; 200-1200 lpm	Opt.; 300-1200 lpm	Opt.; 300-1200 lpm
Reel-to-reel tape drive	Optional	Opt.; 60 KBS	Opt.; 60 KBS	Opt.; 60 KBS	Opt.; 60 KBS
Cassette tape drive	No	Optional	Optional	Optional	Optional
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 × 80 char.	Standard; 24 × 80 char.	Standard;24 × 80 char.	Standard; 24 × 80 char.	Standard; 24 × 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	63	256	256	256	256
Synchronous	Opt.; to 2200 bps	Opt.; to 9600 bps	Opt.; to 50K bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM 2780	All	All	All	All
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	Yes
RPG	RPG II	No	RPG II	Yes	Yes
FORTRAN	Yes	FORTRAN IV, V	FORTRAN IV, V	FORTRAN IV, V	FORTRAN IV, V
BASIC	BASIC Plus II	Yes	Yes	Yes	Yes
Assembler	No	Yes	Yes	Yes	Yes
Other programming languages	None	ALGOL	ALGOL	ALGOL	ALGOL
Multiprogramming	Yes; 63 partitions	No	Yes; 1F, 1B	Yes	Yes
Language implemented in firmware	No	No	Fully	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Financial, publishing	Mortgage banking, gen. mktg.	Mortgages	Gen'l. mktg., mortgages, broadcasting	Broadcasting, parts dist., service bureaus
Data base management system	No	No	INFOS	No	No
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$135,000-$250,000	$85,000	On request	$50,000	$25,000
Monthly rental of basic system, $	Purchase only	Purchase only	Purchase only	Purchase only	Purchase only
Date of first U.S. delivery	June 1975	NA	September 1976	March 1977	March 1977
Number installed in U.S. to date	4	NA	NA	NA	NA
COMMENTS		Transactional Processing System; CPU's include DG Nova 3/D, DG Eclipse S130/S230/C330	Distributed Processing System; CPU's include DG Nova 3/D, DG Eclipse S130/S230/C330	Data Collection System; CPU's include DG Nova 3/D and 3/12, DG Eclipse S130/S230/C330	Data Collection System

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Data General CS/20	Data General CS/40 Mod. 1	Data General CS/40 Mod. C3	Data General CS/40 Mod. C4	Data General CS/40 Mod. C6
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	4	4	4	4	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1	1	1	1	1
Instruction length, words	1	1	1	1	1
CPU					
Model	DG MicroNova	DG Nova 3/12	DG Nova 3/12	DG Nova	DG Nova
Add time, microseconds	2.4 (1 word)	0.700 (1 word)	0.700 (1 word)	0.700 (1 word)	0.700 (1 word)
No. of programmable registers	4	4	4	4	4
No. of I/O ports on basic system and maximum	1; 1	1; 1	1; 4	1; 4	1; 9
INTERNAL STORAGE					
Type	NMOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K	64K	64K	64K	128K
Maximum capacity, bytes	64K	64K	64K	64K	192K
Increment size, bytes	—	—	—	—	64K
Cycle time, microseconds	0.960	0.700	0.700	0.700	0.700
Access time, microseconds	2.88	—	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 630K bytes	Std.; 315K bytes	Std.; 315K bytes	Opt.; 315K bytes	Std.; 315K bytes
Cartridge disk drive	—	Std.; 10M bytes	Std.; 10M bytes	Std.; 10M bytes	Opt.; 10M bytes
Pack disk drive	—	No	No	Std.; 50M bytes	Std.; 50M bytes
Fixed-head disk/drum	—	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	No	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 60 cps, 180 cps	Std.; 60 cps, 180 cps	Std.; 60 cps, 180 cps	Std.; 60 cps	Std.; 60 cps, 180 cps
Line printer	Opt.; 240, 300 lpm	Std.; 300 lpm	Std.; 300 lpm	Opt.; 300 lpm	Std.; 300 lpm
Reel-to-reel tape drive	No	Opt.; 60 KCS	Opt.; 60 KCS	Opt.; 60K cps	Opt.; 60 KCS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 × 80; one unit only	Std.; 24 × 80; single-term. model	Std.; 24 × 80; up to 4 units	Std.; 24 × 80; up to 4 units	Std.; 24 × 80; up to 9 units
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	1	1	1	1
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	No	No	No	No	No
Protocols supported	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780	IBM 2780/3780
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	Yes
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	No	No	No	No	No
Assembler	No	No	No	No	No
Other programming languages	No	No	No	No	No
Multiprogramming	No	No	Yes	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	No	No	No	No	No
Industry application areas	First-time users, all industries	—	—	Wholesale dist., mfg., health care	—
Data base management system	No	No	No	No	No
File access methods supported	Sequential, random, ISAM	Sequential, random, ISAM	Sequential, random, ISAM	Sequential, random, ISAM	Sequential, random, ISAM
Software separately priced	No	No	No	No	No
Technical help separately priced	No	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$10,945	$32,915	$34,105	$56,340	$63,640
Monthly rental of basic system, $	$274	$741	$679	$1268	$1432
Date of first U.S. delivery	—	September 1977	September 1977	March 1977	March 1977
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Interactive COBOL; built-in screen handlers; five-year full-payout lease	Interactive COBOL; built-in screen handlers	Interactive COBOL; up to 4 terminals; multiterminal control & built-in screen handlers	Interactive COBOL; up to 4 terminals; multiterminal control & built-in screen handlers	Interactive COBOL; up to 9 terminals; multiterminal control & built-in screen handlers

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Data General CS/60 Mod. C3	Data General CS/60 Mod. C6	Data General CS/60 Mod. C5	Datapoint 2200	Datapoint 5500
DATA FORMATS					
Word length, bits	16	16	16	8-bit byte	8-bit byte
Decimal digits per word	4	4	4	1 per byte	1 per byte
Bytes (characters) per word	2	2	2	1 per byte	1 per byte
Operand length, words	1	1	1	1 byte	1 byte
Instruction length, words	1	1	1	1-3 bytes	1-4 bytes
CPU					
Model	DG Eclipse	DG Eclipse	DG Eclipse	Datapoint 2200	Datapoint 5500
Add time, microseconds	0.6	0.6	0.6	4.8	1.4
No. of programmable registers	4	4	4	14	16
No. of I/O ports on basic system and maximum	1; 9	1; 17	1; 9	4	16
INTERNAL STORAGE					
Type	MOS/ERCC	MOS/ERCC	MOS/ERCC	MOS	MOS
Capacity of basic system, bytes	64K	128K	128K	4K	48K
Maximum capacity, bytes	64K	256K	256K	16K	48K
Increment size, bytes	—	64K	64K	4K	None
Cycle time, microseconds	0.5-0.7	0.5-0.7	0.5-0.7	1.6	0.8
Access time, microseconds	1.2	1.2	1.2	0.6	0.3
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 315K bytes	Opt.; 315K bytes	Opt.; 315K bytes	Opt.; 1M bytes	Opt.; 1M bytes
Cartridge disk drive	Std.; 20M bytes	Opt.; 10-30M bytes	Std.; 20M bytes	Opt.; 9.6M bytes	Opt.; 160M bytes
Pack disk drive	No	Std.; 50M bytes	No	Opt.; 50M bytes	Opt.; 200M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	No	No	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	—	No	No	No
Serial printer	Std.; 180 cps	Std.; 180 cps	Std.; 180 cps	Opt.; 120 lpm	Opt.; 120 lpm
Line printer	Std.; 300 lpm	Opt.; 300 lpm	Std.; 300 lpm	Opt.; 300, 600 lpm	Opt.; 300, 600 lpm
Reel-to-reel tape drive	Opt.; 60K cps	Opt.; 60K cps	Opt.; 60K cps	Opt.; 9.6-20 KBS	Opt.; 9.6-20 KBS
Cassette tape drive	No	No	No	Std.; 352 cps	Std.; 352 cps
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 × 80, up to 12 units	Std.; 24 × 80, up to 9 units	Std.; 24 × 80, up to 9 units	Std.; 12 × 80 char.	Std.; 12 × 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	1	1	4	$16
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	No	—	—	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM 2780, 3780	IBM 2780, 3780	IBM 2780, 3780	IBM 2265; 2741, 2780/3780, HASP	IBM 2265, 2741, 2780/2780, HASP
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	No	Yes
RPG	No	No	No	Yes	Yes
FORTRAN	No	No	No	No	No
BASIC	No	No	No	Yes	Yes
Assembler	No	No	No	Yes	Yes
Other programming languages	No	No	No	Databus, Scribe	Databus, Scribe
Multiprogramming	Yes	Yes	Yes	No	Yes, 2 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages		No	No	Yes	Yes
Industry application areas	Dist. data proc., all industries	Dist. data proc., all industries	Dist. data proc., all industries	Banking, insur., gov't. acct'g.	Banking, insur., gov't. acct'g.
Data base management system	No	No	No	No	No
File access methods supported	Sequential, random, ISAM	Sequential, random, ISAM	Sequential, random, ISAM	Random, sequential, index seq.	Random, sequential, index seq.
Software separately priced	No	No	No	Yes	Yes
Technical help separately priced	No	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$40,890	$70,490	$50,290	Pricing on request	$26,271
Monthly rental of basic system, $	$915.52	—	$1,127.02	—	$657 (3-yr. lease)
Date of first U.S. delivery	March 1978	NA	NA	April 1972	1975
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Interactive COBOL; up to 9 terminals; multiterminal control & built-in screen handlers; five-year full-payout lease	Interactive COBOL; up to 17 terminals; multiterminal control & built-in screen handlers; five-year full-payout lease	Interactive COBOL; up to 9 terminals; multiterminal control & built-in screen handlers; five-year full-payout lease	Dataform, Datashare, and RPG II program languages are also supported	Dataform, Datashare, and RPG II program languages are also supported

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Datapoint 6600	Datapoint Cassette 1100	Datapoint Diskette 1100	Datapoint 1150	Datapoint 1170
DATA FORMATS					
Word length, bits	8-bit byte	8-bit byte	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	1 per byte	1 per byte	1 per byte	1 per byte	1 per byte
Bytes (characters) per word	1 per byte	1 per byte	1 per byte	1 per byte	1 per byte
Operand length, words	1 byte	1 byte	1 byte	1 byte	1 byte
Instruction length, words	1-4 bytes	1-3 bytes	1-3 bytes	1-3 bytes	1-3 bytes
CPU					
Model	Datapoint 6600	Datapoint 1100	Datapoint 1100	Datapoint 1150	Datapoint 1170
Add time, microseconds	1.15	4.8	4.8	1.4	1.4
No. of programmable registers	16	14	14	16	16
No. of I/O ports on basic system and maximum	24	1	1	2	4
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	120K (user)	4K	16K	24K (user)	48K (user)
Maximum capacity, bytes	120K (user)	8K	16K	24K (user)	48K (user)
Increment size, bytes	None	4K	None	None	None
Cycle time, microseconds	0.6	1.6	1.6	0.8	0.8
Access time, microseconds	0.2	0.6	0.3	0.3	0.3
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 1M bytes	No	Std.; 1M bytes	Std.; 1M bytes	Std.; 1M bytes
Cartridge disk drive	Opt.; 160M bytes	No	No	No	No
Pack disk drive	Opt.; 200M bytes	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 80/120 cps	Opt.; 120 lpm	Opt.; 120 lpm	Opt.; 80/120 cps	Opt.; 80/120 cps
Line printer	Opt.; 300, 600 lpm	Opt.; 300-600 lpm	Opt.; 300-500 lpm	Opt.; 300, 600 lpm	Opt.; 300, 600 lpm
Reel-to-reel tape drive	Opt.; to 1600 bpi	Opt.; 9.6-20KBS	Opt.; 9.6-20 KBS	Opt.; to 1600 bpi	Opt.; to 1600 bpi
Cassette tape drive	Std.; 352 cps	Std.; 352 cps	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 12 × 80 char.	Std.; 12 × 80 char.	Std.; 12 × 80 char.	Std.; 12 × 80 char.	Std.; 12 × 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	25	1	1	1	5
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM, Burroughs, CDC, HIS, Univac	IBM 2265, 2741, 2780/3780, HASP	IBM 2265, 2741, 2780/3780, HASP	IBM, Burroughs, CDC, HIS, Univac	IBM, Burroughs, CDC, HIS, Univac
SOFTWARE SUPPORT					
COBOL	Yes	No	No	No	No
RPG	Yes	Yes	Yes	Yes	Yes
FORTRAN	No	No	No	No	No
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	Databus, Datashare	Databus, Scribe	Databus, Scribe	Databus, Datashare	Databus, Datashare
Multiprogramming	Yes, 2 partitions	No	No	No	No
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	No	Yes	Yes	Yes
Industry application areas	Banking, insur., gov't., acct'g.	—	Banking, insur., gov't., acct'g.	Banking, insur., gov't., pub. acct'g.	Banking, insur., gov't., pub. acct'g.
Data base management system	No	No	No	No	No
File access methods supported	Sequential, random, ISAM	Sequential	Random, sequential, index sequential	Sequential, random, ISAM	Sequential, random, ISAM
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	No	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$31,685	Pricing on request	$12,880	$14,480	$15,980
Monthly rental of basic system, $	$800 (3 yr. lease)	—	$209 (3-yr. lease)	$334 (3-yr. lease)	$371 (3-yr. lease)
Date of first U.S. delivery	July 1977	January 1974	February 1975	January 1977	July 15
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Under Datashare, system can run 24 programs without partitioning	Dataform and Datashare program languages are also supported	Dataform, Datashare, and RPG II program languages are also supported	Under Databus/Multilink, system can run 2 programs without partitioning	Under Datashare, system can run 4 programs without partitioning

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Decision Data Computer Corp. System/4	Diablo 3200	Digital Computer Controls Synergist Model 1500	Digital Computer Controls Synergist Model 1550	Digital Computer Controls Synergist Model 2500
DATA FORMATS					
Word length, bits	8-bit byte	8 + parity	16	16	16
Decimal digits per word	2 per byte	2	5	5	5
Bytes (characters) per word	1 per byte	1	2	2	2
Operand length, words	1 byte	1 or 2	1	1	1
Instruction length, words	2-4 bytes	1-3	1	1	1
CPU					
Model	System/4	Diablo 3200	DG MicroNova	DG MicroNova	DG Nova 3/12
Add time, microseconds	—	23.9/6 digits	2.4	2,4	1000
No. of programmable registers	6	7	4	4	4
No. of I/O ports on basic system and maximum	8; 14	22; 256	1; 3	1; 3	1; 9
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	Std.; core; opt.; MOS
Capacity of basic system, bytes	48K	16	48K	64K	64K
Maximum capacity, bytes	64K	65	64K	64K	64K
Increment size, bytes	16K	4K, 8K, 12K, 16K	8K, 16K	8, 16K bytes	16K, 32K
Cycle time, microseconds	1.0	0.488	0.96	0.96	1.0
Access time, microseconds	0.5	0.300	0.16	0.16	1.0
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 2M bytes	Std.; 5M bytes	No	No	No
Cartridge disk drive	Opt.; 40M bytes	Opt.; 10M bytes	Opt.; 10M bytes	Opt.; 10M bytes	Std.; 10M bytes
Pack disk drive	No	No	No	No	Opt.; 96-190M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	Standard	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	Opt.; 400 cps
Paper tape punch	No	No	No	No	Opt.; 63 cps
Punched card reader	Opt.; 300	No	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opr.; 300/120 cpm	No	No	No	No
Serial printer	Std.; 120 cps	Std.; 45, 55, 200 cps	Std.; 300 cps	Std.; 30 cps	Std.; 275 cps
Line printer	Opt.; 300/600 lpm	Optional	Opt.; 125 lpm	Opt.; 125 lpm	Opt.; 300, 600 lpm
Reel-to-reel tape drive	No	No	No	No	Opt.; 60, 72 KCS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 × 80 char.	Std.; 24 × 80	Opt.; 1920 char.	Opt.; 1920 char.	Std.; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	2	9	2	2	9
Synchronous	Std.; to 9600 bps	Opt.; to 9600 bps	No	No	No
Asynchronous	—	Opt.; to 9600 bps	Standard	Standard	Standard
Protocols supported	IBM 2780/3780	IBM 2780	None	No	IBM 2780/3780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	Yes	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	No	No	Yes	Yes	Yes
Assembler	No	Yes	No	No	Yes
Other programming languages	No	DACL	No	No	No
Multiprogramming	Yes; 2 partitions	Yes, 9 partitions	No	No	No
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	Partially	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Distribution, fuel oil	Dist., mfg., acct'g., med./dental	None	Wholesale distrib.	Manufacturing, wholesale distrib.
Data base management system	No	No	Yes	No	No
File access methods supported	Direct, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Sequential, random, index sequential	Sequential, random, index sequential
Software separately priced	Some	No	Yes	Yes	Yes
Technical help separately priced	Some	Yes	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$22,000	$18,950	$8,000	$13,500	$27,000
Monthly rental of basic system, $	NA	Various	NA	NA	NA
Date of first U.S. delivery	July 1975	December 1976	February 1978	July 1978	November 1977
Number installed in U.S. to date	15	500	15	5	100
COMMENTS		DACL compiler language is high-level English-like language source statement compiler			

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Digital Computer Controls Synergist Model 3700	Digital Equipment Corp. Datasystem 308	Digital Equipment Corp. Datasystem 310	Digital Equipment Corp. Datasystem 322	Digital Equipment Corp. Datasystem 324
DATA FORMATS					
Word length, bits	16	12	12	16	16
Decimal digits per word	5	2	2	2	2
Bytes (characters) per word	2	2 (6-bit)	2 (6-bit)	2	2
Operand length, words	1	1	1	1	1
Instruction length, words	1	1	1	1, 2, 3	1, 2, 3
CPU					
Model	DG Nova 3/D	DEC VT 78	DEC PDP-8/A	DEC LSI-11	DEC LSI-11
Add time, microseconds	1000	1000 (15 digits)	1000 (15 digits)	1.07 (word)	7.3 (word)
No. of programmable registers	4	8 + 8 in mem.	8 + 8 in mem.	8	8
No. of I/O ports on basic system and maximum	1; 17	2; 12	2; 12	4	4
INTERNAL STORAGE					
Type	Std.; core; Opt.; MOS	Core	Core	MOS	MOS
Capacity of basic system, bytes	128K	32K (6-bit)	16K (6-bit)	32K	32K
Maximum capacity, bytes	256K	32K (6-bit)	64K (6-bit)	56K	56K
Increment size, bytes	16K, 32K	—	16K, 32K (6-bit)	8K	8K
Cycle time, microseconds	1.0	1.4	1.4	1.2	0.7
Access time, microseconds	1.0	0.7	0 7	0.7	0.7
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Std.; 670K bytes	Std.; 670K bytes	Std.; 1M bytes	Std.; 7.2M bytes
Cartridge disk drive	Std.; 10M bytes	No	Opt.; 12.8M bytes	Opt.; 19.2M bytes	Opt.; 19.2M bytes
Pack disk drive	Opt.; 96-190M bytes	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 400 cps	No	No	No	No
Paper tape punch	Opt.; 63 cps	No	No	No	No
Punched card reader	No	No	No	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 30, 60, 180 cps	Opt.; 45, 180 cps	Opt.; 30, 165 cps	Opt.; 30, 180 cps	Opt.; 30, 180 cps
Line printer	Opt.; 300, 600 lpm	Opt.; 300 lpm	Opt.; 300 lpm	Opt.; 240, 300 lpm	Opt.; 240, 300 lpm
Reel-to-reel tape drive	Opt.; 60, 72 KCS	No	No	Opt.; 10 KBS	Opt.; 10 KBS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.	Optional; 24 x 80 char.	Optional; 12 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	17	0	1	4	4
Synchronous	No	No	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 4800 bps
Asynchronous	Standard	No	No	No	No
Protocols supported	IBM 2780/3780	IBM 2780	IBM 2780	IBM 2780	IBM 2780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes	No	No	No	No
Assembler	Yes	No	No	No	No
Other programming languages	No	DIBOL (COBOL)	DIBOL (COBOL)	DIBOL (COBOL)	DIBOL (COBOL)
Multiprogramming	No	No	No	No	No
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	No	No	No	No
Industry application areas	Manufacturing, wholesale distrib.	Business accounting	Business accounting	Business accounting	Business accounting
Data base management system	No	No	No	No	No
File access methods supported	Sequential, random, index sequential	Sequential, index sequential	Sequential, index sequential	Sequential, index sequential	Sequential, index sequential
Software separately priced	Yes	No	No	No	No
Technical help separately priced	No	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$40,000	$12,600	$14,095	$19,315	$32,615
Monthly rental of basic system, $	NA	Purchase only	Purchase only	Purchase only	Purchase only
Date of first U.S. delivery	January 1978	May 1978	May 1975	March 1977	March 1977
Number installed in U.S. to date	15	NA	NA	NA	NA
COMMENTS		Bytes are 6 bits	Bytes are 6 bits		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Digital Equipment Corp. Datasystem 354	Digital Equipment Corp. Datasystem 357	Digital Equipment Corp. Datasystem 530	Digital Equipment Corp. Datasystem 570	Digital Scientific Corporation Meta 4/1130
DATA FORMATS					
Word length, bits	16	16	16	16	16 (+2 parity)
Decimal digits per word	2	2	2	2	5
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1	1	½, 1, 2	½, 1, 2	1-2
Instruction length, words	1, 2, 3	1, 2, 3	1	1	1-2
CPU					
Model	DEC PDP-11/34	DEC PDP-11/34	DEC PDP-11/34	DEC PDP-11/70	DSC 4030
Add time, microseconds	1.07 (word)	1.07 (word)	7.3 (word)	2.7 (word)	2.9 (5 digits)
No. of programmable registers	9	9	7	10	5
No. of I/O ports on basic system and maximum	15	15	2, 10	10 & high speed	4
INTERNAL STORAGE					
Type	MOS	MOS	MOS	Core	Core
Capacity of basic system, bytes	32K	64K	128K	256K	16K
Maximum capacity, bytes	248K	248K	256K	3M	128K
Increment size, bytes	32K	32K	32K	128K, 512K	16K
Cycle time, microseconds	0.7	0.7	0.7 (w/parity)	1.0 (w/parity)	0.9
Access time, microseconds	0.7	0.7	0.7 (w/parity)	0.5 (w/parity)	0.5
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 512K bytes	Opt.; 512K bytes	Opt.; 512K bytes	Opt.; 512K bytes	No
Cartridge disk drive	Std.; 19.2M bytes	Std.; 112M bytes	Opt.; 112M bytes	Opt.; 112M bytes	Opt.; 512M bytes
Pack disk drive	No	No	Std.; 1.408B bytes	Std.; 1.408B bytes	Opt.; 160M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	No
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	Opt.; 400 cps
Paper tape punch	No	No	No	No	Opt.; 50 cps
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 600, 1000
Punched card punch	No	No	No	No	Opt.; 35, 160 cpm
Punched card reader/punch	No	No	No	No	Opt.; 400/160 cpm
Serial printer	Opt.; 30, 180 cps	Opt.; 30, 180 cps	Std.; 30, 180 cps	Std.; 30, 180 cps	No
Line printer	Opt.; 240, 300 lpm	Opt.; 240, 300 lpm	Opt.; 240-1200 lpm	Opt.; 240-1200 lpm	Opt.; 300, 600 lpm
Reel-to-reel tape drive	Opt.; 10 KBS	Opt.; 10 KBS	Opt.; 10-72 KBS	Opt.; 10-72 KBS	Opt.; 30, 60 KBS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Opt.; 24 x 80 char.; EIA inter.	Opt.; 24 x 80 char.; EIA int.	No
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8	8	32EIA; 20 ma	63 EIA; 20 ma	32
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 50K bps	Opt.; to 50K bps	Opt.; to 9600 bps
Asynchronous	No	No	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; 50-19.2K bps
Protocols supported	IBM 2780	IBM 2780	2780/3780, 3271, SDLC, DDCMP	2780/3780, 3271, SDLC, DDCMP	IBM 2780/3780, BSC
SOFTWARE SUPPORT					
COBOL	No	No	Yes	Yes	Yes
RPG	No	No	Yes	Yes	Yes
FORTRAN	No	No	Yes	Yes	Yes
BASIC	No	No	Yes	Yes	No
Assembler	No	No	Yes, and macro	Yes, and macro	Yes, and macro
Other programming languages	DIBOL (COBOL	DIBOL (COBOL)	APL, DIBOL	APL, DIBOL	None
Multiprogramming	No	No	Yes; 32 partitions	Yes; 63 partitions	No
Language implemented in firmware	No	No	No	No	Partially
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	No	No	No	No	Yes
Industry application areas	Business accounting	Business accounting	Business acctg. and data proc.	Business acctg. and data proc.	Mktg. research, civil eng., educ.
Data base management system	No	No	No	DBMS-11	Yes
File access methods supported	Sequential, index sequential	Sequential, index sequential	Direct, seq., index seq.	Direct, seq. index seq.	Random, sequential, index seq.
Software separately priced	No	No	See comments	See comments	Yes
Technical help separately priced	Yes	Yes	See comments	See comments	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$37,950	$51,170	$77,430	$126,280	$60,000
Monthly rental of basic system, $	Purchase only	Purchase only	Special arrangements	Special arrangements	$1,500
Date of first U.S. delivery	July 1975	July 1975	October 1976	May 1976	1970
Number installed in U.S. to date	600	600	NA	NA	Over 200
COMMENTS			Replaces Datasystems based on PDP-11/40 and 11/45; optional bundled software and support	High-speed controllers and dual-access disks avail.; optional bundled software and support	Can run most IBM 1130/1180 programs; firmware arithmetic unit is optional

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Digital Scientific Corporation Meta 4/5010	Digital Scientific Corporation Meta 4/5020	Digital Systems Galaxy/5 Model 130	Digital Systems Galaxy/5 Model 140	Digital Systems Galaxy/5 Model 150
DATA FORMATS					
Word length, bits	16 (+2 parity)	16 (+2 parity)	8-20	8-20	8-20
Decimal digits per word	5	5	1 per byte	1 per byte	1 per byte
Bytes (characters) per word	2	2	1 per byte	1 per byte	1 per byte
Operand length, words	1-2	1-2	1-256 bytes	1-256 bytes	1-256 bytes
Instruction length, words	1-2	1-2	2, 4, 6 bytes	2, 4, 6	2, 4, 6
CPU					
Model	DSC 5010	DSC 5020	Galaxy/5	Galaxy/5	Galaxy/5
Add time, microseconds	1.37	1.37	5 (5 digits)	5 (5 digits)	5 (5 digits)
No. of programmable registers	5	5	8-20	8-20	8-20
No. of I/O ports on basic system and maximum	4 to 21	8 to 21	15-60	15-60	15-60
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	16K	16K	64K	128K	256K
Maximum capacity, bytes	128K	256K	1M	1M	1M
Increment size, bytes	16K	16K	64K	64K	64K
Cycle time, microseconds	0.5	0.5	0.75	0.75	0.75
Access time, microseconds	0.29	0.29	0.50	0.50	0.50
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Yes	No	See comments	See comments	See comments
Cartridge disk drive	Opt.; 1.24M bytes	Opt.; 1.24M bytes	See comments	See comments	See comments
Pack disk drive	Opt.; 20M bytes	Opt.; 20M bytes	Std.; 32-240M bytes	Std.; 32-240M bytes	Std.; 32-240M bytes
Fixed-head disk/drum	Opt.; 1M bytes	Opt.; 1M bytes	24M bytes	24M bytes	24M bytes
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Yes	Yes	Yes
10-key numeric keyboard	No	No	Yes	Yes	Yes
Full accounting keyboard	No	No	Yes	Yes	Yes
INPUT/OUTPUT DEVICES*					
Paper tape reader	Yes	Yes	See comments	See comments	See comments
Paper tape punch	Yes	Yes	See comments	See comments	See comments
Punched card reader	Opt.; 600, 1000 cpm	Opt.; 600, 1000 cpm	Yes	Yes	Yes
Punched card punch	Yes	Yes	See comments	See comments	See comments
Punched card reader/punch	Yes	Yes	See comments	See comments	See comments
Serial printer	Opt.; 180 cps	Opt.; 180 cps	See comments	See comments	See comments
Line printer	Opt.; 300, 600 lpm	Opt.; 300, 600 lpm	Std.; 100-900 lpm	Std.; 100-900 lpm	Std.; 100-900 lpm
Reel-to-reel tape drive	Opt.; 37.5, 75 ips	Opt.; 37.5, 75 ips	Yes	Yes	Yes
Cassette tape drive	No	No	See comments	See comments	See comments
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	1920 char.	1920 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8 to 4800	32	120	240	480
Synchronous	Opt.; to 4800 bps	Opt.; to 4800 bps	Std.; to 15,000 bps	Std.; to 15,000 bps	Std.; to 15,000 bps
Asynchronous	Opt.; 19.2K bps	Opt.; 19.2K bps	Std.; to 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps
Protocols supported	IBM 2780/3780, 3740	IBM 2780/3780, 3740	Programmable	Programmable	Programmable
SOFTWARE SUPPORT					
COBOL	Yes	No	No	No	No
RPG	Yes	No	Yes	Yes	Yes
FORTRAN	Yes	Yes	Yes	No	No
BASIC	Yes	No	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	None	APL, DRS	LMP, FMP	LMP, FMP	LMP, FMP
Multiprogramming	No	Yes	Yes	Yes	Yes
Language implemented in firmware	Yes	Yes	No	No	No
Operating system implemented in firmware	No	No	Partially	Partially	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mktg. research, civil eng., educ.	Mktg. research, civil eng., educ.	Most industries	Most industries	Most industries
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.	Random, sequential, index seq.
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	No	No	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$14,500	$21,250	$34,700 (CPU only)	$55,985 (CPU only)	$82,875 (CPU only)
Monthly rental of basic system, $	$690	$494 to $1012	$800 (CPU only)	$1,275 (CPU only)	$1,900 (CPU only)
Date of first U.S. delivery	NA	1978	December 1975	October 1976	October 1976
Number installed in U.S. to date	NA	NA	18	6	NA
COMMENTS	Remote job entry simulator; expandable to Meta 4/5020	Can run most IBM 1130/1800 programs; digital/analog I/O; real-time, batch, time-share OS	Nonstd. peripherals are not sold by DSC but may be connected thru comm. port; lease is 5-yr. full-payout with purchase	Dual-processor system	Three-processor system

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Dimis, Inc. TOTAL 100	Display Data Corporation In*Sight	Distribution Management Systems DMS-1000-8	Distribution Management Systems DMS-1000-11	Financial Computer Fedder System III/6
DATA FORMATS					
Word length, bits	16	8	12	16	8-bit byte
Decimal digits per word	4	2	2	2	2 per byte
Bytes (characters) per word	21	1	2	2	1 per byte
Operand length, words	2	1 to 4	2	½, 1, 2	1 per byte
Instruction length, words	1	1-5	1, 2	1, 2, 3	1 byte
CPU					
Model	Modcomp II	Microdata 1600/30	DEC PDP-8	DEC PDP-11	Fedder S III
Add time, microseconds	0.8	4.6	3.0 (word)	0.3-3.17 (word)	—
No. of programmable registers	15	3	8 + 8 in memory	9-47	256
No. of I/O ports on basic system and maximum	2; 8	2; 20	2; 10	7; 50	5; 64
INTERNAL STORAGE					
Type	Core	Core; semiconductor	Core	Core; MOS	MOS
Capacity of basic system, bytes	128K	32K	32K (6-bit)	128K	32K
Maximum capacity, bytes	128K	128K	32K	248K-2048K	256K
Increment size, bytes	None	8K-16K	16K	16K; 64K	8, 16, 32K
Cycle time, microseconds	0.80	1.00	1.2-1.5	0.98	—
Access time, microseconds	0.50	0.35	0.75	0.49	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Optional	No	No	Opt.; 256K bytes	Std.; 1.8M bytes
Cartridge disk drive	Optional	Std.; 80M bytes	Std.; 6.4-25.6M bytes	Opt.; 28M bytes	Opt.; 10.6M bytes
Pack disk drive	Std.; 50-800M bytes	No	No	Std.; 1200M bytes	No
Fixed-head disk/drum	Optional	No	No	Opt.; 8M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	No	No	No	Opt.; 300, 1000 cps
Paper tape punch	Optional	No	No	No	Opt.; 300, 1000 cps
Punched card reader	Optional	No	No	No	Opt.; 300, 600 cpm
Punched card punch	Optional	No	No	No	Opt.; 300 cpm
Punched card reader/punch	Optional	No	No	No	No
Serial printer	Optional	Std.; 120 cps	Std.; 180 cps	Std.; 180 cps	Opt.; 30 cps
Line printer	Std.; 300 lpm	Opt.; 300-600 lpm	Opt.; 300 lpm	Opt.; 60-1200 lpm	Opt.; 300-1250 lpm
Reel-to-reel tape drive	Std.; 36 KBS	Opt.; 10, 20 KBS	Opt.; 36 KBS	Opt.; 36-120 KBS	Opt.; 72 KBS
Cassette tape drive	No	No	No	No	Optional
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 1920 char.	Std.; 1920 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	32	32	10	32	64
Synchronous	Optional	No	Opt.; to 50K bps	Opt.; to 50K bps	Opt.; to 9600 bps
Asynchronous	Std.; to 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Std.; to 9600 bps
Protocols supported	Programmable	ANSI std., other async. protocols	IBM 2780/3780 HASP	IBM 2780/3780, HASP, SDLC	None
SOFTWARE SUPPORT					
COBOL	Yes	No	No	Yes	No
RPG	No	No	No	No	No
FORTRAN	Yes	No	No	Yes	No
BASIC	Yes	No	No	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	None	None	DEAL, ORACLE	DEAL, ORACLE	CPL, PL/X
Multiprogramming	Yes	Yes	Yes; 10 partitions	Yes; 30 partitions	Yes; 32 partitions
Language implemented in firmware	No	Fully	No	No	No
Operating system implemented in firmware	No	No	No	No	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Distribution	Auto dlrs., contractors, wholesalers	Distribution	Distribution, warehouse control	Dist., manuf., construct., acctg.
Data base management system	Yes	No	Yes	Yes	Yes
File access methods supported	Random, sequential, index seq.	Sequential, random, index seq.	Index sequential, sequential, random	Indexed sequential, sequential, random	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	No	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$98,000	$26,200	$54,000	$65,000	$18,000
Monthly rental of basic system, $	NA	NA	Purchase only	Purchase only	$460
Date of first U.S. delivery	June 1974	January 1974	1970	1977	April 1977
Number installed in U.S. to date	10	400	43	20	20
COMMENTS	3 CRT's standard; package includes staff & mgmt. training & conversion support	Specialists in complete turnkey systems, support, forms, & maintenance for selected businesses			

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Financial Computer Fedder System III/10	Four-Phase Systems Inc. System IV/40	Four-Phase Systems Inc. System IV/50	Four-Phase Systems Inc. System IV/70	General Information Systems ABLE-322
DATA FORMATS					
Word length, bits	8-bit byte	24	24	24	16
Decimal digits per word	2 per byte	—	—	—	4
Bytes (characters) per word	1 per byte	3	3	3	2
Operand length, words	1 byte	15 bits	15 bits	15 bits	1
Instruction length, words	1 byte	1	1	1	1 to 3
CPU					
Model	Fedder S III	Four-Phase	Four-Phase	Four-Phase	DEC PDP-11/03
Add time, microseconds	—	16 (word)	16 (word)	16 (word)	3.1, 6
No. of programmable registers	256	5	5	5	8
No. of I/O ports on basic system and maximum	5; 64	34	29	78	2; 16
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	32K	24K	24K	24K	24K
Maximum capacity, bytes	1024K	72K	96K	96K	56K
Increment size, bytes	8, 16, 32K, 64K	24K	12K, 24K	12K, 24K	16K
Cycle time, microseconds	0.2	2	2	2	0.72
Access time, microseconds	0.2	—	—	—	0.5
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 2.4M bytes	Opt.; 354K bytes	Std.; 354K bytes	Opt.; 354K bytes	Std.; 1024K bytes
Cartridge disk drive	Std.; 10.6M bytes	Std.; 10M bytes	Stdd.; 10M bytes	Std.; 10M bytes	Std.; 20M bytes
Pack disk drive	Opt.; 300M bytes	No	Opt.; 270M bytes	Opt.; 270M bytes	—
Fixed-head disk/drum	Optional	No	No	No	—
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	Standard
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300, 1000 cps	No	No	No	Opt.; 300 cps
Paper tape punch	Opt.; 300, 1000 cps	No	No	No	Opt.; 50 cps
Punched card reader	Opt.; 300, 600 cpm	Opt.; 300, 600 cpm	Opt.; 300, 600 cpm	Opt.; 300, 600 cpm	Opt.; 300 cps
Punched card punch	Opt.; 300 cpm	No	No	No	—
Punched card reader/punch	No	No	No	No	Opt.; 1200 cpm
Serial printer	Std.; 200 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Std.; 2 180 cps
Line printer	Opt.; 300-1250 lpm	Opt.; 245-700 lpm	Opt.; 245-700 lpm	Opt.; 245-700 lpm	Opt.; to 1200 lpm
Reel-to-reel tape drive	Opt.; 72 KBS	No	No	Std.; 10, 60 KBS	Opt.; 72K cps
Cassette tape drive	Optional	No	No	No	Opt.; 560 cps
Cartridge tape drive	No	No	No	No	Opt.; 10K cps
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 6 x 48 char.	Std.; 1920 char. per screen
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	64	—	—	—	16
Synchronous	Opt.; to 19,200 bps	Std.; to 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps	No
Asynchronous	Std.; to 19,200 bps	Opt.; to 2400 bps	Opt.; to 2400 bps	Opt.; to 2400 bps	Opt.; to 2400 bps
Protocols supported	Bisync. SDLC	IBM 3270, 2780, 3780	IBM 3270, 2780, 3780, bisync	IBM 3270, 2260, 2780, 3780	IBM 2780
SOFTWARE SUPPORT					
COBOL	No	No; comp. on IV/70	Yes	Yes	Yes
RPG	No	No; comp. on IV/70	No	Yes	Yes
FORTRAN	No	No	No	No	Yes
BASIC	Yes	No	No	No	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	CPL, PL/X	None	None	None	DIBOL
Multiprogramming	Yes; 32 partitions	No	No	No	Yes; 16 partitions
Language implemented in firmware	No	—	—	—	No
Operating system implemented in firmware	Partially	—	—	—	No
General accounting packages	Yes	No	No	No	Yes
Industry application areas	Dist., manuf., construct., acctg.	Mfg., insurance, education	Mfg., insurance, education	Mfg., insurance, education	CPA, mfg., dist., medical, legal
Data base management system	Yes	No	No	No	Yes
File access methods supported	Random, sequential, index sequential	Contig., chained, seq., rand., ind. seq.	Contig., chained, seq., rand., ind. seq.	Contig., chained, seq., rand., ind. seq.	Sequential, random
Software separately priced	Yes	No	No	No	Yes
Technical help separately priced	Yes	—	—	—	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$30,000	$30,315	$69,330	$68,055	$24,000
Monthly rental of basic system, $	$750	$604	$1,335 (42-mo. lease)	$1,432	$500
Date of first U.S. delivery	January 1975	June 1973	4th quarter 1976	February 1971	NA
Number installed in U.S. to date	250+	2300+ (IV/40, 70)	NA	2300+ (IV/40, 70)	NA
COMMENTS	Can run interactive or batch in any partitions; Fedder Data Systems is a division of Financial Computer Corp.	4 CRT's & 2.5M-byte cartridge disk are standard; applications in data entry & network transaction processing	12 CRT's and 10M-byte cartridge disk are standard; applications in data entry & network transaction processing	12 CRT's and 2.5M-byte cartridge disk are standard; applications in data entry and network transaction processing	Turnkey system; ABLE, a financial control system, costs $6,500; other packages from $1,500 to $3,000

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	General Information Systems ABLE-322F	General Information Systems GIS-325	General Information Systems ABLE-350	General Information Systems GIS-355	General Robotics CD/X3S
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	4	4	4	4	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1	Single/douole operands	1	Single/double operands	½, 1
Instruction length, words	1 to 3		1 to 3		1
CPU					
Model	DEC PDP-11/03	DEC PDP-11/03	DEC PDP-11/34	DEC PDP-11/34A	DEC LSI-11/2
Add time, microseconds	3.1, 6	4.20	3.1, 6	1.96	3.5
No. of programmable registers	8	8	8	8	8
No. of I/O ports on basic system and maximum	2; 16	4; 4	5; 64	4; 64	5; 256
INTERNAL STORAGE					
Type	MOS	MOS	Core, MOS	MOS	MOS
Capacity of basic system, bytes	24K	64K	32K	64K	61,440
Maximum capacity, bytes	56K	6M	256K	256K	61,440
Increment size, bytes	16K	32K	16K	32K	—
Cycle time, microseconds	0.72	0.7	0.98	0.7	0.45
Access time, microseconds	0.5	0.7	0.75	0.7	0.3
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 1024K bytes	Opt.; 1024K bytes	—	Opt.; 1024K bytes	Opt.; (3) 3.75M bytes
Cartridge disk drive	Std.; 20M bytes	Std.; 10M bytes	Std.; 29M bytes	Std.; 10M bytes	Std.; (1) 20M bytes
Pack disk drive	—	Opt.; 20M bytes	Opt.; 160M bytes	Opt.; 1.4B bytes	—
Fixed-head disk/drum	1, 2; 9.6M bytes	—	—	—	—
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Optional
Full accounting keyboard	Standard	Standard	Standard	Standard	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps
Paper tape punch	Opt.; 50 cps	Opt.; 50 cps	Opt.; 50 cps	Opt.; 50 cps	Opt.; 75 cps
Punched card reader	Opt.; 300 cps	Opt.; 300 cpm	Opt.; 300 cps	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	—	—	—	—	No
Punched card reader/punch	Opt.; 1200 cpm	Opt.; 1200 cpm	Opt.; 1200 cpm	Opt.; 1200 cpm	No
Serial printer	Std.; 2, 180 cps	Std.; 180 cps	Std.; to 900 cps	Std.; 180 cps	Opt.; 60-180 cps
Line printer	Opt.; to 1200 lpm	Opt.; 1200 lpm	Opt.; to 1200 lpm	Opt.; 1200 lpm	Std.; 300 lpm
Reel-to-reel tape drive	Opt.; 72K cps	—	Opt.; 72K cps	Opt.; 72 KC	No
Cassette tape drive	Opt.; 560 cps	—	Opt.; 560 cps	—	No
Cartridge tape drive	Opt.; 10K cps	—	Opt.; 10K cps	—	No
Magnetic ledger card device	No	—	No	—	No
CRT	Std.; 1920 char. per screen	Std.; 1920 char.	Std.; 1920 char. per screen	Std.; 1920 char.	Std.; 16, 24 x 80 lines
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	16	4	16	64	8
Synchronous	No	Opt.; 9600 bps	No	Opt.; 9600 bps	Optional
Asynchronous	Opt.; to 4800 bps	Std.; 9600 bps	Opt.; to 9600 bps	Std.; 9600 bps	Standard
Protocols supported	IBM 2780	IBM 2780	IBM 2780	IBM 2780	IBM 2780, 3780, 3270, SDLC, HDLC
SOFTWARE SUPPORT					
COBOL	Yes	No	Yes	No	Yes
RPG	Yes	No	Yes	No	No
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	DIBOL	DIBOL	DIBOL	DIBOL	APL, PASCAL, ALGOL
Multiprogramming	Yes; 16 partitions	Yes	Yes; 24 partitions	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	CPA, mfg., dist.,, medical, legal	CPA, medical, dist.	CPA, mfg., dist., medical, legal	CPA, medical, dist.	—
Data base management system	Yes	No	Yes	Yes	Yes
File access methods supported	Sequential, random	Seq., random, index seq.	Sequential, random	Seq., random, index seq.	Sequential, random
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$31,000	$24,000	$48,000	$32,770	$24,000
Monthly rental of basic system, $	$650	$480	$1,000	$660	—
Date of first U.S. delivery	NA	December 1977	December 1975	December 1975	October 1977
Number installed in U.S. to date	NA	9	NA	9	15
COMMENTS	Turnkey system; ABLE, a financial control system, costs $6,500; other packages from $1,500 to $3,000	Turnkey system; ABLE client, write-up software, payroll, A/R, A/P, OE/inventory billing	Turnkey system; ABLE, a financial control system, costs $6,500; other packages from $1,500 to $3,000	Turnkey system; ABLE client write-up software, payroll, A/R, A/P, OE/inventory, billing	Time-sharing executive also available; OEM quantity discounts

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	General Robotics FD/X3S	General Robotics DC/X3	General Robotics FD/X3	General Robotics MVT/X3	GRI Computer Corp. System 99
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2	2	2	2	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	½, 1	½, 1	½, 1	½, 1	—
Instruction length, words	1	1	1	1	1-3
CPU					
Model	DEC LSI-11/2	DEC LSI-11/2	DEC LSI-11/2	DEC LSI-11/2	GRI 99/50
Add time, microseconds	3.5	3.5	3.5	3.5	—
No. of programmable registers	8	8	8	8	13
No. of I/O ports on basic system and maximum	5; 256	5; 256	5; 256	5; 256	9; 80
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	Static MOS
Capacity of basic system, bytes	61,440	61,440	61,440	61,440	32K
Maximum capacity, bytes	61,440	61,440	61,440	61,440	64K
Increment size, bytes	—	—	—	—	16K/32K
Cycle time, microseconds	0.45	0.45	0.45	0.45	1.76
Access time, microseconds	0.3	0.3	0.3	0.30	0.15
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; (3) 3.75M bytes	Opt.; (3) 3.75M bytes	Opt.; (3) 3.75M bytes	Std.; (3) 1.3M bytes	No
Cartridge disk drive	Opt.; (1) 20M bytes	Std.; (1) 20M bytes	Opt.; (1) 20M bytes	Opt.; (1) 20M bytes	Std.; 6M bytes
Pack disk drive	—	—	—	—	No
Fixed-head disk/drum	—	—	—	—	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Optional	Optional	Optional	Optional	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	Opt.; 300/120 cpm
Serial printer	Opt.; 60-180 cps	Opt.; 60-180 cps	Opt.; 60-180 cps	Opt.; 60 cps	Opt.; 100/165 cps
Line printer	Std.; 300 lpm	Opt.; 300 lpm	Opt.; 300 lpm	Std.; 60 cps	Opt.; 250/600 cpm
Reel-to-reel tape drive	No	No	No	No	Opt.; 30K cps
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 16, 24 x 80 lines	Std.; 16, 24 x 80 lines	Std.; 16, 24 x 80 lines	Std.; 480 char.	Std.; 640/1280 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8	8	8	18	3
Synchronous	Optional	Optional	Optional	Opt.; 50KB	Opt.; 4800 bps
Asynchronous	Standard	Standard	Standard	Opt.; 19.2KB	Opt.; 1200 bps
Protocols supported	2780, 3780, 3270, SDLC, HDLC	2780, 3780, 3270, SDLC, HDLC	2780, 3780, 3270, SDLC, HDLC	2780, 3780, 3270, SDLC, HDLC	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	No
RPG	No	No	No	No	Yes (interactive)
FORTRAN	Yes	Yes	Yes	Yes	No
BASIC	Yes	Yes	Yes	Yes	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	APL,PASCAL,ALGOL	APL,PASCAL,ALGOL	APL,PASCAL,ALGOL	APL,PASCAL,ALGOL	None
Multiprogramming	Yes	Yes	Yes	Yes	Yes; 4 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	—	—	—	—	Mfg., retail, dist., constr., banking
Data base management system	Yes	Yes	Yes	Yes	No
File access methods supported	Sequential, random	Sequential, random	Sequential, random	Sequential, random	Sequential, random, indexed sequential
Software separately priced	Yes	Yes	Yes	Yes	Applications only
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$17,000	$18,000	$11,000	$12,000	$33,333
Monthly rental of basic system, $	—	—	—	—	Purchase only
Date of first U.S. delivery	August 1977	October 1977	May 1977	June 1978	2nd qtr. 1975
Number installed in U.S. to date	50	45	125	10	NA
COMMENTS	Time-sharing executive also available; OEM quantity discounts	Time-sharing executive also available; OEM quantity discounts	Time-sharing executive also available; OEM quantity discounts	Desk-top computer system; runs DEC's RT-11 operating system	Sold through distributor network

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	GRI Computer Corp. System 99/E	Harris Computer Systems S110	Harris Computer Systems S115	Harris Computer Systems S120	Harris Computer Systems S125
DATA FORMATS					
Word length, bits	16	24	24	24	24
Decimal digits per word	4	6	6	6	6
Bytes (characters) per word	2	3	3	3	3
Operand length, words	—	1 or 2	1 or 2	1 or 2	1 or 2
Instruction length, words	1.3	1 or 2	1 or 2	1 or 2	1 or 2
CPU					
Model	GRI 99/52	Harris Series 100	Harris Series 100 Model 6-5	Harris Series 100	Harris Series 100 Model 6-6
Add time, microseconds	—	0.75 (1 word)	0.6 (1 word)	0.75 (1 word)	0.6 (1 word)
No. of programmable registers	13	5	5	5	5
No. of I/O ports on basic system and maximum	9, 80	3; 12	3; 7	4; 12	3; 24
INTERNAL STORAGE					
Type	Static MOS	Core	MOS	Core	MOS
Capacity of basic system, bytes	32K	96K	144K	192K	144K
Maximum capacity, bytes	2048K	768K	192K	768K	624K
Increment size, bytes	32K	24K or 48K	48K	24K or 48K	48K
Cycle time, microseconds	1.76	0.750	0.450	0.750	0.450
Access time, microseconds	0.15	0.300	0.300	0.300	0.300
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Opt.; 310K bytes	Opt.; 310K bytes	Opt.; 310K bytes	Opt.; 310K bytes
Cartridge disk drive	Std.; 20M bytes	Std.; 10.8M bytes	Std.; 10.8M bytes	Std.; 10.8M bytes	Std.; 10.8M bytes
Pack disk drive	No	Opt.; 1200M bytes	Opt.; 3000M bytes	Opt.; 1200M bytes	Opt.; 3000M bytes
Fixed-head disk/drum	No	Opt.; 2.15M bytes	Opt.; 2.15M bytes	Opt.; 2.15M bytes	Opt.; 2.15M bytes
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	No	No	No	No
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps
Punched card reader	Opt.; 300 cpm	Opt.; 1000 cpm	Opt.; 1000 cpm	Std.; 300 cpm	Opt.; 1000 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 300/120 cpm	Opt.; 500/100 cpm	Opt.; 500/100 cpm	Opt.; 500/100 cpm	Opt.; 500/100 cpm
Serial printer	Opt.; 100/165 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps
Line printer	Opt.; 250/600 cps	Opt.; 900 lpm	Opt.; 900 lpm	Std.; 300 lpm	Opt.; 900 lpm
Reel-to-reel tape drive	Opt.; 30K cps	Std.; 36K cps	Std.; 36K cps	Std.; 36K cps	Std.; 36K cps
Cassette tape drive	No	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	NA	128	128	128	128
Synchronous	NA	Opt.; to 9.6K bps	Mux. std.; LIU opt.	Opt.; to 9.6K bps	Std.; to 50K bps
Asynchronous	NA	Opt.; to 19.2K bps	Mux. std.; LIU opt.	Opt.; to 19.2K bps	Std.; to 19.2K bps
Protocols supported	NA —	IBM 2780, HASP, CDC UT200, Univac 1004	IBM 2780, HASP, CDC UT200, Univac 1004	IBM 2780, HASP, CDC UT200, Univac 1004	IBM 2780, HASP, CDC UT200, Univac 1004
SOFTWARE SUPPORT					
COBOL	No	Yes	Yes	Yes	Yes
RPG	Yes	Yes	Yes	Yes	Yes
FORTRAN	No	Yes	Yes	Yes	Yes
BASIC	No	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	None	SNOBOL, FORGO	SNOBOL, FORGO	SNOBOL, FORGO	SNOBOL, FORGO
Multiprogramming	Yes; dynamic	Yes; 256 partitions	Yes; 256 partitions	Yes; 256 partitions	Yes; 256 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	No	No	No	No
Industry application areas	Mfg., retail, dist., constr., banking	Multi-use and time-sharing	Multi-use and time-sharing	Multi-use and time-sharing	Multi-use and time-sharing
Data base management system	No	Yes	Yes	Yes	Yes
File access methods supported	Sequential, random, indexed sequential	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random, index sequential
Software separately priced	Applications only	No (see comments)	No (see comments)	No (see comments)	No (see comments)
Technical help separately priced	Yes	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$43,300	$85,000	$85,000	$125,000	$100,000
Monthly rental of basic system, $	Purchase only	3rd-party lease	3rd-party lease	3rd-party lease	3rd-party lease
Date of first U.S. delivery	4th qtr. 1977	1975	1977	1975	1977
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Sold through distributor network	Total DBMS and query language priced separately; RJE host and remote	Total DBMS and query language priced separately; RJE host and remote	Total DBMS and query language priced separately; RJE host and remote	Total DBMS and query language priced separately; RJE host and remote

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Harris Computer Systems S130	Harris Computer Systems S135	Harris Computer Systems S140	Harris Computer Systems S150	Hewlett-Packard Data Systems Division 1000 Model 20
DATA FORMATS					
Word length, bits	24	24	24	24	16
Decimal digits per word	6	6	6	6	2
Bytes (characters) per word	3	3	3	3	2
Operand length, words	1 or 2	1 or 2	1 or 2	1 or 2	1, 2
Instruction length, words	1 or 2	1 or 2	1 or 2	1 or 2	1, 2, 3
CPU					
Model	Harris Series 100	Harris Series 100 Model 6-7	Harris Series 100	Harris Series 100	HP 2113 E
Add time, microseconds	0.75 (1 word)	0.6 (1 word)	0.75 (1 word)	0.75 (1 word)	1.19 or 0.91
No. of programmable registers	5	5	5	5	20
No. of I/O ports on basic system and maximum	4; 12	3; 24	5; 12	5; 12	14; 46
INTERNAL STORAGE					
Type	Core	MOS	Core	Core	MOS
Capacity of basic system, bytes	288K	384K	384K	480K	64K
Maximum capacity, bytes	768K	768K	758K	768K	2048K
Increment size, bytes	24K or 48K	48K	24K or 48K	24K or 48K	32K, 128K
Cycle time, microseconds	0.750	0.450	0.750	0.750	0.350, 0.595
Access time, microseconds	0.300	0.300	0.300	0.300	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 310K bytes	Opt.; 310K bytes	Opt.; 310K bytes	Opt.; 310K bytes	Opt.; 1M bytes
Cartridge disk drive	Std.; 40M bytes	Std.; 40M bytes	Std.; 340M bytes	Std.; 640M bytes	No
Pack disk drive	Opt.; 1200M bytes	Opt.; 3000M bytes	Opt.; 1200M bytes	Opt.; 1200M bytes	No
Fixed-head disk/drum	Opt.; 2.15M bytes	Opt.; 2.15M bytes	Opt.; 2.15M bytes	Opt.; 2.15M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Optional
10-key numeric keyboard	No	No	No	No	No
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt. 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 300 cps	Opt.; 500 cps
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps
Punched card reader	Std.; 300 cpm	Opt.; 1000 cpm	Std.; 600 cpm	Std.; 1000 cpm	Opt.; 600 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 500/100 cpm	Opt.; 500/100 cpm	Opt.; 500/100 cpm	Opt.; 500/100 cpm	No
Serial printer	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30, 180 cps
Line printer	Std.; 300 lpm	Opt.; 900 lpm	Std.; 600 lpm	Std.; 900 lpm	Opt.; 200-1250 lpm
Reel-to-reel tape drive	Std.; 36K cps	Std.; 36K cps	Std.; 36K cps	Std.; 36K cps	Opt.; 36, 72 KBS
Cassette tape drive	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	No
Cartridge tape drive	No	No	No	No	Std.; 960 cps
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	128	128	128	128	16—see comments
Synchronous	Opt.; to 9.6 bps	Std.; to 50K bps	Opt.; to 9.6K bps	Opt.; to 9.6K bps	No
Asynchronous	Opt.; to 19.2K bps	Std.; to 19.2K bps	Opt.; to 19.2K bps	Opt.; to 19.2K bps	No
Protocols supported	IBM 2780, HASP, CDC UT200, Univac 1004	IBM 2780, HASP, CDC UT200, Univac 1004	IBM 2780, HASP CDC UT200, Univac 1004	IBM 2780, HASP, CDC UT200, Univac 1004	IBM 2780
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	No
RPG	Yes	Yes	Yes	Yes	No
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	SNOBOL, FORGO	SNOBOL, FORGO	SNOBOL, FORGO	SNOBOL, FORGO	ALGOL
Multiprogramming	Yes; 256 partitions	Yes; 256 partitions	Yes; 256 partitions	Yes; 256 partitions	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	Partially
General accounting packages	No	No	No	No	No
Industry application areas	Multi-use and time-sharing	Multi-use and time-sharing	Multi-use and time-sharing	Multi-use and time-sharing	Manufacturing
Data base management system	Yes	Yes	Yes	Yes	No
File access methods supported	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random
Software separately priced	No (see comments)	No (see comments)	No (see comments)	No (see comments)	Yes (see comments)
Technical help separately priced	No	No	No	No	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$155,000	$150,000	$225,000	$290,000	$22,000
Monthly rental of basic system, $	3rd-party lease	3rd-party lease	3rd-party lease	3rd-party lease	See comments
Date of first U.S. delivery	1975	1977	1975	1975	May 1977
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Total DBMS and query language priced separately; RJE host and remote; 40MB disk drive is standard	Total DBMS and query language priced separately; RJE host and remote; 40MB disk drive is standard	Total DBMS and query language priced separately; RJE host and remote; one 300 MB and one 40 MB disk drive are standard	Total DBMS and query language priced separately; RJE host and remote; two 300 MB and one 40 MB disk drive are standard	HP recommends a maximum of four active terminals; operating system is included in package price, third-party lease only

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Hewlett-Packard Data Systems Division 1000 Model 25	Hewlett-Packard Data Systems Division 1000 Model 30	Hewlett-Packard Data Systems Division 1000 Model 40	Hewlett-Packard Data Systems Division 1000 Model 45	Hewlett-Packard General Sys. Div. 3000 Series I
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2	2	2	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1, 2	1, 2	1, 2	1, 2	1, 2, 4
Instruction length, words	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	½, 1
CPU					
Model	HP 2117 F	HP 2113 E	HP 2113 E	HP 2117 F	HP 3000
Add time, microseconds	0.91	1.19 or 0.91	1.19 or 0.91	0.91	1.225
No. of programmable registers	20	20	20	20	16
No. of I/O ports on basic system and maximum	14; 46	14; 46	14; 46	14; 46	5; 15
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	Core
Capacity of basic system, bytes	64K	64K	128K	128K	128K
Maximum capacity, bytes	2048K	2048K	2048K	2048K	128K
Increment size, bytes	32K, 128K	32K, 128K	32K, 128K	32K, 128K	—
Cycle time, microseconds	0.350, 0.420	0.350, 0.595	0.350, 0.595	0.350, 0.420	1.00
Access time, microseconds	—	—	—	—	0.50
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 1M bytes	Opt.; 2M bytes	Opt.; 2M bytes	Opt.; 2M bytes	No
Cartridge disk drive	No	Std.; 160M bytes	Std.; 160M bytes	Std.; 160M bytes	No
Pack disk drive	No	Opt.; 400M bytes	Opt.; 400M bytes	Opt.; 400M bytes	Std.; 50-350M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Optional	Optional	Optional	Optional	Standard
10-key numeric keyboard	No	No	No	No	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 500 cps	Opt.; 500 cps	Opt.; 500 cps	Opt.; 50 cps	Opt.; 500 cps
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps
Punched card reader	Opt.; 600 cpm	Opt.; 600 cpm	Opt.; 600 cpm	Opt.; 600 cpm	Opt.; 600 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	Opt.; 75/45 cpm
Serial printer	Opt.; 30-180 cps	Opt.; 30-180 cps	Opt.; 30-180 cps	Opt.; 30-180 cps	Opt.; 30-120 cps
Line printer	Opt.; 200-1250 lpm	Opt.; 200-1250 lpm	Std.; 200-1250 lpm	Std.; 200-1250 lpm	Opt.; 200-1250 lpm
Reel-to-reel tape drive	Opt.; 36, 72 KBS	Opt.; 36, 72 KBS	Std.; 36, 72 KBS	Std.; 36, 72 KBS	Std.; 72 KBS
Cassette tape drive	No	No	No	No	Opt.; 240
Cartridge tape drive	Std.; 960 cps	Std.; 960 cps	Std.; 960 cps	Std.; 960 cps	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Opt.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	16—see comments	16—see comments	16—see comments	16—see comments	16
Synchronous	No	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; to 4,800 bps
Asynchronous	No	Opt.; 1800 bps	Opt.; 1800 bps	Opt.; 1800 bps	Opt.; to 2400 bps
Protocols supported	IBM 2780	IBM 2780, bisync	IBM 2780, bisync	IBM 2780, bisync	IBM 2780/3780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	Yes
RPG	No	No	No	No	Yes
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	SPL
Other programming languages	ALGOL	ALGOL	ALGOL	ALGOL	None
Multiprogramming	Yes	Yes	Yes	Yes	Yes
Language implemented in firmware	No	No	No	No	Partially
Operating system implemented in firmware	Partially	Partially	Partially	Partially	Partially
General accounting packages	No	No	No	No	No
Industry application areas	Manufacturing	Manufacturing	Manufacturing	Manufacturing	Manufacturing education
Data base management system	No	Yes	Yes	Yes	Yes
File access methods supported	Sequential, random	Sequential, random	Sequential, random	Sequential, random	Direct, sequential, keyed sequential
Software separately priced	Yes—see comments	Yes—see comments	Yes—see comments	Yes—see comments	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$27,500	$31,500	$40,000	$46,500	$64,000
Monthly rental of basic system, $	See comments	See comments	See comments	See comments	$1,456 (5-yr. lease)
Date of first U.S. delivery	September 1978	December 1976	September 1978	September 1978	April 1977
Number installed in U.S. to date	NA	NA	NA	NA	1500 (3000 Series)
COMMENTS	HP recommends a maximum of four active terminals; operating system is included in package price; third party lease only; supports DS/1000 Network Software	HP recommends a maximum of four active terminals; operating system is included in package price; third-party lease only; supports DS/1000 Network Software	HP recommends a maximum of four active terminals; operating system is included in package price; third-party lease only; supports DS/1000 Network Software	HP recommends a maximum of four active terminals; operating system is included in package price; third-party lease only; supports DS/1000 Network Software	

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Hewlett-Packard General Sys. Div. 3000 Series II	Hewlett-Packard General Sys. Div. 3000 Series III	Hewlett-Packard Desk-Top Computer Division 250	Hewlett-Packard Desk-Top Computer Division 9825/9831	Hewlett-Packard Desk-Top Computer Division 9800 System 45
DATA FORMATS					
Word length, bits	16	16	16	8-bit byte	8-bit byte
Decimal digits per word	2	2	—	1 per byte	1 per byte
Bytes (characters) per word	2	2	2	1 per byte	1 per byte
Operand length, words	1, 2, 4	1, 2, 4	—	—	—
Instruction length, words	½, 1	½, 1	2 bytes	2 bytes	2 bytes
CPU					
Model	HP 3000	HP 3000	9845 Proc. chip	HP 9825A/9831A	HP 9845A
Add time, microseconds	1.050	1.050	—	1000 (approx.)	1000 (approx.)
No. of programmable registers	20	20	See comments	See comments	See comments
No. of I/O ports on basic system and maximum	10	10; 23	1 (15 periph.)	5; 13	5; 13
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	256K	256K	128K(sys.); 32K (user)	7K/8K	62,650
Maximum capacity, bytes	512K	2048K	64K (user)	32K/33K	62,650
Increment size, bytes	64K	256K	32K	8K	—
Cycle time, microseconds	0.70	0.70	0.80	—	—
Access time, microseconds	0.35	0.35	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	No	Std.; 2.4M bytes	Opt.; 499K/998K bytes	Opt.; 998K bytes
Cartridge disk drive	No	No	Opt.; 20M bytes	No	No
Pack disk drive	Std.; 50-960M bytes	Std.; 50-960M bytes	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 500 cps	Opt.; 500 cps	No	Opt.; 20 cps	No
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	No	No	Optional
Punched card reader	Opt.; 600 cpm	Opt.; 600 cpm	No	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 200/75 cpm	Opt.; 200/75 cpm	No	No	No
Serial printer	Opt.; 180 cps	Opt.; 180 cps	Opt.; 30 cps	Opt.; 30 cps/—	Opt.; 30 cps/—
Line printer	Opt.; 300-1250 lpm	Opt.; 300-1250 lpm	Std.; 180 cps	Opt.; 250 lpm	Std.; 480 lpm
Reel-to-reel tape drive	Std.; 72 KBS	Std.; 72 KBS	Std.; 180 cps	No	No
Cassette tape drive	No	No	No	Std.; 375 bps	Std.; 375 bps
Cartridge tape drive	Opt.; 240 cps	Opt.; 240 cps	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Opt.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	63	63	—	1	1
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	—	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 2400 bps	Opt.; to 2400 bps	—	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM 2780/3780	IBM 2780/3780	—	None	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	No	No	No
RPG	Yes	Yes	No	No	No
FORTRAN	Yes	Yes	No	No	No
BASIC	Yes	Yes	Yes	No/Yes	Yes
Assembler	SPL	SPL	No	No	No
Other programming languages	APL	APL	No	HPL/No	None
Multiprogramming	Yes	Yes	No	No	No
Language implemented in firmware	Partially	Partially	No	Fully	Fully
Operating system implemented in firmware	Partially	Partially	No	Fully	Fully
General accounting packages	No	No	—	Yes	Yes
Industry application areas	Manufacturing, education	Manufacturing, education	—	Real estate, medical, engineering	Text proc., invent. ctrl., linear prog.
Data base management system	Yes	Yes	Yes	No	No
File access methods supported	Direct, sequential, keyed seq., chained	Direct, sequential, keyed seq., chained	Direct, chained, calculated, seq.	—	—
Software separately priced	Yes	Yes	No	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$99,000	$115,000	$24,500	$5900/7,200	$20,000
Monthly rental of basic system, $	$2,252 (5-yr. lease)	$2,616 (5-yr. lease)	NA	NA	NA
Date of first U.S. delivery	May 1976	July 1978	July 1978	November 1972	Late 1977
Number installed in U.S. to date	1500 (3000 Series)	1500 (3000 Series)	NA	NA	NA
COMMENTS			Software assigns portions of RAM as registers; software includes forms and report writer programs	Software assigns portions of read/write memory to serve as registers	Software assigns portions of read/write memory to serve as registers; includes two tape cartridge units

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Honeywell Series 60 Model 6/06	Honeywell Series 60 Model 6/33	Honeywell Series 60 Model 6/34	Honeywell Series 60 Model 6/36	Honeywell Series 60 Model 6/43
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2	2	2	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	bit, ½, 1, 2	bit, ½, 1, 2	bit, ½, 1, 2	bit, ½, 1, 2	bit, ½, 1, 2
Instruction length, words	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
CPU					
Model	Honeywell CPS 92XX	Honeywell CPS 946X	Honeywell CPS 945X	Honeywell CPS 946X	Honeywell CPS 955X
Add time, microseconds	2	1.9	1.9	1.9	—
No. of programmable registers	7	18	18	18	24 + 3 (SIP)
No. of I/O ports on basic system and maximum	64	160 maximum	8 maximum	160 maximum	160 maximum
INTERNAL STORAGE					
Type	NMOS, core	NMOS	NMOS, core	NMOS, core	NMOS
Capacity of basic system, bytes	8K	16K	8K	8K	8K
Maximum capacity, bytes	128K	128K	64K	128K	1024K
Increment size, bytes	8K, 16K	16K, 32K	8K, 16K, 32K	8K, 16K	8K, 16K
Cycle time, microseconds	0.65/0.55, 1.2	0.65/0.55, 1.2	0.65/0.55, 1.2	0.65/0.55, 1.2	0.65/0.55, 1.2
Access time, microseconds	0.44/0.29, 0.4	0.44/0.29, 0.4	0.44/0.29, 0.4	0.44/0.29, 0.4	0.44/0.29, 0.4
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Opt.; 1024K bytes	Opt.; 1024K bytes	Opt.; 1024K bytes	Opt.; 1024K bytes
Cartridge disk drive	Opt.; 40M bytes	Opt.; 80M bytes	Opt.; 40M bytes	Opt.; 40M bytes	Opt.; 40M bytes
Pack disk drive	Opt.; 60M bytes	No	No	No	No
Fixed-head disk/drum	Opt.; 1024K bytes	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Optional	Optional	Optional	Optional	Optional
10-key numeric keyboard	Optional	Optional	Optional	Optional	Optional
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 300 cps	No	No	No	No
Paper tape punch	Opt.; 110 cps	No	No	No	No
Punched card reader	Opt.; 300-1000 cpm	Opt.; 300, 500 cpm	Opt.; 300, 500 cpm	Opt.; 300, 500 cpm	Opt.; 300, 500 cpm
Punched card punch	Opt.; 100-400 cpm	No	No	No	No
Punched card reader/punch	Opt.; 400/100 cpm	No	No	No	No
Serial printer	Opt.; 165 cps	Opt.; 165 cps	Opt.; 165 cps	Opt.; 160 cps	Opt.; 165 cps
Line printer	Opt.; 240-1100 cpm	Opt.; 240-600 lpm	Opt.; 240-600 lpm	Opt.; 240-600 lpm	Opt.; 240-600 lpm
Reel-to-reel tape drive	Opt.; 20 KBS	Opt.; 25-60 KBS	Opt.; 25-60 KBS	Opt.; 25-60 KBS	Opt.; 25-60 KBS
Cassette tape drive	Opt.; 700 cps	Opt.; 700 cps	Opt.; 700 cps	Opt.; 700 cps	Opt.; 700 cps
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Opt.; 12 x 80, 24 x 80 char.	Opt.; 12 x 80, 24 x 80 char.	Opt.; 12 x 80 24 x 80 char.	Opt.; 12 x 80, 24 x 80 char.	Opt.; 12 x 80, 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	128	8/controller	8/controller	8/controller	8/controller
Synchronous	Opt.; to 100K bps	Opt.; to 72K bps	Opt.; to 72K bps	Opt.; to 72K bps	Opt.; to 72K bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	None	Bisync/2780	Bisync/2780	Bisync/2780	Bisync/2780
SOFTWARE SUPPORT					
COBOL	No	Yes	Yes	Yes	Yes
RPG	No	Yes	Yes	Yes	Yes
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Macro assembler	Yes	Yes	Yes	Yes
Other programming languages	None	Macro preprocessor	Macro preprocessor	Macro preprocessor	Macro preprocessor
Multiprogramming	Yes	Yes	Yes	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	No	No	No	No
Industry application areas	Hospital, manuf., inventory, education	Office automation	Office automation	Office automation	Office automation
Data base management system	No	No	No	No	No
File access methods supported	Random, sequential, index seq.	Random, sequential, fixed random	Random, sequential, fixed random	Random, sequential, fixed random	Random, seq., index seq., fixed random
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$5,500 (proc.)	$4,300 (proc.)	$4,500 (proc.)	$3,700 (proc.)	$7,350 (proc.)
Monthly rental of basic system, $	—	$190 (3-yr. lease)	$211 (3-yr. lease)	$161 (3-yr. lease)	$330 (3-yr. lease)
Date of first U.S. delivery	January 1976	April 1978	January 1976	January 1976	1977
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Microprogrammed to emulate the Honeywell 716 CPU	Processor includes basic control panel and 5-slot chassis	Processor includes basic control panel and 4-slot chassis;	Processor includes basic control panel and 5-slot chassis	Processor includes basic control panel and 5-slot chassis.

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Honeywell Series 60 Model 6/47	Honeywell Series 60 Model 6/53	Honeywell Series 60 Level 62	IBM System/3	IBM System/32
DATA FORMATS					
Word length, bits	16	16	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	2	2	2 per byte	1 per byte	1 per byte
Bytes (characters) per word	2	2	1 per byte	1 per byte	1 per byte
Operand length, words	bit, ½, 1, 2	bit, ½, 1, 2	2 bytes	1-16 digits	1-16 digits
Instruction length, words	1, 2, 3	1, 2, 3	2-8 bytes	4-6 bytes	3-6 bytes
CPU					
Model	Honeywell CPS 955X	Honeywell CPS 955X	Honeywell 62	IBM System 3	IBM System 32
Add time, microseconds	—	—	—	24 (5 digits)	150 (5 digits)
No. of programmable registers	24 + 3 (SIP)	24 + 3 (SIP)	29	—	4
No. of I/O ports on basic system and maximum	160 maximum	160 maximum	6 std.; 3 opt.	—	—
INTERNAL STORAGE					
Type	NMOS, core	NMOS, core	MOS	Core, MOS	MOS
Capacity of basic system, bytes	32K	32K	48K		16K
Maximum capacity, bytes	2048K	2048K	224K	256K	32K
Increment size, bytes	16K, 32K	16K, 32K	16K	4, 8, 16, 32K	8K
Cycle time, microseconds	0.65/0.55, 1.2	0.65/0.55, 1.2	1.0	1.52	0.60
Access time, microseconds	0.44/0.29, 0.4	0.44/0.29, 0.4	—	—	0.25
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 1024K bytes	Opt.; 1024K bytes	Opt.; 512K bytes	Opt.; via 3741	Std.; 303K bytes
Cartridge disk drive	Opt.; 80M bytes	Opt.; 80M bytes	Opt.; 46.4M bytes	Opt.; 9.9M bytes	See comments
Pack disk drive	No	No	Opt.; 480M bytes	Opt.; 506M bytes	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Optional	Optional	Standard	Optional	Standard
10-key numeric keyboard	Optional	Optional	Standard	Optional	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	Opt.; 300, 500 cpm	Opt.; 300, 500 cpm	Opt.; 300-1050 cpm	Opt.; 600, 1000 cpm	No
Punched card punch	No	No	Opt.; 100-400 cpm	No	No
Punched card reader/punch	No	No	Opt.; 500, 1000 cpm	Opt.; 250/60 cpm	Opt.; 50/12-50 cpm
Serial printer	Opt.; 165 cps	Opt.; 165 cps	Std.; 30 cps console	Opt.; 85 cps	Std.; 40, 80 cps
Line printer	Opt.; 240-900 lpm	Opt.; 240-900 lpm	Opt.; 100-1600 lpm	Opt.; 100-1100 lpm	Std.; 50-155 lpm
Reel-to-reel tape drive	Opt.; 25-60 KBS	Opt.; 25-60 KBS	Opt.; 10.4-60 KBS	Opt.; 20-80 KBS	No
Cassette tape drive	Opt.; 700 cps	Opt.; 700 cps	Opt.; 700 cps	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Opt.; 12 x 80, 24 x 80 char.	Opt.; 12 x 80, 24 x 80 char.	Opt.; 12 x 80 char.	Opt.; 12 × 40, 12 × 80, 24 × 80 char.	Standard; 6 x 40 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8/controller	8/controller	9	8	1
Synchronous	Opt.; to 72K bps	Opt.; to 72K bps	Opt.; 9600 bps	Opt.; to 50K bps	Opt.; to 7200 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 2400 bps	No	No
Protocols supported	Bisync/2780	Bisync/2780	None	SDLC	SDLC, Bisync
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	No
RPG	Yes	Yes	Yes	RPG II	RPG II
FORTRAN	Yes	Yes	Yes	Yes	No
BASIC	Yes	Yes	No	Yes	No
Assembler	Yes	Yes	No	No	Macro assembler
Other programming languages	Macro preprocessor	Macro preprocessor	None	None	None
Multiprogramming	Yes	Yes	Yes	Yes; 3 partitions	No
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	Partially
General accounting packages	No	No	Yes	Yes	Yes
Industry application areas	Office automation	Office automation	Distribution, manufacturing	Dist., medical, manuf., educ.	Dist., medical, manuf., word proc.
Data base management system	No	No	Yes	No	No
File access methods supported	Random, seq., index seq.; fixed random	Random, seq., index seq.; fixed random	Sequential, indexed, relative	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$19,300	$19,200	$36,879 (proc.)	$22,430	$33,560
Monthly rental of basic system, $	—	—	$885 (1-yr. lease)	$706	$785
Date of first U.S. delivery	April 1978	April 1978	August 1974	December 1970	February 1975
Number installed in U.S. to date	NA	NA	NA	Over 30,000	Over 10,000
COMMENTS	Processor includes basic control panel and 10-slot chassis	Processor includes 4096-word cache memory	Performance increase packages of 25, 67, or 117 percent opt	Six different models currently in line; see Report 70C-491-21 for details	System also includes 3.2M-13.75M bytes of nonremovable disk storage; see Report 70C-491-25 for details

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	IBM System/34	IBM 1130	IBM System/360 Model 20	IBM 5100	IBM 5110
DATA FORMATS					
Word length, bits	8-bit byte	16	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	1 per byte	2	2 per byte	1 per byte	1 per byte
Bytes (characters) per word	1 per byte	2	1 per byte	1 per byte	1 per byte
Operand length, words	1-16 digits	1, 2	1-16 digits	—	—
Instruction length, words	4, 5, 6 bytes	1, 2	2, 4, 6 bytes	2 bytes	2 bytes
CPU					
Model	IBM System/34	IBM 1130	IBM 360/20	IBM 5100	IBM 5110
Add time, microseconds	68.5 (5 digits)	4.9; 8.0	209 (5 digits)	1000 (approx.)	NA
No. of programmable registers	NA	3	8	Software-assigned	Software-assigned
No. of I/O ports on basic system and maximum	—		—	2; variable	2; variable
INTERNAL STORAGE					
Type	MOS	Core	Core	MOS	MOS
Capacity of basic system, bytes	32K	8K	4K	16K	16K
Maximum capacity, bytes	128K	64K	32K	64K	64K
Increment size, bytes	16K, 32K	8K	4K	16K	16K
Cycle time, microseconds	0.60	2.2; 3.6	See comments	0.53 (2 bytes)	0.53 (2 bytes)
Access time, microseconds	—	—	—	0.33	0.33
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 303K bytes	No	No	No	Std.; 4.8M bytes
Cartridge disk drive	See comments	Std.; 5.12M bytes	No	No	No
Pack disk drive	No	Opt.; 5.12M bytes	Opt.; 21.6M bytes	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Optional	Standard	Optional	Standard	Standard
10-key numeric keyboard	Optional	No	No	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	Opt.; 60 cps	No	No	No
Paper tape punch	No	Opt.; 14.8 cps	No	No	No
Punched card reader	No	Opt.; 100, 600 cpm	Opt.; 600, 1000 cpm	No	No
Punched card punch	No	Opt.; 120 cpm	Opt.; 300, 500 cpm	No	No
Punched card reader/punch	No	Opt.; 300/60 cpm	Opt.; 310/90 cpm	No	No
Serial printer	Opt.; 40, 80, 120 cps	Std.; 15 cps	Opt. 15.5 cps	Opt.; 80 cps	Opt.; 80, 120 cps
Line printer	Opt.; 160, 300 lpm	Opt.; 40-1100 lpm	Opt.; 260-1100 lpm	No	No
Reel-to-reel tape drive	No	Opt.; 15 KBS	Opt.; 150-60 KBS	No	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	Std.; 2850 cps	Opt.; 2850 cps
Magnetic ledger card device	No	No	No	No	No
CRT	Optional; 960 or 1920 char.	Optional; 52 x 74 char.	No	Standard; 16 x 64 char.	Standard; 16 x 64 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8	16	1	1	1
Synchronous	Opt.; to 9600 bps	Opt.; to 4800 bps	Opt.; to 50K bps	No	Opt.; to 9600 bps
Asynchronous	No	No	No	Opt.; to 300 bps	Opt.; to 300 bps
Protocols supported	SDLC, Bisync	Bisync	Bisync	IBM 2741	IBM 2741, 3741 2770 Bisync
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	RPG II	Yes	Yes	No	No
FORTRAN	Yes	Yes	No	No	No
BASIC	No	No	No	Yes	Yes
Assembler	Yes	Yes, and macro	Yes, and macro	No	No
Other programming languages	No	None	PL/1	APL	APL
Multiprogramming	Yes; 8 partitions	No	No	No	No
Language implemented in firmware	Partially	No	No	Fully	Fully
Operating system implemented in firmware	Partially	No	No	Fully	Fully
General accounting packages	Yes	Yes	Yes	No	Yes
Industry application areas	Distribution, medical, manufacturing	Engin., manuf., dist., medical	Manuf., dist., educ., gov't.	Financial analysis, statistics	Financial analysis, statistics
Data base management system	No	No	No	No	No
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Sequential	Sequential
Software separately priced	Yes	Yes	Yes	Some	Some
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$34,700	$19,840	$11,740	$6,285	$8,475
Monthly rental of basic system, $	$1,062	$136	$555	$300 (3-mo. lease)	NA
Date of first U.S. delivery	January 1978	1965	November 1964	September 1975	February 1978
Number installed in U.S. to date	NA	4,000 (approx.)	10,000 (approx.)	NA	NA
COMMENTS	Multi-user system; serves up to 8 local and 64 remote work-stations; system includes 8.6M to 27.1M bytes of non-removable disk storage; see Report 70C-491-27 for details	Also available without std. disk for as little as $14,150; cycle times vary with processor model; no longer marketed	Low end of IBM's 360 Series; cycle times vary with processor model; no longer marketed	Portable computer weighing 50 lbs.; RS-232C interface available for non-IBM peripherals	Enhanced version of IBM 5100 with 2 to 3 times the internal computing power plus diskette I/O; 5110 with both diskette and tape costs $9,875

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Infotecs Inc. IMP	International Computers, Ltd. 1501/40	International Computers, Ltd. 1503/43	International Computers, Ltd. 1503/44B	Jacquard Systems J50 Videocomputer
DATA FORMATS					
Word length, bits	12	8	8	8	16
Decimal digits per word	2	1	1	1	4
Bytes (characters) per word	2	1	1	1	2
Operand length, words	½-6	—	—	—	1
Instruction length, words	1	2	2	2	1
CPU					
Model	IMP 1	ICL 1501/40	ICL 1503/43	ICL 1503/44B	NS IMP-16
Add time, microseconds	39 (7 digits)	150 (5 digits)	150 (5 digits)	150 (5 digits)	9.50
No. of programmable registers	2	7	7	7	4
No. of I/O ports on basic system and maximum	4, 5	Daisy chain 63	Daisy chain 63	Daisy chain 63	2
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS, core
Capacity of basic system, bytes	24K	16K	16K	16K	32K
Maximum capacity, bytes	24K	16K	32K	32K	128K
Increment size, bytes	—	—	8K	8K	32K
Cycle time, microseconds	0.5	0.3	0.3	0.3	1.5
Access time, microseconds	—	4.0	4.0	4.0	1.4
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 3.8M bytes	No	No	No	Std.; (2) 250K bytes
Cartridge disk drive	No	No	Std.; 10M bytes	Std.; 10M bytes	No
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	Std.; 2.5M bytes	Std.; 10M bytes	Std.; 10M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Optional	Optional	Optional	Standard
10-key numeric keyboard	Standard	Optional	Standard	Standard	Standard
Full accounting keyboard	No	Standard	Standard	Standard	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	Optional	Optional	Optional	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	Optional	Optional	Optional	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	No	Opt.; 165/330 cps	Opt.; 165/330 cps	Opt.; 165/330 cps	No
Line printer	Std.; 125 lpm	Opt.; 100-400 lpm	Opt.; 100-400 lpm	Opt.; 100-400 lpm	Opt.; to 1100 lpm
Reel-to-reel tape drive	No	Optional	Optional	Optional	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	Std.; 2000 cps	Std.; 2000 cps	Std., 2000 cps	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 256 char.	Std.; 24 x 80 lines	Std.; 24 x 80 lines	Std.; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	2	2	2	1
Synchronous	No	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; 2400 bps	Opt.; 1800 bps	Opt.; 1800 bps	Opt.; 1800 bps	Opt.; to 9600 bps
Protocols supported	None	2780, 3780, 360/20, UT200, Univac 100	2780, 3780, 360/20, UT200, Univac 100	2780, 3780, 360/20, UT200, Univac 100	IBM 2780/3780;
SOFTWARE SUPPORT					
COBOL	No	Yes	Yes	Yes	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	No	Yes	Yes	Yes	Yes
Assembler	No	Yes	Yes	Yes	Yes
Other programming languages	HIBOL	BTL, CDE, ADE	BTL, CDE, ADE	BTL, CDE, ADE	None
Multiprogramming	No	No	No	No	No
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Acct., fuel oil, payroll, route dist., gen. ledg.	Dist., POS, gov't.,inv. con., banking	Dist., POS, gov't., inv. con., banking	Dist., POS, gov't., inv. con., banking	Distrib. processing, bus., med., word proc.
Data base management system	No	Yes	Yes	Yes	No
File access methods supported	Sequential, index sequential, random	Sequential, index sequential	Sequential, index sequential	Sequential, index sequential	Sequential, random, index sequential
Software separately priced	Yes	Some	Some	Some	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$6,995	$13,600	$18,000	$22,000	$11,500
Monthly rental of basic system, $	Contact vendor	$104	$360	$440	—
Date of first U.S. delivery	September 1977	1975	1975	1978	August 1975
Number installed in U.S. to date	106	10	100	—	150
COMMENTS	Programs compatible with DEC PDP-8; complete systems, including software, are sold and serviced by Infotec dealers				Includes CPU with 32K bytes of memory.

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Jacquard Systems J100 Videocomputer	Jacquard Systems J500 Videocomputer	Katcard Systems KSL System 340	Keydata Unity Series	Litton/Sweda International Litton 1600 Series
DATA FORMATS					
Word length, bits	16	16	18	16	16
Decimal digits per word	4	4	4	—	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1	1	1	½, 1	½, 1
Instruction length, words	1	1	1	1	1
CPU					
Model	NS IMP-16	Bit-slice	GA 440	DG 3/4, 3/12, 3/D	DG Nova 1220
Add time, microseconds	9.5	8.10	0.600	0.7	0.95
No. of programmable registers	4	4	16	12	4
No. of I/O ports on basic system and maximum	1; 62	3	32	24	1
INTERNAL STORAGE					
Type	MOS, core	MOS	Core	MOS	Core
Capacity of basic system, bytes	32K	32K	128K	64K	64K
Maximum capacity, bytes	128K	128K	2048K	256K	64K
Increment size, bytes	32K	32K	32K	64K	—
Cycle time, microseconds	1.5	0.50	0.72	0.70	1.2
Access time, microseconds	3.0	0.67	0.40	0.35	0.5
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 2; 250K bytes	Std.; 2; 250K bytes	No	No	No
Cartridge disk drive	Opt.; 4; 80M bytes	No	Std.; 10M bytes	No	Std.; 40M bytes
Pack disk drive	Opt.; 4; 80M bytes	Opt.; 4; 48M bytes	Opt.; 300M bytes	Std.; 320M bytes	No
Fixed-head disk/drum	No	No	Opt.; 2.48M bytes	Opt.; 1M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	No	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	No	No	Std.; 165 cps	Std.; 165 cps	Std.; 165 cps
Line printer	Opt.; to 1100 lpm	Opt.; to 1100 lpm	Std.; 600 lpm	Opt.; 70-1100 lpm	No
Reel-to-reel tape drive	Opt.; 72KBS	No	Opt.; 20KBS	No	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.; up to 30 units	Std.; 1920 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Opt.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	32	2	32	20	8
Synchronous	Opt.; to 9600 bps	Std.; to 9600 bps	Optional	Optional	—
Asynchronous	Opt.; to 9600 bps	Std.; to 9600 bps	Std.; 9600 bps	Optional	—
Protocols supported	IBM 2780/3780; SILA II	IBM 2780/3780, SILA II	IBM 2780, SDLC, HASP	IBM 3780	—
SOFTWARE SUPPORT					
COBOL	No	No	Yes	No	No
RPG	No	No	Yes	Yes	No
FORTRAN	No	No	Yes	No	No
BASIC	Yes	Yes	Yes	No	Yes
Assembler	Yes	Yes	Yes	Yes	No
Other programming languages	None	None	Comfort	No	None
Multiprogramming	Yes; 100 partitions	Yes	Yes; variable	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Distrib. processing, bus., med., word proc.	Distrib. processing, bus., med., word proc.	Payroll, mfg., work in process	Plumbing, heating & air. cond., ind. supply	Wholesale distribution, client acctg.
Data base management system	No	No	Yes	Yes	No
File access methods supported	Sequential, random, index sequential	Sequential, random, index sequential	Random, sequential, index sequential	Sequential, index sequential	Sequential, index sequential
Software separately priced	Yes (app. packages)	Yes (app. packages)	Yes	No	Yes
Technical help separately priced	Yes	Yes	Yes	No	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$14,900	$9,200	$38,000	$48,000	$40,140
Monthly rental of basic system, $	—	—	$1,000	Purchase only	—
Date of first U.S. delivery	August 1975	NA	March 1976	July 1978	—
Number installed in U.S. to date	500	NA	3	NA	NA
COMMENTS		Includes CPU with 64K bytes of memory	Turnkey systems for manufacturing	One year's full system support included purchase price	

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Lockheed System III	Logical Machine Corp. ADAM	Logical Machine Corp. ADAM the Younger	Microdata Reality	Microdata Reality II
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2	5	5	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	16	NA	NA	½, 1, 2, 3	½, 1, 2, 3
Instruction length, words	1, 2	NA	NA	½, 1, 2, 3	½, 1, 2, 3
CPU					
Model	Lockheed SUE	LOMAC-prop.	LOMAC-prop.	Microdata 1600	Microdata 1600
Add time, microseconds	(3 digits) 2.85	NA	NA	5	5
No. of programmable registers	12	NA	NA	34	34
No. of I/O ports on basic system and maximum	16, 24	5	7	—	—
INTERNAL STORAGE					
Type	MOSFET	MOS	MOS	Core	Core
Capacity of basic system, bytes	32K	32K	48K	16K	16K
Maximum capacity, bytes	256K	64K	48K	128K	32K
Increment size, bytes	32K	32K	NA	8, 16K	8K
Cycle time, microseconds	0.6	0.17	0.17	1	1
Access time, microseconds	0.47-0.52	0.50	0.50	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 1.0M bytes	Opt.; 250K bytes	Std.; 5M bytes	No	No
Cartridge disk drive	Std.; 40M bytes	Std.; 10.6M bytes	No	Std.; 40M bytes	Std.; 10M bytes
Pack disk drive	Opt.; 600M bytes	No	No	Opt.; 600M bytes	No
Fixed-head disk/drum	No	No	No	Opt.; 40M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Optional	Optional
10-key numeric keyboard	Standard	Standard	Standard	87	Optional
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	Opt.; 285, 300 cpm	No	No	Opt.; 300 cpm	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 180 cps	Std.; 165 cps	Std.; 110 cps	Opt.; 165 cps	Opt.; 165 cps
Line printer	Opt.; 300, 600 lpm	Opt.; 200 lpm	No	Opt.; 300-600 lpm	Opt.; 300 lpm
Reel-to-reel tape drive	Opt.; 800 bpi	No	No	Std.; 20, 40 KBS	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	8	No	One	32	1
Synchronous	Opt.; 9600 bps	No	No	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; 9600 bps	No	No	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	RPG II, HASP, 2780, 3780, 3741, 1004	No	No	IBM 2780	IBM 2780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	Yes	No	No	Yes	Yes
FORTRAN	Yes	No	No	No	No
BASIC	No	No	No	Yes	Yes
Assembler	Yes	No	No	Yes	Yes
Other programming languages	No	Natural English	Natural English	English	English
Multiprogramming	Yes	No	No	Yes	Yes
Language implemented in firmware	No	Partial	Partial	Partially	Partially
Operating system implemented in firmware	No	NA	NA	Partially	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Insurance, medical, banking	All	All	Engin., education, time-share, acctg.	Engin., education, time-share, acctg.
Data base management system	No	NA	NA	Yes	Yes
File access methods supported	Sequential, direct, indexed	NA	NA	Random, sequential	Random, sequential
Software separately priced	Applications	No	No	No	No
Technical help separately priced	Yes	Yes	Yes	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$29,950	$34,995	$14,995	$40,300	$31,500
Monthly rental of basic system, $	NA	$800 (lease)	$350 (lease)	Purchase only	Purchase only
Date of first U.S. delivery	1973	April 1975	September 1978	November 1973	November 1973
Number installed in U.S. to date	500 (both models)	Over 350	—	Over 500	Over 500
COMMENTS		Unique natural language programming; no compilers or assemblers	Unique natural language programming; no compilers or assemblers	Multi-user, interactive system; marketed through a nationwide dealer network	

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Microdata Royale	Mini-Computer Systems MICOS	Mini-Computer Systems MICOS II	Minuteman Computer Corp. 1774	Minuteman Computer Corp. 1775
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	2	4	4	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	½, 1, 2, 3	Variable	Variable	1	1
Instruction length, words	½, 1, 2, 3	1	1	1, 2	1, 2
CPU					
Model	Microdata 1600	DG Nova 3/4	DG Nova 3/12	DG Nova 3/4	DG Nova 3/12
Add time, microseconds	5	0.7	1.0	2.7	2.7
No. of programmable registers	34	4	4	5	5
No. of I/O ports on basic system and maximum	—	62 maximum	62 maximum	2	14
INTERNAL STORAGE					
Type	Core	MOS	Core	Core	Core
Capacity of basic system, bytes	16K	64K	65K	16K	16K
Maximum capacity, bytes	128K	64K	256K	32K	192K
Increment size, bytes	16K	NA	32K	8, 16K	8, 16, 32K
Cycle time, microseconds	1	0.7	1.0	0.8; 1.0	0.8; 1.0
Access time, microseconds	—	0.35	0.5	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	No	No	No	No
Cartridge disk drive	Std.; 40M bytes	Std.; 9.8M bytes	Opt.; 9.8M bytes	Std.; 80M bytes	Std.; 80M bytes
Pack disk drive	Opt.; 600M bytes	No	Std.; 80M bytes	Opt.; 1280M bytes	Opt.; 1280M bytes
Fixed-head disk/drum	Opt.; 40M bytes	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Optional	Standard	Standard	Standard	Standard
10-key numeric keyboard	Optional	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	Optional	Optional
Paper tape punch	No	No	No	Optional	Optional
Punched card reader	Opt.; 300 cpm	No	Opt.; 300-1000 cpm	Optional	Optional
Punched card punch	No	No	No	Optional	Optional
Punched card reader/punch	No	No	No	Optional	Optional
Serial printer	Opt.; 165 cps	Std.; 60 cps	Std.; 165 cps	Std.; 165 cps	Std.; 165 cps
Line printer	Opt.; 300-600 lpm	Opt.; 300 lpm	Opt.; 300, 600 lpm	Opt.; 300-900 lpm	Std.; 300-900 lpm
Reel-to-reel tape drive	Std.; 20, 40 KBS	No	Opt.; 36-120 KBS	Optional	Optional
Cassette tape drive	No	No	No	Optional	Optional
Cartridge tape drive	No	No	No	Optional	Optional
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	32	1	1	1	1
Synchronous	Opt.; to 9600 bps	Opt.; 50,000 bps	Opt.; 50,000 bps	Optional	Optional
Asynchronous	Opt.; to 9600 bps	No	No	Optional	Optional
Protocols supported	IBM 2780	IBM 2780, HASP	IBM 2780, HASP	None	None
SOFTWARE SUPPORT					
COBOL	No	No	No	Yes	Yes
RPG	Yes	No	No	No	No
FORTRAN	No	No	No	Yes	Yes
BASIC	Yes	Yes (Extensive)	Yes (Extensive)	Yes	Yes
Assembler	Yes	No	No	Yes	Yes
Other programming languages	English	No	No	None	None
Multiprogramming	Yes	Yes; 2 partitions	Yes; 16 partitions	No	No
Language implemented in firmware	Partially	No	No	No	No
Operating system implemented in firmware	Partially	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Engin., education, time-share, acctg.	Munic. govt., educ., fuel, apparel, etc.	Munic. govt., educ., fuel, apparel, etc.	Dist., mfg., liquor wholesalers	Dist., mfg., liquor wholesalers
Data base management system	Yes	No	No	Yes	Yes
File access methods supported	Random, sequential	Sequential, random, index sequential	Sequential, random, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	No	Yes (applications)	Yes (applications)	Yes	Yes
Technical help separately priced	No	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$35,995	$28,750	$49,900	$24,340	$25,340
Monthly rental of basic system, $	Purchase only	$995	NA	Purchase only	Purchase only
Date of first U.S. delivery	December 1978	1977	February 1973	1973	1973
Number installed in U.S. to date	NA	Over 800 all mdls.	Over 800 all mdls.	10	30
COMMENTS	Multi-user, interactive system; marketed through a nationwide dealer network			Turnkey system	Turnkey system

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Minuteman Computer Corp. 1776	Mylee Digital Sciences System 3000	NCR Century 50 and 50 Mod 1	NCR Century 75	NCR Century 100
DATA FORMATS					
Word length, bits	16	16	8	8	8
Decimal digits per word	2	2	2	2	2
Bytes (characters) per word	2	2	1	1, 2	1
Operand length, words	1	½-8	1-256	1-256	1-256
Instruction length, words	1, 2	1-3	4-8	4-8	4-8
CPU					
Model	DG Nova 3/12	Mylee System 3000	NCR 615-910	NCR 615-950	NCR 615-910
Add time, microseconds	2.7	125 (5 digits)	59 (5 digits)	28.8 (5 digits)	59 (5 digits)
No. of programmable registers	5	4	63	—	63
No. of I/O ports on basic system and maximum	14	11; 19	6; 7	2; 2	6; 7
INTERNAL STORAGE					
Type	Core	MOS	Thin film	Core	Thin film
Capacity of basic system, bytes	32K	88K	16K	16K	16K
Maximum capacity, bytes	192K	152K	32K	64K	32K
Increment size, bytes	8, 16, 32K	32K	16K	8K, 16K	16K
Cycle time, microseconds	0.8; 1.0	0.8	0.800	1.2	0.800
Access time, microseconds	—	0.4	—	0.600	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Optional	No	No	No
Cartridge disk drive	Std.; 80M bytes	Std.; 12.5M bytes	No	No	No
Pack disk drive	Opt.; 1280M bytes	Optional	Std.; 16M bytes	Std.; 9.98M bytes	Std.; 16M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	—	Standard	Standard	Standard
10-key numeric keyboard	Standard	—	Standard	No	Standard
Full accounting keyboard	No	—	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	No	Opt.; 1000, 1500 cps	No	Opt.; 1000, 1500 cps
Paper tape punch	Optional	No	Opt.; 200 cps	No	Opt.; 200 cps
Punched card reader	Optional	No	Std.; 300 cpm	No	Std.; 300 cpm
Punched card punch	Optional	No	Opt.; 60-294 cpm	No	Opt.; 60-294 cpm
Punched card reader/punch	Optional	No	No	Std.; 300 cpm	No
Serial printer	Std.; 165 cps	Std.; 165 cpm	Opt.; 6 cps	No	Opt.; 6 cps
Line printer	Std.; 300-900 lpm	Opt.; 300 lpm	Std.; 125-900 lpm	Std.; 200-450 lpm	Std.; 450-1500 lpm
Reel-to-reel tape drive	Optional	No	Opt.; 10-80 KBS	No	Opt.; 10-40 KBS
Cassette tape drive	Optional	No	Opt.; 750 cps	Opt.; 750 cps	Opt.; 750 cps
Cartridge tape drive	Optional	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Std.; 332, 720, 1920 char.	Optional; 24 x 80 char.	Optional; 24 x 80 char.	Optional; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	16	16	10	16
Synchronous	Optional	Std.; 4800 bps	Opt.; to 9600 bps	Opt.; to 4800 bps	Opt.; to 9600 bps
Asynchronous	Optional	Opt.; to 1200 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	None	2780, 3780, SDLC	IBM 2780, Bisync	IBM 2780, Bisync	IBM 2780, bisync
SOFTWARE SUPPORT					
COBOL	Yes	No	Yes	Yes	Yes
RPG	No	No	RPG II	Yes	RPG II
FORTRAN	Yes	No	No	Yes	No
BASIC	Yes	No	Yes	Yes	Yes
Assembler	Yes	No	No	Yes	No
Other programming languages	None	ACE	NEAT/3	NEAT/3	NEAT/3
Multiprogramming	No	Yes; 12 partitions	No	No	No
Language implemented in firmware	No	Partially	No	No	No
Operating system implemented in firmware	No	Partially	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Dist., mfg., liquor wholesalers	Distribution	All business applications	All business applications	All business applications
Data base management system	Yes	Yes	No	Yes	No
File access methods supported	Random, sequential, index sequential	Index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Some	Yes	Yes	Yes
Technical help separately priced	Yes	No	Yes	Some	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$26,840	$42,850	$32,000	$56,850	$40,000
Monthly rental of basic system, $	Purchase only	Purchase only	$1,075	$1,650	$1,600
Date of first U.S. delivery	1973	May 1976	December 1970	May 1976	March 1963
Number installed in U.S. to date	40	125	NA	NA	NA
COMMENTS	Turnkey system	Total turnkey system from design to installation	Century 50 and 50 Mod 1 are no longer manufactured; see Report 70C-656-01 for details		Century 100 is no longer manufactured; see Report 70C-656-01 for details

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	NCR Century 101	NCR Century 151	NCR 299-100/200	NCR 499	NCR 8130
DATA FORMATS					
Word length, bits	8	8	64	16	16
Decimal digits per word	2	2	16	4	2
Bytes (characters) per word	1	1	8	2	1
Operand length, words	1-256	1-256	1	12 bits	1
Instruction length, words	4-8	4-8	1	Variable	2, 3
CPU					
Model	NCR 615-952	NCR 615-955	NCR 299	NCR 605	CCM II
Add time, microseconds	25.2 (5 digits)	15.8 (5 digits)	220 milliseconds	1700 (5 digits)	2.0 (5 digits)
No. of programmable registers	63	63	10-50/30-100	0	0
No. of I/O ports on basic system and maximum	5; 32	5; 32	3, 5/10 devices	4; 15	32
INTERNAL STORAGE					
Type	Core	MOS	Core	Core	MOS
Capacity of basic system, bytes	16K	32K	4K/8K bits	12K	48K
Maximum capacity, bytes	128K	131K	8K/16K bits	32K	64K
Increment size, bytes	8K, 16K, 32K	16K, 32K	4K/8K bits	2K, 4K	16K
Cycle time, microseconds	1.2	0.75	7 (per bit)	1.2	0.600
Access time, microseconds	0.600	—	—	0.650	0.620
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	No	No	No	Std.; 300K bytes
Cartridge disk drive	Std.; 19.6M bytes	Std.; 19.6M bytes	No	Opt.; 9.8M bytes	No
Pack disk drive	Opt.; 380M bytes	Opt.; 380M bytes	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Yes	Yes	Standard
10-key numeric keyboard	Standard	Standard	Yes	Yes	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 1000, 1500 cps	Opt.; 1000, 1500 cps	No	Opt.; 125 cps	No
Paper tape punch	Opt.; 200 cps	Opt.; 200 cps	Opt.; 50 cps	Opt.; 75 cps	No
Punched card reader	Std.; 300 cpm	Std.; 300 cpm	No	Opt.; 300 cpm	No
Punched card punch	Opt.; 60-294 cpm	Opt.; 60-294 cpm	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 6 cps	Std.; 6 cps	Std.; 15 cps	Std.; 75 to 130 cps	Std.; 130 cps
Line printer	Std.; 300-3500 lpm	Opt.; 300-3500 lpm	No	Opt.; 55-300 lpm	Opt.; 200 lpm
Reel-to-reel tape drive	Opt.; 40-320 KBS	Opt.; 40-320 KBS	No	No	No
Cassette tape drive	Opt.; 750 cps	Opt.; 750 cps	Opt.; 750 cps	Std.; 750 cps	Opt.; 750 cps
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	Optional	Opt.; 47 cpm	No
CRT	Optional; 24 x 80 char.	Optional; 24 x 80 char.	No	Standard; 24 x 80 char.	Standard; 16 x 32 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	255	255	None/one	2	1
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	None	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	None/opt.	Opt.; to 1800 bps	NA
Protocols supported	IBM 2780, bisync	IBM 2780	None	Bisync	IBM 2780/3780, SDLC
SOFTWARE SUPPORT					
COBOL	Yes	Yes	No	No	Yes
RPG	RPG II	RPG II	No	No	No
FORTRAN	FORTRAN IV	FORTRAN IV	No	No	No
BASIC	Yes	Yes	No	No	Yes
Assembler	Yes	Yes	Yes	No	No
Other programming languages	NEAT/3	NEAT/3	None	NEAT/AM	No
Multiprogramming	Yes; 9 partitions	Yes; 9 partitions	No	No	Yes
Language implemented in firmware	No	No	Yes	No	No
Operating system implemented in firmware	No	No	Yes	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	All business applications	All business applications	Retail, financial, mfg., wholesale	All business accounting	Wholesale dist., medical, educ., mfg.
Data base management system	TOTAL	TOTAL	No	No	No
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	None	Random, sequential	Sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$69,520	$120,325	$7,250/$9,300	$17,900	$14,065
Monthly rental of basic system, $	$2,005	$2,975	$310 (see comments)	Purchase only	$531
Date of first U.S. delivery	August 1972	February 1975	January 1974	February 1976	March 1978
Number installed in U.S. to date	Over 1,200	NA	Over 15,000	NA	NA
COMMENTS	See Report 70C-656-01 for details on the NCR Century line		Rental price shown is for 299-200; 299-100 is available for purchase only		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	NCR 8150	NCR 8230	NCR 8250	Nixdorf 8870	Northrop Data Systems BDS Series 500
DATA FORMATS					
Word length, bits	16	16	16	16	Variable, 8-32
Decimal digits per word	2	4	4	4	1-7
Bytes (characters) per word	1	2	2	2	1-4
Operand length, words	1	1	1	1	Variable
Instruction length, words	2, 3	1, 2, 3	1, 2, 3	1	Variable
CPU					
Model	CCM II	NCR 6080	NCR 6080	DCC D-116H	Microdata 1600
Add time, microseconds	2.0 (5 digits)	2.4 (8 digits)	2.4 (8 digits)	1.0 (1 word)	9.68 (7 digits)
No. of programmable registers	0	0	0	4	16
No. of I/O ports on basic system and maximum	32	8	8	17	1, 2
INTERNAL STORAGE					
Type	MOS	MOS	MOS	Core	Core
Capacity of basic system, bytes	48K	64K	48K	64K	16K
Maximum capacity, bytes	64K	96K	128K	128K	64K
Increment size, bytes	16K	16K	16K	32K	8, 16K
Cycle time, microseconds	0.600	0.8	0.8	0.96	1.0
Access time, microseconds	0.620	—	—	0.96	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 500K bytes	Opt.; 250K bytes	Opt.; 250K bytes	No	No
Cartridge disk drive	No	No	No	Std.; 40M bytes	Std.; 10M bytes
Pack disk drive	Opt.; 40M bytes	Std.; 40M bytes	Std.; 80M bytes	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	Opt.; 300 cpm	Opt.; 300 cpm	No	Opt.; 1000 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 130 cps	Opt.; 50 lpm	Opt.; 50 lpm	Std.; 165 cps	Opt.; 30-120 cps
Line printer	Opt.; 200 lpm	Opt.; 125-600 lpm	Opt.; 125-600 lpm	Opt.; 300 lpm	Std.; 150 lpm
Reel-to-reel tape drive	No	Opt.; 10/20 KBS	Opt.; 10/20 KBS	No	Opt.; 20 KBS
Cassette tape drive	Opt.; 750 cps	Std.; 750 cps	Std.; 750 cps	No	No
Cartridge tape drive	Std.; 6000 cps	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 16 x 32 char.	Standard; 24 x 80 char.	Standard; 24 x 80 char.	Standard; 27 x 74 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	5	7	8	2
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt. to 9600 bps	No	No
Asynchronous	NA	Opt.; to 9600 bps	Std.; to 9600 bps	Std.; to 1200 bps	Std.; to 1200 bps
Protocols supported	IBM 2780/3780, SDLC	IBM 2780/3780	IBM 2780/3780	TTY	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes	No	No	Yes	Yes
Assembler	No	Yes	Yes	No	Yes
Other programming languages	No	No	No	None	None
Multiprogramming	Yes	Yes	Yes	Yes	Yes; 3 partitions
Language implemented in firmware	No	No	No	No	Partially
Operating system implemented in firmware	No	No	No	No	Partially
General accounting packages	Yes	Yes	Yes	Yes; APL, GL, pay.	Yes
Industry application areas	Wholesale dist., medical, educ., mfg.	Wholesale dist., medical, educ., mfg.	Wholesale dist., medical, educ., mfg.	Distribution, medical, garment	Hospital, medical, furniture manuf.
Data base management system	No	No	No	No	Yes
File access methods supported	Sequential, index sequential	Sequential, index sequential	Sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$22,960	$34,250	$36,250	$33,500	$29,500
Monthly rental of basic system, $	$759	$1,145	$1,205	$1,051	Purchase only
Date of first U.S. delivery	March 1978	August 1977	March 1977	1975	March 1977
Number installed in U.S. to date	NA	NA	NA	300	NA
COMMENTS				Turnkey system that includes NIDAS distribution accounting system, mortgage closing, and client accounting	Number of CRT's is limited to two

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Northrop Data Systems BDS Series 1000	Northrop Data Systems BDS Series 2000	Olivetti A4	Olivetti A5 Model 10	Olivetti A5 Model 20
DATA FORMATS					
Word length, bits	Variable, 8-32	Variable, 8-32	8-bit byte	64	64
Decimal digits per word	1-7	1-7	2 per byte	15	15
Bytes (characters) per word	1-4	1-4	1 per byte	8	8
Operand length, words	Variable	Variable	—	8 bits	8 bits
Instruction length, words	Variable	Variable	1, 2 bytes	4 instr./word	4 instr./word
CPU					
Model	Microdata 1600	Microdata 1600	Olivetti 4000	Olivetti 5010	Olivetti 5020
Add time, microseconds	9.68 (7 digits)	9.68 (7 digits)	150 milliseconds	10	10
No. of programmable registers	16	16	10	47	11, 229, 485
No. of I/O ports on basic system and maximum	4, 16	4, 16	1	2	2
INTERNAL STORAGE					
Type	Core	Core	MOS	MOS	MOS
Capacity of basic system, bytes	24K	32K	224	0.5K (user)	1K (user)
Maximum capacity, bytes	64K	64K	224	4K (user)	4K (user)
Increment size, bytes	8, 16K	8, 16K	—	1K, 2K	1K, 2K
Cycle time, microseconds	1.0	1.0	5 milliseconds	1.5	1.5
Access time, microseconds	——	—	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	No	No	No	No
Cartridge disk drive	Std.; 10M bytes	Std.; 20M bytes	No	No	No
Pack disk drive	No	Opt.; 80M bytes	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	No	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	Opt.; 24 cps	Opt.; 24 cps	Opt.; 24 cps
Punched card reader	Opt.; 1000 cpm	Opt.; 300 cpm	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 30-120 cps	Opt.; 30-120 cps	Std.; 16 cps	Std.; 16 cps	Std.; 16 cps
Line printer	Std.; 300 lpm	Std.; 300 lpm	No	No	No
Reel-to-reel tape drive	Opt.; 20 KBS	Opt.; 20 KBS	No	No	No
Cassette tape drive	No	No	Opt.; 1000 cps	Opt.; 1000 bps	Opt.; 1000 bps
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Standard; 24 x 80 char.	No	No	No
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	4	8	None	1	1
Synchronous	No	No	No	Opt.; to 4800 bps	Opt.; to 4800 bps
Asynchronous	Std.; to 1200 bps	Std.; to 1200 bps	No	Opt.; to 1200 bps	Opt.; to 1200 bps
Protocols supported	None	None	None	IBM 2848, 2260, 2780	IBM 2848, 2260, 2780
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes	Yes	No	No	No
Assembler	Yes	Yes	No	Yes	Yes
Other programming languages	None	None	BAL	APLO	APLO
Multiprogramming	Yes; 3 partitions	Yes; 3 partitions	No	No	No
Language implemented in firmware	Partially	Partially	Fully	Fully	Fully
Operating system implemented in firmware	Partially	Partially	Fully	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Hospital, medical, furniture manuf.	Hospital, medical, furniture manuf.	Credit union, finan. fuel oil	Credit union, educ., distrib.	Credit union, educ., distrib.
Data base management system	Yes	Yes	No	No	No
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	None	None	None
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$45,526	$63,089	$2,695	$4,900	$7,400
Monthly rental of basic system, $	Purchase only	Purchase only	Leases available	Leases available	Leases available
Date of first U.S. delivery	June 1972	1973	November 1975	February 1975	February 1975
Number installed in U.S. to date	75	60	Over 2,000	NA	NA
COMMENTS				Integral mag card unit allows mag cards to be used for program storage and data I/O.	Integral mag card unit allows mag cards to be used for program storage and data I/O.

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Olivetti A5 Model 30	Olivetti A6	Olivetti A7 (7072 CPU)	Olivetti A7 (7074 CPU)	Olivetti BCS 3030
DATA FORMATS					
Word length, bits	64	64	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	15	15	2 per byte	2 per byte	2 per byte
Bytes (characters) per word	8	8	1 per byte	1 per byte	1 per byte
Operand length, words	8 bits	8 bits	1-3 bytes	1-3 bytes	1-3 bytes
Instruction length, words	4 instr./word	4 instr./word	1, 2 bytes	1, 2 bytes	1, 2 bytes
CPU					
Model	Olivetti 5030	Olivetti 5040	Olivetti 7072	Olivetti 7074	Olivetti 3001
Add time, microseconds	10	10 (word)	6.1	6.1	—
No. of programmable registers	111, 229, 485	229, 485	—	—	—
No. of I/O ports on basic system and maximum	2	4	16	16	—
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	2K (user)	2K (user)	16K (user)	16K (user)	40K (user)
Maximum capacity, bytes	4K (user)	4K (user)	48K (user)	48K (user)	56K (user)
Increment size, bytes	1K, 2K	2K	8K	8K	8K
Cycle time, microseconds	1.5	1.5	0.56	0.56	—
Access time, microseconds	—	—	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Opt.; 1.2M bytes	No	Std.; 512K bytes	Std.; 1024M bytes
Cartridge disk drive	No	No	Opt.; 20M bytes	Opt.; 20M bytes	Opt.; 20M bytes
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	No	Opt.; 160K bytes	Opt.; 160K bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 20 cps	Opt.; 20 cps	Opt.; 20 cps	Opt.; 20 cps	Opt.; 20 cps
Paper tape punch	Opt.; 24 cps	Opt.; 24 cps	Opt.; 24 cps	Opt.; 24 cps	Opt.; 24 cps
Punched card reader	No	No	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 16 cps	Std.; 16 cps	Std.; 40 cps	Std.; 40 cps	Opt.; 90-175 cps
Line printer	Opt.; 60 lpm	Opt.; 60-130 lpm	Opt.; 300-600 lpm	Opt.; 300-600 lpm	Opt.; 300-600 lpm
Reel-to-reel tape drive	No	No	No	No	Optional
Cassette tape drive	Opt.; 1000 bps	Opt.; 1000 cps	Std.; 1000 bps	Opt.; 1000 bps	Opt.; 1000 cps
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	Optional	No	No	No
CRT	No	No	16-char. alpha-numeric display	16-char. alpha-numeric display	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	1	1	1	1
Synchronous	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps
Protocols supported	IBM 2848, 2260, 2780	IBM 2848, 2260, 2780	Bisync	Bisync	Bisync
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	Yes	Yes	Yes
FORTRAN	No	No	No	No	No
BASIC	No	No	No	No	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	APLO	APCO	PL/1	PL/1	Yes
Multiprogramming	No	No	Yes; 2 partitions	Yes; 2 partitions	Yes (2 partitions)
Language implemented in firmware	Fully	Fully	Fully	Fully	No
Operating system implemented in firmware	No	Partially	Partially	Partially	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Credit union, educ., distrib.	Whlsl. dist., credit, unions, educ.	Whlsl. dist., contractors	Whlsl. dist., contractors	Whlsl. dist., utilities
Data base management system	No	No	Yes	Yes	Yes
File access methods supported	None	Randon, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$8,350	$8,350	$10,535	$13,125	$9,950
Monthly rental of basic system, $	Leases available	Leases available	Leases available	Leases available	Leases available
Date of first U.S. delivery	February 1975	January 1976	March 1975	March 1975	March 1978
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Integral mag card unit allows mag cards to be used for program storage and data I/O	Integral mag card unit allows mag cards to be used for program storage and data I/O			

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*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Olivetti P 6060	Philips P310	Philips P320	Philips P330	Philips P430
DATA FORMATS					
Word length, bits	—	8-bit byte	8-bit byte	8	Variable
Decimal digits per word	—	1 per byte	1 per byte	1	Variable
Bytes (characters) per word	—	1 per byte	1 per byte	1	1
Operand length, words	—	Variable	Variable	Variable	Variable
Instruction length, words	—	Variable	Variable	1-8 bits	Variable
CPU					
Model	Olivetti 6601, 6602	Philips 310	Philips 320	Philips P330	Philips P430
Add time, microseconds	—	—	—	1.2	—
No. of programmable registers	—	8	8	8	—
No. of I/O ports on basic system and maximum	—	10	10	16	16
INTERNAL STORAGE					
Type	MOS	Core	Core	Core	MOS
Capacity of basic system, bytes	16K (user)	16K	16K	24K	32K
Maximum capacity, bytes	48K (user)	16K	16K	32K	128K
Increment size, bytes	8K	—	—	8K	32K
Cycle time, microseconds	—	1.5	1.5	1.5	—
Access time, microseconds	—	0.6	0.6	0.6	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 1024M bytes	Opt.; 1.024M bytes	Opt.; 1.024M bytes	No	No
Cartridge disk drive	Opt.; 20M bytes	No	No	Opt.; 9.2M bytes	Std.; 40M bytes
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 20 cps	No	No	No	No
Paper tape punch	Opt.; 24-75 cps	Opt.; 50 cps	Opt.; 50 cps	No	No
Punched card reader	Opt.; 300 cpm	No	No	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	Opt.; 50 cpm	Opt.; 50 cpm	Opt.; 50 cpm	Opt.; 50 cpm
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 80-175 cps	Std.; 50 cps	Std.; 50 cps	Std.; 40 cps	Opt.; 100 cps
Line printer	Optional	Opt.; 70 lpm	Opt.; 70 lpm	Opt.; to 400 lpm	Opt.; to 400 lpm
Reel-to-reel tape drive	Optional	No	No	No	No
Cassette tape drive	Opt.; 1000 cps	Opt.; 1000 cps	Opt.; 1000 cps	Opt.; 1000 cps	Standard
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	Optional	Standard	No	No
CRT	Std.; 24 x 80 char.	No	No	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	4	1	1	1	5
Synchronous	No	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 19,200 bps	Opt.; to 2400 bps	Opt.; to 2400 bps	Opt.; to 2400 bps	Opt.; to 9600 bps
Protocols supported	None	IBM 2780	IBM 2780	IBM 2780, 3780	IBM 2780, 3780, BSC
SOFTWARE SUPPORT					
COBOL	No	No	No	No	Yes
RPG	No	No	No	No	Yes
FORTRAN	No	No	No	No	No
BASIC	Yes	No	No	No	Yes
Assembler	No	Yes	Yes	Yes	Yes
Other programming languages	No	None	None	No	No
Multiprogramming	No	No	No	No	Yes (9 partitions)
Language implemented in firmware	No	Partially	Partially	No	No
Operating system implemented in firmware	No	Partially	Partially	No	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Printers, job cost, financial	Banking, insurance, medical, utilities	Banking, insurance, medical, utilities	Banking, insurance, utilities	Various
Data base management system	No	No	No	No	No
File access methods supported	Random, sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$6,600	$10,915	$15,665	$21,000	$27,500
Monthly rental of basic system, $	Leases available	$247	$355	—	$622
Date of first U.S. delivery	January 1977	June 1975	June 1975	July 1977	July 1977
Number installed in U.S. to date	NA	750 (P300 Series)	1200	NA	NA
COMMENTS		Another 1500 P300's have been installed worldwide	Another 1500 P300's have been installed worldwide		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Prime 300	Prime 350	Prime 400	Prime 500	Programmed Control Corp. Prophet 21 Model 1
DATA FORMATS					
Word length, bits	16 + 2	16 + 2	16 + 2 or 6 (ECC)	16 + 6 (ECC)	16
Decimal digits per word	2	2	2	2	4
Bytes (characters) per word	2	2	2	2	2
Operand length, words	1-4	1-4	1-4	1-4	1
Instruction length, words	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	2
CPU					
Model	Prime 300	Prime 350	Prime 400	Prime 500	TI 960B
Add time, microseconds	1.56	1.56	0.56	0.56	3.6 (word)
No. of programmable registers	8	8	14	17	16
No. of I/O ports on basic system and maximum	10	10	64	64	1, 22
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64KB	64KB	128K	256K	32K
Maximum capacity, bytes	512KB	512KB	8 million	8 million	128K
Increment size, bytes	64K, 256K	64K	64K, 256K	256K	8K
Cycle time, microseconds	0.76	0.76	0.76	0.76	0.7
Access time, microseconds	0.60	0.60	0.60	0.60	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 2.4M bytes	Opt.; 1.2M bytes	Opt.; 2.4M bytes	Opt.; 2.4M bytes	No
Cartridge disk drive	Opt.; 96M bytes	Opt.; 48M bytes	Opt.; 96M bytes	Opt.; 96M bytes	Std.; 5M bytes
Pack disk drive	Opt.; 2400M bytes	Opt.; 1200M bytes	Opt.; 2400M bytes	Opt.; 2400M bytes	No
Fixed-head disk/drum	Opt.; 2 million	Opt.; 1 million	Opt.; 2 million	Opt.; 2 million	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Optional	Optional	Optional	Optional	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Opt.; 200 cps	Opt.; 200 cps	Opt.; 200 cps	Opt.; 200 cps	No
Paper tape punch	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	Opt.; 75 cps	No
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	Opt.; 300/50 cpm	Opt.; 300/50 cpm	Opt.; 300/50 cpm	Opt.; 300/50 cpm	No
Serial printer	Opt.; 140 cps	Opt.; 140 cps	Opt.; 140 cps	Opt.; 140 cps	Std.; 30 cps
Line printer	Opt.; 1220 lpm	Opt.; 1220 lpm	Opt.; 1220 lpm	Opt.; 1220 lpm	Opt.; 250 lpm
Reel-to-reel tape drive	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 120 KBS	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Standard; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	63	31	63	63	—
Synchronous	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps	Opt.; 56K bps	No
Asynchronous	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; 19.2K bps	Opt.; to 1200 bps
Protocols supported	2780, HASP, UT200, ICL 7020, 1004	2780, HASP, UT200, ICL 7020, 1004	2780, HASP, UT200, ICL 7020, 1004	2780, HASP, UT200, ICL 7020, 1004	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	No
RPG	Yes	Yes	Yes	Yes	No
FORTRAN	Yes	Yes	Yes	Yes	No
BASIC	Yes	Yes	Yes	Yes	No
Assembler	Yes	Yes	Yes	Yes	No
Other programming languages	Forms	Forms	Forms	Forms	Prophet 21
Multiprogramming	Yes, 31	Yes; 31	Yes, 63	Yes, 63	Yes; 22 partitions
Language implemented in firmware	Partially	Partially	Partially	Partial	No
Operating system implemented in firmware	Partially	Partially	Partially	Partial	No
General accounting packages	No	No	No	No	Yes
Industry application areas	Graphics, statistics	Graphics, statistics	Graphics, statistics	Graphics, statistics	Industrial dist. & wholesalers
Data base management system	No	No	Yes	Yes	Yes
File access methods supported	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random, index sequential	Sequential, random, index sequential	Random, sequential, index seq.
Software separately priced	Yes	Yes	Yes	Yes	No
Technical help separately priced	Yes	Yes	Yes	Yes	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$75,000	$100,000	$125,000	$175,000	$42,500
Monthly rental of basic system, $	$1,650	$2,200	$2,750	$3,850	Purchase only
Date of first U.S. delivery	February 1973	April 1978	2nd qtr. 1976	3rd qtr. 1977	1972
Number installed in U.S. to date	NA	NA	NA	NA	30
COMMENTS	Each user has 128K bytes of virtual address space	Each user has 768K bytes of virtual address space	Each user has 32 million bytes of virtual address space	Each user has 32 million bytes of virtual address space; includes fast floating-point business instruction set hardware	Turnkey system is marketed nationwide

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Programmed Control Corp. Prophet 21 Model 2	Q1 Corporation Q1/LMC	Q1 Corporation Q1/LITE	Q1 Corporation Mark II	Qantel 210
DATA FORMATS					
Word length, bits	16	8-bit byte	8-bit byte	8-bit byte	8
Decimal digits per word	4	2 per byte	2 per byte	2 per byte	2
Bytes (characters) per word	2	1 per byte	1 per byte	1 per byte	1
Operand length, words	1	1, 2 bytes	1, 2 bytes	1, 2 bytes	Variable
Instruction length, words	1-3	1-3 bytes	3 bytes	3 bytes	3-10
CPU					
Model	TI 990/10	8080	8800	8800	Qantel micro CPU
Add time, microseconds	2.8 (word)	2	—	—	—
No. of programmable registers	16	7	16	16	17 in memory
No. of I/O ports on basic system and maximum	1, 128	11, 32	64; 256	64; 256	6
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	32K	8K	16K; 6K ROM	16K; 6K ROM	48K
Maximum capacity, bytes	2048K	64K	64K	64K	64K
Increment size, bytes	8K	8, 16K	16K	16K	16K
Cycle time, microseconds	0.7	0.5	0.35	0.35	1.5
Access time, microseconds	—	0.3	0.25	0.25	1.5
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	Std.; 250K bytes	Std.; 500K bytes	Std.; 300K bytes	Std.; to 5.2M bytes
Cartridge disk drive	Std.; 100M bytes	Opt.; 24M bytes	No	No	No
Pack disk drive	No	No	Opt.; 54M bytes	Opt.; 54M bytes	No
Fixed-head disk/drum	No	No	Opt.; bubble memory	Opt.; bubble memory	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	Standard	Standard	Standard	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	No	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 165 cps	Std.; 42-200 cps	Std.; 45-200 cps	Std.; 45-200 cps	Opt.; 45-120 cps
Line printer	Opt.; 250 lpm	Opt.; 300 lpm	Opt.; 300 lpm	Opt.; 300 lpm	Opt.; 300 lpm
Reel-to-reel tape drive	No	No	Optional	Optional	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Standard; 24 x 80 char.	Standard; 8 x 37 char.	Std.; 12 x 40 char.	Std.; 12 x 40 char.	Std.; 1728 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	—	8	16	16	1
Synchronous	Yes	Opt.; to 2400 bps	Std.; to 4800 bps	Std.; to 4800 bps	Opt.; to 50K bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Std.; to 1200 bps	Std.; to 1200 bps	Opt.; to 38,400 bps
Protocols supported	Prophet 21	IBM 2780	IBM 2780, Bisync	IBM 2780, Bisync	TTY, RS-232
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	No	No	No	No	QICBASIC
Assembler	No	Yes	Yes	Yes	Yes
Other programming languages	Prophet 21	PL/1	PL/1	PL/1	QICBASIC
Multiprogramming	Yes; 128 partitions	Multiprocessing	Multiprocessing	Multiprocessing	Yes; 5 partitions
Language implemented in firmware	No	Partially	Partially	Partially	Partially
Operating system implemented in firmware	No	Fully	Fully	Fully	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Industrial dist. & wholesalers	Acctg., credit unions, word proc.	Credit unions, banks, gen'l. bus., wd. proc.	Credit unions, banks, gen'l. bus., wd. proc.	Wholesale dist., medical clinics, CPA
Data base management system	Yes	Yes	—	—	No
File access methods supported	Random, sequential, index seq.	Random, sequential, ISAM, KSAM	ISAM, KSAM, random, sequential	ISAM, KSAM, random, sequential	Random, sequential, index sequential
Software separately priced	No	No	Yes	Yes	Some
Technical help separately priced	No	No	No	No	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$59,000	$17,950	$21,000	$7,625	$11,950
Monthly rental of basic system, $	Purchase only	Purchase only	Purchase only	Purchase only	—
Date of first U.S. delivery	July 1977	July 1978	July 1977	July 1978	December 1977
Number installed in U.S. to date	250	NA	250	NA	NA
COMMENTS	Turnkey system is marketed nation-wide	Standard config-uration for data & word processing, data entry; up to 64 intelligent work-stations can share data base	Standard config-uration for data & word processing, data entry; up to 64 intelligent work-stations can share data base	Std. config. for data & word proc., data entry, prog. calc., intel. ter., graphics; up to 64 intelli-gent workstations can share data base	

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Qantel 900, 950	Qantel 1400	Qantel 1400-2	Quodata E-500	Quodata E-600
DATA FORMATS					
Word length, bits	8	8	8	12	16
Decimal digits per word	2	2	2	3	4
Bytes (characters) per word	1	1	1	2	2
Operand length, words	Variable	Variable	Variable	—	1, 2
Instruction length, words	3-10	3-10	3-10	1	1
CPU					
Model	Qantel std. CPU	Qantel high-performance CPU	Qantel high-performance CPU	DEC PDP-8/A	DEC PDP-11/34
Add time, microseconds	—	—	—	2.6	3.0
No. of programmable registers	17 in memory	6 + 17 in memory	6 + 17 in memory	1	8
No. of I/O ports on basic system and maximum	6	12	12	—	4; 6
INTERNAL STORAGE					
Type	MOS	MOS	MOS	Core or MOS	Core or MOS
Capacity of basic system, bytes	32K	40K	48K	64K	32K
Maximum capacity, bytes	64K	128K	128K	256K	256K
Increment size, bytes	8K	8K	8K	32K	32K
Cycle time, microseconds	1.5	1.1	1.1	1.2	0.9
Access time, microseconds	—	—	—	1.2	0.45
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; to 2.6M bytes	Opt.; to 2.6M bytes	Opt.; to 2.6M bytes	Optional	Optional
Cartridge disk drive	Std.; 6-36M bytes	Std.; 12-48MB	Opt.; 12-48MB	Std.; 64M bytes	Standard
Pack disk drive	No	Opt.; 25-600MB	Std.; 25-600MB	No	Optional
Fixed-head disk/drum	No	No	No	No	Optional
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Optional
Full accounting keyboard	No	No	No	—	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	Optional	Optional
Paper tape punch	No	No	No	Optional	Optional
Punched card reader	Opt.; 500 cpm	Opt.; 500 cpm	Opt.; 500 cpm	Optional	Optional
Punched card punch	No	No	No	Optional	Optional
Punched card reader/punch	No	No	No	Optional	Optional
Serial printer	Std.; 120 cps	Opt.; 120 cps	Opt.; 120 cps	Opt.; 180 cps	Optional
Line printer	Opt.; 300-600 lpm	Std.; 300-600 lpm	Std.; 300-600 lpm	Opt.; 300-900 lpm	Optional
Reel-to-reel tape drive	Opt.; 36-72 KBS	Opt.; 36-72 KBS	Std.; 36-72 KBS	No	Optional
Cassette tape drive	No	No	No	No	Optional
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 27 x 64 char.	Std.; 27 x 64 char.	Std.; 27 x 64 char.	Opt.; 1920 char.	Optional; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	4	4	32	32
Synchronous	Opt.; to 50K bps	Opt.; to 50K bps	Opt.; to 50K bps	Optional	Optional
Asynchronous	Opt.; to 38,400 cps	Opt.; to 38,400 cps	Opt.; to 38,400 cps	Std.; to 19.2K bps	Standard
Protocols supported	HASP, 2780, 3780	HASP, 2780, 3780	HASP, 2780, 3780	IBM 2780, DDCMP	IBM 2780/3780, SDLC, etc.
SOFTWARE SUPPORT					
COBOL	No	No	No	Yes (subset)	Yes
RPG	No	No	No	No	Yes
FORTRAN	No	No	No	Yes	Yes
BASIC	QICBASIC	QICBASIC	QICBASIC	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	QICBASIC	QICBASIC	QICBASIC	DIBOL	FOCAL
Multiprogramming	Yes	Yes; 30 partitions	Yes; 30 partitions	Yes; 63 partitions	Yes
Language implemented in firmware	Partially	Partially	Partially	No	No
Operating system implemented in firmware	Partially	Partially	Partially	Partially	No
General accounting packages	Yes	Yes	Yes	No	Yes
Industry application areas	Whlsl. dist., medical clinics, CPA	Whlsl. dist., medical clinics, CPA	Whlsl. dist., medical clinics, CPA	General	Education, municipal government
Data base management system	No	No	No	No	Yes
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Sequential, random	Random, sequential, index seq.
Software separately priced	Some	Some	Some	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$27,900	$43,900	$64,900	$33,000	$45,000
Monthly rental of basic system, $	NA	—	—	—	NA
Date of first U.S. delivery	1st qtr., 1975	2nd qtr. 1977	2nd qtr. 1977	1974	1972
Number installed in U.S. to date	NA	NA	NA	100+	NA
COMMENTS	Program and report generating packages; up to 16 on-line terminals	Program and report generating packages; up to 64 on-line terminals	Program and report generating packages; up to 64 on-line terminals		Complete administrative and instructional systems

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Quodata E-700	Quodata E-940	Quodata QDP/78	Randal Data Systems Link-100	Randal Data Systems Link-200
DATA FORMATS					
Word length, bits	16	16 or 32	12	16	16
Decimal digits per word	4	4 or 8	4	4	4
Bytes (characters) per word	2	2 or 4	2	2	2
Operand length, words	—	—	1	Variable	Variable
Instruction length, words	1 or 2 or 3	1 or 2 or 3	1	1, 2, 3	1, 2, 3
CPU					
Model	DEC PDP-11/34	DEC PDP-11/70	DEC PDP-8/A	Randal-100	Randal-200
Add time, microseconds	2.16	Variable	3.0	1.2	1.2
No. of programmable registers	8	16	6 + 8 in memory	4	4
No. of I/O ports on basic system and maximum	...	—	4.4	63 max.	63 max.
INTERNAL STORAGE					
Type	MOS	Core	MOS	MOS	MOS
Capacity of basic system, bytes	128K	Cache plus 256K	32K (6-bit)	32K	32K
Maximum capacity, bytes	248K	2 million	32K (6-bit)	64K	64K
Increment size, bytes	32K	64K	None	16K	16K
Cycle time, microseconds	0.775	Variable	1.5	0.3	0.3
Access time, microseconds	0.635	Variable	0.75	0.3	0.3
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Optional	Optional	Std.; 500K bytes	Std.; 2.5M bytes	No
Cartridge disk drive	Optional	Optional	Optional	No	Std.; 10M bytes
Pack disk drive	Std.; 20M bytes	Std.; 88M bytes	No	No	No
Fixed-head disk/drum	Optional	Optional	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Optional	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	Optional	No	No	No
Paper tape punch	Optional	Optional	No	No	No
Punched card reader	Optional	Optional	No	Opt.; 450 cpm	Opt.; 450 cpm
Punched card punch	Optional	Optional	No	No	No
Punched card reader/punch	Optional	Optional	No	No	No
Serial printer	Opt.; 180 cps	Opt.; 180 cpm	Standard	Opt.; 30, 55, 180 cps	Opt.; 30, 55, 180 cps
Line printer	Opt.; 300-900 lpm	Opt.; 300-900 lpm	Optional	Opt.; 300 lpm	Opt.; 300 lpm
Reel-to-reel tape drive	Standard	Standard	No	Opt.; 10 KBS	Opt.; 10 KBS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Opt.; 1920 char.	Opt.; 1920 char.	Std.; 24 x 80 char.	Std.; 12 x 80 char.	Std.; 12 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	63	63	4	2	8
Synchronous	Optional	Optional	No	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	Std.; to 9600 bps	Std.; to 9600 bps	Standard	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	IBM 2780, DDCMP	IBM 2780, DDCMP	IBM 2780/3780,	IBM 2780, Univac DCT 1000	IBM 2780, Univac DCT 1000
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	No	No
RPG	Yes	Yes	No	No	No
FORTRAN	Yes	Yes	Yes	No	No
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	No
Other programming languages	APL, PASCAL, DIBOL	APL, PASCAL, DIBOL	QBOL	—	None
Multiprogramming	Yes; 63 partitions	Yes; 63 partitions	Yes	Yes; 2 users	Yes; 16 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	Partially	No; Timeshare OS	No; Timeshare OS
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Education & government	Education & government	General	Lumber industry; med., dental mgmt.	Lumber industry; med., dental mgmt.
Data base management system	Yes	Yes	No	No	No
File access methods supported	Sequential, random, index sequential	Sequential, random, index sequential	Random, sequential	Formatted, text, index sequential	Formatted, text, index sequential
Software separately priced	Yes	Yes	Yes (applications)	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$65,000	$142,000	$9,990	$12,750	$24,506
Monthly rental of basic system, $	—	—	NA	$280	$551
Date of first U.S. delivery	1973	1975	January 1978	October 1975	August 1976
Number installed in U.S. to date	100+	NA	NA	250	250
COMMENTS	Software systems specifically designed for educational institutions and government entities	Software systems specifically designed for educational institutions and government entities		Marketed exclusively through qualified distributors	Marketed exclusively through qualified distributors

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Randal Data Systems Link-500	Raytheon PTS/1200 Mark I	Raytheon PTS/1200 Mark II	Span Management Systems	Sperry Univac BC/7-600
DATA FORMATS					
Word length, bits	16	16	16	16	8
Decimal digits per word	4	2	2	2	2
Bytes (characters) per word	2	2	2	2	1
Operand length, words	Variable	½, 1, 1½	½, 1, 1½	Variable	1
Instruction length, words	1, 2, 3	1, 2	1, 2	1	1, 2, 3
CPU					
Model	Randal-500	PTS/1200 Mark I	PTS/1200 Mark II	IBM Series/1	Univac T3038
Add time, microseconds	1.2 (5 digits)	4	2	2.6, 8.4 (2 bytes)	106 (5 digits)
No. of programmable registers	4	4	4	34	7
No. of I/O ports on basic system and maximum	63 max.	42	42	8; 256	3; 12
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K bytes	48K	48K	16K	48K
Maximum capacity, bytes	128K bytes	128K	128K	256K	64K
Increment size, bytes	32K bytes	16K	16K	32K	16K
Cycle time, microseconds	0.3	1.28	0.75	0.660	1.0
Access time, microseconds	0.3	0.80	0.48	0.300	0.5
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 1.2M bytes	No	No	Opt.; 606K bytes	Std.; 6M bytes
Cartridge disk drive	No	Std.; 300M bytes	Std.; 300M bytes	—	No
Pack disk drive	Std.; 200M bytes	No	No	Opt.; 13.9M bytes	No
Fixed-head disk/drum	No	No	No	Opt.; 9.4M bytes	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Optional	Standard
10-key numeric keyboard	Standard	Optional	Optional	Optional	Standard
Full accounting keyboard	No	No	No	Optional	—
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	450 cpm	Opt.; 300 cpm	Opt.; 300 cpm	No	Opt.; 300, 600 cpm
Punched card punch	No	No	No	No	Opt.; 75-160 cpm
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 180 cps	Opt.; 15-165 cps	Opt.; 15-165 cps	Opt.; 120 cps	Std.; 200 cps
Line printer	Opt.; 300 lpm	Opt.; 600 lpm	Opt.; 600 lpm	Opt.; 414 lpm	Opt.; 125 lpm
Reel-to-reel tape drive	Opt.; 10K cps	Std.; 800 bpi	Std.; 800 bpi	No	No
Cassette tape drive	No	Std.; 600 bytes/sec.	Std.; 600 bytes/sec.	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 12 x 80 char.	Std.; 480, 960, 1920 char.	Opt.; 480, 960, 1920 char.	Opt.; 24 x 80 char.	Std.; 1920 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	16	2	2	—	2
Synchronous	Opt.; 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps	Optional	Std.; to 9600 bps
Asynchronous	Opt.; 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps	Optional	No
Protocols supported	IBM 2780, DCT 1000	IBM 2780, 3780, HASP	IBM 2780, 3780, HASP	Bisync, SDLC, Async	Transparent
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	Yes
FORTRAN	No	No	No	No	No
BASIC	Yes	No	No	No	No
Assembler	Yes	No	No	Yes	No
Other programming languages	—	MACROL	MACROL	PASCAL	ESCORT
Multiprogramming	Yes	Yes; 20 partitions	Yes; 20 partitions	Yes	Yes; 2 partitions
Language implemented in firmware	No	No	No	No	Partially
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	No	No	Yes	Yes
Industry application areas	Distribution, medical, accounting	Transport, insurance, finance	Transport, insurance, finance	Many	Distribution, manufacturing
Data base management system	No	Yes	Yes	Yes	No
File access methods supported	Formatted, text, index sequential	Random, sequential, index seq.	Random, sequential, index seq.	IAM	Random, sequential, index sequential
Software separately priced	Yes	No	No	Yes	No
Technical help separately priced	Yes	Yes	Yes	Yes	Partly
PRICING & AVAILABILITY					
Purchase price of basic system, $	$45,900	$23,120	$37,055	$35,000	$21,795
Monthly rental of basic system, $	$1,000	$538 (3-yr. lease)	$863 (3-yr. lease)	$1,167 (1-yr. lease)	484
Date of first U.S. delivery	October 1977	July 1978	July 1978	June 1977	July 1978
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS	Marketed exclusively through qualified distributors	Display-oriented distributed system; applications also in RJE, data entry, 3270 emulation, down-line support, source data entry	Display-oriented distributed system; applications also in RJE, data entry, 3270 emulation, down-line support, source data entry	System features sophisticated time-shared operating system on IBM hardware; vendor provides turnkey systems	Supports up to 2 workstations; entirely diskette-based

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Sperry Univac BC/7-700	Sperry Univac BC/7-800	STC Systems Ultimacc 2010	STC Systems Ultimacc 3010	STC Systems Ultimacc 3080
DATA FORMATS					
Word length, bits	8	8	16	16	16
Decimal digits per word	2	2	4	4	4
Bytes (characters) per word	1	1	2.3	2.3	2.3
Operand length, words	1	1	½	½	½
Instruction length, words	1, 2, 3	1, 2, 3	1	1	1
CPU					
Model	Univac T3038	Univac T3048	DG Nova 3/12	DG Nova 3D	DG Nova 3D
Add time, microseconds	106 (5 digits)	106 (5 digits)	1.35	1	1
No. of programmable registers	7	7	4	4	4,
No. of I/O ports on basic system and maximum	3; 12	3; 12	20	60	60
INTERNAL STORAGE					
Type	MOS	MOS	Core	Core	Core
Capacity of basic system, bytes	48K	128K	32K	32K	32K
Maximum capacity, bytes	64K	128K	64K	256K	256K
Increment size, bytes	16K	16K	16K	32K	32K
Cycle time, microseconds	1.0	1.0	1.35	1	1
Access time, microseconds	0.5	0.5	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 4M bytes	Opt.; 4M bytes	Optional	Optional	Optional
Cartridge disk drive	Opt.; 40M bytes	Opt.; 40M bytes	Std.; 10-40M bytes	Std.; 10-40M bytes	No
Pack disk drive	No	No	No	No	Std.; 80-320M bytes
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	—	—	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	Optional	Optional	Optional
Paper tape punch	No	No	Optional	Optional	Optional
Punched card reader	Opt.; 300, 600 cpm	Opt.; 300, 600 cpm	Optional	Optional	Optional
Punched card punch	Opt.; 75-160 cpm	Opt.; 75-160 cpm	Optional	Optional	Optional
Punched card reader/punch	No	No	Optional	Optional	Optional
Serial printer	Std.; 200 cps	Std.; 200 cps	Std.; 165 cps	Optional	Optional
Line printer	Opt.; 125-600 lpm	Opt.; 125-600 lpm	Opt.; 300-600 lpm	Opt.; 300-900 lpm	Opt.; 300-900 lpm
Reel-to-reel tape drive	Opt.; 20, 40 KBS	Opt.; 20, 40 KBS	Opt.; 60 KBS	Opt.; 60 KBS	Opt.; 60 KBS
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No ·	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 1920 char.	Std.; 1920 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	2	2 ·	Unlimited	Unlimited	Unlimited
Synchronous	Std.; to 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	No	No	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps
Protocols supported	Transparent	Transparent	IBM 2780/3780, 3270	IBM 2780/3780, 3270	IBM 2780/3780, 3270
SOFTWARE SUPPORT					
COBOL	No	No	Yes	Yes	Yes
RPG	Yes	Yes	No	No	No
FORTRAN	No	No	No	No	No
BASIC	No	No	Yes	Yes	Yes
Assembler	No	No	Yes	Yes	Yes
Other programming languages	ESCORT	ESCORT	ENGLISH 210	ENGLISH 210	ENGLISH 210
Multiprogramming	Yes; 2 partitions	Yes; 2 partitions	Yes; 8 partitions	Yes; 50 partitions	Yes; 50 partitions
Language implemented in firmware	Partially	Partially	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Distribution manufacturing	Distribution manufacturing	Mfg., banking, dist., govt., dist. proc.	Mfg., banking, dist., gov't., dist. proc.	Mfg., banking, dist., gov't.. dist. proc.
Data base management system	No	No	Yes	Yes	Yes
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	No	No	No	No	No
Technical help separately priced	Partly	Partly	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$31,200	$35,475	$51,000	$62,000	$75,000
Monthly rental of basic system, $	693	788	Purchase only	Purchase only	Purchase only
Date of first U.S. delivery	March 1977	July 1978	1973	1975	1976
Number installed in U.S. to date	NA	NA	100	20	5
COMMENTS	Supports up to 4 workstations; disk-based; magnetic tape and diskettes for I/O	Supports up to 6 workstations; two applications programs and print spooling can be run concurrently	Company was formerly called Ultimacc Systems, Inc.; turn-key system		

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	STC Systems Ultimacc 3300	Sycor 404	Sycor 405	Sycor 410	Sycor 440
DATA FORMATS					
Word length, bits	16	8	8	8	8
Decimal digits per word	4	1	1	1	1
Bytes (characters) per word	2.3	1	1	1	1
Operand length, words	½	1	1	1	1
Instruction length, words	1	1-3	1-3	1-3	1-5
CPU					
Model	Nova 3D	Sycor 404	Sycor 405	Sycor 410	Sycor 440
Add time, microseconds	1	5.5	5.5	5.5	—
No. of programmable registers	4	7	7	7	7
No. of I/O ports on basic system and maximum	60	4	8	6	24
INTERNAL STORAGE					
Type	Core	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	32K	48K	48K	40K	24K
Maximum capacity, bytes	256K	48K	64K	64K	64K
Increment size, bytes	32K	—	16K	8K	8K
Cycle time, microseconds	1	0.25	0.25	0.50	0.50
Access time, microseconds		0.25	0.25	0.25	0.25
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Optional	Std.; 512K bytes	Std.; 2M bytes	Opt.; 256K bytes	Opt.; 256K
Cartridge disk drive	No	No	No	Std.; to 5M bytes	Std.; to 5M bytes
Pack disk drive	Std.;300-1200M bytes	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	Optional	No	No	Optional	No
Paper tape punch	Optional	No	No	No	No
Punched card reader	Optional	No	No	Opt.; 250 cpm	Opt.; 250 cpm
Punched card punch	Optional	No	No	No	No
Punched card reader/punch	Optional	No	No	No	No
Serial printer	Optional	Opt.; to 180 cps	Opt.; to 180 cps	Std.; to 180 cps	Opt.; to 180 cps
Line printer	Opt.; 300-900 lpm	No	Opt.; 300 or 600 lpm	Opt.; 300 lpm	Opt.; 300 lpm
Reel-to-reel tape drive	Opt.; 60 KBS	No	Opt.; 10,000 cps	Opt.; 10,000 cps	Opt.; 10,000 cps
Cassette tape drive	No	No	No	Std.; 1000 cps	Std.; 1000 cps
Cartridge tape drive	No	No	No	No	Opt.; to 24,000 cps
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 2, 24 x 80 char.	Std.; 576 char. per screen	Opt.; to 8,576 char. per screen
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	Unlimited	2	2	2	2
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps
Protocols supported	IBM 2780/3780, 3270	2780/3780, TTY, SDLC	2780/3780, TTY, SDLC	2770, 2780, 3780, HASP, TTY, RJE	2770, 2780, 3780, HASP, TTY, RJE
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	Yes
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	No	No	No	No
Other programming languages	ENGLISH 210	TAL 2000	TAL 2000	TAL-2	TAL-2
Multiprogramming	Yes; 50 partitions	Yes; 2 partitions	Yes; 3 partitions	Yes	Yes
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mfg., banking, dist., gov't., dist. proc.	Mfg., distribution, medical	Mfg., distribution, medical	Used in many industries	Used in many industries
Data base management system	Yes	No	No	No	No
File access methods supported	Random, sequential index sequential	Sequential, indexed, relative	Sequential, indexed, relative	Sequential, ISAM, random	Sequential, ISAM, random
Software separately priced	No	Yes, applications	Yes, applications	No	No
Technical help separately priced	No	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$87,000	$6,250	$13,750	$25,230	$25,670
Monthly rental of basic system, $	Purchase only	NA	$220	$553	$641
Date of first U.S. delivery	1976	October 1978	August 1978	May 1976	May 1976
Number installed in U.S. to date	3	—	—	NA	NA
COMMENTS				Designed for transaction proc. in distributed or stand-alone environments; industry application software packages are available through Sycor's distributors	Designed for transaction processing in distributed or stand-alone environments; industry application software packages are avail. through Sycor's distributors

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Sycor 445	Systems Approach Ltd. CS 20	Systems Approach Ltd. CS 40	Systems Approach Ltd. CS 60	Tal-Star TDMS System
DATA FORMATS					
Word length, bits	8	16	16	16	16
Decimal digits per word	1	2	2	2	4
Bytes (characters) per word	1	2	2	2	2
Operand length, words	1	1	1	1	1
Instruction length, words	1-3	1	1	1	1, 2
CPU					
Model	Sycor 445	DG microNova	DG Nova 3/12	DG Eclipse	GA 18/30
Add time, microseconds	5.5	2.4	0.7 (16 bits)	0.7 (16 bits)	2.4
No. of programmable registers	7	4	4	4	16
No. of I/O ports on basic system and maximum	24	8	8	8	—
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	Core
Capacity of basic system, bytes	64K	64K	64K	64K	128K
Maximum capacity, bytes	256K	64K	192K	256K	256K
Increment size, bytes	32K	—	64K	64K	16K
Cycle time, microseconds	0.25	0.96	0.7	0.7	1.2
Access time, microseconds	0.25	—	0.5	0.5	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 256K bytes	Std.; (4) 1200K bytes	Std.; (2) 600K bytes	Std.; (2) 600K bytes	Opt.; 10M bytes
Cartridge disk drive	No	No	Opt.; (4) 40M bytes	Opt.; (4) 80M bytes	No
Pack disk drive	Opt.; 4-70M bytes	No	Opt.; (4) 760M bytes	Opt.; (4) 850M bytes	Std.; 300M bytes
Fixed-head disk/drum	Opt.; 5, 10, 20M bytes	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard; 1	Standard; up to 9	Standard; up to 17	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Optional
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	Opt.; 400 cps
Paper tape punch	No	No	No	No	Opt.; 75 cps
Punched card reader	Opt.; 250 cpm	No	No	No	Std.; 400 cpm
Punched card punch	No	No	No	No	Opt.; 100 cpm
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; to 180 cps	Std.; (1) 240 cps	Std.; (9) 240 cps	Std.; (17) 240 cps	Std.; 10 cps
Line printer	Opt.; 300 to 600 lpm	Opt.; (1) 300 lpm	Opt.; (1) 300 lpm	Opt.; (2) 300 lpm	Std.; 240 lpm
Reel-to-reel tape drive	Opt.; 10 KBS	No	Optional	Optional	Opt.; 20-60 KBS
Cassette tape drive	Opt.; 1,000 cps	No	No	No	No
Cartridge tape drive	Std.; 12K cps	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 8, 24 x 80 char.	Std.; (1) 24 x 80 char.	Std.; (9) 24 x 80 char.	Std.;(17)24x80 char.	Opt.; 25 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	2	No	4	4	15
Synchronous	Opt.; to 9600 bps	No	Optional	Optional	Opt.; to 9600 bps
Asynchronous	Opt.; to 1200 bps	No	Standard	Standard	Std.; to 1200 bps
Protocols supported	2780/3780, TTY, SDLC, HASP, IRJE	No	2780, 3780, HASP, RJE80	2780, 3780, HASP, RJE80	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	Yes	Yes
RPG	No	No	No	No	Yes
FORTRAN	No	No	No	No	Yes
BASIC	Yes	No	No	No	No
Assembler	No	No	No	No	Yes
Other programming languages	TAL II, TAL 2000	No	No	No	None
Multiprogramming	Yes; 16 partitions	No	Yes	Yes	Yes; 2 partitions
Language implemented in firmware	No	No	No	No	No
Operating system implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mfg., distribution, medical	Mfg., medicine, dist., service org.	Mfg., medicine, dist., service org.	Mfg., medicine, dist., service org.	Graphic arts, newspapers
Data base management system	No	No	Yes	Yes	Yes
File access methods supported	Sequential, indexed, relative	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes, applications	Yes	Yes	Yes	Yes
Technical help separately priced	No	No	No	No	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	NA	$16,000	$41,000	$53,000	$73,600
Monthly rental of basic system, $	NA	$430	$950	$1,300	Purchase only
Date of first U.S. delivery	May 1978	Oct. 1978	July 1978	NA	1972
Number installed in U.S. to date	NA	—	—	—	NA
COMMENTS		Canadian dollars in Canada; Canada delivery dates; on-line, transaction-oriented system	Canadian dollars in Canada; Canada delivery dates; on-line, transaction-oriented system	Canadian dollars in Canada; Canada delivery dates; on-line, transaction-oriented system	Designed for text processing and composition; features data base management with on-line access; business applications for newspaper oper.

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Tandem T16/240-1	Tandem T16/212-1	Tandem T16/244-1	Terak 8510	Terak 8510A
DATA FORMATS					
Word length, bits	16	16	16	16	16
Decimal digits per word	4.5	4.5	4.5	2	2
Bytes (characters) per word	2	2	2	2	2
Operand length, words	½	½	½	—	—
Instruction length, words	1	1	1	1-3	1-3
CPU					
Model	Tandem T16	Tandem T16	Tandem T16	DEC LSI-11	DEC LSI-11
Add time, microseconds	0.5 (5 digits)	0.5 (5 digits)	0.5 (5 digits)	3.5	3.5
No. of programmable registers	8	8	8	8	8
No. of I/O ports on basic system and maximum	64	256, 1024	256, 1024	2; 21	2; 21
INTERNAL STORAGE					
Type	MOS	Core	MOS	MOS, RAM	MOS, RAM
Capacity of basic system, bytes	96K	192K	192K	24K	56K
Maximum capacity, bytes	480K	448K	512K	56K	56K
Increment size, bytes	96K, 32K	64K	96K, 32K	8K	—
Cycle time, microseconds	0.5	0.8	0.5	1.2	1.2
Access time, microseconds	0.5	0.5	0.5	0.6	0.6
MASS STORAGE CAPABILITIES*					
Floppy disk drive	No	No	No	Std.; to 1024K bytes	Std.; to 1024K bytes
Cartridge disk drive	Opt.; 10M bytes	Opt.; 10M bytes	Opt.; 10M bytes	No	No
Pack disk drive	Opt.; 160M bytes	Opt.; 160M bytes	Opt.; 160M bytes	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Optional	Standard
10-key numeric keyboard	Optional	Optional	Optional	Optional	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	Opt.; 600 cpm	Opt.; 600 cpm	Opt.; 600 cpm	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 30 cps	Opt.; 30 cps	Opt.; 30 cps	Opt.; 100 cps	Opt.; 100 cps
Line printer	Opt.; 120-1500 lpm	Opt.; 120-1500 lpm	Opt.; 120-1500 lpm	Opt.; 300 lpm	Opt.; 300 lpm
Reel-to-reel tape drive	Std.; 36 KBS	Std.; 72 KBS	Std.; 72 KBS	No	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; 80 x 24 char.	Std.; 80 x 24 char. 240x320 dot graphics
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	64	2048	2048	4	4
Synchronous	Opt.; 5600 bps	Opt.; 5600 bps	Opt.; 5600 bps	No	No
Asynchronous	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; to 19.2K bps	Std.; to 19.2K bps
Protocols supported	IBM Bisync, TINET, Burroughs, ADM-2	IBM Bisync, TINET, Burroughs, ADM-2	IBM Bisync, TINET, Burroughs, ADM-2	None	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	No	No
RPG	No	No	No	No	No
FORTRAN	Yes	Yes	Yes	Yes	Yes
BASIC	No	No	No	Yes	Yes
Assembler	No	No	No	Yes	Yes
Other programming languages	TAL	TAL	TAL	APL	APL, PASCAL
Multiprogramming	256 partitions	256 partitions	256 partitions	Yes	Yes
Language implemented in firmware	Partially	Partially	Partially	No	No
Operating system implemented in firmware	Partially	Partially	Partially	No	No
General accounting packages	No	No	No	Yes	No
Industry application areas	Dist., banking, trans. processing	Dist., banking, trans. processing	Dist., banking, trans. processing	Small business, education	Education, graphics
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Index sequential, random, sequential	Index sequential, random, sequential	Index sequential, random, sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Partly	Partly	Partly	Yes	Yes
Technical help separately priced	No	No	No	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$59,750	$92,800	$87,100	$6,615	$7,850
Monthly rental of basic system, $	NA	NA	NA	—	—
Date of first U.S. delivery	October 1976	May 1976	May 1976	June 1976	April 1977
Number installed in U.S. to date	5	10	30	NA	NA
COMMENTS	Multiprocessor, fault-tolerant, "non-stop" system for on-line, transaction-oriented applications	Multiprocessor, fault-tolerant, "non-stop" system for on-line, transaction-oriented applications	Multiprocessor, fault-tolerant, "non-stop" system for on-line, transaction-oriented applications	Compatible with DEC RT-11 and standard DEC languages; compact, portable system	Features simultaneous graphics and character display; compact, portable system

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Wang PCS-II	Wang WCS-15	Wang 2200T	Wang 2200VP	Wang 2200MVP
DATA FORMATS					
Word length, bits	8-bit byte	8-bit byte	8-bit byte	8-bit byte	8-bit byte
Decimal digits per word	1 per byte	1 per byte	1 per byte	1 per byte	1 per byte
Bytes (characters) per word	1 per byte	1 per byte	1 per byte	1 per byte	1 per byte
Operand length, words	1 byte	1 byte	1 byte	1 byte	1 byte
Instruction length, words	1 byte	1 byte	1 byte	1 byte	1 byte
CPU					
Model	Wang 2200 PCS-II	Wang WCS-15	Wang 2200T	Wang 2200VP	Wang 2200MVP
Add time, microseconds	800 (13 digits)	800 (13 digits)	800 (13 digits)	130 (13 digits)	130 (13 digits)
No. of programmable registers	None	None	None	None	None
No. of I/O ports on basic system and maximum	3	3	6; 9	9	9
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	8K	16K	16K	16K	16K
Maximum capacity, bytes	32K	32K	32K	64K	64K
Increment size, bytes	8K	8K	8K	16K	16K
Cycle time, microseconds	1.6	1.6	1.6	0.6	0.6
Access time, microseconds	—	—	—	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Opt.; 89-178K bytes	Opt.; 524K bytes	Opt.; 786K bytes	Opt.; 786K bytes	Opt.; 786K bytes
Cartridge disk drive	No	No	Opt.; 20M bytes	Opt.; 20M bytes	Opt.; 20M bytes
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Optional	Optional	Optional
10-key numeric keyboard	Standard	Standard	Optional	Optional	Optional
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	Opt.; 300 cps	Opt.; 300 cps	No
Paper tape punch	No	No	Opt.; 50 cps	Opt.; 50 cps	Opt.; 50 cps
Punched card reader	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm	No
Punched card punch	No	No	Opt.; 45 cpm	Opt.; 45 cpm	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Opt.; 200 cps	Opt.; 200 cps	Opt.; 200 cps	Opt.; 200 cps	Opt.; 200 cps
Line printer	Opt.; up to 600 lpm	Opt.; to 600 lpm	Opt.; to 600 lpm	Opt.; 600 lpm	Opt.; to 600 lpm
Reel-to-reel tape drive	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 120 KBS
Cassette tape drive	No	No	Opt.; 326 bps	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Optional; 16 x 64, 24 x 80 char.	Standard; 16 x 64 char.	Optional; 16 x 64, 24 x 80 char.	Opt.; 16 x 64, 24 x 80 char.	Optional; 16 x 64, 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	1	1	5	5	5
Synchronous	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 4800 bps	Opt.; to 4800 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	IBM 2780/3780, 2741, 3741	IBM 2780/3780, 2741, 3741	IBM 2780/3780, 2741, 3741	IBM 2780/3780, 2741, 3741	IBM 2780/3780, 2741, 3741
SOFTWARE SUPPORT					
COBOL	No	No	No	No	No
RPG	No	No	No	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes	Yes	Yes	Yes	Yes
Assembler	No	No	No	No	No
Other programming languages	None	None	None	None	None
Multiprogramming	No	No	No	No	Yes, 16
Language implemented in firmware	Fully	Fully	Fully	Fully	Fully
Operating system implemented in firmware	Partially	Partially	Partially	Partially	Partially
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mfg., dist., insur., banking	Mfg., dist., insur., banking	Mfg., dist., insur., banking	Mfg., dist., banking, insur., medical	Mfg., dist., insur., banking
Data base management system	Yes	Yes	Yes	Yes	No
File access methods supported	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential	Random, sequential, index sequential
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	No	No	No	No	No
PRICING & AVAILABILITY					
Purchase price of basic system, $	$4,800	$8,700	$5,000	$8,000	$9,000
Monthly rental of basic system, $	$144	$261	$150	$240	$270
Date of first U.S. delivery	March 1977	February 1978	January 1975	November 1978	January 1978
Number installed in U.S. to date	NA	NA	NA	NA	NA
COMMENTS					

*"Std." means the device is included in the price of the "basic system" as listed here.

All About Small Business Computers

MANUFACTURER & MODEL	Wang 2200VS-B	Wang 2200VS-C	Wang 2200VS-E	Warrex Computer Centurion I	Warrex Computer Centurion I-A
DATA FORMATS					
Word length, bits	32	32	32	8	8
Decimal digits per word	NA	NA	NA	2	2
Bytes (characters) per word	4	4	4	1	1
Operand length, words	1, 2	1, 2	1, 2	1, 2	1, 2
Instruction length, words	Variable	Variable	Variable	1, 2, 3	1, 2, 3
CPU					
Model	Wang 2200VS-B	Wang 2200VS-C	Wang 2200VS-E	CC-201	CC-201
Add time, microseconds	NA	NA	NA	3.6 (16 bits)	3.6 (16 bits)
No. of programmable registers	20	20	20	16	16
No. of I/O ports on basic system and maximum	8, 16	8, 24	8, 32	4; 12	4; 12
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K	64K	256K	32K	32K
Maximum capacity, bytes	192K	256K	512K	64K	60K
Increment size, bytes	64K	64K	64K	8K, 16K, 32K	8K, 16K, 32K
Cycle time, microseconds	0.66	0.66	0.66	0.800	0.800
Access time, microseconds	NA	NA	NA	—	—
MASS STORAGE CAPABILITIES*					
Floppy disk drive	Std.; 318K bytes	Std.; 318K bytes	Std.; 318K bytes	Std.; 616 bytes	Std.; 616 bytes
Cartridge disk drive	No	No	No	No	No
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
KEYBOARD INPUT*					
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No	No
INPUT/OUTPUT DEVICES*					
Paper tape reader	No	No	No	No	No
Paper tape punch	No	No	No	No	No
Punched card reader	No	No	No	No	No
Punched card punch	No	No	No	No	No
Punched card reader/punch	No	No	No	No	No
Serial printer	Std.; 120 cps	Opt.; 120 cps	Opt.; 120 cps	Std.; 300 cps	Optional
Line printer	Opt.; to 600 lpm	Std.; to 600 lpm	Std.; to 600 lpm	No	Opt.; 125-600 lpm
Reel-to-reel tape drive	Opt.; 120 KBS	Opt.; 120 KBS	Opt.; 120 KBS	No	No
Cassette tape drive	No	No	No	No	No
Cartridge tape drive	No	No	No	No	No
Magnetic ledger card device	No	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	No	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*					
Maximum no. of lines	3	3	3	4, 12	4, 12
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	No	No
Asynchronous	No	No	No	Optional	Optional
Protocols supported	2780/3780	2780/3780	2780/3780	None	None
SOFTWARE SUPPORT					
COBOL	Yes	Yes	Yes	No	No
RPG	Yes	Yes	Yes	No	No
FORTRAN	No	No	No	No	No
BASIC	Yes	Yes	Yes	No	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	Procedure	Procedure	Procedure	CPL I	CPL I
Multiprogramming	Yes; 3 users	Yes; 3 users	Yes; 3 users	Yes	Yes
Language implemented in firmware	Partially	Partially	Partially	No	No
Operating system implemented in firmware	Partially	Partially	Partially	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	No	No	No	Acct'g., route acct'g., inventory control	Acct'g., route acct'g., inventory control
Data base management system	No	No	No	No	No
File access methods supported	Virtual indexed, random, seq., ind. seq.	Virtual indexed, random, seq., ind. seq.	Virtual indexed, random, seq., ind., seq.	Random, sequential	Random, sequential
Software separately priced	Yes	Yes	Yes	Some	Some
Technical help separately priced	No	No	No	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	$38,000	$48,800	$110,800	Approx. $14,900	Approx. $20,000
Monthly rental of basic system, $	$1,140	$1,464	$3,324	Purchase/lease	Purchase/lease
Date of first U.S. delivery	December 1977	December 1977	December 1977	2nd qtr., 1977	2nd qtr., 1977
Number installed in U.S. to date	NA	NA	NA	600 (Centurion series)	600 (Centurion series)
COMMENTS					

*"Std." means the device is included in the price of the "basic system" as listed here.

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MANUFACTURER & MODEL	Warrex Computer Centurion IIA	Warrex Computer Centurion IIB	Warrex Computer Centurion III	Warrex Computer Centurion VI
DATA FORMATS				
Word length, bits	8	8	8	8
Decimal digits per word	2	2	2	2
Bytes (characters) per word	1	1	1	1
Operand length, words	1, 2	1, 2	1, 2	1-256
Instruction length, words	1, 2, 3	1, 2, 3	1, 2, 3	1-7
CPU				
Model	CC-202	CC-203	CC-203	CC-206
Add time, microseconds	3.6 (16 bits)	3.6 (16 bits)	3.6 (16 bits)	2.2 (16 bits)
No. of programmable registers	16	16	16	16
No. of I/O ports on basic system and maximum	4; 12	4; 12	4; 12	4; 64
INTERNAL STORAGE				
Type	MOS	MOS	MOS	MOS (error corr.)
Capacity of basic system, bytes	32K	32K	32K	32K
Maximum capacity, bytes	60K	60K	60K	252K
Increment size, bytes	8K, 16K, 32K	8K, 16K, 32K	8K, 16K, 32K	8K, 16K, 32K
Cycle time, microseconds	0.800	0.800	0.800	0.600
Access time, microseconds	—	—	—	—
MASS STORAGE CAPABILITIES*				
Floppy disk drive	Std.; 616 bytes	Optional	Optional	Optional
Cartridge disk drive	No	Std.; 10.4-41.6MB	Std.; 10.4-41.6MB	Std.; 10.4-77.6MB
Pack disk drive	Std.; 10.4-41.6MB	Optional	Optional	Optional
Fixed-head disk/drum	No	No	No	No
KEYBOARD INPUT*				
Alphanumeric (typewriter) keyboard	Standard	Standard	Standard	Standard
10-key numeric keyboard	Standard	Standard	Standard	Standard
Full accounting keyboard	No	No	No	No
INPUT/OUTPUT DEVICES*				
Paper tape reader	No	Opt., 120 cps	Opt.; 120 cps	Opt.; 120 cps
Paper tape punch	No	No	No	No
Punched card reader	No	Opt., 300 cpm	Opt.; 300 cpm	Opt.; 300 cpm
Punched card punch	No	No	No	No
Punched card reader/punch	No	No	No	No
Serial printer	Optional	Std.; 175 cps	Optional	Optional
Line printer	Opt.; 125-600 lpm	No	Std.; 125-600 lpm	Std.; 125-600 lpm
Reel-to-reel tape drive	No	No	No	No
Cassette tape drive	No	No	No	No
Cartridge tape drive	No	No	No	No
Magnetic ledger card device	No	No	No	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
COMMUNICATIONS CAPABILITIES*				
Maximum no. of lines	4, 12	4, 12	4, 12	4, 64
Synchronous	No	No	No	No
Asynchronous	Optional	Optional	Optional	Optional
Protocols supported	None	None	None	None
SOFTWARE SUPPORT				
COBOL	No	No	No	No
RPG	No	No	No	No
FORTRAN	No	No	No	No
BASIC	No	No	No	No
Assembler	Yes	Yes	Yes	Yes
Other programming languages	CPL I	CPL I	CPL I	CPL I, CPL II
Multiprogramming	Yes	Yes	Yes	Yes
Language implemented in firmware	No	No	No	Partially
Operating system implemented in firmware	No	No	No	Partially
General accounting packages	Yes	Yes	Yes	Yes
Industry application areas	Acct'g., route acct'g., inven. control	Oil & gas acct'g., dist., banking, medical	Oil & gas acct'g., dist., banking, medical	Oil & gas acct'g., dist., banking, medical
Data base management system	No	No	No	No
File access methods supported	Random, sequential	Random, sequential	Random, sequential	Random, sequential
Software separately priced	Some	Some	Some	Some
Technical help separately priced	Yes	Yes	Yes	Yes
PRICING & AVAILABILITY				
Purchase price of basic system, $	Below $30,000	Below $36,000	Below $40,000	NA
Monthly rental of basic system, $	Purchase/lease	Purchase/lease	Purchase/lease	Purchase/lease
Date of first U.S. delivery	2nd qtr., 1977	May 1978	1974	1st qtr., 1979
Number installed in U.S. to date	600 (Centurion series)	600 (Centurion series)	600 (Centurion series)	0
COMMENTS				

*"Std." means the device is included in the price of the "basic system" as listed here.