Small Business Minicomputer Specifications

As expected, and with no end in sight, the small business computer market continues to grow at a phenomenal rate. Creative Strategies International, a market-research firm, estimates the worldwide market for small business computers will grow 25 percent *per year* from $5.1 billion in 1980 to $15.5 billion in 1985. A second firm, Venture Development of Wellesley, MA, estimates that the $20,000-and-under small business computer market will reach 50 percent of the market by 1984.

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 make it difficult to generalize about components, speeds, capacities, and expansion possibilities.

The current products of 36 suppliers of small business computers are represented in this comprehensive report. Detailed characteristics, features, and prices of systems are presented in convenient comparison chart form. Over 144 small business minicomputer systems are featured in 116 comparison charts. In addition, the report includes buying hints and discussions of new technologies.

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 minicomputers" 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 minicomputer systems that are currently being marketed in the United States. For guidance in selecting and acquiring the particular system that will best meet your needs, we urge you to consult Report M07-100-201, *Selection and Installation of Business Minicomputers.* Also keep in mind that DATAPRO REPORTS ON MINICOMPUTERS contains detailed individual reports on most of the popular small business computer systems, as listed in the Index or Tables of Contents.

The Small Business Minicomputer Marketplace

The small business minicomputer market is served by three distinct types of vendors. The first type is the "Fortune 500" companies such as Burroughs, Honeywell, and IBM, all of whom have vast product lines and resources. For ▷

Honeywell's DPS 6 family of small computers includes the DPS 6/30, the 6/31, the 6/32 (pictured), the 6/34, and the 6/38 at the low end. Memory capacity for the systems ranges from 128K to 1024K bytes. Maximum disk storage capacity is from 10M to 1024M bytes. The systems accommodate a wide variety of printers ranging in speeds to 160 cps and 900 lpm. Purchase prices for the basic systems are $19,500-$30,000.

Small Business Minicomputer Specifications

▷ these companies, the small business minicomputer is just one of a broad line of products (although Burroughs' business minicomputers now account for a sizeable portion of their total corporate sales revenues).

A second group consists of minicomputer manufacturers such as Digital Equipment Corporation (DEC), Data General, Computer Automation, Hewlett-Packard, Wang Laboratories, and others. This group has watched the small business minicomputer 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 Applied Digital Communications, STC Systems, and many others, comprise the third group of suppliers of small business minicomputers. 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. MAI/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 minicomputers.

Most members of the last group sell small business minicomputers 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 minicomputer sector of the EDP marketplace, has climbed into its accustomed position of market leadership during the last few years on the strength of four highly significant product offerings: the System/32, System/34, System/38, and System/23 (Datamaster).

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—a 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 "programmer-less" machine whose software, for most users, will consist entirely of preprogrammed Industry Application Packages supplied by IBM. The availability of the System/32, backed by IBM's powerful marketing forces,

has substantially enlarged the total market for small business minicomputers 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 small business minicomputer systems of the type that have long been offered, with considerable success, by such vendors as Basic Four, Datapoint, and Texas Instruments.

The IBM System/38, introduced in October 1978, is the largest and most powerful member of the IBM General Systems Division's expanding line of business data processing systems. Featuring interactive operation, integrated data base support, and an extended RPG programming language, the System/38 represents an attractive migration path for current users of the smaller IBM System/34. The System/38 is available in 92 packaged submodels that offer from 768K to 4096K bytes of main memory, 64.5 to 2285.5 megabytes of nonremovable disk storage, a diskette magazine drive, and a system console with keyboard and display.

With a complete reversal of "thinking big" to "thinking small," IBM introduced the System/23 Datamaster. The Datamaster, announced in July 1981, is designed for first-time users, and features a four workstation/shared-file architecture, 64K or 128K bytes of memory, up to 6.6M bytes of diskette storage, and a functionally enhanced Basic language that is highly compatible with System/34 Basic.

Burroughs and NCR, the perennial leaders in the small business minicomputer marketplace until the IBM onslaught, are still strong contenders. Burroughs is counting heavily on its B 90 and B 900 line of small business computers. NCR is concentrating on its I-9000 line of computer systems.

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. The most recent addition to the Datasystem 500 line is the Datasystem 579. The system offers a maximum main storage capacity of 3M bytes, a disk storage capacity of 2048 megabytes, and a 180-cps serial printer.

Hewlett-Packard is another major supplier of scientific minicomputers that now offers "packaged" hardware/software configurations oriented toward business data ▷

Small Business Minicomputer Specifications

processing applications. Wang Laboratories, which has elected to specialize in serving the small business minicomputer market, is now one of the foremost suppliers of these systems.

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.

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.

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 should not 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 acquistion 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.

An extremely 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 to thoroughly investigate the available software. This investigation should include the programming languages, preprogrammed utility packages such as payrolls, 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 small business minicomputer 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 will need. Otherwise, you will have to either recruit and train your own programmers or pay an outside software firm to develop your programs. If not kept under strict 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 of major 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. ▷

Small Business Minicomputer Specifications

▷ 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 a small business minicomputer natually 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.

For a detailed discussion of all the aspects of selecting, acquiring, installing, and converting to a low-cost business data processing system, be sure to see Report M07-100-201, *Selection and Installation of Business Minicomputers.*

The Comparison Charts

The principal characteristics of over 144 small business minicomputers from 36 vendors are presented in the 116 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 November and December 1982; their close cooperation with the Datapro Research staff in the preparation of these charts is gratefully acknowledged.

No report on today's small business minicomputers 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; however, an addendum to this report is scheduled to be published in the July supplement of DATAPRO REPORTS ON MINICOMPUTERS to provide as complete an overview of the small business minicomputer market as possible.

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 small business minicomputers 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.

CPU

Model indicates the manufacturer and model of the minicomputer or microprocessor 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 small business minicomputers. 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 less than a microsecond 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 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, CRTs 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 multple-device interfaces and the maximum number of terminal devices theoretically connectable. It should be noted that additional hardware, ▷

Small Business Minicomputer Specifications

▷ 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. However, the less-expensive semiconductor storage has superseded core storage as the principal storage medium for large computers. When both types of memory are available for a system, we have made every attempt to denote the specifications for both.

Capacity of basic system, bytes specifies the amount of memory 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/access time, microseconds. Cycle time 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* 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 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 attempt 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 5.25 or 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/23 and the DEC Datasystem 315. 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 ▷

Small Business Minicomputer Specifications

access to the information is required. Most small business minicomputer 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 small business minicomputers 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 storage capacity of the particular type of unit 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. The maximum capacity entries show the total diskette storage and hard disk storage that can be configured with the model.

Workstations

Maximum number connectable is the largest number of workstations that can be configured with this model.

Recommended maximum number is the number of workstations that the manufacturer recommends be on-line with this model or efficient performance.

Keyboard style is the type of keyboard used with the workstation. Most are alphanumeric (typewriter) style, with or without numeric keyboards.

The *Workstation printer* entry indicates whether or not a printer can be attached to a workstation for hard-copy output, and if it is a standard or optional item.

Input/Output Devices

Most small business minicomputers can be equipped with additional input/output devices, the most common of these being printers, reel-to-reel or cassette tape drives, and CRTs. Chart entries depict which of these devices are standard on the basic system and which are optional or not available. Once again, nonpackaged systems will have all the available I/O devices listed as optional. The comparison charts also indicated the rated speeds or sizes, or a range, available for the peripheral device wherever the information could be obtained.

Other types of I/O devices, such as punched card and paper tape equipment, are indicated in the *Other* entry on the chart. This entry indicates whether this type of equipment is available or not, and if so, as standard or optional equipment. In some cases the type of equipment available is specified.

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-qualilty hard-copy reports for far less money than the line-at-a-line printers used with larger computers. However, for users who require faster printing capabilities, line printers are also available for many small business minicomputers. 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.

CRTs 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 small business minicomputers, 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 9600 bps," indicating one or more transmission speeds up to a maximum of 9600 bps.

Protocols supported indicates the type of communication protocols accommodated by hardware and software for the model.

Network architecture supported indicates the communications network architecture employed by this model. Entries may include, for example, Burroughs' NDL, DEC's DECnet, or IBM's SNA.

Small Business Minicomputer Specifications

▷ *RJE terminals emulated* indicates whether there is software available from the vendor for this small business minicomputer to enable it to function as a "look-alike" for remote job entry terminals. The terminals for which support is provided is indicated. *IBM 3270 emulation* is listed as a separate entry as a result of an increasing amount of interest from our users concerning the emulation of the IBM 3270 Information Display System.

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 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.

Maximum number of jobs that can run concurrently indicates the number of different independent job streams that can be running in the system simultaneously. This number may or may not be the same as the number of partitions in memory, since multiple jobs may be able to function within the same partition.

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 ▷

Small Business Minicomputer Specifications

industry. If the vendor's specialized software can be tailored to the user's exact needs, of if the user can learn 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 a small business minicomputer. 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. The additional cost of these services, if any, should be carefully estimated and considered in all equipment comparisons.

Lease/Maintenance Options

Lease plans available indicates whether the model is available for lease from the vendor or other sources, and the term length of the lease plans.

Maintenance plans available depicts the type of maintenance contracts available from the vendor, or whether maintenance is handled by a third party.

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.

Monthly maintenance price of basic system shows the maintenance costs of the basic system as described above, while Monthly maintenance bundled with rental indicates whether or not the rental price given includes the cost of maintenance.

Purchase price of additional memory modules, workstations, and *printers* shows the cost of each additional unit when added to the basic system configuration, if available.

Discounts available indicates the types of discounts offered by the vendor for this model. This entry will vary by model for many manufacturers with multiple lines of systems.

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 to date shows how many systems of each type had been delivered to U.S. customers as of approximately December 1982. Nearly all of the figures were supplied by the manufacturers themselves.

Small Business Minicomputer Specifications

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 36 suppliers whose products are listed in the comparison charts that follow.

Accelerated Data Systems, 1183 Bordeaux, Suite 18, Sunnyvale, CA 94086. Telephone (408) 744-0264.

Applied Digital Communications, 214 Flynn Avenue, Moorestown, NJ 08057. Telephone (609) 234-3666.

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

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

Centurion Computer Corporation, 1202 East Arapaho Road, Richardson, TX 75081. Telephone (214) 699-8400.

Century Computer Corporation, 14453 Gillis Road, Dallas, TX 75234. Telephone (214) 233-3238.

Charles River Data Systems, Inc., 4 Tech Circle, Natick, MA 01760. Telephone (617) 655-1800.

Complete Computer Systems, 159 Gibraltar Road, Horsham, PA 19044. Telephone (215) 441-4200.

Computer Automation, Inc. (SyFA Systems Division), 2181 Dupont Avenue, Irvine, CA 92713. Telephone (714) 833-8830.

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

Data General Corporation, 4400 Computer Drive, Westboro, MA 01581. Telephone (617) 366-8911.

Datapoint Corporation, 9725 Datapoint Drive, San Antonio, TX 78284. Telephone (512) 699-7000.

Digital Equipment Corporation (DEC), 129 Parker Street, Maynard, MA 01754. Telephone (617) 897-5111.

Digital Systems Corporation, P.O. Box 158, Walkersville, MD 21793. Telephone (301) 845-4141.

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

Distribution Management Systems, Inc., 81 Hartwell Avenue, Lexington, MA 02173. Telephone (617) 863-5000.

Four-Phase Systems, Inc., 10700 North De Anza Boulevard, Cupertino, CA 95014. Telephone (408) 255-0900.

Hewlett-Packard, Computer Systems Division, 19447 Pruneridge Avenue, Cupertino, CA 95014. Telephone (408) 725-8111.

Honeywell Information Systems, Inc., 200 Smith Street, Waltham, MA 01821. Telephone (617) 671-6000.

IBM Corporation, Information Systems Group, 1133 Westchester Avenue, White Plains, NY 10604. Telephone (914) 686-2363.

Infotecs Computer Systems, One Perimeter Road, Manchester, NH 03103. Telephone (603) 624-2700.

MAI/Basic Four Corporation, 14101 Myford Road, Tustin, CA 02680. Telephone (714) 731-5100.

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

NCR Corporation, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-5000.

New England Digital Corporation, P.O. Box 546, White River Junction, VT 05001. Telephone (802) 295-5800.

Nixdorf Computer Corporation, 300 Third Avenue, Waltham, MA 02154. Telephone (617) 890-3600.

Northern Telecom, Inc., Data Park, P.O. Box 1222, Minneapolis, MN 55440. Telephone (612) 932-8016.

Omnidata, 5717 Corsa Avenue, Westlake Village, CA 91362. Telephone (213) 991-5810.

Plessey Peripheral Systems, 17466 Daimler Avenue, Irvine, CA 92714. Telephone (714) 557-9811.

Point 4 Data Corporation, 2569 McCabe Way, Irvine, CA 92714. Telephone (714) 754-4114.

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

Prophet 21, Inc., 2 East Broad Street, Hopewell, NJ 08525. Telephone (609) 466-2100.

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

STC Systems, Inc., 4 North Street, Waldwick, NJ 07463. Telephone (201) 445-5050.

Texas Instruments, Inc., P.O. Box 2909, Austin, TX 78769. Telephone (512) 250-7305.

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

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Accelerated Data Systems Infinity System 100	Accelerated Data Systems Infinity System 200	Applied Digital Communications 103	Applied Digital Communications 202	Applied Digital Communications 300/303
WORD LENGTH, BITS	16, 24, 32	16, 24, 32	16	16	16
CPU					
Model	ADS-100	ADS-200	Perkin-Elmer 3220	DG Nova 4	DG Nova 4
Add time, microseconds	0.2 (16 bits)	0.09 (16 bits)	1.2	1.2	1.2
No. of I/O ports on basic sys. and max.	256	256	1, 256	12 (std.)	12 (std.)
INTERNAL STORAGE					
Type	MOS	MOS	MOS, RAM	MOS, RAM	MOS, RAM
Capacity of basic system, bytes	128K	128K	64K	64K	64K
Maximum capacity, bytes	16M	16M	1M	256K	256K
Increment size, bytes	—	—	—	32K	32K
Cycle/access time, microseconds	0.2	0.09	0.6/0.4	0.4/NA	0.4/NA
MASS STORAGE					
Floppy disk (diskette) drive	—	—	Optional	Optional	Optional
Maximum diskette storage	—	—	—	—	—
Cartridge disk drive	96MB/16 Rmvbl	96MB/16 Rmvbl	No	Std.; 10M bytes	Std.; 10M bytes
Pack disk drive	—	—	Yes	No	Std.; 12.5M bytes
Fixed-head disk/drum	—	—	No	No	—
Maximum disk storage	—	—	—	—	—
WORKSTATIONS					
Maximum number connectable	32	32	—	—	—
Recommended maximum number	24	32	—	—	—
Keyboard style	Typewriter	Typewriter	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Opt. slave printer	Opt. slave printer	—	—	—
INPUT/OUTPUT DEVICES					
Serial printer	200 cps	200 cps	Std.; 120 cps	Std.; 120 cps	Std.; 120 cps
Line printer	450 lpm	450 lpm	Opt.; 600 lpm	Opt.; to 600 lpm	Opt.; to 600 lpm
Reel-to-reel tape drive	Yes, 45/75	Yes, 45/75	Optional	Optional	Optional
Cassette/cartridge tape drive	—	—	Optional	No	No
CRT	1920 char.	1920 char.	Std.; 1920 char.	Std.; 1920 char.	Std.; 1920 char.
Other	—	—	Paper tape & card	Paper tape & card	—
COMMUNICATIONS					
Maximum no. of lines	Unlimited	Unlimited	256	64	64
Synchronous	1.9K bps	1.9K bps	Optional	No	No
Asynchronous	1.9K bps	1.9K bps	Optional	Yes	Yes
Protocols supported	2780/3780, SDLC	2780/3780, SDLC	Bisync	None	None
Network architecture supported	Infinity	Infinity	None	None	None
RJE terminals emulated	2780/3780	2780/3780	None	None	None
IBM 3270 emulation	Yes	Yes	No	No	No
SOFTWARE SUPPORT					
Cobol	Yes	Yes	Yes	Yes	Yes
RPG	Yes	Yes	Yes	No	No
Fortran	Yes	Yes	Yes	Yes	Yes
Basic	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	Pascal	Pascal	No	Algol	Algol
Multiprogramming	Yes, 32 partitions	Yes, 32 partitions	Yes	Yes	Yes
Max. no. of jobs run concurrently	32	32	—	—	—
Language complemented in firmware	Yes	Yes	No	No	No
Op. sys. implemented in firmware	Partially	Partially	Partially	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	General-purpose	General-purpose	General-purpose	Distrib., mfg.	Man./Civil engin.
Data base management system	Yes w/inquiry	Yes w/inquiry	No	No	No
File access methods supported	Yes	Yes	Seq., random	Seq., rand., ISAM	Seq., rand., ISAM
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	5 year, third party	5 year, third party	Contact vendor	Contact vendor	Contact vendor
Maintenance plans available	Various	Various	—	—	—
PRICING & AVAILABILITY					
Purchase price of basic system, $	9,900	14,900	75,000 up	25,000 up	20,000 up
Monthly rental of basic system, $	—	—	—	—	—
Monthly maint. price of basic system, $	125	150	—	—	—
Monthly maint. bundled with rental, $	—	—	—	—	—
Purchase price of:					
additional memory module, $	NA	11,800 (1MB)	—	—	—
additional workstations, $	1,900	1,900	—	—	—
additional printer, $	1,900	1,900	—	—	—
Discounts available	To 40 percent	To 40 percent	—	—	—
Date of first U.S. delivery	1981	1982	1978	1978	1981
Number installed to date	NA	NA	NA	NA	NA
COMMENTS			Includes accounting system, job cost control, invoicing, personnel reports, solid audit trail, multitasking, civil engineering, CAD application, and report gen. packages	Price includes accounting software	Model 300 features manufacturing applications; Model 303 provides civil engineering applications

JANUARY 1983

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Applied Digital Communications 400	Applied Digital Communications 401	BTI 5000, 5000/ES	Burroughs B 91/92	Burroughs B 93
WORD LENGTH, BITS	12	16	16	8	8
CPU					
Model	DEC PDP-8	DEC PDP-11/03-23	BTI 5010	B 91/92	B 93
Add time, microseconds	1	—	20	—	—
No. of I/O ports on basic sys. and max.	UNIBUS	UNIBUS	7	6, 8/8, 11	8, 11
INTERNAL STORAGE					
Type	MOS, Core	Core	MOS	MOS	MOS
Capacity of basic system, bytes	8K	64K	64K	128K	256K
Maximum capacity, bytes	32K	256K	64K	512K	512K
Increment size, bytes	4K	8K	None	128K	128K
Cycle/access time, microseconds	1/1	0.75/0.275	0.65/0.3	0.5/0.3	0.5
MASS STORAGE					
Floppy disk (diskette) drive	Opt.; 1M bytes	Optional	No	Opt.; 243K-3MB	Opt.; 243K-3MB
Maximum diskette storage	4M bytes	1.0M bytes	NA	10M bytes	10M bytes
Cartridge disk drive	Optional	Std.; 5M bytes	No	Opt.; (3) 27.6MB	Opt.; (2) 18.4M bytes
Pack disk drive	Optional	—	27 to 63M/10M bytes	No	No
Fixed-head disk/drum	Optional	—	No	Opt.; (2) 77.2MB	Opt.; (2) 77.2MB
Maximum disk storage	—	—	468M/262M bytes	160.4M bytes	160.4M bytes
WORKSTATIONS					
Maximum number connectable	—	1	32	—	—
Recommended maximum number	—	—	24	—	—
Keyboard style	Type., num. key.	Type., num. key.	Any	Type., num. key	Type., num. key
Workstation printer	—	—	Optional	Optional	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Std.; 120 cps	Std.; 120 cps	Optional	Std.; 90-120 cps*	Std.; 230 cps
Line printer	Opt.; to 600 lpm	Opt.; to 600 lpm	Opt.; 300-900 lpm	Opt.; 160-600 lpm	Opt.; 160-600 lpm
Reel-to-reel tape drive	Opt.; DECtape	Optional	Opt.; to 72KBS	No	No
Cassette/cartridge tape drive	No	Cass.; optional	No	Opt.; (4)/No	Opt.; (4)/No
CRT	Optional	Std.; 1920 char.	Optional	Std.; 256-1920 char.	Optional
Other	Paper tape & card	Paper tape	—	—	—
COMMUNICATIONS					
Maximum no. of lines	NA	256	8/4 std.; 32 opt.	2/4	4
Synchronous	No	Optional	No	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	No	Optional	9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	None	Bisync	User-programmable	2780/3780, BDLC	2780/3780, BDLC
Network architecture supported	None	—	NA	—	—
RJE terminals emulated	None	—	NA	—	—
IBM 3270 emulation	No	—	No	Yes	Yes
SOFTWARE SUPPORT					
Cobol	No	No	No	Yes	Yes
RPG	No	No	No	Yes	Yes
Fortran	Yes	Yes	No	No	No
Basic	Yes	Yes	Yes	No	No
Assembler	Yes	Yes	No	No	No
Other programming languages	None	None	No	NDL/MPL II	NDL/MPL II
Multiprogramming	No	No	No	Yes	Yes
Max. no. of jobs run concurrently	—	—	32	—	—
Language complemented in firmware	No	No	Partially	Fully	Fully
Op. sys. implemented in firmware	No	Partially	Partially	Fully	Fully
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Manufacturing	—	Mfg., bus., school	General-purpose	General-purpose
Data base management system	No	TOTAL	Yes	No	No
File access methods supported	Seq., rand.	Seq., random, ISAM	Rand., seq., ISAM	Rand., seq., ISAM	Rand., seq., ISAM
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	No	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	Contact vendor	Contact vendor	Purchase only	1-, 3-, 5-year	1-, 3-, 5-year
Maintenance plans available	—	—	24 hours	On-site contract, on-call	On-site contract, on-call
PRICING & AVAILABILITY					
Purchase price of basic system, $	13,000 up	15,000 up	Contact vendor	8,350/14,700	9,564
Monthly rental of basic system, $	—	—	Purchase only	—	—
Monthly maint. price of basic system, $	—	—	Contact vendor	—	—
Monthly maint. bundled with rental, $	—	—	NA	Contact vendor	Contact vendor
Purchase price of:					
additional memory module, $	—	—	—	Contact vendor	Contact vendor
additional workstations, $	—	—	Contact vendor	—	—
additional printer, $	—	—	—	Contact vendor	Contact vendor
Discounts available	—	—	Quantity	—	—
Date of first U.S. delivery	NA	1979	March 1978	December 1979	June 1981
Number installed to date	40+	5	3500	NA	NA
COMMENTS	Computer-aided design for Numeric Control manufacturing operations, and NC tape verification; piece part drawings can be retrofit into existing computer	Manufacturing and accounting software CAD systems for Numeric Control mfg. operations, NC tape verification, NC tape translation; piece part drawings with incremental plotter	Up to 32 user terminals can run concurrently		A workstation-oriented system that does not require an integrated console because the operating system allows any workstation to perform the system's functions

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Burroughs B 96	Burroughs B 920	Burroughs B 930	Burroughs B 1955/B 1985	Centurion 5200/5300
WORD LENGTH, BITS	8	64	64	24	8, 16
CPU					
Model	B 96	B 900-2	B 930-1, B 930-2	B 1900	Centurion, CPU-6
Add time, microseconds	—	—	—	—	1.6 (16 bit)
No. of I/O ports on basic sys. and max.	8, 11	—	—	4, 15	4, 20
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	512K	640K	576K	524, 288	64K
Maximum capacity, bytes	1,536K	1.5M	3200K	2,097,152	256K
Increment size, bytes	512K	64K, 128K	64K	262,144	32K
Cycle/access time, microseconds	0.25	1.0/0.5	0.33	0.333 per byte	.8
MASS STORAGE					
Floppy disk (diskette) drive	1M bytes	Opt.; 1M or 6M bytes	Opt.; 1M or 6MB	Opt.; 243K bytes	Std.; 1.2M bytes
Maximum diskette storage	3M bytes	10M bytes	10M bytes	972K bytes (4)	1.2M bytes
Cartridge disk drive	18.4M bytes	Opt.; (3) 9.2M bytes	Opt.; (3) 92MB	No	NA
Pack disk drive	—	Opt.; 390M bytes	Opt.; 520MB	65MB; 3.2BB (opt.)	NA
Fixed-head disk/drum	—	231M bytes	—	No	Std.; 8,24,32,40MB
Maximum disk storage	231.6M bytes	550M bytes	1,768M bytes	—	80M/120M bytes
WORKSTATIONS					
Maximum number connectable	—	—	—	256	12/32
Recommended maximum number	—	—	—	—	10/20
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.	Selectric
Workstation printer	Optional	Optional	Optional	Yes	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 230 cps	Opt.; 120 cps	Opt.; 230 cps	Opt.; 230 cps	Opt.; 75-150 cps
Line printer	Opt.; 160-600 lpm	Opt.; 250-600 lpm	Opt.; 250-1200 lpm	650lpm;1500lpm(opt.)	Opt.; 200-600 lpm
Reel-to-reel tape drive	Opt.; 40K bytes	Opt.; 40K bytes	Opt.; 40K	Opt.; 40-120K BPS (8)	NA
Cassette/cartridge tape drive	Opt.; (1)/No	Opt.; 1KBS/No	Opt.; 1KBS/No	Cass.; 1K BPS	Opt.; 55 ips
CRT	Optional	Optional	Optional	Std.; 24 x 80 char.	Std.; 24 x 80 char.
Other	—	—	—	Card reader	
COMMUNICATIONS					
Maximum no. of lines	4	4	18	32	1
Synchronous	Opt.; 9600 bps	Opt.; to 9600 bps	Opt.; 9600 bps	Opt.; 50,000 bps	Optional
Asynchronous	Opt.; 9600 bps	Opt.; to 1800 bps	Opt.; 9600 bps	Opt.; 19,200 bps	Std.; 9600 bps
Protocols supported	2780, 3780, Burr.	BDLC, Bisync	2780/3780, BDLC	2780/3780, 360-20	2780/3780; RS-232
Network architecture supported	—	Async, Sync	—	BNA	No
RJE terminals emulated	Yes	—	Yes	2780/3780, 360-20	Yes
IBM 3270 emulation	Yes	—	Yes	Yes	No
SOFTWARE SUPPORT					
Cobol	Yes	Yes	Yes	Yes	No
RPG	Yes	Yes	Yes	Yes	No
Fortran	No	No	No	Yes	No
Basic	No	No	No	Yes	Yes
Assembler	No	No	No	No	Yes
Other programming languages	NDL/MPL II	NDL, MPL II	NDL/MPL II	MIL, SDL, UPL	CPL, JCL, ADART
Multiprogramming	Yes	Yes	Yes	Yes, dynamic mem.	Yes; 16 partitions
Max. no. of jobs run concurrently	23	—	25	—	16
Language complemented in firmware	Fully	Fully	Fully	Yes	Yes
Op. sys. implemented in firmware	Fully	Fully	Fully	Yes	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	All bus. acct. applic.	General-purpose	Business accounting	Ind. spec. soft.	General Business
Data base management system	No	No	No	Yes	No
File access methods supported	Rand., seq., ISAM	Random, seq., ISAM	Rand., seq., ISAM	Rand., seq., ISAM	Rand., seq., ind.
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	1-, 3-, 5-year	1-, 3-, or 5-year	1-, 3-, 5-year	1-, 3-, 5-year	See dealer
Maintenance plans available	On-site contract, on-call	On-site contract, on-call	On-site contract, on-call	Yes, 7 days-24 hrs.	Contract/per call through dealer
PRICING & AVAILABILITY					
Purchase price of basic system, $	38,615	60,500	23,228	Contact vendor	20,100/22,300
Monthly rental of basic system, $	—	1,956 (3 years)	—	—	NA
Monthly maint. price of basic system, $	—	—	—	Contact vendor	250/270
Monthly maint. bundled with rental, $	1,971	—	1,009	Contact vendor	NA
Purchase price of:					
additional memory module, $	—	1,500 (128KB)	—	Contact vendor	—
additional workstations, $	—	—	—	Contact vendor	1,500
additional printer, $	—	8,490 (250 lpm)	—	—	See dealer
Discounts available	Yes	—	Yes	Quantity	Quantity
Date of first U.S. delivery	August 1982	October 1980	September 1982	March 1980	May 1982
Number installed to date	NA	NA	NA	NA	NA
COMMENTS					5200 is a desk model. Available applications: acctg., wholesale dist., med. billing, ins., service, banking, mfg. 5300 is a cabinet model.

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Centurion 6400/6500	Centurion MicroPlus	Century Computer Century 300	Century Computer Century 400/700/900	Century Computer Century X-1000
WORD LENGTH, BITS	8, 16	8, 16	8, 16	8, 16	8, 16, 24
CPU					
Model	Centurion, CPU-6	Centurion, CPU-6	Century 200	Century 400	X-1000
Add time, microseconds	1.6 (16 bit)	1.6 (16 bit)	1.4 (16 bits)	1.4 (16 bits)	1.6 (24 bits)
No. of I/O ports on basic sys. and max.	4, 20	4, 4	2, 256	2, 256	256
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K	64K	32K	64K/96K/16K	64K
Maximum capacity, bytes	256K	128K	64K	256K-1M byte	1M
Increment size, bytes	32K	—	32K, 64K	32K, 64K	64K
Cycle/access time, microseconds	.8	.8	0.4/0.2	0.4/0.2	1.1
MASS STORAGE					
Floppy disk (diskette) drive	NA	Std.; 1.2M bytes	No	No	—
Maximum diskette storage	NA	2	—	—	—
Cartridge disk drive	Std.;64MB;opt.3(96MB)	NA	10M bytes	10M bytes	—
Pack disk drive	NA	NA	80M bytes	80M bytes	—
Fixed-head disk/drum	Std.; 64, 96MB	Opt.; 8-40MB	No	No	—
Maximum disk storage	288M/192M bytes	40M bytes	150M bytes	420M-900M bytes	—
WORKSTATIONS					
Maximum number connectable	32/12	4	6	15/20/32	20
Recommended maximum number	20/8	3	4	12/20/32	15
Keyboard style	Selectric	Selectric	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Optional	Optional	Opt.; 4	Opt.; 8/20/32	Opt.; 20
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 75-150 cps	Opt.; 75-150 cps	No	165 cps (400 only)	—
Line printer	Opt.; 200-600 lpm	Opt.; 200-600 lpm	Std.; 300 lpm	Optional	Opt. 300 lpm
Reel-to-reel tape drive	Opt.; 25-100 ips	NA	Opt.; 36KBS	Optional	800/1600 BPI, 45 ips
Cassette/cartridge tape drive	Opt.; 55 ips	Opt.; 55 ips	Optional	Optional	Optional, 30 ips
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.
Other	—	—	No	No	—
COMMUNICATIONS					
Maximum no. of lines	1	1	40	80/132/32	4
Synchronous	Optional	NA	Opt.; to 9600 bps	Opt.; to 9600 bps	—
Asynchronous	Std.; 9600 bps	Std.; 9600 bps	19,200 bps	19,200 bps	9600 bps
Protocols supported	2780/3780; RS-232	Async.	—	—	3780
Network architecture supported	No	No	No	No	—
RJE terminals emulated	Yes	No	IBM 3780	IBM 3780	—
IBM 3270 emulation	No	No	Yes, optional	Yes, optional	Yes, optional
SOFTWARE SUPPORT					
Cobol	No	No	No	No	No
RPG	No	No	No	No	No
Fortran	No	No	No	No	Yes
Basic	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	CPL, JCL, ADART	CPL, JCL, ADART	CPL, Pascal	CPL, Pascal	Pascal
Multiprogramming	Yes; 16 partitions	Yes; 3 partitions	Yes, 4 partitions	Yes	Yes, 15 partitions
Max. no. of jobs run concurrently	16	4	4	8/20/32	8
Language complemented in firmware	Yes	No	No	No	Yes
Op. sys. implemented in firmware	No	No	No	No	Yes
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	General Business	General Business	Finance, gen. bus.		Yes
Data base management system	No	No	Yes	Yes (400 only)	Yes
File access methods supported	Rand., seq., index	Rand., seq., index	Rand., seq., index	Rand., seq., index	ISAM
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	See dealer	See dealer	Contact vendor	Contact vendor	3-, 5-, 6-year
Maintenance plans available	Contract/per call through dealer	Contract/per call through dealer	On-site, on-call, factory, third-party	On-site, on-call, factory, third-party	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	37,650/35,000	9,500	Contact vendor	Contact vendor	25,000-45,000
Monthly rental of basic system, $	NA	NA	—	Purchase only	400-1,000
Monthly maint. price of basic system, $	440/400	120	—	—	350-750
Monthly maint. bundled with rental, $	NA	NA	Yes	Yes	—
Purchase price of:					
additional memory module, $	—	—	—	—	—
additional workstations, $	1,500	1,500	—	—	—
additional printer, $	See dealer	See dealer	—	—	—
Discounts available	Quantity	Quantity	OEM	OEM	OEM
Date of first U.S. delivery	October 1979	January 1982	June 1975	June 1975	August 1980
Number installed to date	90/15	365	NA	NA	18
COMMENTS	6400—cabinet model; 6500—desk model.		Field upgradable	Field upgradable	Field upgradable

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Charles River Data Systems Universe 68	Complete Computer Systems #4001	Complete Computer Systems #4016/#4026	Complete Computer Systems #4032	Computer Automation SyFA 50
WORD LENGTH, BITS	32	16 + 1	16 + 1	16 + 1	16
CPU					
Model	CRDS CP-32	DG Nova 4S	DG Nova 4X	DG Nova 4X	LSI 4/10
Add time, microseconds	32 ons-32 bit	0.2	0.2	0.2	—
No. of I/O ports on basic sys. and max.	4, 64	6, 11	10, 42	18, 42	256
INTERNAL STORAGE					
Type	MOS	MOS	MOS MAPPED	MOS MAPPED	MOS
Capacity of basic system, bytes	256K	64K	256K	256K	32K
Maximum capacity, bytes	3-12M bytes*	64K	1000K	1000K	64K
Increment size, bytes	256K-1M bytes	—	256K	256K	32K
Cycle/access time, microseconds	390/220	0.4/0.2	—	—	0.7
MASS STORAGE					
Floppy disk (diskette) drive	Std.; 1.26M bytes	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Std. (4) 1M bytes
Maximum diskette storage	2.5M bytes	4.8M bytes	4.8M bytes	4.8M bytes	4M bytes
Cartridge disk drive	Opt.; 10M bytes	Optional	Optional	Optional	—
Pack disk drive	—	Std.; 10M bytes	Std.; 40M/96M bytes	Std.; 96M bytes	—
Fixed-head disk/drum	Std.; 10-32M bytes*	No	No	No	—
Maximum disk storage	320M bytes	768M bytes	768M bytes	768M bytes	4M bytes
WORKSTATIONS					
Maximum number connectable	64	5	33	33	2
Recommended maximum number	8-16	3	33	33	2
Keyboard style	Detached	Type., num. key.	Type., num. key.	Type., num. key.	IBM Selectric
Workstation printer	Optional	Optional (5)	Optional (33)	Optional (33)	2
INPUT/OUTPUT DEVICES					
Serial printer	Optional	Std.; 600 cps	Standard	Std.; 100-600 cps	Opt.; (2) 30/100/180
Line printer	Optional	Opt.; 300 lpm	Opt.; 300 lpm	Opt.; 300 lpm	Opt. (1) 300/600 lpm
Reel-to-reel tape drive	Optional	Opt.; 60,000 cps	Opt.; 60,000 cps	Opt.; 60,000 cps	—
Cassette/cartridge tape drive	Optional	No	No	No	—
CRT	Optional	Std.; (2) 1920 char.	Std.; (5) 1920 char.	Std.; (5) 1920 char.	Std.; (2) 1920 char.
Other	—	Opt.; WP printer	Optional streaming tape drive	Standard streaming tape drive	—
COMMUNICATIONS					
Maximum no. of lines	64	8	32	32	3
Synchronous	Standard	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; 4800 bps
Asynchronous	Standard	Opt.; to 9600 bps	Opt.; to 9600 bps	Std.; to 9600 bps	Opt.; 9600 bps
Protocols supported	NA	2780/3780, SDLC	2780/3780, SDLC	2780/3780, SDLC	2780/3780
Network architecture supported	Yes	360/370	360/370	360/370	—
RJE terminals emulated	NA	Yes	Yes	Yes	2780/3780
IBM 3270 emulation	NA	Yes	Yes	Yes	No
SOFTWARE SUPPORT					
Cobol	Optional	Yes	Yes	Yes	No
RPG	No	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	Pascal, C, Magic/I	—	—	—	SYBOL
Multiprogramming	Yes—no limit	Yes, 2 partitions	Yes, dynamic	Yes, dynamic	Yes
Max. no. of jobs run concurrently	256	4	16	16	2
Language complemented in firmware	No	Partially	Partially	Partially	No
Op. sys. implemented in firmware	No	Partially	Partially	Partially	No
General accounting packages	Available	Yes	Yes	Yes	No
Industry application areas	Available	Foundations, Assoc.	Mun. govt., mfg., dist.	Mfg., construction	DDP, ins., per. goods
Data base management system	Optional	Yes, CREATE	Yes, CREATE	Yes, CREATE	No
File access methods supported	SAM, RAM; VSAM	Rand., seq., ISAM	Rand., seq., ISAM	Rand., seq., ISAM	Random, seq.
Software separately priced	Yes	Yes	Yes	Yes	No
Technical help separately priced	Yes	Yes	Yes	Yes	—
LEASE/MAINTENANCE OPTIONS					
Lease plans available	No	3-, 5-, 7-yr.	3-, 5-, 7-yr.	3-, 5-, 7-yr.	Yes, third-party
Maintenance plans available	Depot	On-site	On-site	On-site	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	11,900—Model 05	31,380	59,595/72,000	78,735	Contact vendor
Monthly rental of basic system, $	NA	720	1,370/1,656	1,810	—
Monthly maint. price of basic system, $	NA	298	572/696	760	Contact vendor
Monthly maint. bundled with rental, $	NA	—	—	—	NA
Purchase price of:					
additional memory module, $	5,500/MB	—	8,000 (256KB)	8,000 (256KB)	Contact vendor
additional workstations, $	900	1,550-1,950	1,550-1,950	1,550-1,950	Contact vendor
additional printer, $	—	7,200 (100-600 cps)	7,200 (100-600 cps)	7,200 (100-600 cps)	Contact vendor
Discounts available	10 to 40 percent	Turnkey & govt.	Turnkey & govt.	Turnkey & govt.	No
Date of first U.S. delivery	October 1981	January 1980	1975/1976	1977	January 1981
Number installed to date	DTS	NA	NA	NA	18
COMMENTS	*Models vary in desk and memory capacity	Membership organizations, Corporate Foundations, mail order, real estate sales, shared logic with WP	#4016 is designed for government installations; #4026 is designed for manufacturing, distribution and construction	Commercial printers, publishing, lumber distribution, textile mills; CREATE System generator and report writer	

JANUARY 1983

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Computer Automation SyFA 1000	Computer Automation SyFA 2000	Computer Designed Systems Adviser 100	Computer Designed Systems Adviser 300	Computer Designed Systems Adviser 600
WORD LENGTH, BITS	16	16	32	32	32
CPU					
Model	LSI 2/60, 2/120	LSI 2/60, 2/120	SP 100	SP 300	AP 600
Add time, microseconds	—	—	—	—	—
No. of I/O ports on basic sys. and max.	256	256	8, 24	24	24, 32
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MS-MOS, Cache
Capacity of basic system, bytes	64K	256K	64K	64K	256K
Maximum capacity, bytes	320K	512K	128K	256K	512K
Increment size, bytes	64K	256K	64K	64K	64K
Cycle/access time, microseconds	0.55	0.5	—	—	—
MASS STORAGE					
Floppy disk (diskette) drive	—	—	No	No	No
Maximum diskette storage	—	—			
Cartridge disk drive	Opt.; (8) 32, 64, 96MB	Opt.; (8) 32, 64, 96MB	—	—	—
Pack disk drive	Opt.; (8) 80, 300MB	Opt.; (8) 80, 300MB	Std.; 32M bytes	Std.; two 80M bytes	Std.; two 80M bytes
Fixed-head disk/drum	—	—	16M bytes	16M bytes	16M bytes
Maximum disk storage	2400M bytes	2400M bytes	64M bytes	320M bytes	640M bytes
WORKSTATIONS					
Maximum number connectable	32	64	8	16	24
Recommended maximum number	32	48	4	8	24
Keyboard style	IBM Selectric	IBM Selectric	Type numeric	Type numeric	Type numeric
Workstation printer	32	64	Opt.; 4	Opt.; 8	Opt.; 24
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; (32) 30/100/180	Opt.;(64)30/100/180	Std.; 200 cps	Std.; 200 cps	Std.; 200 cps
Line printer	Opt. (2) 300/600 lpm	Opt. (4) 300/600 lpm	Opt.; 300 lpm	Std.; 300 lpm	Std.; 300 lpm
Reel-to-reel tape drive	Opt.; (1) 100/1800 bpi	Opt.; (1) 100/1800 bpi	Opt.; 800 bpi	Opt.; 800-1600 bpi	Opt.; 800-1600 bpi
Cassette/cartridge tape drive	—	—	No	No	No
CRT	Std.; (32) 1920 char.	Std.; (64) 1920 char.	Std.; 1920 char.	Std.; 1920 char.	Std.; 1920 char.
Other	Word processing workstation (4 maximum)	Word processing workstation (4 maximum)	Yes	Yes	Yes
COMMUNICATIONS					
Maximum no. of lines	33	65	4	8	16
Synchronous	Opt.; 4800 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	Opt.; 9600 bps	Std.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps
Protocols supported	3780/3270 BSC	3780/3270 BSC	2780/3780	Bisync, Async, SDLC	Biysnc, Async, SDLC
Network architecture supported	SNA PU Type 2; X.25	SNA PU Type 2; X.25	No	X.25	SNA, X.25
RJE terminals emulated	3780/HASP	3780/HASP	No	2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	No	No	Yes
SOFTWARE SUPPORT					
Cobol	No	No	Yes	Yes	Yes
RPG	No	No	Yes	Yes	Yes
Fortran	No	No	No	Yes	Yes
Basic	No	No	Yes	Yes	Yes
Assembler	No	No	No	Yes	Yes
Other programming languages	SYBOL	SYBOL	Abol, Pascal	Abol, Pascal	Abol, Pascal
Multiprogramming	Yes	Yes	Yes, 8 partitions	Yes, 16 partitions	Yes, 24 partitions
Max. no. of jobs run concurrently	54	86	8	16	24
Language complemented in firmware	Yes	Yes	Partially	Partially	Partially
Op. sys. implemented in firmware	No	No	Partially	Partially	Partially
General accounting packages	No	No	Yes	Yes	Yes
Industry application areas	DDP, ins., per. goods	DDP, ins., per. goods	Dist., mfg., med.	Dist., mfg., med.	Dist., mfg., med.
Data base management system	No	No	No	No	
File access methods supported	Random, seq., ISAM	Random, seq., ISAM	Random, seq., index	Random, seq., index	Random, seq., index
Software separately priced	No	No	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	Yes, third-party	Yes, third-party	3-,5-,7-year, 3rd pty.	3-,5-,7-year, 3rd pty.	3-,5-,7-year, 3rd pty.
Maintenance plans available	Yes	Yes	Contract, on-call	Contract, on-call	Contract, on-call
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	30,000	60,000	150,000
Monthly rental of basic system, $	—	—			
Monthly maint. price of basic system, $	Contact vendor	Contact vendor	300	600	1,500
Monthly maint. bundled with rental, $	NA	NA	—	—	—
Purchase price of:					
additional memory module, $	Contact vendor	Contact vendor	4,100 (64KB)	5,000 (64KB)	22,000 (128KB)
additional workstations, $	Contact vendor	Contact vendor	Varies	Varies	Varies
additional printer, $	Contact vendor	Contact vendor	Varies	Varies	Varies
Discounts available	—	—	—	—	—
Date of first U.S. delivery	July 1975	April 1981	1975	1976	1977
Number installed to date	1000	4	NA	NA	NA
COMMENTS	Can operate in an IBM SNA network as a physical unit (PU) Type 2	Can operate in an IBM SNA network as a physical unit (PU) Type 2			

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Computer Designed Systems Adviser 900	Data General CS Series 200-B	Datpoint 1560	Datapoint 1800	Datapoint 6600
WORD LENGTH, BITS	32	16	8-bit byte	8-bit byte	8-bit byte
CPU					
Model	AP 900	Eclipse	Datapoint 1560	Datapoint 1800	Datapoint 6600
Add time, microseconds	—	—	—	3.8	1.15
No. of I/O ports on basic sys. and max.	32, 256	—	4	2 (10 maximum)	24
INTERNAL STORAGE					
Type	UHS-MOS, Cache	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	256K	256K	64K	64K	60K
Maximum capacity, bytes	2000K	1M	128K	128K	256K
Increment size, bytes	64K	—	64K	64K	128K
Cycle/access time, microseconds	—	500 ns	—	0.723 to 0.814	0.6/0.2
MASS STORAGE					
Floppy disk (diskette) drive	No	—	1 or 2M bytes	Std.; 1M to 8M bytes	Opt.; 1M bytes
Maximum diskette storage	—	—	1-8M bytes	8M bytes	—
Cartridge disk drive	—	635M bytes	10-40M bytes	10-40M bytes	Opt.; 160M bytes
Pack disk drive	Std.; two 300M bytes	Yes (4) 277MB	10-40M bytes	No	Opt.; 200M bytes
Fixed-head disk/drum	16M bytes	—	No	No	No
Maximum disk storage	2400M bytes	1,400M bytes	40M bytes	40M bytes	500M bytes
WORKSTATIONS					
Maximum number connectable	32	25	4	9	24
Recommended maximum number	32	—	4	9	12-14
Keyboard style	Type numeric	Type.; num. key.	ASCII alphanumeric	Type., num. key.	Type., num. key.
Workstation printer	Opt.; 32	—	Opt.; 30, 45, 160 cps	Opt.; 30, 45, 160 cps	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Std.; 200 cps	55 cps	Optional	Optional	Optional
Line printer	Std.; 600 lpm	To 600 lpm	300, 340, or 600 lpm	300, 340, or 600 lpm	300,340,600,900lpm
Reel-to-reel tape drive	Opt.; 800-1600 bpi	—	No	800/1600 ips	800/1600 bpi
Cassette/cartridge tape drive	No	—	No	No	Cast.; optional
CRT	Std.; 1920 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
Other	Yes	—	RS-232-C	RS-232-C	—
COMMUNICATIONS					
Maximum no. of lines	32	—	1 or 2	1	1
Synchronous	Opt.; 9600 bps	Yes	Std.; 2000-9600 bps	Std.; 2000-9600 bps	2000-9600 bps
Asynchronous	Opt.; 9600 bps	Yes	Std.; 110-1200 bps	Std.; 110-1200 bps	110-1200 bps
Protocols supported	Bisync, async, SDLC	X.25, 2780/3780	2780/3780, 3270	See Comments*	See Comments*
Network architecture supported	SNA, X.25	Xodiac	ARCNET	ARCNET	ARCNET
RJE terminals emulated	3780, HASP	2780/3780, 360/370	2780/3780	2780/3780, HASP	2780/3780, HASP
IBM 3270 emulation	Yes	No	Bisync, SDLC	Bisync, SDLC	Bisync, SDLC
SOFTWARE SUPPORT					
Cobol	Yes	Yes	No	Yes	Yes
RPG	Yes	No	No	Yes	Yes
Fortran	Yes	No	Yes	Yes	Yes
Basic	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	No	No	Yes	Yes
Other programming languages	Abol, Pascal	Pascal, Busigen, WP	Databus	Databus	Databus
Multiprogramming	Yes, 32 partitions	Yes	Yes (4)	Yes (9)	Yes (24)
Max. no. of jobs run concurrently	32	—	4	9	24
Language complemented in firmware	Partially	—	No	No	No
Op. sys. implemented in firmware	Partially	—	No	No	No
General accounting packages	Yes	No	No	No	Yes
Industry application areas	Dist., mfg., med.	General business	General-purpose	General-purpose	General-purpose
Data base management system	—	Yes (under AOS)	Yes (Datascan)	Yes (Datascan)	Yes (Datascan)
File access methods supported	Random, seq., index	Yes	Rand., seq., ISAM	Rand., seq., ISAM	Rand., seq., ISAM, *
Software separately priced	Yes	—	No	No	No
Technical help separately priced	Yes	—	No	No	No
LEASE/MAINTENANCE OPTIONS					
Lease plans available	3-,5-,7-year, 3rd pty.	No	1-, 2-, 3-yr. lease	1-, 2-, 3-yr. lease	1-, 2-, 3-yr. lease
Maintenance plans available	Contract, on-call	On-call	On-site, on-call	On-site, on-call	On-site, on-call
PRICING & AVAILABILITY					
Purchase price of basic system, $	200,000	50,110	Contact vendor	Contact vendor	Contact vendor
Monthly rental of basic system, $	—	—	Contact vendor	Contact vendor	Contact vendor
Monthly maint. price of basic system, $	2,000	—	Contact vendor	Contact vendor	Contact vendor
Monthly maint. bundled with rental, $	—	—	No	No	No
Purchase price of:					
additional memory module, $	22,000 (128KB)	Contact vendor	Contact vendor	Contact vendor	Contact vendor
additional workstations, $	Varies	Contact vendor	Contact vendor	Contact vendor	Contact vendor
additional printer, $	Varies	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Discounts available	—	OEM	Quantity, OEM	Quantity, OEM	Quantity, OEM
Date of first U.S. delivery	1977	May 1982	October 1982	August 1978	July 1976
Number installed to date	NA	—	—	—	NA
COMMENTS		Offers the RDOS or AOS operating systems	Comm. software includes CDCUT 200, Honeywell VIP, Burroughs TC-3500, and TTY; CP/M or DOS operating system; word processing; financial spreadsheet; DATAPOLL is also supported	Word procesing; financial spreadsheet. *2780, 3780, 3770, HASP, TC3500, VIP, GRTS, DC 1000, VT 200, UN 200, SDLC, DATAPOLL	Word processing; financial spreadsheet. *2780, 3780, HASP, SDLC, TC 3500, DC 1000, VIP, GRTS, VT 200, DATAPOLL

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Datapoint 8600	Datapoint 8800	Digital Equipment Corp. Datasystem 315	Digital Equipment Corp. Datasystem 336	Digital Equipment Corp. Datasystem 346/348
WORD LENGTH, BITS	16-bit byte	16-bit byte	16	16	16
CPU					
Model	Datapoint 8600	Datapoint 8800	DEC PDP-11/23	DEC PDP-11/23	DEC PDP-11/24
Add time, microseconds	.75	NA	NA	NA	NA
No. of I/O ports on basic sys. and max.	1, 13	8, 24	3, 3	8, 8	—
INTERNAL STORAGE					
Type	MOS	MOS, ECC	MOS	MOS	MOS
Capacity of basic system, bytes	128K	256K	64K	128K	256K
Maximum capacity, bytes	256K	1024K	256K	256K	256K
Increment size, bytes	128K	128K	64K	32K	—
Cycle/access time, microseconds	.3	NA	NA	500 ns./NA	—
MASS STORAGE					
Floppy disk (diskette) drive	Opt.; 1M bytes	—	Standard	No	No
Maximum diskette storage	1M bytes	—	1M bytes	—	—
Cartridge disk drive	10-40M bytes	—	No	Std.; 20.8M bytes	Std.; 20.8M/56MB
Pack disk drive	No	202M bytes	No	No	No
Fixed-head disk/drum	20-100M bytes	No	No	No	No
Maximum disk storage	100M bytes	1020M bytes	1M bytes	41.6M bytes	41.6M/224MB
WORKSTATIONS					
Maximum number connectable	13	24	3	8	—
Recommended maximum number	8-13	6-24	1	6	—
Keyboard style	Type., num. key.	Type., num. key.	Type., num., key.	Type., num. key.	Type., num. key.
Workstation printer	Optional, 12	Optional, 24	No	No	No
INPUT/OUTPUT DEVICES					
Serial printer	Optional	Optional	Opt.; 180 cps	Opt.; 180 cps	Opt.; 180 cps
Line printer	300, 340, 600, 900 lpm	300,340,600,900 lpm	No	No	No
Reel-to-reel tape drive	800/1600 bpi	800/1600 bpi	No	No	No
Cassette/cartridge tape drive	Opt.; 20M bytes	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.
Other	—	—	No	No	No
COMMUNICATIONS					
Maximum no. of lines	1 or 2	1 to 3	4	4	2
Synchronous	2000-9600 bps	2000-9600 bps	No	No	No
Asynchronous	110-1200 bps	110-1200 bps	Yes	Yes	Yes
Protocols supported	2780, 3780, HASP	2780, 3780, HASP	2780/3780	2780/3780	2780/3780
Network architecture supported	ARCNET	ARCNET	NA	NA	NA
RJE terminals emulated	2780, 3780, HASP	2780/3780, HASP	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Bisync, SDLC	Bisync, SDLC	No	No	No
SOFTWARE SUPPORT					
Cobol	Yes	Yes	No	No	No
RPG	Yes	Yes	No	No	No
Fortran	Yes	No	No	No	No
Basic	Yes	No	No	No	No
Assembler	Yes	Yes	No	No	No
Other programming languages	Databus	Databus	DIBOL-11 (Cobol)	DIBOL-11 (Cobol)	DIBOL-11 (Cobol)
Multiprogramming	Yes (13)	Yes (25)	Yes	Yes	Yes
Max. no. of jobs run concurrently	13	25	3	16	—
Language complemented in firmware	No	No	No	No	No
Op. sys. implemented in firmware	No	No	No	No	No
General accounting packages	—	Yes	No	No	No
Industry application areas	General-purpose	General-purpose	Business acct.	Business acct.	General business
Data base management system	Yes (Datascan)	Yes (Datascan)	No	No	No
File access methods supported	Rand., seq., ISAM, **	Rand., seq., ISAM, *	Sequential, ISAM	Sequential, ISAM	Sequential, ISAM
Software separately priced	No	No	No	No	No
Technical help separately priced	No	No	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	1-, 2-, 3-yr. lease	1-, 2-, 3-yr. lease	Contact vendor	Contact vendor	Contact vendor
Maintenance plans available	On-site, on-call	On-site, on-call	On-site	On-site	On-site
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly rental of basic system, $	Contact vendor	Contact vendor	—	Purchase only	—
Monthly maint. price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly maint. bundled with rental, $	No	No	—	—	—
Purchase price of:					
additional memory module, $	Contact vendor	Contact vendor	NA	NA	—
additional workstations, $	Contact vendor	Contact vendor	No	NA	—
additional printer, $	Contact vendor	Contact vendor	No	NA	—
Discounts available	Quantity, OEM	Quantity, OEM	OEM and volume	OEM and volume	OEM and volume
Date of first U.S. delivery	February 1981	May 1981	November 1980	April 1980	1981
Number installed to date	1800	250	—	NA	NA
COMMENTS	Word processing; financial spread-sheet; SDLC supported GRTS also emulated	Word processing; financial spread-sheet; SDLC supported; GRTS also emulated	Includes RT-11 operating system	Includes CTS-300 operating system	The Physical Address Extension memory module permits memory expansion to 768KB or 1MB. Includes the CTS300 operating system.

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Digital Equipment Corp. Datasystem 356/358	Digital Equipment Corp. Datasystem 522/528	Digital Equipment Corp. Datasystem 532/538	Digital Equipment Corp. Datasystem 546	Digital Equipment Corp. Datasystem 579
WORD LENGTH, BITS	16	16	16	16	16
CPU					
Model	DEC PDP-11/34A	DEC PDP-11/24	DEC PDP-11/34A	DEC PDP-11/44	DEC PDP-11/70
Add time, microseconds	NA	—	—	—	—
No. of I/O ports on basic sys. and max.	—				
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	256K	256K	256K	512K (8K cache)	512K
Maximum capacity, bytes	256K	768K*/1M bytes	256K	1M*	3M
Increment size, bytes	—		—	256K	—
Cycle/access time, microseconds	510 ns./NA; 0.73/0.7	—	—	—	—
MASS STORAGE					
Floppy disk (diskette) drive	No	No	No	No	No
Maximum diskette storage	—	—	—	—	—
Cartridge disk drive	Std.; 20.8M/56MB	Std.; 20.8M/56MB	Std.; 20.8M/56MB	Std.; 67M bytes	256MB
Pack disk drive	No	No	No	No	No
Fixed-head disk/drum	No	No	No	No	No
Maximum disk storage	41.6M/224MB	41.6M/224MB	41.6M/224MB	536M bytes	1,428G bytes
WORKSTATIONS					
Maximum number connectable	12	—	127	127	127
Recommended maximum number	8 to 10	—	63	63	63
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Optional (1)	Optional	Optional	Optional	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 180 cps	Opt.; 180 cps	Opt.; 180 cps	Opt.; 180 cps	Opt.; 180 cps
Line printer	Opt.; 240-900 lpm	Opt.; 240-900 lpm	Opt.; 240-900 lpm	Opt.; 240-900 lpm	Opt.; 240-900 lpm
Reel-to-reel tape drive	Opt.; 10KBS	No	No	No	No
Cassette/cartridge tape drive	No	No	No	Std.; 512KB cart.	—
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.
Other	—	—	—	—	—
COMMUNICATIONS					
Maximum no. of lines	8	—	—	—	—
Synchronous	Opt.; to 9600 bps	No	No	No	No
Asynchronous	No	Yes	Yes	Yes	Yes
Protocols supported	2780/3780	2780/3780	2780/3780	2780/3780	2780, 3780, 3271
Network architecture supported	DECnet	DECnet	DECnet	DECnet	DECnet
RJE terminals emulated	2780/3780	2780/3780	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	No	No	No	No	No
SOFTWARE SUPPORT					
Cobol	No	Yes	Yes	Yes	Yes
RPG	No	Yes	Yes	Yes	Yes
Fortran	No	Yes	Yes	Yes	Yes
Basic	No	Yes	Yes	Yes	Yes
Assembler	No	Yes	Yes	Yes	Yes
Other programming languages	DIBOL-11 (Cobol)	DIBOL-11 (Cobol)	DIBOL-11 (Cobol)	DIBOL-11 (Cobol)	DIBOL-11 (Cobol)
Multiprogramming	Yes	Yes	Yes	Yes	Yes
Max. no. of jobs run concurrently	16	—	—	No	No
Language complemented in firmware	No	No	No	No	No
Op. sys. implemented in firmware	No	No	No	No	No
General accounting packages	No	No	No	No	No
Industry application areas	Business acct.	Business acct.	Business acct.	Business acct.	Business acct.
Data base management system	No	No	No	No	No
File access methods supported	Seq., ISAM/seq., index	Seq., index seq.	Seq., index seq.	Sequential, ISAM	Sequential, ISAM
Software separately priced	No	No	No	No	No
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Maintenance plans available	On-site	On-site	On-site	On-site	On-site
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	154,000
Monthly rental of basic system, $	—	—	—	—	—
Monthly maint. price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	672
Monthly maint. bundled with rental, $	—	—	—	—	—
Purchase price of:					
additional memory module, $	—	—	—	—	—
additional workstations, $	—	—	—	—	—
additional printer, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Discounts available	OEM and volume	OEM and volume	OEM and volume	OEM and volume	OEM and volume
Date of first U.S. delivery	1980/1978	1981	1981	1981	—
Number installed to date	NA	NA	NA	NA	NA
COMMENTS	Includes the CTS-300 operating system	*Requires the Physical Address Extension memory module; includes the CTS-500 operating system	Includes the CTS-500 operating system	*Requires the Physical Address extension memory module; includes the CTS-500 operating system	Includes the CTS-500 opeating system

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Digital Systems Galaxy/3	Digital Systems Galaxy/5	Display Data Corporation in*sight	Distribution Management Systems BS 11/44	Distribution Management Systems BS 11/70
WORD LENGTH, BITS	8 to 20	8 to 20	8	—	—
CPU					
Model	Galaxy/3	Galaxy/5	in*sight 1634	DEC PDP-11/44	DEC PDP-11/70
Add time, microseconds	5 (5 digits)	5 (5 digits)	—	—	—
No. of I/O ports on basic sys. and max.	5, 15	15, 300	8, 32	—	—
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	96K	128K	64K	512K	512K
Maximum capacity, bytes	256K	1M bytes	128K	1M	4M
Increment size, bytes	64K	64K	64K	256K	512K
Cycle/access time, microseconds	0.2/0.5	0.2/0.5	—	—	—
MASS STORAGE					
Floppy disk (diskette) drive	No	No	No	Optional	Std.; 1M bytes
Maximum diskette storage	—	—	NA	—	—
Cartridge disk drive	Std.; 32M bytes/drive	Optional	Std.; 10-40M bytes	Optional	Optional
Pack disk drive	Opt.; 80M bytes	Std.; 80M bytes/drive	No	Std.; 134M bytes	Std.; 134M bytes
Fixed-head disk/drum	No	No	No	Optional	Optional
Maximum disk storage	128M bytes	2400M bytes	80M bytes	—	—
WORKSTATIONS					
Maximum number connectable	15	300+	32	64	64
Recommended maximum number	15	Application depen.	24	32	40
Keyboard style	Acctg.; num. pad	Acctg.; num. pad	Type., num. key.	Typewriter	Typewriter
Workstation printer	Optional	Optional	Optional	Standard	Standard
INPUT/OUTPUT DEVICES					
Serial printer	Optional	Optional	Optional	Optional	Optional
Line printer	300, 600, 900 lpm	300, 600, 900 lpm	Opt.; 150 to 1100 lpm	Standard	Standard
Reel-to-reel tape drive	1600 bpi	1600 bpi	No	Standard	Standard
Cassette/cartridge tape drive	No	No	No	Optional	Optional
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 1920 char.	Std.; VT100	Std.; VT100
Other	—	—	No	No	No
COMMUNICATIONS					
Maximum no. of lines	15	300	32	64	64
Synchronous	CPU to mux.*	CPU to mux.*	No	Standard	Standard
Asynchronous	Mux. to CRT*	Mux. to CRT*	Std.; to 9600 bps	Standard	Standard
Protocols supported	2741, SDLC, program.	2741, SDLC, program.	ANSI std. Async	Various	Various
Network architecture supported	Galaxy to Galaxy	Galaxy to Galaxy	None	Yes	Yes
RJE terminals emulated	None	None	None	2780/3780	2780/3780
IBM 3270 emulation	No	No	No	Yes	Yes
SOFTWARE SUPPORT					
Cobol	Yes	Yes	No	Yes	Yes
RPG	Yes	Yes	No	No	No
Fortran	No	No	No	Yes	Yes
Basic	Yes	Yes	No	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	PL/G, LMP, FMP, WP	PL/G, LMP, FMP, WP	—	DEAL, ORACLE	DEAL, ORACLE
Multiprogramming	Yes	Yes	Yes (10 partitions)	Yes	Yes
Max. no. of jobs run concurrently	Application dependent	Application dependent	26	—	—
Language complemented in firmware	Partially	Partially	Yes	No	No
Op. sys. implemented in firmware	Partially	Partially	Yes	No	No
General accounting packages	Yes	Yes	Yes	No	No
Industry application areas	Assoc., gen. business	Assoc., gen. business	Distribution	Distribution	Distribution
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Rand., seq., indexed	Rand., seq., indexed	Random, seq., ISAM	Random, seq., ISAM	Random, seq., ISAM
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	3-, 5-yr.	3-, 5-yr.	35 to 85 months	Yes	Yes
Maintenance plans available	On-site contract	On-site contract	On-site	On-site, on-call, factory, third-party	On-site, on-call, factory, third-party
PRICING & AVAILABILITY					
Purchase price of basic system, $	47,800	69,100	Contact vendor	150,000	197,000
Monthly rental of basic system, $	—	—	NA	Purchase/lease only	Purchase/lease only
Monthly maint. price of basic system, $	520	781	Contact vendor	990	1,291
Monthly maint. bundled with rental, $	—	—	—	—	No
Purchase price of:					
additional memory module, $	5,270 (64K bytes)	5,270 (64K bytes)	Contact vendor	8,900 (512K bytes)	10,200 (512K bytes)
additional workstations, $	650	690	Contact vendor	2,290	2,290
additional printer, $	8,900 (300 lpm)	12,995 (600 lpm)	Contact vendor	8,350 (300 lpm)	8,350 (300 lpm)
Discounts available	On request	On request	Quantity	Quantity	Quantity
Date of first U.S. delivery	February 1980	August 1976	1974	December 1980	April 1979
Number installed to date	3	25	1300	8	8
COMMENTS	Sys. includes CPU, 5 comm. ports, 32-meg. drive, 300-lpm printer; Galaxy integrated word processing system available; *transmission speed of 9600 bps	Sys. includes CPU, 15 comm. ports, two 80-meg. drives, one CRT, one 600-lpm printer; Galaxy integrated word processing system available; *transmission speed of 9600 bps			

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Distribution Management Systems BS 11/750	Distribution Management Systems BS 11/780	Four-Phase IV/40	Four-Phase IV/50	Four-Phase IV/60
WORD LENGTH, BITS	—	—	24	24	24
CPU					
Model	DEC VAX 11/750	DEC VAX 11/780	Four-Phase IV/40	Four-Phase IV/50	Four-Phase IV/60
Add time, microseconds	—	—	16 (word)	16 (word)	760 nano. (word)
No. of I/O ports on basic sys. and max.	—	—	22	30	33
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	2M	3M	24K	24K	240K
Maximum capacity, bytes	2M	8M	96K	96K	432K
Increment size, bytes	—	512K	24K	24K	—
Cycle/access time, microseconds	—	—	2.0	2.0	0.8
MASS STORAGE					
Floppy disk (diskette) drive	—	Standard	—	Std.; 354K bytes	—
Maximum diskette storage	—	—	—	708K bytes	—
Cartridge disk drive	Optional	Optional	Std.; 2.5M bytes	Opt.; (2) 2.5M bytes	Std.; 2.5-13M bytes
Pack disk drive	Std.; 134M bytes	Std.; 134M bytes	No	Opt.; (4) 67.5M bytes	—
Fixed-head disk/drum	Optional	Optional	10M bytes	Opt.; (2) 10M bytes	Opt.; 10, 27, 67MB
Maximum disk storage	—	—	22.5M bytes	270M bytes	80M bytes
WORKSTATIONS					
Maximum number connectable	64	64	16	24	16
Recommended maximum number	40	64	Varies	Varies	16
Keyboard style	Typewriter	Typewriter	Multiple	Multiple	Multiple
Workstation printer	Standard	Standard	—	—	Opt.; 16
INPUT/OUTPUT DEVICES					
Serial printer	Optional	Optional	Opt.; 55 cps	Opt.; 55 cps	55 cps
Line printer	Standard	Standard	Opt.; 120-1000 lpm	Opt.; 120-1000 lpm	120-1000 lpm
Reel-to-reel tape drive	Standard	Standard	No	No	No
Cassette/cartridge tape drive	Optional	Optional	No	No	No
CRT	Std.; VT100	Std.; VT100	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Std.; 960, 1920 char.
Other	No	No	Opt. card reader	Opt. card reader	Opt. card reader
COMMUNICATIONS					
Maximum no. of lines	64	64	2	8	8
Synchronous	Standard	Standard	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Standard	Standard	Opt.; to 2400 bps	Opt. to 2400 bps	Opt. to 9600 bps
Protocols supported	Various	Various	Async, Bisync	Async, Bisync	SDLC, Async, Bisync
Network architecture supported	Yes	Yes	IBM SNA	IBM SNA	SNA
RJE terminals emulated	2780/3780	2780/3780	2780/3780, HASP	2780/3780, HASP	2780/3780, HASP*
IBM 3270 emulation	Yes	Yes	Yes	Yes	Yes
SOFTWARE SUPPORT					
Cobol	Yes	Yes	Yes	Yes	Yes
RPG	No	No	Yes	Yes	No
Fortran	Yes	Yes	No	No	No
Basic	Yes	Yes	No	No	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	DEAL, ORACLE	DEAL, ORACLE	VISION	VISION	VISION
Multiprogramming	Yes	Yes	No	No	Yes, 5 partitions
Max. no. of jobs run concurrently	—	—	1	1	5
Language complemented in firmware	No	No	No	No	No
Op. sys. implemented in firmware	No	No	No	No	No
General accounting packages	No	No	No	No	No
Industry application areas	Distribution	Distribution	Mfg., med., ins., bank	Mfg., med., ins., bank	DDP, office auto.
Data base management system	Yes	Yes	No	No	No
File access methods supported	Random, seq., ISAM	Random, seq., ISAM	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., indexed
Software separately priced	Yes	Yes	No	No	No
Technical help separately priced	Yes	Yes	—	—	No
LEASE/MAINTENANCE OPTIONS					
Lease plans available	Yes	Yes	1, 2, 3 yrs., 42 mos.	1, 2, 3 yrs., 42 mos.	1, 2, 3 yrs., 42 mos.
Maintenance plans available	On-site, on-call, factory, third-party	On-site, on-call, factory, third-party	On-site, on-call	On-site, on-call	On-site, on-call
PRICING & AVAILABILITY					
Purchase price of basic system, $	200,000	320,000	Contact vendor	Contact vendor	Contact vendor
Monthly rental of basic system, $	Purchase/lease only	Purchase/lease only	Contact vendor	Contact vendor	Contact vendor
Monthly maint. price of basic system, $	1,530	2,155	Contact vendor	Contact vendor	Contact vendor
Monthly maint. bundled with rental, $	—	—	Yes	Yes	Yes
Purchase price of:					
additional memory module, $	—	13,800 (1M bytes)	Contact vendor	Contact vendor	Contact vendor
additional workstations, $	2,290	2,290	Contact vendor	Contact vendor	Contact vendor
additional printer, $	24,240 (600 lpm)	24,240 (600 lpm)	Contact vendor	Contact vendor	Contact vendor
Discounts available	Quantity	Quantity	Quantity	Quantity	Quantity
Date of first U.S. delivery	June 1981	January 1981	June 1973	Fourth qtr. 1976	May 1979
Number installed to date	4	8	15,000 (all systems)	15,000 (all systems)	15,000 (all systems)
COMMENTS					*Also supports IBM's 3770 RJE terminal

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Four-Phase IV/65	Four-Phase IV/70	Four-Phase IV/80	Four-Phase IV/90	Four-Phase IV/95
WORD LENGTH, BITS	24	24	24	24	24
CPU					
Model	Four-Phase IV/65	Four-Phase IV/70	Four-Phase IV/80	Four-Phase IV/90	Four-Phase IV/95
Add time, microseconds	760 nano. (word)	16 (word)	760 nano. (word)	760 nano. (word)	760 nano. (word)
No. of I/O ports on basic sys. and max.	41	51	47	51	47
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	288K	24K	288K	96K	480K
Maximum capacity, bytes	480K	96K	480K	480K	768K
Increment size, bytes	—	24K	—	—	—
Cycle/access time, microseconds	0.8	2.0	0.8	0.8	0.8
MASS STORAGE					
Floppy disk (diskette) drive	—	Opt.; 354K bytes	—	Opt.; 354K bytes	Opt.; 354K bytes
Maximum diskette storage	—	354K bytes		354K bytes	354K bytes
Cartridge disk drive	Std.; (2) 2.5M bytes	Opt.; (4) 2.5M bytes	Opt.; 2.5-13M bytes	Opt.; (4) 2.5M bytes	Opt.; (4) 2.5M bytes
Pack disk drive	—	Opt.; (4) 67.5M bytes	—	Opt.; (4) 67.5M bytes	Opt.; (4) 67.5M bytes
Fixed-head disk/drum	Opt.; 10, 27, 67MB	Opt.; (2) 10M bytes	Std.; (1) 27, 67M bytes	Opt.; (4) 138M bytes	Opt.; (4) 138M bytes
Maximum disk storage	80M bytes	270M bytes	82.5M bytes	552M bytes	552M bytes
WORKSTATIONS					
Maximum number connectable	24	32	32	32	32
Recommended maximum number	24	Varies	32	32	32
Keyboard style	Multiple	Multiple	Multiple	Multiple	Multiple
Workstation printer	Opt.; 16	Opt.; 16	Opt.; 32	Opt.; 32	Opt.; 32
INPUT/OUTPUT DEVICES					
Serial printer	55 cps	Opt.; 55 cps	Opt.; (32) 40-55 cps	Opt.; 55 cps	Opt.; (32) 40-55 cps
Line printer	120-1000 lpm	Opt.; 120-1000 lpm	Optional	Opt.; 120-1000 lpm	—
Reel-to-reel tape drive	No	Opt.; 12.5-37.5 lpm	No	Opt.; 12.5-37.5 ips	Opt.; (4) 37.5 ips
Cassette/cartridge tape drive	No	No	No	No	No
CRT	Std.; 1920 char.	Std.; 6 x 48 char.	Std.; 1920 char.	Std.; 960, 1920 char.	Std.; 1920 char.
Other	Opt. card reader	Opt. card reader	Card reader	Opt. card reader	Card reader
COMMUNICATIONS					
Maximum no. of lines	8	8	16	8	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 2400 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Protocols supported	SDLC, Async, Bisync	Async, Bisync	SDLC, Async, Bisync	Async, Bisync, SDLC	Async, Bisync, SDLC
Network architecture supported	SNA	IBM SNA	IBM SNA	IBM SNA	IBM SNA
RJE terminals emulated	2780/3780, HASP*	2780/3780, HASP	2780/3780, HASP*	2780/3780, HASP*	2780/3780, HASP*
IBM 3270 emulation	Yes	Yes	Yes	Yes	Yes
SOFTWARE SUPPORT					
Cobol	Yes	Yes	Yes	Yes	Yes
RPG	No	Yes	No	Yes	No
Fortran	No	No	No	No	No
Basic	No	No	No	No	No
Assembler	Yes	Yes	Yes	Yes	Yes
Other programming languages	VISION	VISION	VISION	VISION	VISION
Multiprogramming	Yes, 16 partitions	No	Yes, 16 partitions	Yes, 16 partitions	Yes, 16 partitions
Max. no. of jobs run concurrently	16	1	16	16	16
Language complemented in firmware	No	No	No	No	No
Op. sys. implemented in firmware	No	No	No	No	No
General accounting packages	No	No	No	No	No
Industry application areas	DDP, office auto.	Mfg., med., ins., bank	DDP, office auto.	DDP, office auto.	DDP, office auto.
Data base management system	No	No	No	No	No
File access methods supported	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., indexed
Software separately priced	No	No	No	No	No
Technical help separately priced	No	No	No	No	No
LEASE/MAINTENANCE OPTIONS					
Lease plans available	1, 2, 3 yrs., 42 mos.	1, 2, 3 yrs., 42 mos.	1, 2, 3 yrs., 42 mos.	1, 2, 3 yrs., 42 mos.	1, 2, 3 yrs., 42 mos.
Maintenance plans available	On-site, on-call	On-site, on-call	On-site, on-call	On-site, on-call	On-site, on-call
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly rental of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly maint. price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly maint. bundled with rental, $	Yes	Yes	Yes	Yes	Yes
Purchase price of:					
additional memory module, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
additional workstations, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
additional printer, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Discounts available	Quantity	Quantity	Quantity	Quantity	Quantity
Date of first U.S. delivery	May 1979	February 1971	August 1981	July 1977	June 1981
Number installed to date	15,000 (all systems)	15,000 (all systems)	15,000 (all systems)	15,000 (all systems)	15,000 (all systems)
COMMENTS	*Also supports IBM's 3770 RJE terminal		*Also supports IBM's 3770 RJE terminal	*Also supports IBM's 3770 RJE terminal	*Also supports IBM's 3770 RJE terminal

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Hewlett-Packard Computer Sys. Div. HP 3000 Series 40/40SX	Hewlett-Packard Computer Sys. Div. HP 3000 Ser. 44	Hewlett-Packard Computer Sys. Div. HP 3000 Ser. 64	Honeywell HPS 6/30, 6/31, 6/32, 6/34, 6/38	Honeywell DPS 6/48
WORD LENGTH, BITS	16	16	32	16	16
CPU					
Model	HP 3000 40/40SX	HP 3000 Series 44	HP 3000 Series 64	Honeywell	Honeywell
Add time, microseconds	—	—	—	1.3 (16 bits)	1.3 (16 bits)
No. of I/O ports on basic sys. and max.	—	—	—	3-32	5, 48
INTERNAL STORAGE					
Type	NMOS	NMOS	NMOS	MOS	MOS
Capacity of basic system, bytes	512K/256K	1M	2M	128K	256K
Maximum capacity, bytes	2M	4M	8M	256K, 1,024K	1M
Increment size, bytes	256K, 512K, 1M	512K, 1M	1M	128K, 256K	256K
Cycle/access time, microseconds	0.43/0.3	0.43/0.3	NA/0.145	0.55/NA	0.55/NA
MASS STORAGE					
Floppy disk (diskette) drive	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Opt.; 1.2M bytes	Opt.; (2) 512K/650KB	Opt.; (6) 512K/650KB
Maximum diskette storage	1.2M bytes	1.2M bytes	1.2M bytes	1.3M bytes	3.9M bytes
Cartridge disk drive	No	No	No	Std.; 10M-80M bytes	Opt.; (4) 80M bytes
Pack disk drive	27-404MB available	Opt.; 27-404MB	Opt.; 27-404MB	Opt.; (4) 256MB (6/38)	Opt.; (4) 256MB
Fixed-head disk/drum	No	No	No	—	—
Maximum disk storage	3200M bytes	4200M bytes	6400M bytes	10M-1024M bytes	1024M bytes
WORKSTATIONS					
Maximum number connectable	56	96	144	8	32
Recommended maximum number	—	—	—	8	32
Keyboard style	Type., num. key.	Type., num. key	Type., num. key	Several styles	Several styles
Workstation printer	Optional	Optional	Optional	Yes	Yes
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 20-180 cps	Opt.; 20-180 cps	Opt.; 20-180 cps	Opt.; to 160 cps	Opt.; (6) 160 cps
Line printer	Opt.; 400-1000 lpm	Opt.; 400-1000 lpm	Opt.; 400-1000 lpm	Opt.; to 900 lpm	Opt.; (6) 900 lpm
Reel-to-reel tape drive	Opt.; 1600/6250 bpi	Opt.; 1600/6520 bpi	Opt.; 1600/6250 bpi	Opt.; for DPS 6/38	Opt.; 6250 bpi/125 ips
Cassette/cartridge tape drive	Opt.; (1) 1MB/min.	Opt.; 1MB/min.	Opt.; 1MB/min.	—	Opt.; 2000 char.
CRT	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; (8-24) to 2000 ch.	Opt.; 2000 char.
Other	Opt. laser printer (45 pages/min.)	Opt. laser printer (45 pages/min.)	Opt. laser printer (45 pages/min.)	Card reader, letter-quality printer	Card reader, letter-quality printer, document handler
COMMUNICATIONS					
Maximum no. of lines	3	7	16	8-24	32
Synchronous	Opt.; 56K bps	Opt.; 56 bps	Opt.; 56 bps	Opt.; 50-72,000 bps	Opt.; 50-72,000 bps
Asynchronous	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Std.; 50-19,200 bps	Std.; 50-19,200 bps
Protocols supported	SDLC, Bisync, LAP-B	SDLC, bisync, LAP-B	SDLC, bisync, LAP-B	Async, Sync, HDLC*	Async, Sync, HDLC*
Network architecture supported	HP-DSU, SNA, X.25	HP-DSU, SNA, X.25	HP-DSU, SNA, X.25	DSA, SNA	DSA, SNA
RJE terminals emulated	2780/3780, HASP	2780/3780, HASP	2780/3780, HASP	HASP, 2780/3780	HASP, 2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes	Yes
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
Assembler	No	No	No	Yes	Yes
Other programming languages	Pascal, SPL Transact	Pascal, SPL Transact	Pascal, SPL Transact	MACRO PREPROC.	MACRO PREPROC.
Multiprogramming	Yes	Yes	Yes	Yes	Yes
Max. no. of jobs run concurrently	192 processes	192 processes	192 processes	No fixed limit	No fixed limit
Language complemented in firmware	Yes	Yes	Yes	Yes	Yes
Op. sys. implemented in firmware	Partial	Partial	Partial	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Mfg., office auto.	Mfg., office auto.	Mfg., office auto.	Several, gen.-purp.	Several, gen.-purp.
Data base management system	Yes	Yes	Yes	Yes	Yes
File access methods supported	Random, seq., ISAM	Random, seq., ISAM	Random, seq., ISAM	Rand., seq., indexed	Rand., seq., indexed
Software separately priced	Yes (applications)	Yes (applications)	Yes (applications)	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	1 to 5 yrs.	1 to 5 yrs.	1 to 5 yrs.	No	No
Maintenance plans available	On-site, on-call	On-site, on-call	On-site, on-call	Annual, monthly per call, factory	Annual, monthly per call, factory
PRICING & AVAILABILITY					
Purchase price of basic system, $	83,150/49,350	125,300	218,420	19,500-30,000	32,500
Monthly rental of basic system, $	—	—	—		
Monthly maint. price of basic system, $	560/397	661	1,056	1,520-2,590 (ann.)	1,830 (annually)
Monthly maint. bundled with rental, $	—	—	—		
Purchase price of:					
additional memory module, $	5,250 (256KB)*	16,000 (1MB)	16,000 (1MB)	2,400-7,000	7,000 (256KB)
additional workstations, $	1,595+	—	—	1,900 up	1,900 up
additional printer, $	3,900-28,200	—	—	1,195 up	1,195 up
Discounts available	OEM and volume	—	—	Quantity, volume	Quantity, volume
Date of first U.S. delivery	Nov. 1981/Feb. 1982	January 1981	March 1982	1981	1981
Number installed to date	Over 10,000	Over 10,000	Over 10,000	NA	NA
COMMENTS	*$16,000 for 1MB memory increment			*Also supports SDLC, TTY, VIP, HASP, 2780/3780; includes direct memory addressing, segmentation, and a commercial set with decimal arithmetic	*Also supports SDLC, TTY, VIP, HASP, & 2780/3780; includes all DPS 6/38 features; field-upgradeable to a 32-bit system

JANUARY 1983

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Honeywell DPS 6/54	Honeywell DPS 6/74	Honeywell DPS 6/76	Honeywell DPS 6/92, 6/94, 6/96	Honeywell Series 60 Level 62
WORD LENGTH, BITS	16	16	16	32	8-bit byte/16-bit word
CPU					
Model	Honeywell	Honeywell	Honeywell	Honeywell	Honeywell CPS 2004
Add time, microseconds	1.0 (16 bits)	0.7 (16 bits)	0.7 (16 bits)	0.2 (16 bits)	
No. of I/O ports on basic sys. and max.	5, 56	5, 56	5, 84	5-136	6 std.; 3 opt.
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	256K	256K	512K	1M	96K
Maximum capacity, bytes	1M	1M	2M	4M-16M bytes	992K
Increment size, bytes	256K	256K	256K	1M/2M	32K or 128K
Cycle/access time, microseconds	0.55/NA	0.55/NA	0.55/NA	0.55/NA	1.0/0.5
MASS STORAGE					
Floppy disk (diskette) drive	Opt.; (6) 512K/650KB	Opt.; (6) 512K/650KB	Opt.; (6) 512K/650KB	Opt.; (6) 512K/650KB	Std.; 256K bytes
Maximum diskette storage	3.9M bytes	3.9M bytes	3.9M bytes	3.9M bytes	512K bytes
Cartridge disk drive	Opt.; (4) 80M bytes	Opt.; (4) 80M bytes	Opt.; (8) 80M bytes	Opt.; (8/12) 80MB	No
Pack disk drive	Opt.; (4) 256MB	Opt.; (4) 256MB	Opt.; (8) 256MB	Opt.; (8/12) 80MB	2 to 6 drives
Fixed-head disk/drum	—	—	—	—	No
Maximum disk storage	1024M bytes	1024M bytes	2048M bytes	2048M-3072MB	1800M bytes
WORKSTATIONS					
Maximum number connectable	40	40	64	64-112	744
Recommended maximum number	40	40	64	64-112	100
Keyboard style	Several styles	Several styles	Several styles	Several styles	Typewriter, num. key.
Workstation printer	Yes	Yes	Yes	Yes	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; (6) 160 cps	Opt.; (6) 160 cps	Opt.; (6) 160 cps	Opt.; (6) 160 cps	Std.; 30-120 cps con.
Line printer	Opt.; (6) 900 lpm	Opt.; (6) 900 lpm	Opt.; (6) 900 lpm	Opt.; (6) 900 lpm	Opt.; 100-1600 lpm
Reel-to-reel tape drive	Opt.; 6250 bpi/125 ips	Opt.; 6250 bpi/125 ips	Opt.; 6250 bpi/125 ips	Opt.; 6250 bpi/125 ips	Opt.; 10.4-60KBS
Cassette/cartridge tape drive	—	—	—	—	Cas.; opt., 700 cps
CRT	Opt.; 2000 char.	Opt.; 2000 char.	Opt.; 2000 char.	Opt.; 2000 char.	Opt.; 24 x 80 char.
Other	Card reader, letter-quality printer, document handler	Card reader, letter-quality printer, document handler	Card reader, letter-quality printer, document handler	Card reader, letter-quality printer, document handler	Opt. card reader, card punch
COMMUNICATIONS					
Maximum no. of lines	40	40	64	64-112	25
Synchronous	Opt.; 50-72,000 bps	Opt.; 50-72,000 bps	Opt.; 50-72,000 bps	Opt.; 50-72,000 bps	Opt.; 19,200 bps
Asynchronous	Std.; 50-19,200 bps	Std.; 50-19,200 bps	Std.; 50-19,200 bps	Std.; 50-19,200 bps	Opt.; 9600 bps
Protocols supported	Async, Sync, HDLC*	Async, Sync, HDLC*	Async, Sync, HDLC*	Async, Sync, HDLC*	Bisync
Network architecture supported	DSA, SNA	DSA, SNA	DSA, SNA	DSA, SNA	TTY, ISO, BSC, VIP
RJE terminals emulated	HASP, 2780/3780	HASP, 2780/3780	HASP, 2780/3780	HASP, 2780/3780	360/370, 2780
IBM 3270 emulation	Yes	Yes	Yes	Yes	Yes
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	No
Assembler	Yes	Yes	Yes	Yes	No
Other programming languages	MACRO PREPROC.	MACRO PREPROC.	MACRO PREPROC.	MACRO PREPROC.	None
Multiprogramming	Yes	Yes	Yes	Yes	Yes
Max. no. of jobs run concurrently	No fixed limit	No fixed limit	No fixed limit	No fixed limit	15
Language complemented in firmware	Yes	Yes	Yes	Yes	No
Op. sys. implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Several, gen.-purp.	Several, gen.-purp.	Several, gen.-purp.	Several, gen.-purp.	Dist., mfg.
Data base management system	Yes	Yes	Yes	Yes	No
File access methods supported	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., indexed	Seq., index, relative
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	No	No	No	No	1-, 5-, 6-year
Maintenance plans available	Annual, monthly per call, factory	Annual, monthly per call, factory	Annual, monthly per call, factory	Annual, monthly per call, factory	On-site, on-call, third-party, factory ret.
PRICING & AVAILABILITY					
Purchase price of basic system, $	38,500	65,000	75,000	110,000-130,000	33,192
Monthly rental of basic system, $	—	—	—	—	799 (1-yr. lease)
Monthly maint. price of basic system, $	2,055 (annually)	4,000 (annually)	4,100 (annually)	10,430-10,890 (ann.)	160 (processor)
Monthly maint. bundled with rental, $	—	—	—	—	Yes
Purchase price of:					
additional memory module, $	7,000 (256KB)	7,000 (256KB)	7,000 (256KB)	28,000 (1MB)	2,750 (128K)
additional workstations, $	1,900 up	1,900 up	1,900 up	1,900 up	
additional printer, $	1,195 up	1,195 up	1,195 up	1,195 up	13,645 (450 lpm)
Discounts available	Quantity, volume	Quantity, volume	Quantity, volume	Quantity, volume	Quantity
Date of first U.S. delivery	1981	1981	1981	1981	January 1979
Number installed to date	NA	NA	NA	NA	Over 1,000
COMMENTS	See DPS 6/48 Comments	*Also supports SDLC, TTY, VIP, HASP & 2780/3780; includes all DPS 6/54 features, including field-upgradeability, plus 8KB cache memory	See DPS 6/74 Comments	*Also sup. SDLC, TTY, VIP, HASP, & 2780/3780; std. fast floating-pt. & math func., & 32-bit Bus with 13-meg. per sec. trans. rate. DPS 6/94 is avail. only as a field up-grad. from DPS 6/76.	Performance in-crease packages of 33, 78 or 90 per-cent optional

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	IBM Series/1 4952	IBM Series/1 4953	IBM Series/1 4954	IBM Series/1 4955	IBM System/23 Datamaster
WORD LENGTH, BITS	8-bit byte/16-bit word	8-bit byte/16-bit word	8-bit byte/16-bit* word	8-bit byte/16-bit word	8-bit byte
CPU					
Model	IBM Model 4952	IBM Model 4953	IBM Model 4954	IBM Model 4955	IBM 5322 or 5324
Add time, microseconds	NA	NA	—	NA	—
No. of I/O ports on basic sys. and max.	5, 14	4, 13	3, 13	3, 10	3
INTERNAL STORAGE					
Type	MOS	MOS	MOS RAM	MOS	MOS
Capacity of basic system, bytes	32K	16K/32K	64K	16K/32K/64K/128K	64K
Maximum capacity, bytes	128K	64K	256K	64/128/256/512K	128K
Increment size, bytes	32K	16K, 32K	64K	16K, 32K, 64K, 128K	—
Cycle/access time, microseconds	—	—	1.4	—	0.975 (1 byte)
MASS STORAGE					
Floppy disk (diskette) drive	Opt.; to 27.8M bytes	Opt.; to 27.8M bytes	Opt.; 1.2M bytes	Opt.; to 27.8M bytes	Opt.; 1.1M bytes
Maximum diskette storage	27.8M bytes	27.8M bytes	2.4M bytes	27.8M bytes	6.6M bytes
Cartridge disk drive	See Comments	See Comments	See Comments	See Comments	—
Pack disk drive	No	No	No	No	—
Fixed-head disk/drum	Opt.; to 128K bytes	Opt.; to 128K bytes	Optional	Opt.; to 128K bytes	—
Maximum disk storage	—	—	—	—	15.4 or 30.8
WORKSTATIONS					
Maximum number connectable	6 (can vary)	2 (can vary)	—	12 (can vary)	4
Recommended maximum number	6	2	—	12	4
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key
Workstation printer	No	No	No	No	No
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 40-160 cps	Opt.; 40-160 cps	Opt.; 40-160 cps	Opt.; 40-160 cps	Std.; 40-160 cps
Line printer	Opt.; 80-414 lpm	Opt.; 80-414 lpm	Opt.; 80-414 lpm	Opt.; 80-414 lpm	No
Reel-to-reel tape drive	Opt.; to 12,000 bps	Opt.; to 12,000 bps	Opt.; to 12,000 bps	Opt.; to 12,000 bps	No
Cassette/cartridge tape drive	No	No	No	No	No
CRT	Opt.; 24 x 80 char.	Opt.; 24 x 80 char.	Optional	Opt.; 24 x 80 char.	Std.; 24 x 80 char
Other	No	No	—	No	Magnetic card unit
COMMUNICATIONS					
Maximum no. of lines	8	8	8	8	—
Synchronous	Opt.; to 56,000 bps	Opt.; to 56,000 bps	Opt.; to 56,000 bps	Opt.; to 56,000 bps	Opt.; to 4800 bps
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 4800 bps
Protocols supported	Bisync, Async	Bisync, Async	Bisync, Async	Bisync, Async	Bisync, Async
Network architecture supported	System/370	System/370	System/370	System/370	—
RJE terminals emulated	IBM 3780, HASP	IBM 3780, HASP	3780, HASP	IBM 3780, HASP	—
IBM 3270 emulation	Yes	Yes	Yes	Yes	—
SOFTWARE SUPPORT					
Cobol	Yes	Yes	Yes	Yes	No
RPG	No	No	No	No	No
Fortran	Fortran IV	Fortran IV	Fortran IV	Fortran IV	No
Basic	No	No	No	No	Yes
Assembler	Macro assembler	Macro assembler	Macro assembler	Macro assembler	No
Other programming languages	PL/1	PL/1	PL/1	PL/1	—
Multiprogramming	Yes	Yes	Yes	Yes	No
Max. no. of jobs run concurrently	6	2	—	12	1
Language complemented in firmware	No	No	No	No	—
Op. sys. implemented in firmware	No	No	No	No	Yes
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	General-purpose	General-purpose	General-purpose	General-purpose	General-purpose
Data base management system	No	No	No	No	Yes, BRADS III
File access methods supported	Index	Index	Index	Index	Index
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	Purchase only	Purchase only	Purchase only	Purchase only	Purchase only
Maintenance plans available	On-site contract	On-site contract	On-site contract	On-site contract	On-site contract
PRICING & AVAILABILITY					
Purchase price of basic system, $	5,260 (CPU only)	2,730 (CPU only)	Contact vendor	7,760 (CPU only)	Contact vendor
Monthly rental of basic system, $	Purchase only	Purchase only	—	Purchase only	Purchase only
Monthly maint. price of basic system, $	29.00	11.50	Contact vendor	76.50	—
Monthly maint. bundled with rental, $	—	—	—	—	—
Purchase price of:					
additional memory module, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	—
additional workstations, $	Contact vendor	Contact vendor	—	Contact vendor	—
additional printer, $	Contact vendor	Contact vendor	—	Contact vendor	2,400 (80 cps)
Discounts available	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Date of first U.S. delivery	February 1979	November 1976	March 1982	November 1976	July 1981
Number installed to date	NA	NA	NA	NA	NA
COMMENTS	Up to 256M bytes non-removable disk available	Up to 256M bytes non-removable disk available		Up to 256M bytes non-removable disk available	

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	IBM System/32	IBM System/34	IBM System/38	IBM 5120 Computing System	IBM 5280 Distributed Data System
WORD LENGTH, BITS	8-bit byte	8-bit byte	8-bit byte	8-bit byte	8-bit byte
CPU					
Model	IBM System/32	IBM 5340	IBM Mod. 300/400/500	IBM 5120	IBM 5285, 5286, 5288
Add time, microseconds	150 (5 digits)	68.5 (5 digits)	—	NA	NA
No. of I/O ports on basic sys. and max.	—	—	8	2, variable	1, 1
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOSFET	MOS
Capacity of basic system, bytes	16K	32K	768K	16K	32K
Maximum capacity, bytes	32K	256K	4096K	64K	96K/288K
Increment size, bytes	8K	—	—	16K	32K, 64K
Cycle/access time, microseconds	0.6/0.25	0.6	1.1, 0.6	0.53/0.33	NA
MASS STORAGE					
Floppy disk (diskette) drive	Std.; 303K bytes	Std.; 303K-1.2M bytes	Std.; 240.5K bytes	Std.; 2.4M bytes	Std.; 1.2M bytes
Maximum diskette storage	—	1.2M bytes	24M bytes	4.8M bytes	9.6M bytes
Cartridge disk drive	See Comments	No	No	No	NA
Pack disk drive	No	No	No	No	NA
Fixed-head disk/drum	No	Std.; 257.4MB	Std.; 64.5M bytes	No	NA
Maximum disk storage	13.75M bytes	257.4M bytes	2285.5M bytes	—	NA
WORKSTATIONS					
Maximum number connectable	—	16 local; 64 remote	80	Contact vendor	4
Recommended maximum number	—	16	—	—	4
Keyboard style	—	Type., num. key.	Type., num. key	Type., num. key.	Type., num. key.
Workstation printer	Optional	Optional	Std.; 2	—	Opt; up to 8
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 40, 80, 120 cps	Opt.; 40, 80, 120 cps	Opt.; 40 to 120 cps	Opt.; 80-120 cps	Opt.; 40 to 120 cps
Line printer	Std.; 50-285 lpm	Opt.; 140-650 lpm	Std.; 300-1200 lpm	No	Opt.; 95 to 560 lpm
Reel-to-reel tape drive	No	No	Opt.; 12.5-50 ips	No	No
Cassette/cartridge tape drive	No	No	No	No	No
CRT	Std.; 6 x 40 char	Opt.; 960-1920 char.	Std.; 24 x 80 char.	Std.; 1024 char.	Std.; 6 x 80 char.
Other	Opt.	MICR readers	Opt. punched card reader	Any w/RS-232-C interface	Opt.; 24 x 80-char. display
COMMUNICATIONS					
Maximum no. of lines	1	16	8	1	1
Synchronous	Opt.; to 7200 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 4800 bps	Opt.; to 4800 bps
Asynchronous	No	No	Opt.; to 1200 bps	Opt.; to 300 bps	No
Protocols supported	SDLC, Bisync	SDLC, Bisync	Bisync	2770, 3741	SDLC, Bisync
Network architecture supported	System/3, /7, /360	—	Most IBM systems	Most IBM systems	System/370
RJE terminals emulated	System/370	—	—	2770, 3741	Yes
IBM 3270 emulation	No	Yes	—	No	No
SOFTWARE SUPPORT					
Cobol	No	Yes	Yes	No	Yes
RPG	RPG II	RPG II	Yes, RPG II	No	Yes
Fortran	No	Yes	No	No	No
Basic	No	Yes	No	Yes	No
Assembler	Macro assembler	Yes	No	No	Yes
Other programming languages	None	—	—	APL	No
Multiprogramming	No	Yes; 8 partitions	No	No	Yes
Max. no. of jobs run concurrently	—	—	—	—	8
Language complemented in firmware	No	Partially	—	Fully	No
Op. sys. implemented in firmware	Partially	Partially	—	Fully	No
General accounting packages	Yes	Yes	Yes	Yes	No
Industry application areas	Dist., med., mfg.	Mfg., med., dist.	General acct.	General-purpose	Dist., retail
Data base management system	No	No	Yes	No	No
File access methods supported	Rand., seq., index	Rand., seq., index	—	Sequential	Sequential
Software separately priced	Yes	Yes	Yes	Some	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	2-yr. base/1-yr. ext.	Contact vendor	Purchase/rent only	3-month contract	24-month contract
Maintenance plans available	Contact vendor	On-site, on-call	Contact vendor	Contact vendor	Contact vendor
PRICING & AVAILABILITY					
Purchase price of basic system, $	23,490	14,770*	74,300*	Contact vendor	Contact vendor
Monthly rental of basic system, $	899	1,164	2,131	—	—
Monthly maint. price of basic system, $	168	136	463	Contact vendor	Contact vendor
Monthly maint. bundled with rental, $	Yes	—	—	—	—
Purchase price of:					
additional memory module, $	1,770 (8K bytes)	—	—	Contact vendor	—
additional workstations, $	4,240	2,515	2,260	Contact vendor	Contact vendor
additional printer, $	29,000 (77/92 cps)	9,875 (160 lpm)	16,200 (650 lpm)	—	Contact vendor
Discounts available	Contact vendor	Education (10%)	Contact vendor	Education (10%)	Education (10%)
Date of first U.S. delivery	February 1975	January 1978	August 1980	February 1980	June 1980
Number installed to date	NA	NA	NA	NA	NA
COMMENTS	System also includes 3.2M-13.75M bytes of nonremovable disk storage	*Includes CPU, 32KB memory, one diskette drive and 8.6MB of disk storage	There are 92 sub-models of the System/38; *includes CPU, 768KB of memory, and 129MB of disk storage		

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	IBM 8100 Information System	Infotecs Control Center II	Infotecs IMP	MAI/Basic Four System 110/210	MAI/Basic Four System 310
WORD LENGTH, BITS	8-bit byte, 32-bit word	12	12	8-bit byte	8-bit byte
CPU					
Model	IBM 8130/8140	—	IMP-1	BFC 1325	BFLSD
Add time, microseconds	—	31	39 (7 digits)	7.4	3
No. of I/O ports on basic sys. and max.	1, 19	4, 64	4, 5	2, 16	15
INTERNAL STORAGE					
Type	MOSFET	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	256K	64K	32K	64K	96K
Maximum capacity, bytes	2,048K	1024K	32K	256K	256K
Increment size, bytes	128K, 256K	32K	—	32K	32K
Cycle/access time, microseconds	1.5, 0.8	0.5/0.2	0.5/0.2	0.6/0.4	0.6
MASS STORAGE					
Floppy disk (diskette) drive	Standard	Opt.; 1.9-15.2M bytes	Std.; 3.8M bytes	No	—
Maximum diskette storage	985K bytes	—	—	—	—
Cartridge disk drive	No	Opt.; 34-808M bytes	No	No	—
Pack disk drive	No	—	No	No	—
Fixed-head disk/drum	No	—	No	Std.; 10M bytes	Std.; 40M bytes
Maximum disk storage	640M bytes	—	—	21M/56M bytes	120M bytes
WORKSTATIONS					
Maximum number connectable	80	16	—	16	14
Recommended maximum number	80	16	—	—	14
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., 10-key num.	Type., num. key.
Workstation printer	Optional	Optional	—	Std.; 80 cps	Std.; 150 lpm
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 40 to 450 cps	Opt.; 55-340 cps	Std.; 200 cps	Std.; 80 cps	Opt.; 40-120 cps
Line printer	Opt; 120 to 450 lpm	Opt.; 300-600 lpm	No	Opt.; 150-600 lpm	150-600 lpm
Reel-to-reel tape drive	Opt.; 160KBS	—	No	Opt.; 800/1600 bpi	Opt.; 1600 bpi
Cassette/cartridge tape drive	No	—	No	Cart.; 9.2M bytes	Std.; 9.2M bytes
CRT	Opt.; 240-2560 char.	Std.; 24 x 80 char.	Std.; 24 x 28 char.	Std.; 24 x 80 char.	Standard (1)
Other	Optional	Any w/RS-232-C int.	No	Opt. CRT (64 x 80 char.)	—
COMMUNICATIONS					
Maximum no. of lines	24	16	1	8	16
Synchronous	Std.; 600 to 9600 bps	Std.; 300-19,200 bps	No	Opt.; 9600 bps	Opt.; 9600 bps
Asynchronous	No	Std.; 300-19,200 bps	Opt.; to 2400 bps	Std.; 9600 bps	Std.; 9600 bps
Protocols supported	Bisync	—	None	Bisync	2780/3780
Network architecture supported	SNA	—	—	No	No
RJE terminals emulated	Most IBM systems	—	—	2770/2780/3770/*	2780/3780
IBM 3270 emulation	Yes	—	—	Yes	Yes
SOFTWARE SUPPORT					
Cobol	Yes	No	No	No	No
RPG	No	No	No	No	No
Fortran	Yes	No	No	No	No
Basic	No	No	No	Yes	Yes
Assembler	Yes	Yes	No	No	No
Other programming languages	No	HIBOL	HIBOL	—	—
Multiprogramming	—	Yes, 16 partitions	No	Yes, 8 partitions	Yes
Max. no. of jobs run concurrently	31	16	—	12	20
Language complemented in firmware	No	Yes	No	No	Yes
Op. sys. implemented in firmware	No	Some	No	Partially	No
General accounting packages	No	Yes	Yes	Yes	Yes
Industry application areas	Comm.	Acctg., ins., inc. tax	Accounting	Gen. business, med.	See Comments
Data base management system	Yes (DTMS)	Yes	Rand., seq., index	No	No
File access methods supported	—	Random, seq., ISAM	Rand., seq., index	Seq., random	Seq., ind., ser., dir.
Software separately priced	Yes	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	2 years	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Maintenance plans available	On-call	—	—	Third-party	Contact vendor
PRICING & AVAILABILITY					
Purchase price of basic system, $	28,890 (256KB)*	6,995	7,995	Contact vendor	Contact vendor
Monthly rental of basic system, $	1,055	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly maint. price of basic system, $	161	—	—	Contact vendor	Contact vendor
Monthly maint. bundled with rental, $	—	—	—	Contact vendor	Contact vendor
Purchase price of:					
additional memory module, $	—	—	—	Contact vendor	Contact vendor
additional workstations, $	Contact vendor	—	—	Contact vendor	Contact vendor
additional printer, $	Contact vendor	—	—	Contact vendor	Contact vendor
Discounts available	Contact vendor	—	—	NA	NA
Date of first U.S. delivery	August 1979	April 1980	September 1977	July 1981	1982
Number installed to date	NA	1500	Over 1000	14,500 (all models)	14,500 (all models)
COMMENTS	*The 8140 processor-based system is available for $36,440	Programs compatible with DEC PDP-8; complete systems and software sold & serviced nationwide by Infotecs' dealers	Programs compatible with DEC PDP-8; complete systems and software are sold and serviced by Infotecs' dealers	*Also emulates IBM's 3780 RJE terminal	For property management, law office management, job cost analysis, and membership management

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	MAI/Basic Four System 510	MAI/Basic Four System 710	MAI/Basic Four System 810	Mylee Digital Sciences System 3000	NCR I-9010
WORD LENGTH, BITS	8-bit byte	8-bit byte	16	16	8
CPU					
Model	BFC 1345	BFLSD	BFLSD	Mylee System 3000	—
Add time, microseconds	7.4	3	3	125 (5 digits)	—
No. of I/O ports on basic sys. and max.	8, 16	31	64	10, 19	—
INTERNAL STORAGE					
Type	MOS	MOS	Bit slice	MOS	MOS
Capacity of basic system, bytes	96K	96K	1.5M	88K	48K
Maximum capacity, bytes	512K	512K	2M	286K	128K
Increment size, bytes	32K, 64K, 128K	32K	—	96K	32K
Cycle/access time, microseconds	0.6/0.4	0.6	0.6	0.8/0.4	0.6
MASS STORAGE					
Floppy disk (diskette) drive	No	—	—	—	Std.; 243K bytes
Maximum diskette storage	—	—	—	—	4M bytes
Cartridge disk drive	No	—	—	Std.; 16M bytes	—
Pack disk drive	Std.; 40M bytes	Std.; 35-75M bytes	Opt.; 75-144MB	No	—
Fixed-head disk/drum	No	—	Opt.; 62-144MB	No	—
Maximum disk storage	600M bytes	600M bytes	2200M bytes	64M bytes	—
WORKSTATIONS					
Maximum number connectable	16	15	32	2 std.; 14 opt.	1
Recommended maximum number	—	15	32	16	1
Keyboard style	Type., 10-key num.	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Std.; 150 lpm	Std.; 150 lpm	Std.; 150 lpm	Optional	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 40-120 cps	Opt.; 40-120 cps	Opt.; 40-120 cps	Std.; 200 cps	Opt.; 180 cps
Line printer	150-600 lpm	150-600 lpm	150-600 lpm	Opt.; 120 cps/300 lpm	Std.; 70-200 lpm
Reel-to-reel tape drive	Opt.; 800/1600 bpi	Opt.; 1600 bpi	Opt.; 1600 bpi	No	No
Cassette/cartridge tape drive	Cart.; 9.2M bytes	Opt.; 9.2M bytes	—	No	Opt.; 800 bpi
CRT	Std.; 24 x 80 char.	Standard	Standard	Std.; 332-1920 char.	Std.; 1920 char.
Other	Opt. CRT (64 x 80 char.)	—	—	No	Visual record printer
COMMUNICATIONS					
Maximum no. of lines	16	32	32	16	1
Synchronous	Opt. 9600 bps	Opt.; 9600 bps	Opt.; 9600 bps	Opt.; to 9600 bps	Std.; to 9600 bps
Asynchronous	Opt.; 9600 bps	Std.; 9600 bps	Std.; 9600 bps	Opt.; to 1200 bps	No
Protocols supported	Bisync	2780/3780	2780/3780	Bisync	Bisync
Network architecture supported	No	No	No	—	—
RJE terminals emulated	2770/2780/3770/*	2780/3780	2780/3780	IBM 2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	No	—
SOFTWARE SUPPORT					
Cobol	No	No	No	No	Yes
RPG	No	No	No	No	No
Fortran	No	No	No	No	No
Basic	Yes	Yes	Yes	No	Yes
Assembler	No	No	No	No	No
Other programming languages	—	—	Pascal	ACE	—
Multiprogramming	Yes, 8 partitions	Yes	Yes	Yes; 12 partitions	—
Max. no. of jobs run concurrently	12	36	80	24	—
Language complemented in firmware	No	Yes	Yes	Partially	No
Op. sys. implemented in firmware	Partially	No	No	Partially	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Gen. business, med.	See Comments	See Comments	Distribution	General-purpose
Data base management system	No	No	No	Yes	NA
File access methods supported	Seq., random	Seq., ind., ser., dir.	Seq., ind., direct	Index sequential	Rand., seq., ISAM
Software separately priced	Yes	Yes	Yes	Some	Yes
Technical help separately priced	Yes	Yes	Yes	No	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	Contact vendor	Contact vendor	Contact vendor	Third-party	—
Maintenance plans available	Third-party	Contact vendor	Contact vendor	On-call contract	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	Contact vendor	35,995	Contact vendor
Monthly rental of basic system, $	Contact vendor	Contact vendor	Contact vendor	Purchase only	Contact vendor
Monthly maint. price of basic system, $	Contact vendor	Contact vendor	Contact vendor	—	Contact vendor
Monthly maint. bundled with rental, $	—	Contact vendor	Contact vendor	—	—
Purchase price of:					
additional memory module, $	Contact vendor	Contact vendor	NA	3,150 (96K bytes)	Contact vendor
additional workstations, $	Contact vendor	Contact vendor	Contact vendor	3,850	Contact vendor
additional printer, $	Contact vendor	Contact vendor	Contact vendor	Various models	Contact vendor
Discounts available	NA	NA	NA	—	Yes
Date of first U.S. delivery	1980	1982	1982	May 1976	May 1981
Number installed to date	14,500 (all models)	14,500 (all models)	14,500 (all models)	200	NA
COMMENTS	*Also emulates IBM's 3780 RJE terminal	See System 310 Comments	See System 310 Comments	Total turnkey system from design to installation	

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	NCR I-9020	NCR I-9040	New England Digital ABLE/40, /60	Nixdorf 8870/1	Nixdorf 8870/3
WORD LENGTH, BITS	16	16	16	16	16
CPU					
Model	NCR 6082	NCR 5521	NED Model B	Nixdorf	Nixdorf
Add time, microseconds	—	—	0.25 (16 bits)	1.0	0.7
No. of I/O ports on basic sys. and max.	—	—	NA	4, 8	4, 16
INTERNAL STORAGE					
Type	LSI, MOS	LSI, MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K	256K	32K	96K	128K
Maximum capacity, bytes	512K	2048K	120K	256K	512K
Increment size, bytes	32K, 128K	256K	16K	32K	128K
Cycle/access time, microseconds	0.8	0.112	0.45/0.45	0.48	0.4
MASS STORAGE					
Floppy disk (diskette) drive	Std.; 243K bytes	Prgm. load. & testing	Standard (2)	No	No
Maximum diskette storage	486K bytes	—	See Comments	NA	NA
Cartridge disk drive	No	No	—	Std.; 10-40M bytes	Std.; 26-78M bytes
Pack disk drive	Std.; 9.8-324MB	81M-2582MB	—	Opt.; 26-66M bytes	Opt.; 26-264M bytes
Fixed-head disk/drum	No	No	Opt.; 20M bytes	No	No
Maximum disk storage	324M bytes	2582M bytes	40M bytes	66M bytes	264M bytes
WORKSTATIONS					
Maximum number connectable	24	21*	1	16	32
Recommended maximum number	24	21	1	Appl. dependent	Appl. dependent
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Optional	Optional	Optional (1)	Optional	Optional
INPUT/OUTPUT DEVICES					
Serial printer	No	No	Opt.; 30-180 cps	Std.; 100 cps	Std.; 100 cps
Line printer	Std.; 50-900 lpm	Std.; 50-1200 lpm	Opt.; 300 lpm	300-600 lpm	300-600 lpm
Reel-to-reel tape drive	No	Opt.; 50-200 ips	No	Opt.; 800-1600 bpi	Opt.; 800-1600 bpi
Cassette/cartridge tape drive	Std.; 800/1600 bpi	Std.; 800/1600 bpi	No	No	No
CRT	Std.; 1920 char.	Std.; 1920 char.	Std.; 1920 char.	Std.; 25 x 80 char.	Std.; 25 x 80 char.
Other	Card reader	Card reader	—	Hard-copy terminal	Hard-copy terminal
COMMUNICATIONS					
Maximum no. of lines	24	21*	1	10	18
Synchronous	Std.; to 9600 bps	Std.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Std.; to 9600 bps	Std.; to 9600 bps	Std.; to 9600 bps	—	—
Protocols supported	Async, Bisync	Async, Bisync	Async, Bisync	Bisync, Async	Bisync, Async
Network architecture supported	—	—	NA	—	—
RJE terminals emulated	2780/3780	2780/3780	2780	2780, 3740, 3780	2780, 3740, 3780
IBM 3270 emulation	—	—	No	No	No
SOFTWARE SUPPORT					
Cobol	Yes	Yes	No	No	Yes
RPG	No	Yes	No	No	No
Fortran	No	Yes	No	No	No
Basic	Yes	Yes	No	Yes	Yes
Assembler	No	Yes	No	No	No
Other programming languages	—	NEAT 3	XPL	—	Pascal
Multiprogramming	—	Yes	No	Yes	Yes
Max. no. of jobs run concurrently	—	—	NA	18	34
Language complemented in firmware	No	Fully	No	No	No
Op. sys. implemented in firmware	No	Fully	No	No	No
General accounting packages	Yes	Yes	No	Yes	Yes
Industry application areas	General-purpose	General-purpose	Process control	Dist., ins., gov't.	Dist., ins., gov't.
Data base management system	NA	NA	No	No	No
File access methods supported	Rand., seq., ISAM	Rand., seq., ISAM	Direct, seq.	Random, seq., ISAM	Random, seq., ISAM
Software separately priced	Yes	Yes	No	Yes	Yes
Technical help separately priced	Yes	Yes	No	Yes	Yes
LEASE/MAINTENANCE OPTIONS					
Lease plans available	—	—	Contact vendor	60-month	60-month
Maintenance plans available	Yes	Yes	NA	Contact Nixdorf	Contact Nixdorf
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	7,950	22,500	46,200
Monthly rental of basic system, $	Contact vendor	Contact vendor	NA	NA	NA
Monthly maint. price of basic system, $	Contact vendor	Contact vendor	NA	277	315
Monthly maint. bundled with rental, $	—	—	NA	No	No
Purchase price of:					
additional memory module, $	Contact vendor	Contact vendor	Contact vendor	2,500	2,500
additional workstations, $	Contact vendor	Contact vendor	NA	2,950	2,950
additional printer, $	Contact vendor	Contact vendor	NA	4,950	4,950
Discounts available	Yes	Yes	Yes	Yes	Yes
Date of first U.S. delivery	April 1981	April 1981	September 1977	1978	1981
Number installed to date	NA	NA	NA	150	100
COMMENTS			Maximum diskette storage for ABLE/40 is 179K bytes, while the ABLE/60 provides 630K bytes of diskette storage		

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Northern Telecom 503	Northern Telecom 585	Omnidata Omni 2	Omnidata Omninet	Plessey SBC 261
WORD LENGTH, BITS	8	8	16	16	16
CPU					
Model	NTI-503	NTI-585	TI 9900	TI 9900	DEC LSI-11/23
Add time, microseconds	1.17	1.17	4.67 (16 bits)	4.67 (16 bits)	—
No. of I/O ports on basic sys. and max.	4	27	—	—	4, 30
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K	256K	32K	96K	128K
Maximum capacity, bytes	256K	512K	160K	96K	1M
Increment size, bytes	64K	218K	32K	—	64K
Cycle/access time, microseconds	0.85K	0.35	—	—	—
MASS STORAGE					
Floppy disk (diskette) drive	Std.; (2) 1.6M bytes	Std.; 500K bytes	Optional	No	—
Maximum diskette storage	3.2M bytes	500K bytes	(4) 1.72M bytes	—	—
Cartridge disk drive	No	Std.; 15M bytes	No	Optional	—
Pack disk drive	No	Opt.; (4) 298MB	No	Optional	—
Fixed-head disk/drum	No	No	Optional	Optional	Std.; 28M bytes
Maximum disk storage	—	342.5M bytes	—	—	112M bytes
WORKSTATIONS					
Maximum number connectable	1	16	—	255	15
Recommended maximum number	1	12	—	255	8
Keyboard style	Type., num. key.	Type., keypunch	Type., num.	Type. num.	Type., num. key.
Workstation printer	No	No	Optional	Optional	Optional
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; to 180 cps	Opt.; 180 cps	Optional	Optional	Opt.; 500 cps
Line printer	No	Opt.; 380-1250 lpm	Optional	Optional	Opt.; 300 lpm
Reel-to-reel tape drive	No	Opt.; 12.5-25 ips	No	No	—
Cassette/cartridge tape drive	No	Optional	No	No	Standard
CRT	Std.; 1920 char.	Std.; 1920 char.	Std.; 2000 char.	Std.; 2000 char.	Std.; (1) 3168 char.
Other	—	—	—	—	40-cps printer
COMMUNICATIONS					
Maximum no. of lines	2	3	3	255	2
Synchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Optional	Optional	9600 bps
Asynchronous	Std.; to 9600 bps	Opt.; to 9600 bps	Optional	Optional	9600 bps
Protocols supported	Async, Bisync, SDLC	Async, Bisync, SDLC	TTY, 2780/3780	TTY, 2780/3780	2780
Network architecture supported	Omnilink	Omnilink	Omnilink	Omnilink	Point-to-point
RJE terminals emulated	2770, 2780, 3780*	2770, 2780, 3780*	—	—	—
IBM 3270 emulation	Yes	Yes	No	No	No
SOFTWARE SUPPORT					
Cobol	Yes	Yes	Yes	Yes	Yes
RPG	No	No	No	No	No
Fortran	No	No	No	No	Yes
Basic	Yes	No	Yes	Yes	Yes
Assembler	No	No	Yes	Yes	Yes
Other programming languages	TAL 2000	TAL 2000	—	—	Dibol, Mumps
Multiprogramming	Yes	Yes	No	Yes	Yes
Max. no. of jobs run concurrently	2	64	1	255	20
Language complemented in firmware	No	No	No	No	No
Op. sys. implemented in firmware	No	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	Business, various	Manuf., various	General purpose	General purpose	—
Data base management system	No	No	Yes	Yes	No
File access methods supported	Seq., rand., indexed	Seq., ISAM, rand., ind.	Yes	Yes	ISAM
Software separately priced	Yes	Yes	Yes	Yes	No
Technical help separately priced	No	No	Yes	Yes	No
LEASE/MAINTENANCE OPTIONS					
Lease plans available	1-3 years	1-, 2-, 3-years	Yes	Yes	No
Maintenance plans available	On-call	On-call	Yes	Yes	Yes
PRICING & AVAILABILITY					
Purchase price of basic system, $	7,200	19,500	6,000	30,000	Contact vendor
Monthly rental of basic system, $	253	696 (36-mo. lease)	—	—	NA
Monthly maint. price of basic system, $	86	273	600	3,000	Contact vendor
Monthly maint. bundled with rental, $	—	—	—	—	—
Purchase price of:					
additional memory module, $	NA	3,200 (128KB)	400	—	Contact vendor
additional workstations, $	NA	2,500	—	4,500	Contact vendor
additional printer, $	NA	NA	2,000	2,000	Contact vendor
Discounts available	Quantity	Quantity	—	—	OEM
Date of first U.S. delivery	October 1981	July 1981	December 1980	December 1980	October 1981
Number installed to date	NA	100	3,000	3,000	250
COMMENTS	*3774	*3774			

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Plessey SBC 280	Point 4 Data Corp. Mark 3	Point 4 Data Corp. Mark 5 (4/3, 4/4)	Point 4 Data Corp. Mark 8	Prime Information Series
WORD LENGTH, BITS	16	16	16	16	16, 32
CPU					
Model	DEC LSI-11/23	—	—	—	—
Add time, microseconds	—	0.5 (16 bits)	0.4 (16 bits)	0.4 (16 bits)	—
No. of I/O ports on basic sys. and max.	4, 30	4	0, 128	0, 128	—
INTERNAL STORAGE					
Type	MOS	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	128K	64K	64K, 128K	128K	256K-1M bytes
Maximum capacity, bytes	1M	64K	64K, 128K	128K	572K-8M bytes
Increment size, bytes	64K	—	—	—	64K, 256K
Cycle/access time, microseconds	—	0.5	0.4	0.4	600 ns.
MASS STORAGE					
Floppy disk (diskette) drive	—	No	See Comments*	See Comments*	—
Maximum diskette storage	—	No	—	—	—
Cartridge disk drive	Std.; 14M bytes	Opt.; (2) any CMD	—	—	Std.; 32-96M bytes
Pack disk drive	—	Opt.; (2) any SMD	—	—	—
Fixed-head disk/drum	Std.; 70M bytes	No	—	—	—
Maximum disk storage	112M bytes	Dependent on drive	1200M bytes	1200M bytes	192M-2.4B bytes
WORKSTATIONS					
Maximum number connectable	15	4	128	128	12-63
Recommended maximum number	8	4	8, 16	32	12-63
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Optional	—	—	—	—
INPUT/OUTPUT DEVICES					
Serial printer	Opt.; 500 cps	Any w/RS-232-C int.	See Comments*	See Comments*	—
Line printer	Opt.; 300 lpm	Any w/RS-232-C int.	—	—	Std.; 300 or 600 lpm
Reel-to-reel tape drive	—	No	—	—	Opt.; 800/1600 bpi
Cassette/cartridge tape drive	Optional	Opt.; cast., 9600 bps	Opt.; cast., 9600 bps	Opt.; cast., 9600 bps	—
CRT	Std.; (1) 3168 char.	See Comments*	See Comments*	See Comments*	Std.; 24 x 80 char.
Other	40-cps printer	—	—	—	—
COMMUNICATIONS					
Maximum no. of lines	2	4	128	128	4-45
Synchronous	9600 bps	—	—	—	—
Asynchronous	9600 bps	Opt.; 110-9600 bps	Opt.; 110-19,200 bps	Opt.; 110-19,200 bps	—
Protocols supported	2780	—	—	—	HASP II, RJE, X.25
Network architecture supported	Point-to-point	—	—	—	PRIMENET
RJE terminals emulated	—	—	—	—	—
IBM 3270 emulation	No	—	—	—	—
SOFTWARE SUPPORT					
Cobol	Yes	No	No	No	Yes
RPG	No	No	No	No	Yes
Fortran	Yes	No	No	No	No
Basic	Yes	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes	No
Other programming languages	Dibol, Mumps	—	—	Pascal	INFORM
Multiprogramming	Yes	Yes	Yes	Yes	—
Max. no. of jobs run concurrently	20	4	Unlimited	Unlimited	—
Language complemented in firmware	No	No	No	Yes	Yes
Op. sys. implemented in firmware	No	No	No	No	Yes
General accounting packages	Yes	Yes	Yes	Yes	Yes
Industry application areas	—	Const., WP	Const., WP	Const., WP	General business
Data base management system	No	Yes	Yes	Yes	Yes
File access methods supported	ISAM	Rand., ISAM, seq.	Rand., ISAM, seq.	Rand., ISAM, seq.	Random, seq., ISAM
Software separately priced	No	Yes	Yes	Yes	—
Technical help separately priced	No	Yes	Yes	Yes	—
LEASE/MAINTENANCE OPTIONS					
Lease plans available	No	No	No	No	—
Maintenance plans available	Yes	Third-party	Third-party	Third-party	—
PRICING & AVAILABILITY					
Purchase price of basic system, $	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly rental of basic system, $	NA	—	—	—	—
Monthly maint. price of basic system, $	Contact vendor	—	—	—	—
Monthly maint. bundled with rental, $	—	—	—	—	—
Purchase price of:					
additional memory module, $	Contact vendor	—	—	—	—
additional workstations, $	Contact vendor	—	—	—	—
additional printer, $	Contact vendor	—	—	—	—
Discounts available	OEM	Blanket, Staircase	Blanket, Staircase	Blanket, Staircase	—
Date of first U.S. delivery	October 1981	April 1981	March 1980	January 1981	1979
Number installed to date	250	145	2300	NA	NA
COMMENTS		*Point 4 has device handlers to support many peripherals not supplied by Point 4; processors include virtual front panels, self-test diagnostics, chassis, power supply	*Point 4 has device handlers to support many peripherals not supplied by Point 4; processors include virtual front panels, self-test diagnostics, chassis, power supply	*Point 4 has device handlers to support many peripherals not supplied by Point 4; processors include virtual front panels, self-test diagnostics, chassis, power supply	

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Prophet 21 Model 3 System	Prophet 21 Model 4/Model 5 Systems	Quodata Q 521	Quodata Q 880
WORD LENGTH, BITS	16	16	16	16
CPU				
Model	TI 99000*	TI 99000*	DEC PDP-11/23+	DEC PDP-11/44
Add time, microseconds	2.8 (16 bits)	2.8 (16 bits)	3.0	2.16
No. of I/O ports on basic sys. and max.	4.30	0, 120	4, 6	—
INTERNAL STORAGE				
Type	Dynamic NMOS	Dynamic NMOS	MOS	MOS
Capacity of basic system, bytes	384K	128K	256K	1024K
Maximum capacity, bytes	2048K	8192K	1024K	1024K
Increment size, bytes	64K	64K	128K	256K
Cycle/access time, microseconds	0.6	0.6	0.9/0.45	0.3
MASS STORAGE				
Floppy disk (diskette) drive	No	No	Optional	Optional
Maximum diskette storage	—	—	2M bytes	2M bytes
Cartridge disk drive	—	—	—	Optional
Pack disk drive	Std.; 40-80MB	Std.; 160M/600MB	Std.; 20M bytes	Std.; 10M bytes
Fixed-head disk/drum	—	—	Optional	Std.; 121M bytes
Maximum disk storage	160M bytes	640M/4800M bytes	—	—
WORKSTATIONS				
Maximum number connectable	30	120	16	64
Recommended maximum number	30	120	6-8	32
Keyboard style	Type.; numeric pad	Type.; numeric pad	Variable	Variable
Workstation printer	Optional	Optional	Opt.; 8 max.	Opt.; 8 max.
INPUT/OUTPUT DEVICES				
Serial printer	Opt.; 180 cps	Opt.; 180 cps	Optional	Opt.; 180 cps
Line printer	Opt.; 300-600 lpm	Opt.; 300-600 lpm	Optional	Opt.; 100-900 lpm
Reel-to-reel tape drive	No	No	Optional	Optional
Cassette/cartridge tape drive	Standard	Standard	Optional	No
CRT	Std.; 24 x 80 char.	Std.; 24 x 80 char.	Opt.; 24 x 80 char.	Opt.; 1920 char.
Other	—	—	—	—
COMMUNICATIONS				
Maximum no. of lines	4	12	32	63
Synchronous	Std.; 9600 bps	Std.; 9600 bps	Optional	Optional
Asynchronous	Opt.; to 9600 bps	Opt.; to 9600 bps	Standard	Std.; to 9600 bps
Protocols supported	Prophet 21	Prophet 21	Bisync, SDLC	Bisync, SDLC
Network architecture supported	Prophet 21	Prophet 21	DECnet	DECnet
RJE terminals emulated	—	—	3780, HASP	3780, HASP
IBM 3270 emulation	—	—	Yes	Yes
SOFTWARE SUPPORT				
Cobol	No	No	Yes	Yes
RPG	No	No	Yes	Yes
Fortran	No	No	Yes	Yes
Basic	No	No	Yes	Yes
Assembler	No	No	Yes	Yes
Other programming languages	Prophet 21	Prophet 21	Focal	APL, Pascal, DIB
Multiprogramming	Yes; 30 partitions	Yes; 30 partitions	Yes	Yes, 63 partitions
Max. no. of jobs run concurrently	30	30	—	—
Language complemented in firmware	No	No	No	No
Op. sys. implemented in firmware	Yes	Yes	No	No
General accounting packages	—	—	Yes	Yes
Industry application areas	Distribution	Distribution	Educ., non-profit	Educ., non-profit
Data base management system	—	—	Yes	Yes
File access methods supported	Rand., seq., indexed	Rand., seq., indexed	Rand., seq., ISAM	Rand., seq., ISAM
Software separately priced	No	No	Yes	Yes
Technical help separately priced	Included	Included	Yes	Yes
LEASE/MAINTENANCE OPTIONS				
Lease plans available	NA	NA	Contact vendor	Contact vendor
Maintenance plans available	Yes	Yes	—	—
PRICING & AVAILABILITY				
Purchase price of basic system, $	39,900	49,900/89,900	36,000	78,000
Monthly rental of basic system, $	—	—	—	—
Monthly maint. price of basic system, $	495	595/695	—	—
Monthly maint. bundled with rental, $	NA	NA	—	—
Purchase price of:				
additional memory module, $	—	—	—	—
additional workstations, $	5,295	4,750	—	—
additional printer, $	7,000	6,500	—	—
Discounts available	—	—	—	—
Date of first U.S. delivery	1983	1983	—	—
Number installed to date	—	—	—	—
COMMENTS	Turnkey system is marketed nationwide and in Canada. *Basic sys. has 3 processors. Additional processor for every pair of workstations.	Turnkey system is marketed nationwide and in Canada. *Basic sys. has 3 processors. Additional processor for every pair of workstations.	Word processing and data management available as options	See Q 990 Comments

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Quodata Q 950	STC Systems Inc. System 4000	STC Systems Inc. System 5000	STC Systems Inc. System 6000
WORD LENGTH, BITS	32	16	16	16
CPU				
Model	DEC VAX-11	DG Nova 4	DG Nova 4	DG Nova 4
Add time, microseconds	Variable	0.7	0.7	0.7
No. of I/O ports on basic sys. and max.	—	8, 112	8, 112	16, 112
INTERNAL STORAGE				
Type	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	1024K	64K	64K	256K
Maximum capacity, bytes	8M	1024K	1024K	1024K
Increment size, bytes	512K	32K	32K, 64K, 128K	128K, 256K
Cycle/access time, microseconds	Variable	0.7/0.35	0.7/0.35	0.7/0.35
MASS STORAGE				
Floppy disk (diskette) drive	Optional	NA	NA	NA
Maximum diskette storage	2M bytes	—	—	—
Cartridge disk drive	Optional	Std.; 12M-48M bytes	Opt.; 32M-64M bytes	Std.; 600M bytes
Pack disk drive	Std.; 10M bytes	Opt.; 32M-320M bytes	Std.; 80M-320M bytes	Opt.; 600-1200MB
Fixed-head disk/drum	Std.; 121M bytes	NA	NA	NA
Maximum disk storage	—	320M bytes (4 drives)	1200M bytes (4 drives)	1200M bytes (4 drives)
WORKSTATIONS				
Maximum number connectable	200	3	113	113
Recommended maximum number	100	3	113	113
Keyboard style	Variable	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Optional	Optional slave prntr.	Optional slave prntr.	Optional slave prntr.
INPUT/OUTPUT DEVICES				
Serial printer	Opt.; 180 cps	Std.; 165 cps	Std.; 165 cps	Std.; 165 cps
Line printer	Opt.; 300-900 lpm	Opt.; 300-900 lpm	Opt.; 300-900 lpm	Opt.; 600-900 lpm
Reel-to-reel tape drive	Standard	Opt.; 800-1600 bpi	Opt.; 800-1600 bpi	Opt.; 800-1600 bpi
Cassette/cartridge tape drive	No	NA	NA	NA
CRT	Opt.; 1920 char.	Std.; 1920 char.	Std.; 1920 char.	Std.; 1920 char.
Other	—	—	—	—
COMMUNICATIONS				
Maximum no. of lines	63	Unlimited	Unlimited	Unlimited
Synchronous	Optional	Opt.; to 9600 bps	Opt.; to 9600 bps	Opt.; to 9600 bps
Asynchronous	Std.; to 9600 bps	Opt.; to 1200 bps	Opt.; to 1200 bps	Opt.; to 1200 bps
Protocols supported	Bisync, SDLC	Bisync	Bisync	Bisync
Network architecture supported	DECnet	—	—	—
RJE terminals emulated	3780, HASP	2780/3780	2780/3780	2780/3780
IBM 3270 emulation	Yes	Yes	Yes	Yes
SOFTWARE SUPPORT				
Cobol	Yes	No	No	No
RPG	Yes	Yes	Yes	Yes
Fortran	Yes	No	No	No
Basic	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes
Other programming languages	APL, Pascal, DIB	STC/S SKILLWRTR.	STC/S SKILLWRTR.	STC/S SKILLWRTR.
Multiprogramming	Yes	Yes, 8 partitions	Yes, 50 partitions	Yes, 50 partitions
Max. no. of jobs run concurrently	—	Varies	Varies	Varies
Language complemented in firmware	No	No	No	No
Op. sys. implemented in firmware	No	No	No	No
General accounting packages	Yes	Yes	Yes	Yes
Industry application areas	Educ., non-profit	Dist., publ., appar.	Dist., publ., appar.	Dist., publ., appar.
Data base management system	Yes	Yes	Yes	Yes
File access methods supported	Random, seq., ISAM	Seq., random, ISAM	Rand., seq., ISAM	Rand., seq., ISAM
Software separately priced	Yes	No	No	No
Technical help separately priced	Yes	No	No	No
LEASE/MAINTENANCE OPTIONS				
Lease plans available	Contact vendor	36, 48, 66 mos.	36, 48, 66 mos.	36, 48, 66 mos.
Maintenance plans available	—	On-call, third-party	On-call, third-party	On-call, third-party
PRICING & AVAILABILITY				
Purchase price of basic system, $	90,000	34,900	51,000	183,000
Monthly rental of basic system, $	—	—	—	—
Monthly maint. price of basic system, $	—	345	435	1,145
Monthly maint. bundled with rental, $	—	—	—	—
Purchase price of:				
additional memory module, $	—	3,800 (32KB)	3,800 (32KB)	11,400 (128KB)
additional workstations, $	—	2,600	2,600	2,600
additional printer, $	—	9,900 (300 lpm)	9,900 (300 lpm)	22,500 (900 lpm)
Discounts available	—	NA	NA	NA
Date of first U.S. delivery	—	1973	1974	1982
Number installed to date	—	125	125	NA
COMMENTS	Data management and word processing specifically designed for educational institutions, government entities, and non-profit organizations	System price includes all hardware, software, installation, training, and maintenance (1 year on software, 90 days on hardware)	System price includes all hardware, software, installation, training, and maintenance (1 year on software, 90 days on hardware)	System price includes hardware, software, training, installation, and maintenance (1 year on software, 90 days on hardware)

JANUARY 1983

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Texas Instruments Business System 200	Texas Instruments Business System 300	Texas Instruments Business System 600	Texas Instruments Business System 800
WORD LENGTH, BITS	16	16	16	16
CPU				
Model	TMS 9900	TMS 99000	990/10A	990/12
Add time, microseconds	—	—	—	—
No. of I/O ports on basic sys. and max.	6, 8	10, 12	12, 96	Limited by available chassis slots
INTERNAL STORAGE				
Type	MOS	MOS	MOS	MOS
Capacity of basic system, bytes	64K	128K	256K	512K
Maximum capacity, bytes	64K	512K	2048K	2048K
Increment size, bytes	—	128K	256K	256K
Cycle/access time, microseconds	250 ns	200 ns	200 ns	—
MASS STORAGE				
Floppy disk (diskette) drive	1.2M bytes	1.2M bytes	1.2M bytes	Opt.; 1.2M bytes
Maximum diskette storage	1.2M bytes	1.2M bytes	1.2M bytes	1.2M bytes
Cartridge disk drive	No	—	Fixed/removable 63M bytes	13M remov./67M fixed
Pack disk drive	No	—	63M bytes	63M and 238M bytes
Fixed-head disk/drum	5 or 10MB Winch.	5-43MB Winch.	10-43MB Winch.	43MB Winchester
Maximum disk storage	15MB w/1.2MB diskette for backup	172MB w/14.5MB tape cartridge	777M bytes	952M bytes
WORKSTATIONS				
Maximum number connectable	1	3	16	40
Recommended maximum number	1	3	16	40
Keyboard style	Type., num. key.	Type., num. key.	Type., num. key.	Type., num. key.
Workstation printer	Omni 810 and 840	Omni 810 and 840	Omni 810 and 840	Omni 810 and 840
INPUT/OUTPUT DEVICES				
Serial printer	Opt.; 75 or 150 cps	Opt.; 75 or 150 cps	Opt.; 45, 75, 150 cps	Opt.; 45, 75, 150 cps
Line printer	No	No	Opt.; 300, 600 lpm	Opt.; 300, 600 lpm
Reel-to-reel tape drive	No	No	Opt.; 1600 bpi	Opt.; 1600 bpi
Cassette/cartridge tape drive	No	Opt.; cartridge tape	Opt.; 4.5MB cart. tape	Opt.; 14.5MB cart. tape
CRT	Std.; 24 x 80 char.	24 x 80 char.	Std.; 24 x 80 char.	Std.; 24 x 80 char.
Other	—	—	45 cps letter quality printer	45 cps letter quality printer
COMMUNICATIONS				
Maximum no. of lines	1	1	Varies	Varies
Synchronous	—	—	—	—
Asynchronous	—	—	—	—
Protocols supported	2780/3780	3270	2780/3780, 3270	2780/3780, 3270
Network architecture supported	—	—	SNA, X.25	SNA, X.25
RJE terminals emulated	No	—	Yes	—
IBM 3270 emulation	No	Yes	Yes	Yes
SOFTWARE SUPPORT				
Cobol	Yes	Yes	Yes	Yes
RPG	No	No	Yes	Yes
Fortran	No	Yes	Yes	Yes
Basic	Yes	Yes	Yes	Yes
Assembler	Yes	Yes	Yes	Yes
Other programming languages	UCSD Pascal	UCSD Pascal	UCSD Pascal	UCSD Pascal
Multiprogramming	No	Yes	Yes	Yes
Max. no. of jobs run concurrently	1	Dependent upon memory	Dependent upon memory	Dependent upon memory
Language complemented in firmware	No	No	Yes	Yes
Op. sys. implemented in firmware	Yes	No	No	No
General accounting packages	Yes	Yes	Yes	Yes
Industry application areas	Gen. acctg., WP	Gen. acctg., WP	Gen. business, WP	Gen. business, WP
Data base management system	No	Yes	Yes	Yes
File access methods supported	Rel. rec., seq., indexed	Rel. rec., seq., indexed	Rel. rec., seq., indexed	Rel. rec., seq., indexed
Software separately priced	Yes	Yes	Yes	Yes
Technical help separately priced	Yes	Yes	Yes	Yes
LEASE/MAINTENANCE OPTIONS				
Lease plans available	Through third party	90 days, 1-, 3-year	90 days, 1-, 3-year	90 days, 1-, 3-year
Maintenance plans available	On-call depot	On-call depot	Std.; on-call	Std.; on-call
PRICING & AVAILABILITY				
Purchase price of basic system, $	8,495-9,495	12,495-21,800	22,500-49,500	51,000-86,000
Monthly rental of basic system, $	—	—	969-3,279	2,360-4,830
Monthly maint. price of basic system, $	38-92	52-126	164-465	312-702
Monthly maint. bundled with rental, $	—	—	—	—
Purchase price of:				
additional memory module, $	—	1,250 (128K)	3,000 (256K)	3,000 (256K)
additional workstations, $	—	—	2,300	4,330
additional printer, $	1,375 (75 cps), 2,000 (150 cps)	1,375, 2,005	1,720-11,950	1,865-11,950
Discounts available	Yes	Yes	Yes	Yes
Date of first U.S. delivery	April 1982	November 1982	September 1982	January 1983
Number installed to date	NA	NA	NA	NA
COMMENTS	Models 250 and 251 differ only in disk storage capacity, which is 5MB and 10MB, respectively.	Four models (350, 351, 371 and 372) differ only in storage capacity which ranges from 5M to 43M bytes.	Seven models (651, 660, 661, 671, 672, 680, 682) differ in storage capacity which ranges from 10M to 127M bytes.	Six models (861, 872, 880, 882, 884, 886) differ in storage capacity and technology ranging from 43M to 476M bytes.

Small Business Minicomputer Specifications

MANUFACTURER AND MODEL	Wang 2200 LVP	Wang 2200 MVP	Wang 2200 SVP	Wang 2200 VP
WORD LENGTH, BITS	—	8-bit byte	—	8-bit byte
CPU				
Model	Wang 2200 LVP	Wang 2200 MVP	Wang 2200 SVP	Wang 2200VP
Add time, microseconds	—	130 (13 digits)	—	130 (13 digits)
No. of I/O ports on basic sys. and max.	3, 7	9	NA	9
INTERNAL STORAGE				
Type	MOS/RAM	MOS	MOS/RAM	MOS
Capacity of basic system, bytes	32K	16K	32K	16K
Maximum capacity, bytes	128K	64K	64K	64K
Increment size, bytes	32K	16K, 32K	32K	16K
Cycle/access time, microseconds	0.60	0.6	0.60	0.6
MASS STORAGE				
Floppy disk (diskette) drive	Std. & opt.; 1M bytes each	Opt.; 786K bytes	Std. & opt.; 1M bytes each	Opt.; 786K bytes
Maximum diskette storage	2M bytes	—	2M bytes	—
Cartridge disk drive	Opt.; 8M bytes	Opt.; 20M bytes	Opt.; 4M bytes	Opt.; 20M bytes
Pack disk drive	—	No	—	No
Fixed-head disk/drum	—	No	—	No
Maximum disk storage	160M bytes	—	5M bytes	—
WORKSTATIONS				
Maximum number connectable	4	8	1	4
Recommended maximum number	4	8	1	4
Keyboard style	—	Type., num. key.	—	Type., num. key.
Workstation printer	Yes	—	Yes	—
INPUT/OUTPUT DEVICES				
Serial printer	No	Opt.; 200 cps	No	Opt.; 200 cps
Line printer	Opt.; 200-600 cps	Opt.; to 600 lpm	Opt.; 200-600 cps	Opt.; to 600 lpm
Reel-to-reel tape drive	Opt.; 1600 bpi	Opt.; 120KBS	—	Opt.; 120KBS
Cassette/cartridge tape drive	—	No	—	No
CRT	Opt.; 1920 char.	Opt.; 24 x 80 char.	Opt.; 1920 char.	Opt.; 24 x 80 char.
Other	—	Opt. paper tape	—	Opt. paper tape
COMMUNICATIONS				
Maximum no. of lines	2 to 5	5	1	5
Synchronous	Opt.; 300-9600 bps	Opt.; to 4800 bps	Opt.; 300-9600 bps	Opt.; to 4800 bps
Asynchronous	Opt.; 300-9600 bps	Opt.; to 9600 bps	Opt.; 300-9600 bps	Opt.
Protocols supported	2780/3780/3271	Async, Bisync	2780/3780/3275	Async, Bisync
Network architecture supported	—	—	—	—
RJE terminals emulated	2780/3780	—	2780/3780	—
IBM 3270 emulation	Yes	—	Yes	—
SOFTWARE SUPPORT				
Cobol	No	No	No	No
RPG	No	No	No	No
Fortran	No	No	No	No
Basic	Yes	Yes	Yes	Yes
Assembler	No	No	No	No
Other programming languages	No	None	No	None
Multiprogramming	Yes, 16 partitions	Yes, 16 partitions	No	No
Max. no. of jobs run concurrently	16	16	1	4
Language complemented in firmware	No	Fully	No	Fully
Op. sys. implemented in firmware	No	Partially	No	Partially
General accounting packages	Yes	Yes	Yes	Yes
Industry application areas	Yes	Mfg., dist., insur.	Yes	Mfg., dist., insur.
Data base management system		No		Yes
File access methods supported	KFAM/HIKAM	Rand., seq., index	RFAM/HIKAM	Rand., seq., index
Software separately priced	—	Yes	—	Yes
Technical help separately priced	No	No	No	No
LEASE/MAINTENANCE OPTIONS				
Lease plans available	1-year	2-, 3-, 5-year	1-year	2-, 3-, 5-year
Maintenance plans available	Yes	Contract	Yes	Contract
PRICING & AVAILABILITY				
Purchase price of basic system, $	8,000	9,000	6,000	8,000
Monthly rental of basic system, $	—	—	—	—
Monthly maint. price of basic system, $	80	55	68	45
Monthly maint. bundled with rental, $	—	Yes	—	Yes
Purchase price of:				
additional memory module, $	3,000 (32KB)	4,000 (32K bytes)	3,000 (32KB)	2,500 (16K bytes)
additional workstations, $	2,700	2,600	2,700	2,600
additional printer, $	Varies	5,000 (200 cps)	Varies	14,000 (400 lpm)
Discounts available	—	—	—	—
Date of first U.S. delivery	—	January 1978	—	November 1978
Number installed to date	—	NA	—	NA
COMMENTS				

JANUARY 1983