

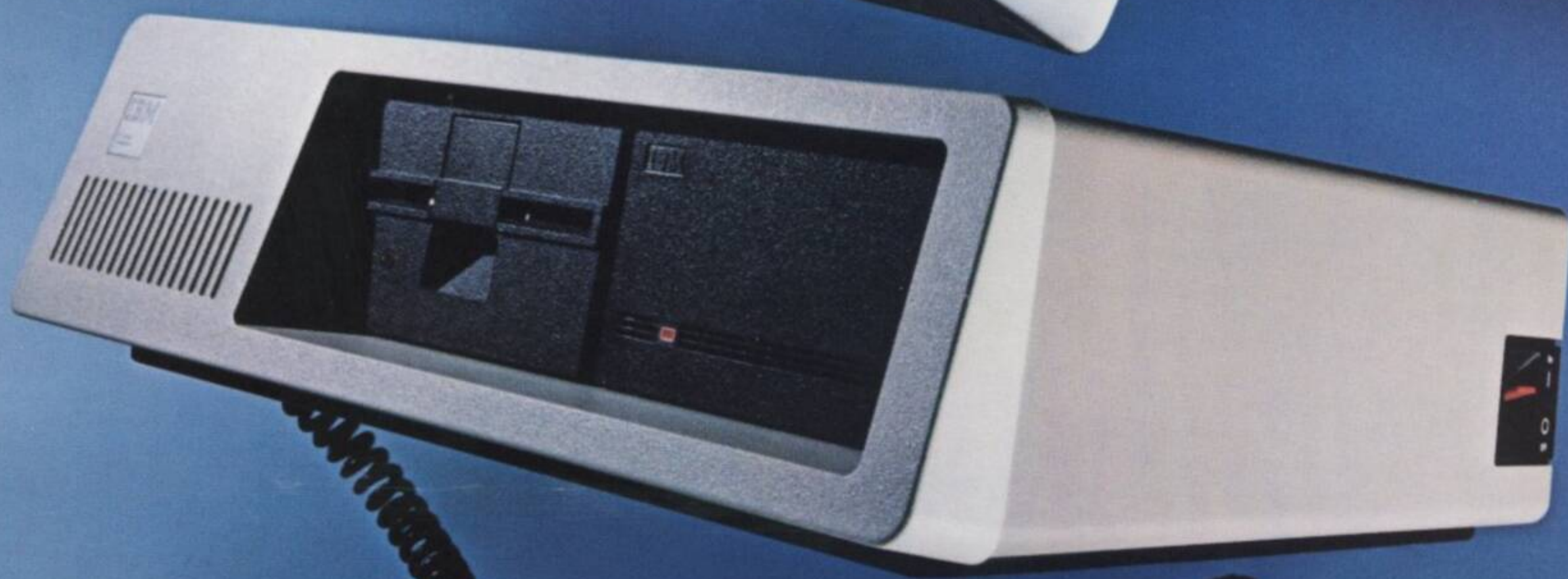
The Guide

to personal computer offerings from IBM

Spring/Summer
1983



*The IBM Personal
Computer XT:
New dimensions
in performance
and productivity*



The Guide is your source...

The Guide to personal computer offerings from IBM. Here is the latest issue of *The Guide*, an authoritative source for information on personal computer hardware and software offerings from IBM.

The Guide is published by IBM to keep you up to date on IBM's entire personal computer product line . . . to provide you with a comprehensive overview of each product's features and functions . . . to help you determine which products you need to design and/or expand your personal computer system from IBM.

This issue of *The Guide* highlights the IBM Personal Computer XT, IBM's most recent addition to its personal computer hardware line. It also contains information about important IBM Personal Computer software additions like Multiplan*—a powerful, versatile, electronic spreadsheet program.

In short, *The Guide* was designed to help you identify the tools you need to become more productive, more creative with a personal computer from IBM. We hope you find this publication informative and helpful.

*Multiplan is a U.S. trademark of Microsoft Corporation.

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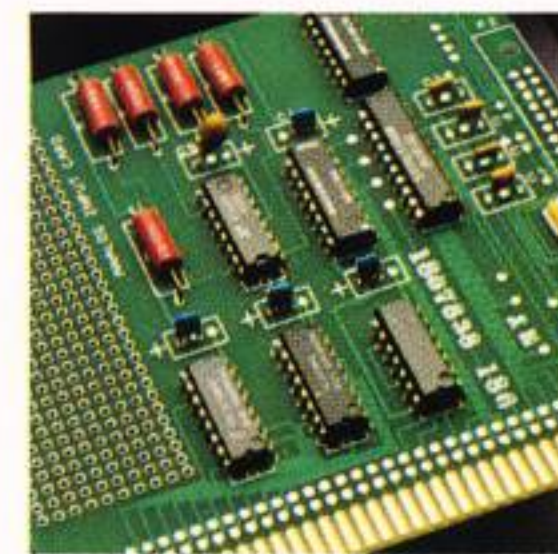
New dimensions in performance and productivity



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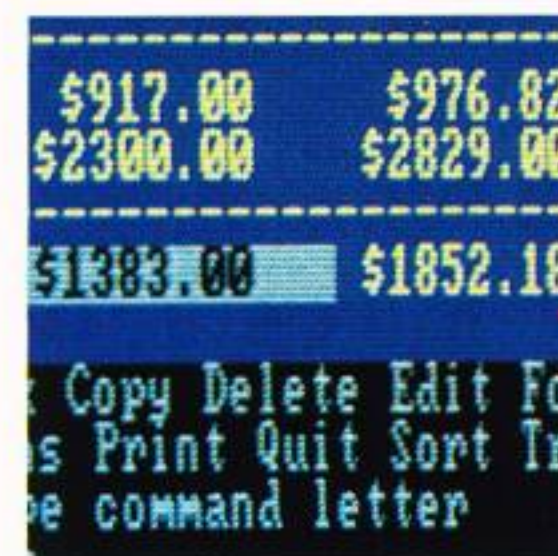
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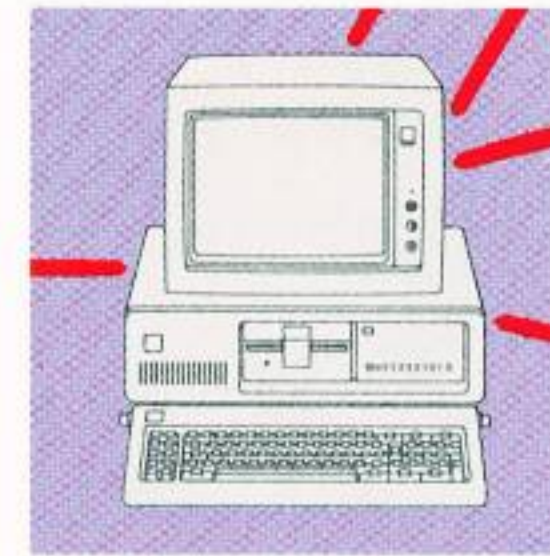
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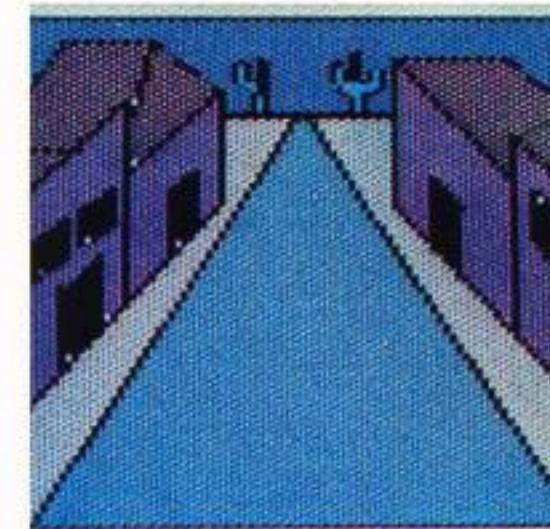
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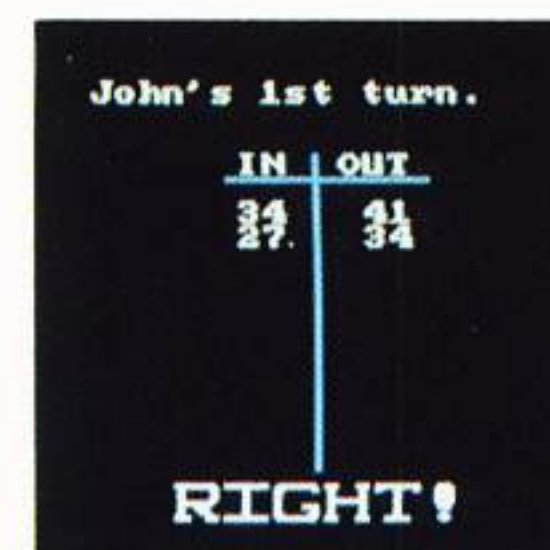
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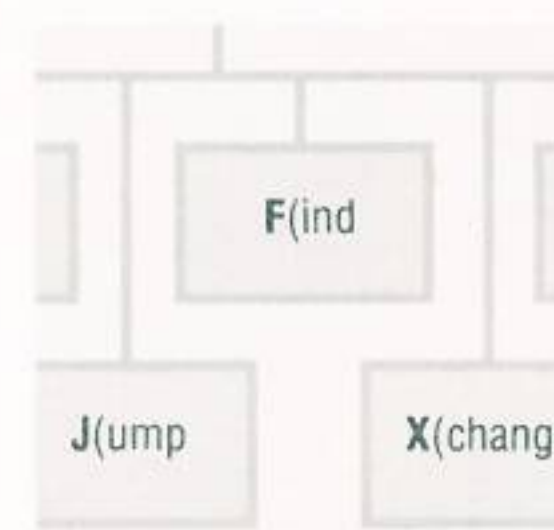
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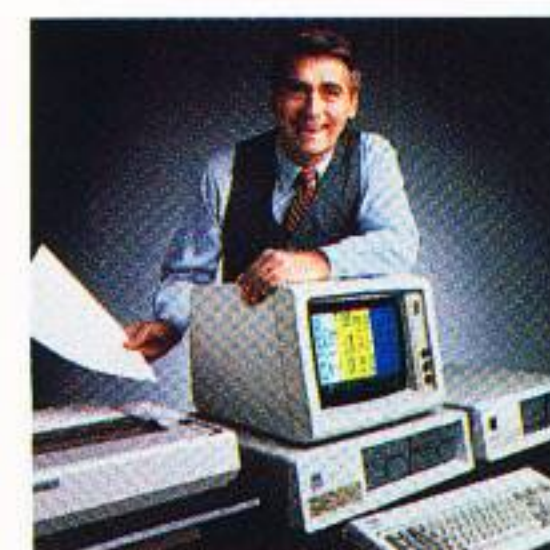
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Appendix: *Software system requirements and support • Alphabetical index of software products*

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New dimensions in performance and productivity

Changing the way people work... learn... play. Personal computers continue to play an ever-growing role at all levels of business and in schools and homes the world over.

From corporations to corner stores... from scientific laboratories at universities to reading laboratories in elementary schools... from executive offices to playrooms and dens, personal computers are changing the way people work, plan, analyze, learn and play.

There's more in store for you. As user needs become more complex and varied, IBM continues to demonstrate its commitment to you by expanding its personal computer product line. With a wider range of personal computer hardware and software products from IBM, you have more to select from: products designed to speed and simplify the management of information... to help improve your performance and enhance your productivity.

In short, there's more in store for you. More choices. More features. More memory. More storage options. More diverse applications software. More ways to expand your personal computer system from IBM and adapt it to your needs.

IBM provides you with a choice of two versatile, easily expandable personal computer systems: the IBM Personal Computer and the IBM Personal Computer XT. Both systems offer you a variety of advanced hardware design features at a very sensible price.

A proven performer. Since its introduction in August 1981, the IBM Personal Computer has caused much excitement in the micro-computer industry, an industry that has witnessed much extraordinary news. It was one of the first personal computers to feature an advanced, high-speed, 16-bit micro-processor and much more user memory than most of the traditional 8-bit personal computers available at that time.



Since then, the IBM Personal Computer has passed the test of time in a highly competitive industry. It has received widespread critical approval and has become one of the most popular personal computers available.

For example, the IBM Personal Computer has been credited with setting industry standards by *Time* magazine and by *The Wall Street Journal*. Additionally, *InfoWorld* selected the IBM Personal Computer as 1982's "Hardware Product of the Year."

The IBM Personal Computer XT. The IBM Personal Computer XT, announced in March 1983, extends the storage capacity

and information-handling capabilities of the IBM line of personal computers. It features a 10MB (10,240,000 characters) fixed disk drive and 128KB of user memory... allowing faster and more convenient access to larger volumes of information and more sophisticated programs.

The IBM Personal Computer XT's large, expandable storage capacity, its communications capabilities and its cost-effectiveness make it an outstanding value for small- and medium-sized businesses... as well as a productivity tool for organizations of all sizes.

More new products to select from

In addition to the IBM Personal Computer XT, IBM has introduced the following products to help you achieve new dimensions in performance and productivity.

IBM Expansion Units. Expansion Units are available for both the IBM Personal Computer and IBM Personal Computer XT. They offer you an easy, economical way to significantly increase the storage capacity and expand the capabilities of each system. Each Expansion Unit adds one 10MB fixed disk drive and 8 expansion slots to your system.†

The IBM Color Display. This high-resolution RGB monitor enables you to display vivid color graphics in the form of graphs, charts, diagrams, drawings and much more with your personal computer from IBM. It supports up to 16 colors for text and 8 colors for graphics.

The IBM Graphics Printer. Operating at speeds of up to 80 characters per second, this versatile, low-cost, quality matrix printer enables you to print both graphic images and an extensive selection of text characters.

IBM Communications Adapters. The IBM Communications Adapters, along with appropriate IBM Personal Computer communications software products, enable you to use your personal computer from IBM as an intelligent work station that can communicate with a variety of host computers, information data bases, other personal computers from IBM, and more. Communications can be established over switched or leased lines using synchronous, binary synchronous and/or asynchronous protocols.

And a growing range of software products. Nearly every month, IBM announces new software products for its personal computers.

One of the more notable recent products is Multiplan*, a very powerful, versatile and easy-to-use electronic spreadsheet program. Another is PeachText*, an advanced word-processing program that simplifies many writing and editing procedures.

Another program, pfs:*FILE, transforms your personal computer from IBM into an electronic filing system, enabling you to enter and retrieve information in a logical, orderly manner. A companion program, pfs:REPORT, enables you to create computer-generated, tabular reports with the information stored in pfs:FILE.

These are just a few of the newer additions to the rapidly growing library of software products for your personal computer from IBM.

Software compatibility:†† Most IBM Personal Computer software products are compatible with the IBM Personal Computer XT as well. IBM software compatibility means that if you purchase a new IBM Personal Computer XT, you can quickly and easily put the system to practical, productive use in a variety of applications. It also means that you can exchange programs and data files with other users of personal computers from IBM.

If your system includes a fixed disk drive, it can store many of the IBM Personal Computer programs—and the data files you create when using these programs—on the fixed disk. A fixed disk drive enables you to store and manage large volumes of programs and data more efficiently and more conveniently than with a diskette drive.

A solid investment in your future. As an expandable, versatile, high-performance tool, a personal computer from IBM should be approached as an investment that can help improve your performance . . . continue providing productivity benefits well into the future . . . and expand and evolve as your needs evolve.



In addition, both the IBM Personal Computer and the IBM Personal Computer XT offer you an impressive combination of advanced performance features at a very reasonable price. They can help prepare you to meet many of today's challenges. And they are expandable to help you meet tomorrow's challenges as well.

†When an Expansion Unit is added to an IBM Personal Computer or to an IBM Personal Computer XT, two expansion slots are occupied by the attachment cards used to connect the System Unit to the Expansion Unit.

*Multiplan is a U.S. trademark of Microsoft Corporation. PeachText is a trademark of Peachtree Software Incorporated. pfs: is a registered trademark of Software Publishing Corporation.

††Most programs are compatible provided that you use the appropriate program versions and the IBM Disk Operating System, and that each computer has the memory/storage capacities required to support the programs.

System Hardware



An expanded line of personal computer hardware products from IBM

A range of products and options means there is a system just right for you

The expanded line of personal computer hardware products from IBM offers you a broad range of capabilities and options. Whatever your computing needs may be, there's a personal computer system from IBM ready to help you meet them.

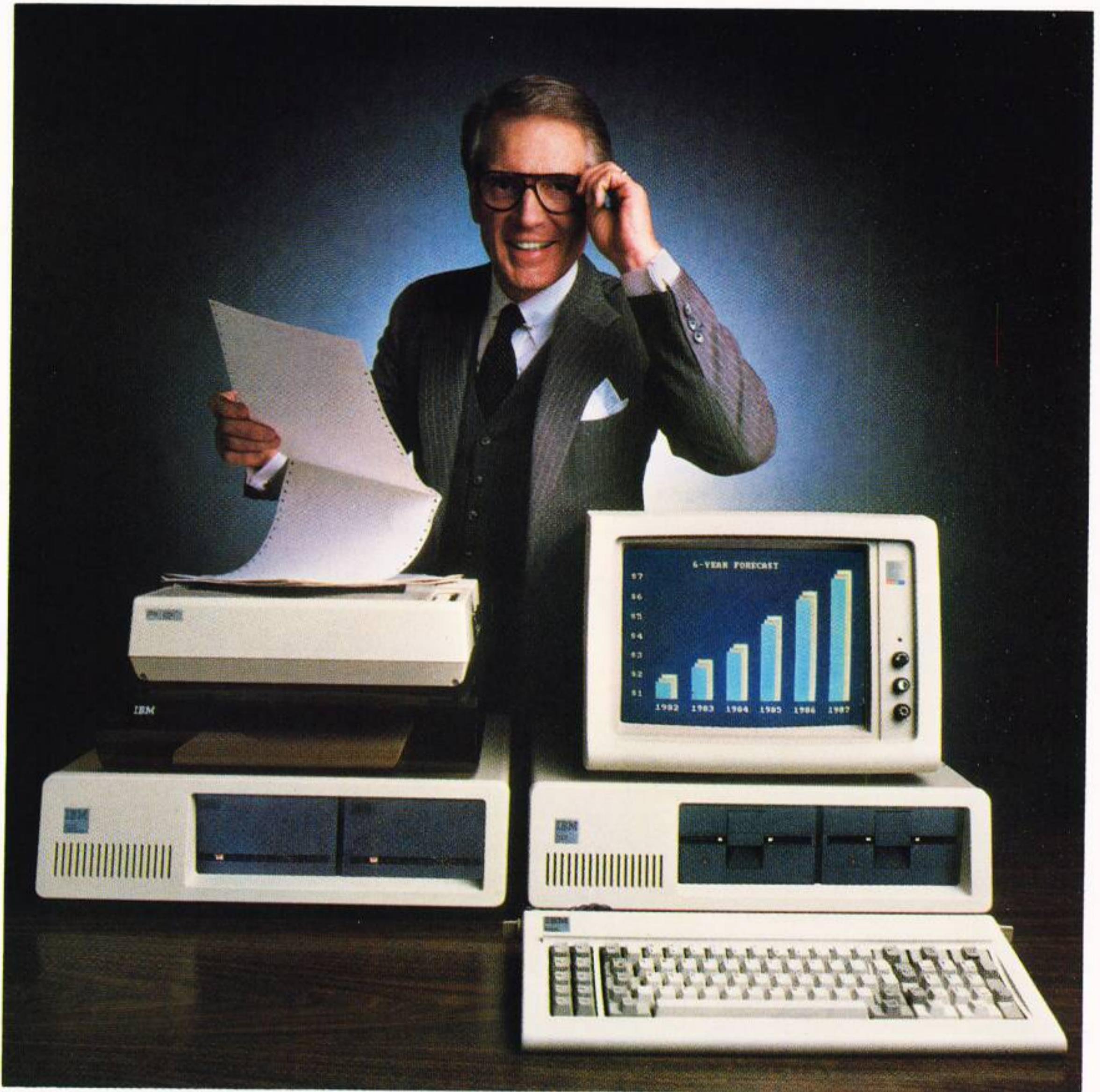
The IBM Personal Computer and the IBM Personal Computer XT. First, determine which of the two System Units, the basic building blocks of a system, is right for you: the IBM Personal Computer or the IBM Personal Computer XT.

The IBM Personal Computer System Unit is a versatile, reasonably priced computer with many advanced hardware features. It may help increase productivity in business, at home and wherever it is used.

The IBM Personal Computer XT System Unit offers you extensive memory capacity and information handling capabilities. It includes a number of options—such as a 10MB IBM Personal Computer Fixed Disk Drive—as standard equipment. For a quick review of the features of both System Units, see the chart on the next page.

Both System Units come with the same multifunctional, typewriter-like keyboard that was introduced with the IBM Personal Computer. Once you become familiar with the IBM Personal Computer Keyboard, you'll have a basic operating knowledge of any personal computer system from IBM.

System expansion slots...open doors to versatility. Both the IBM Personal Computer and the IBM Personal Computer XT offer you solid system foundations that can support a wide variety of configurations.



A key to their versatility is that various devices, features and memory expansion options can be easily added to a System Unit. You simply plug the appropriate option cards or adapters into the system expansion slots in the rear of the System Unit.

There are five system expansion slots in the IBM Personal Computer System Unit* and eight in the IBM Personal Computer XT.** They permit you to easily put together a system with just the capabilities you need and to keep pace with growing needs.

By adding option cards, you can increase user memory and add additional secondary storage. You can attach an IBM Color Display, an IBM Monochrome Display or any of a variety of other displays. The IBM Graphics Printer can be added to your system and ready to use in a matter of minutes. Communications adapters can support a range of communications capabilities.

In addition, there is an IBM Expansion Unit available for each System Unit. Each Expansion Unit offers you an easy, economical way to significantly increase secondary storage capacity, and each provides additional expansion slots.

In short, you may tailor a personal computer system from IBM to suit your individual requirements. What's more, because a personal computer system from IBM is easily expandable, it's simple to add capabilities as your needs develop and change in the future.

As well designed outside as it is inside. A personal computer from IBM is as well-coordinated and advanced in appearance as it is in performance, regardless of the components and options you select. Its design is sleek and distinctive. Its attractive styling complements any room or office.



IBM has put more than 30 years of computing experience into the design and operation of the IBM Personal Computer product line. The products are compact and lightweight; a complete system fits comfortably on a desk or counter. The modular, color-coordinated personal computer components from IBM can be arranged to suit your personal taste and working habits.

In addition, all personal computer hardware products from IBM were designed with you, the user, in mind. From the typewriter-like keyboard with tactile and audio feedback to the fast operation of the advanced 16-bit microprocessor... both personal computers from IBM were designed for your comfort and convenience.

**When an Expansion Unit is added to an IBM Personal Computer, two expansion slots are occupied by the attachment cards used to connect the System Unit to the Expansion Unit.*

***Three expansion slots are occupied by adapters that come with the IBM Personal Computer XT System Unit. In addition, when an Expansion Unit is added, two slots are taken up by the attachment cards used to connect the IBM Personal Computer XT to the Expansion Unit.*

IBM System Units at a glance

 Personal Computer	 Personal Computer XT
User Memory (RAM) 64KB standard, expandable to 640KB addressable	User Memory (RAM) 128KB standard, expandable to 640KB addressable
Permanent Memory (ROM) 40KB; includes BASIC Interpreter, automatic Power-on Self-test and BIOS	Permanent Memory (ROM) 40KB; includes BASIC Interpreter, automatic Power-on Self-test and BIOS
Auxiliary Storage One or two 180KB or 360KB capacity diskette drives (using the IBM Disk Operating System 2.0) may be installed in the System Unit; by installing an Expansion Unit for the IBM Personal Computer, you may also add up to two 10MB fixed disk drives; total system capacity is 20,720KB of storage	Auxiliary Storage One 10MB fixed disk drive and one 360KB capacity diskette drive are standard (using the IBM Disk Operating System 2.0); one additional 10MB fixed disk drive and one diskette drive (180KB or 360KB capacity) may be added when attaching an Expansion Unit for the IBM Personal Computer XT; total system capacity is 20,720KB of storage
Microprocessor High-speed, 16-bit (Intel 8088)	Microprocessor High-speed, 16-bit (Intel 8088)
Expansion Slots* 5 standard; 8 more slots can be added with an Expansion Unit for a total of 13 slots	Expansion Slots** 8 standard; 8 more slots can be added with an Expansion Unit for a total of 16 slots
Adapters Optional	Adapters One Asynchronous Communications Adapter, one Diskette Drive Adapter, and one Fixed Disk Drive Adapter—all included with IBM Personal Computer XT
Operating Systems IBM Disk Operating Systems 2.0 and 1.1, UCSD p-System [†] and CP/M-86 [†]	Operating Systems IBM Disk Operating Systems 2.0 and 1.1

[†]UCSD and UCSD p-System are trademarks of the Regents of the University of California. CP/M-86 is a trademark of Digital Research, Incorporated.

The IBM Personal Computer

Advanced, versatile and easily expandable

Cost-effective performance. The IBM Personal Computer is a versatile, affordable computer that you can put to use right away... at work, in the classroom or at home. It offers many advanced hardware features that add to the rewards and enjoyment of having a personal computer of your very own.

The System Unit. The IBM Personal Computer System Unit houses the System Board—the main circuit board containing the advanced 16-bit microprocessor—the permanent or Read Only Memory (ROM), and the user memory or Random Access Memory (RAM). The System Unit also contains: five expansion slots that allow you to easily expand your system via optional plug-in adapters; space for one or two diskette drives; a speaker for audio and music applications; a power supply; and various connectors for attaching the components or peripherals that enable you to interact with the computer.

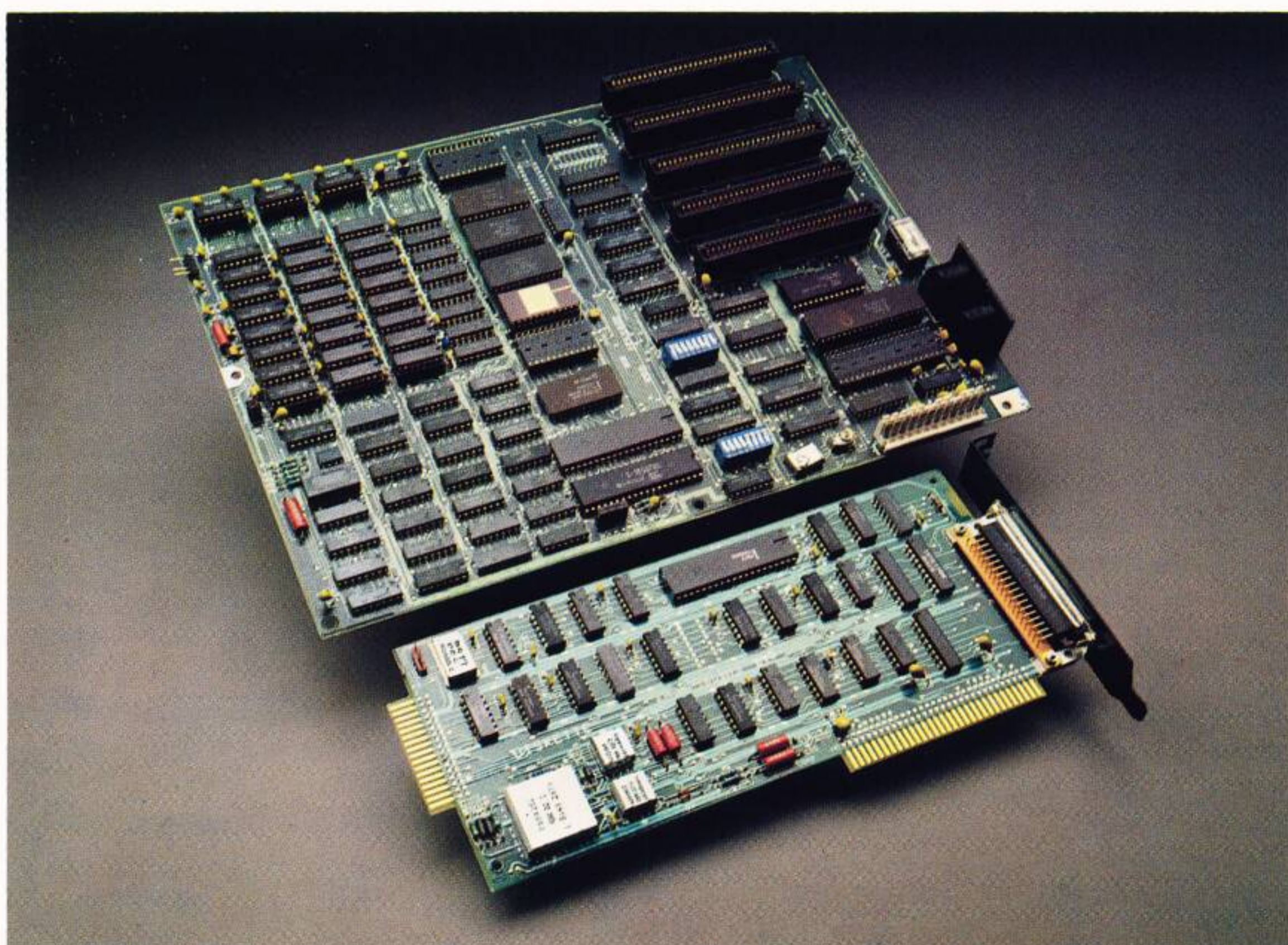


Configure a system to meet your individual requirements. The system expansion slots in the System Unit permit you to expand your system in any of the following ways with optional plug-in adapters:

- Increase user memory up to 640KB
- Add one or two 180KB or 360KB capacity diskette drives for faster, more convenient access to as much as 720KB of information and programs stored on 5¼-inch diskettes (The IBM Disk Operating System (DOS) 2.0 offers increased formatted diskette capacities of 180KB for single-sided and 360 KB for double-sided diskettes)
- Display up to 16 colors for text or 8 colors for graphics (two sets of 4 colors each) using the IBM Color Display* or another color video monitor
- Attach the IBM Monochrome Display for crisp, clear presentations of text and numerical data
- Attach the IBM Graphics Printer* or another printer to your system—you can even attach multiple printers for more demanding requirements
- Establish on-line synchronous, binary synchronous or asynchronous communications with a variety of host computers, other personal computers from IBM, and a growing number of public information networks
- Add an Expansion Unit* for the IBM Personal Computer, which provides you with one 10MB fixed disk drive and eight additional expansion slots

Select from 64KB up to 640KB of addressable user memory. User memory, also called main memory or Random Access Memory (RAM), is where the IBM Personal Computer temporarily holds the program and information you are currently working with. The larger the user memory, the larger the task the computer can perform. Word processing programs, for example, can directly edit larger documents faster and easier when the complete document is held in user memory.

**Additional electrical outlets are required when using the IBM Color Display, IBM Expansion Unit and/or IBM Graphics Printer.*



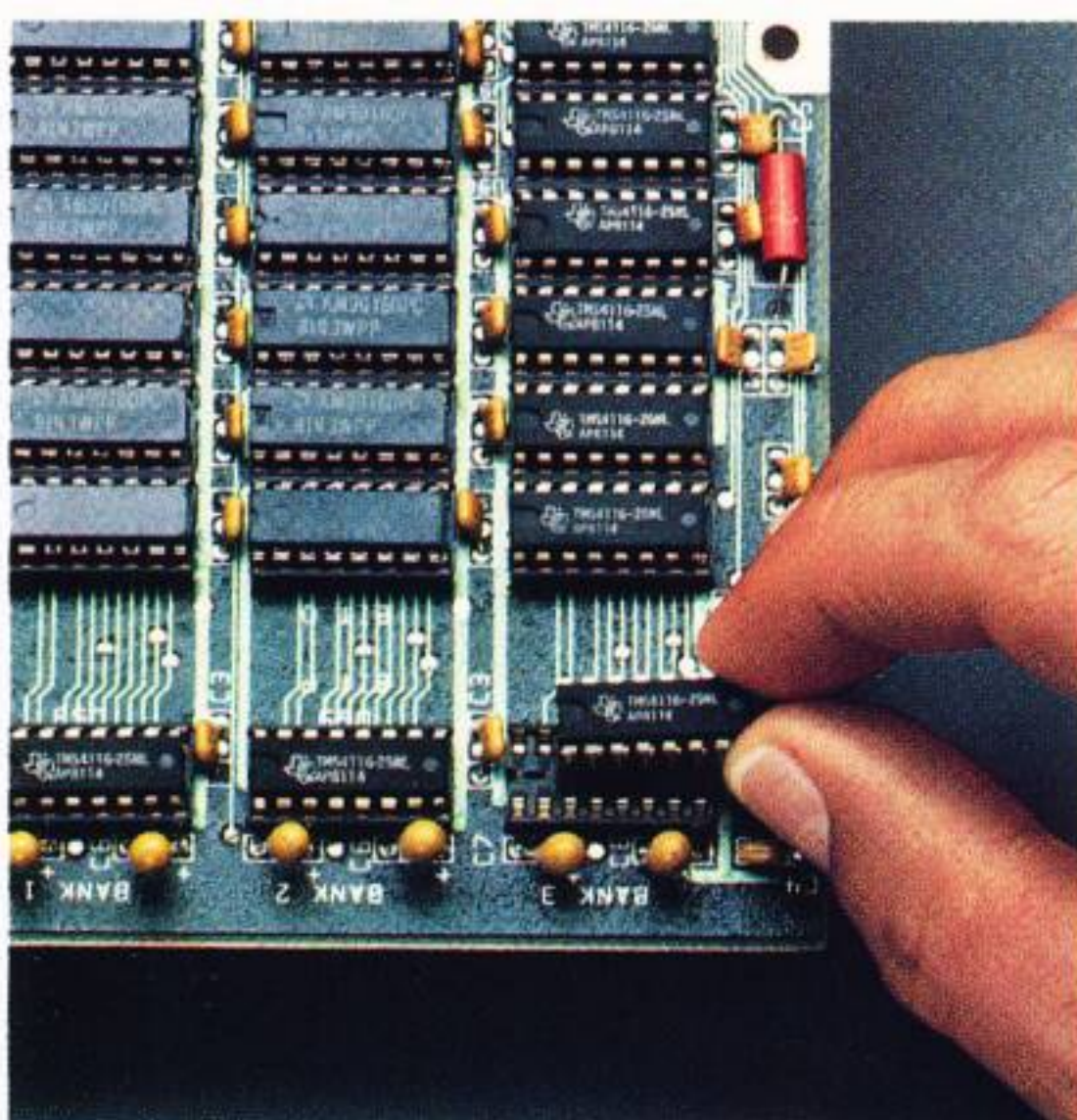
Every IBM Personal Computer comes with a minimum of 64KB of user memory installed on the System Board. Another 192KB of memory can be added to the System Board.

For larger memory requirements, you can easily expand user memory beyond the 256KB on the System Board. A 64/256KB Memory Expansion Option plugs into any one of the five system expansion slots in the System Unit.

Add up to 256KB of user memory with a single option. With just one 64/256KB Memory Expansion Option, you can add up to 256KB of user memory to your IBM Personal Computer. This option comes with 64KB of user memory and is easily expandable by adding up to three 64KB Memory Expansion Kits. It's a flexible way to expand the total user memory to 512KB while using only one system expansion slot.

The IBM Personal Computer can address, or directly work with, more than 640KB of user memory, which is enough memory to efficiently handle even very large application tasks. If your applications grow to the point that you need your IBM Personal Computer to hold and manipulate a large amount of information all at once, it's important to know that you have a range of user memory available.

Select one or two 180KB or 360KB capacity diskette drives. Diskette drives provide a faster and more convenient form of mass storage than an audio cassette recorder/player. You can add one or two 180KB or 360KB capacity diskette drives to your IBM Personal Computer to support 5¼-inch double-density diskettes.



The System Board (background) in every IBM Personal Computer System Unit contains the 16-bit microprocessor, 40KB of ROM and a minimum of 64KB of RAM. Up to two 180KB or 360KB capacity diskette drives are supported by the optional Diskette Drive Adapter (foreground).

The amount of user memory contained on the System Board can be increased from 64KB up to 256KB with plug-in memory chips.

The IBM Personal Computer

The IBM Disk Operating System (DOS) 2.0 offers increased formatted diskette capacities of 180KB for single-sided and 360KB for double-sided diskettes. As a result, with DOS 2.0, more of the information files you create when using a program can be stored on each data diskette.

A 180KB capacity, single-sided, double-density diskette can store up to 184,320 characters of information—equivalent to approximately 92 double-spaced, 8½ x 11-inch typewritten pages. With a 360KB capacity diskette drive, you can use 360KB capacity, double-sided, double-density diskettes, which can store twice as much information per diskette. With two 360KB capacity drives in your system, you can have direct access to up to 720KB of information.

Powerful 16-bit microprocessor. Many of the IBM Personal Computer's performance advantages result from its central processing unit, the 16-bit Intel 8088 microprocessor. This incredibly powerful and capable device is actually a single computer "chip," which is no larger than a penny. It can address, or directly work with, more than *one million bytes* of memory.

The processing speed of the IBM Personal Computer's microprocessor is fast enough to complete up to 250,000 data transfers, additions, subtractions or other operations each second.

40KB of "built-in" memory. The IBM Personal Computer comes with 40KB of permanent or Read Only Memory (ROM). The contents of ROM remain when the computer is turned off or restarted (unlike RAM, which loses its contents). The ROM in the IBM Personal Computer contains three major programs: a set of subprograms called BIOS (Basic Input/Output System), an automatic Power-on Self-test program, and the cassette version of the easy-to-use BASIC language. With these permanently programmed in the IBM Personal Computer, you have a wide range of capabilities as soon as your system is turned on.

The subprograms in BIOS are vital to the computer's operation. They control the exchange of information between the microprocessor and other system components such as the keyboard, video display and printer. BIOS also includes a time-of-day clock. The Power-on Self-test program conducts a series of diagnostic tests of your IBM Personal Computer system every time you turn the computer on.

BASIC... an integral part of every IBM Personal Computer. The BASIC Interpreter that is contained in each IBM Personal Computer offers you an enhanced version of the popular BASIC programming language. BASIC is a versatile language that's easy to learn and use. More advanced levels of BASIC are available with the Disk Operating System. (See Operating Systems and Languages section.)

BASIC offers you the capability to store information and programs by using an audio cassette recorder/player.* BASIC also provides program support for drawing points, lines and even entire pictures in both the medium- and high-resolution graphics modes. It also enables you to make sounds through the internal speaker and to use light pens,* joysticks* and game paddles*.

Add a fixed disk drive to your system. By adding an IBM Expansion Unit to your IBM Personal Computer system, you can add up to two 10MB fixed disk drives. The Expansion Unit comes with one fixed disk drive; a second one can be added. The 10MB fixed disk drive offers you faster, more convenient access to programs and large amounts of information that can be stored indefinitely on the permanently sealed fixed disk.

For added versatility, the Expansion Unit for the IBM Personal Computer offers an additional eight system expansion slots—providing you with more ways to expand your system. It also comes with the IBM Fixed Disk Drive Adapter in one of the expansion slots; you have to put the Expansion Unit attachment card in another slot.

**Video monitors, TV sets, audio cassette recorder/players, modems, light pens, joysticks, game paddles and RF modulators are not part of the IBM Personal Computer offering and must be purchased separately.*

The IBM Personal Computer XT

Faster, more convenient access to programs and large amounts of information

More storage, more memory, more capacity for growth. The IBM Personal Computer XT has everything offered by the original IBM Personal Computer[†]... plus a range of standard features and design characteristics that make it especially suitable for handling large amounts of information. One of the most significant benefits it offers you is faster, more convenient access to programs and information files that can be stored indefinitely on the system's integrated 10MB fixed disk drive.

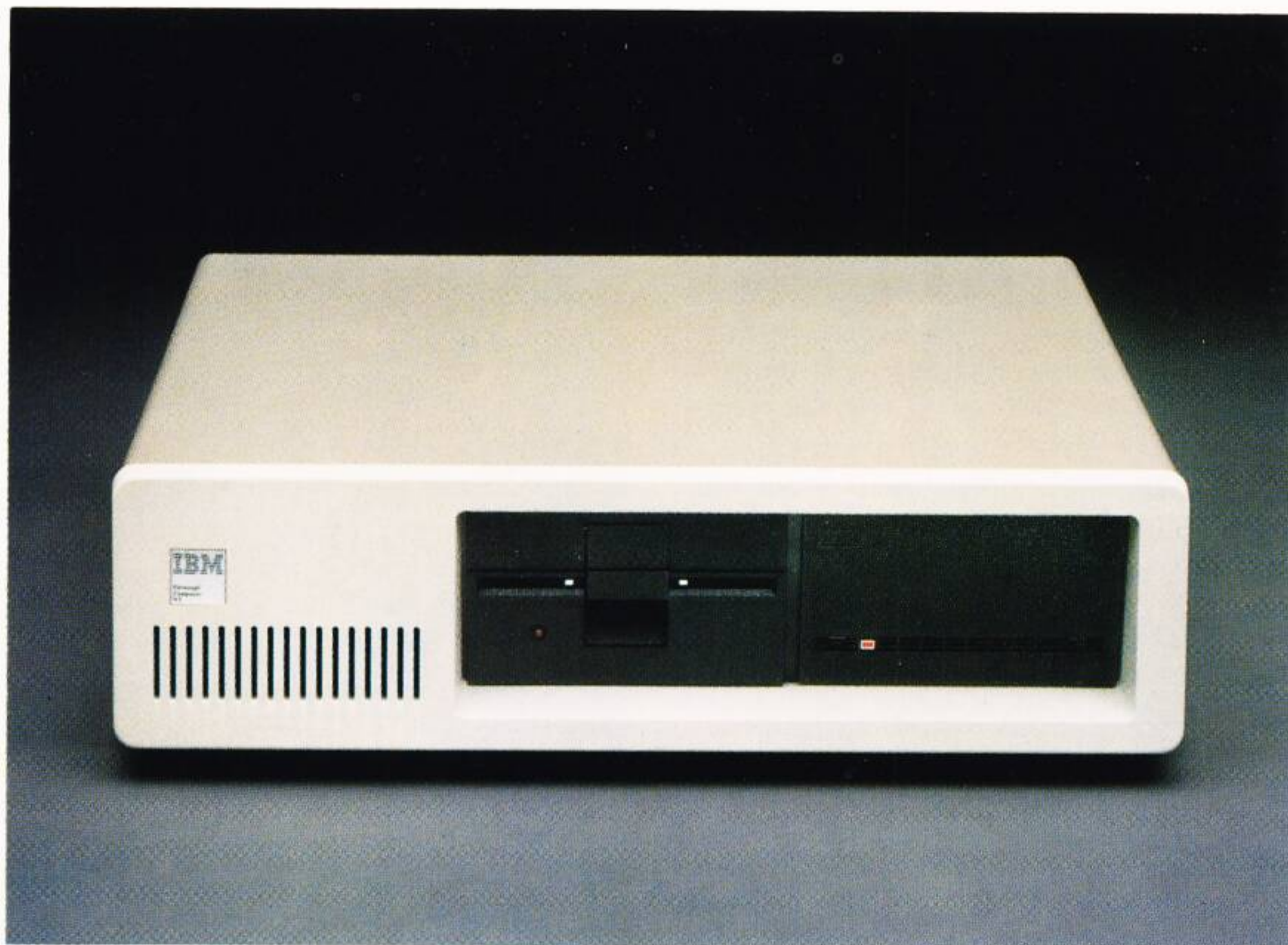
Just turn on your IBM Personal Computer XT and you can begin to work with any programs and information files that you have stored on the large-capacity fixed disk drive... no need to bother with diskettes. Of course, the system's 360KB capacity* diskette drive is always available for copying files from diskettes onto the fixed disk, and vice versa, and for using programs and data files that are kept on diskettes.

Designed to provide extra performance and added convenience. A 10MB fixed disk drive is just one of the special features that the IBM Personal Computer XT offers to provide you with extra performance and added convenience in a personal computer system. The IBM Personal Computer XT offers still more.

With 128KB of user memory included as standard, the IBM Personal Computer XT can handle most programs and data files quickly and efficiently. The larger the user memory, the larger the task the computer can perform.

[†]Except for an audio cassette interface.

*The IBM Disk Operating System (DOS) 2.0 offers increased formatted capacities of 180KB for single-sided and 360KB for double-sided diskettes.



Eight expansion slots. The IBM Personal Computer XT also provides eight expansion slots for added versatility. They enable you to put together a more capable, more sophisticated system configuration... and provide your system with more room for growth. Six of these slots are full-feature slots; that is, they will accept full-size feature cards. The remaining two are special slots that will accept only smaller feature cards.

The IBM Personal Computer XT System Unit also includes two full-size feature cards, a Diskette Drive Adapter and a Fixed Disk Drive Adapter, which take up two expansion slots. In addition, it includes an Asynchronous Communications Adapter that you may use to support communications with host computers, information networks, other personal computers from IBM, and various devices. The Asynchronous Communications Adapter takes up one of the two special expansion slots.

Plus a host of advanced features you'd expect from IBM. The easy-to-learn, easy-to-use IBM Personal Computer XT system also offers you many advanced design features... features that people have come to expect of personal computer products from IBM. They include:

- A powerful, high-speed, 16-bit microprocessor
- A large-capacity, 40KB permanent or Read Only Memory (ROM)
- A built-in self-diagnostic program that checks out key elements of your IBM Personal Computer XT system every time you turn it on
- An enhanced version of the popular BASIC programming language, also built in
- A feature-packed, multifunctional keyboard that includes function keys, cursor-control keys, and a numeric keypad
- And much more

The IBM Personal Computer XT

Advantages of the fixed disk drive. The IBM Personal Computer XT extends the storage capacity and information-handling capability of the IBM line of personal computers. The IBM Personal Computer XT system's built-in 10MB fixed disk drive provides more than 27 times as much storage as a 360KB capacity diskette and more than 55 times as much as a 180KB capacity diskette. In other words, it's like having more than 55 diskettes (180KB capacity) in your computer at one time... which permits you to have the equivalent of up to 5,120 double-spaced typewritten pages of information at your immediate disposal.

With this much centrally located storage capacity, you may use the IBM Personal Computer XT system to help build and manage large data bases more efficiently. Furthermore, some applications software can be stored on the fixed disk—such as the PeachText* word processing program, the Multiplan* electronic spreadsheet program and the pfs:*FILE and pfs:REPORT file management programs. The IBM Personal Computer XT system is compatible with a variety of software offerings already available for the IBM Personal Computer.

A fixed disk drive makes it easier to switch from one program to another than is possible with diskettes. It also makes it easier for you to integrate information from various programs and files into a single document. You could be using a word processing program to write a report, for example, and incorporate sections from an electronic spreadsheet program and a file management program.

Another convenient advantage of the fixed disk drive is that it operates faster than a diskette drive... allowing you to access more information at greater speeds. As a result, both programs and information files may be quickly and easily retrieved to help you work more efficiently.



A vast range of applications. With an IBM Personal Computer XT system, executives can create and store business plans, management reports, correspondence and much more on the fixed disk... and access any document with just a few keystrokes. Product managers can use it as an efficient, computerized way to maintain a large inventory of products. Business owners or division managers can use it to store all the program and data files needed to automate an entire accounting operation.

Your system can grow with you. The IBM Personal Computer XT offers you the flexibility to keep pace with growth in a number of ways as your information processing needs change and develop.

For example, user memory can be expanded from 128KB to 256KB on the IBM Personal Computer XT's System Board... and from 256KB to 640KB by using optional plug-in

adapters. For even greater storage capacity, you can attach an IBM Expansion Unit to your IBM Personal Computer XT system. With an Expansion Unit, the IBM Personal Computer XT's diskette storage can be increased up to 720KB, and you can add a second fixed disk drive to provide 20MB of fixed disk storage... more than 110 times the storage capacity of a 180KB capacity diskette drive.

For added versatility, an Expansion Unit also provides an additional 8 system expansion slots. With a total of 16 expansion slots, your IBM Personal Computer XT system offers more ways to easily add features and devices with optional plug-in adapters.

**PeachText is a trademark of Peachtree Software Incorporated. Multiplan is a U.S. trademark of Microsoft Corporation. pfs: is a registered trademark of Software Publishing Corporation.*

IBM Expansion Units

*More memory capacity,
additional expansion capabilities*

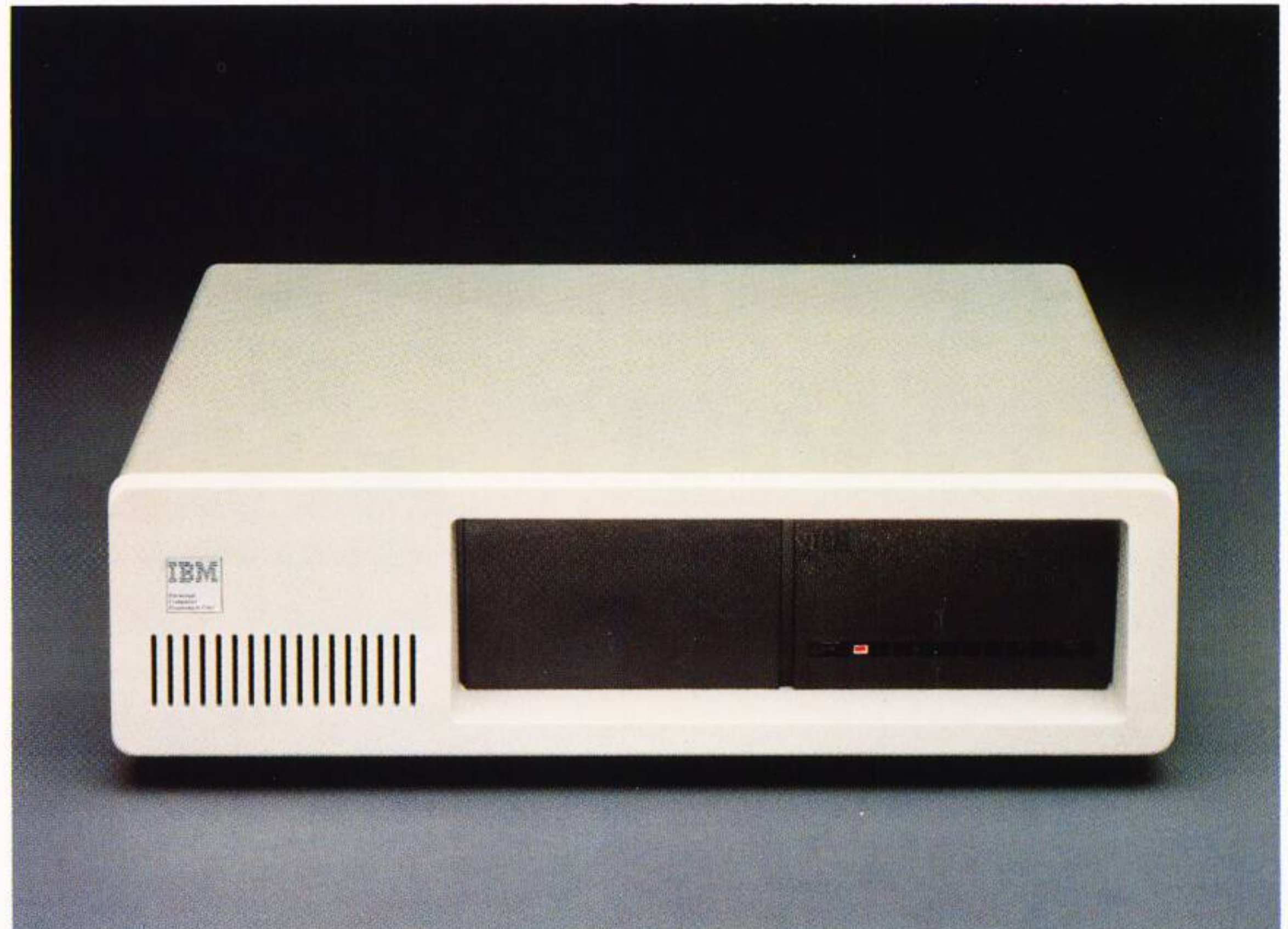
A cost-efficient solution to system expansion. A personal computer from IBM may be expanded in a variety of ways. However, some applications may call for more storage memory or more expansion slots than your System Unit can support. If so, IBM offers a convenient, cost-effective solution: an IBM Expansion Unit.

Add 10MB of fixed disk storage plus eight expansion slots. There are two IBM Expansion Units available, one for the IBM Personal Computer and one for the IBM Personal Computer XT. IBM Expansion Units permit you to significantly increase the storage capacity and expand the capabilities of each system. Each includes, as standard equipment, one 10MB fixed disk drive and eight system expansion slots.

System compatibility. IBM Expansion Units attach conveniently to the respective System Units. Each provides its own power supply and plugs into a separate electrical outlet. The expansion slots provided by the Expansion Units are identical to those on the System Units, so the Expansion Units can accept any adapter card (and therefore support any component) that the System Units can, with the exception of memory cards, the IBM Diskette Drive Adapter, and the adapter supporting the primary monitor/display.

Six of the slots are full-feature slots, accepting full-size adapters. The remaining two are special slots that accept smaller adapters. One of the full-feature slots is used for the Fixed Disk Drive Adapter. In addition, one slot in both the Expansion Unit and System Unit is used for the attachment cards that connect the two units.

Expanding your IBM Personal Computer system. The Expansion Unit for the IBM Personal Computer permits you to enjoy all the advantages of a 10MB fixed disk drive with an IBM Personal Computer. The fixed disk drive provides over 13 times more storage capacity than you have with an IBM Personal Computer equipped with two 360KB capacity* diskette drives. What's



more, you can add a second 10MB fixed disk drive to the Expansion Unit, thereby increasing the secondary storage capacity to 20,720KB of information... or more than 10,300 double-spaced typewritten pages.

The Expansion Unit adds 8 more system expansion slots to the 5 slots built into the IBM Personal Computer, for a total of 13 expansion slots. These slots allow the addition of feature cards to support a variety of features or devices.

Double your IBM Personal Computer XT storage memory. The Expansion Unit for the IBM Personal Computer XT adds a second 10MB fixed disk drive to your system. When you use an Expansion Unit with the IBM Personal Computer XT, you must move both the 10MB fixed disk drive and the associated adapter that come with the System Unit to the Expansion Unit. This provides you with a total of two fixed disk drives and 20MB of fixed disk storage.

When you remove the fixed disk drive from the IBM Personal Computer XT System Unit, you have the option of installing another 360KB capacity or 180KB capacity diskette drive in its place. With 20MB of fixed disk storage and 720KB of diskette storage capacity in your XT system, you can store, access and manage massive amounts of information.

Double your IBM Personal Computer XT expansion opportunities. The 8 system expansion slots provided by the Expansion Unit enable you to add twice as many features and peripheral devices to your IBM Personal Computer XT system. The flexibility offered by 16 expansion slots is valuable when your personal computing needs go beyond the support provided by the 8 slots in the IBM Personal Computer XT System Unit.

*The IBM Disk Operating System (DOS) 2.0 offers increased formatted capacities of 180KB for single-sided and 360KB for double-sided diskettes.

The Keyboard

*A remarkable achievement in function,
simplicity and esthetics*



Designed for user convenience. The keyboard is one of the most important components of any microcomputer because it is the primary device through which you provide instructions and input to the computer. For this reason, a well-designed and easy-to-use keyboard—such as the IBM Personal Computer Keyboard—could have a significant effect on your operating efficiency.

Users of both the IBM Personal Computer and the IBM Personal Computer XT greatly benefit from IBM's decades of excellence in keyboard design. This lightweight and streamlined keyboard is unlike any other microcomputer keyboard available. It offers you features that are as practical as they are convenient.

The keyboard attaches to the System Unit with a six-foot coiled cable, permitting you to position it wherever it feels most comfortable. You can even place it on your lap. The typing angle of the keyboard can be adjusted up to a 15-degree angle or down to a 5-degree angle for added comfort and convenience.

Tactile and audio feedback. When you press a key on the IBM Personal Computer Keyboard, you can feel a slight amount of pressure build up and release, indicating that the keystroke has registered and the character or command has been sent to the computer. You can also hear a soft click, similar to the click of a good typewriter striking the page. This tactile and audio feedback helps make the keyboard easy to use, especially when you are reading from notes while entering information. Try a keyboard without feedback to see the difference.

The keys themselves are curved to fit your fingertips, which gives them a nice "feel." They also have a matte finish to reduce glare. A ledge just above the top row of keys is convenient for propping an open book or reference manual between the video display and the keyboard.

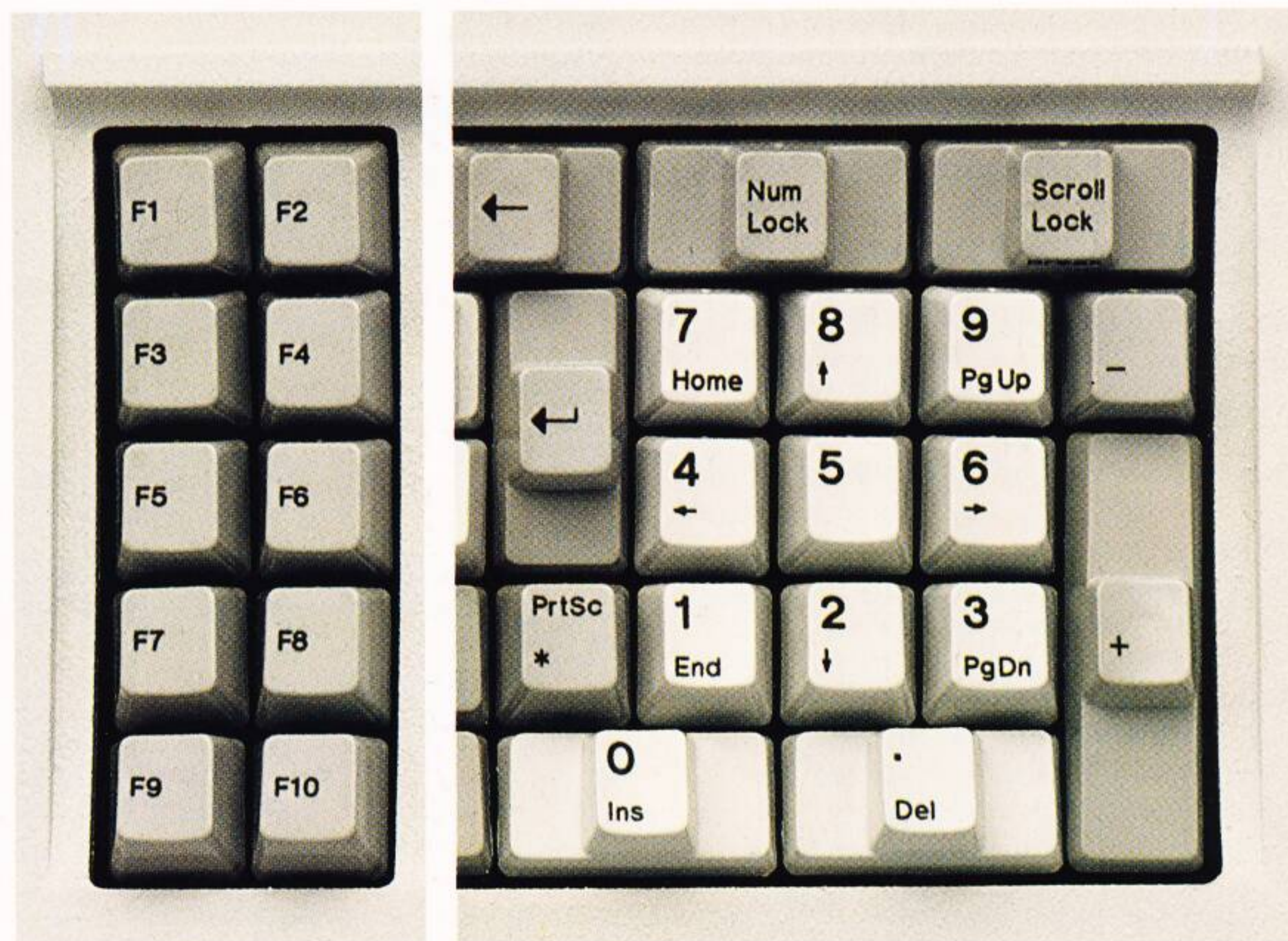
83 keys . . . including a special keypad for numeric entry and cursor control. The 83 full-function keys on the keyboard provide you with access to a set of 256 characters, including ASCII, special graphics and foreign language characters. The keyboard has a standard typewriter layout in the middle, a numeric keypad to the right (which doubles as a set of cursor-control keys), and 10 special function keys to the left.

The numeric, calculator-like keypad is especially convenient for entering numbers quickly. A key labeled "Num Lock" (Number Lock) acts as a "toggle switch." Press it once and you can use the numeric keypad for entering numbers. Press it again and you can use the same set of keys to control the cursor. You can move the cursor up, down, left, right, to the top of the screen, or to the end of the file you are working on.

Two cursor-control keys, labeled "Pg Up" and "Pg Dn," work with programs such as word processing to permit you to view previous or succeeding sections of a document quickly and conveniently. Additional keys provide the ability to delete or insert characters at the cursor position—basic editing features not offered by many other personal computers.

10 programmable function keys. The 10 special function keys on the left-hand side of the keyboard have programmable functions that change with different applications. With the EasyWriter* word processing program, for example, they offer you convenient access to three different command menus and perform a number of helpful editing functions. With BASIC, they may be used to perform a completely different set of functions. Some often-used BASIC commands—up to 15 characters long—may be entered by simply pressing a single function key each time you want to repeat the command in a program. You may even write your own applications and program the 10 function keys as you wish.

*EasyWriter is a trademark of Information Unlimited Software, Incorporated.



(Left) On the left side of the IBM Personal Computer Keyboard are ten special function keys. Many of the IBM Personal Computer software products enable you to enter various commands simply and quickly by striking the appropriate function keys. (Right) On the right side of the keyboard is a group of keys that double as a numeric keypad and as cursor-control keys. The numeric, calculator-like keypad is especially convenient for entering numbers quickly. The cursor-control keys make it easy for you to position the cursor on the screen in order to enter, delete or revise information.

Special combinations and other features.

Pressing special combinations of keys provides access to a range of other important and convenient capabilities. For example, pressing the shift key and "Prt Sc" key together enables you to generate a print-out of the contents of the video display at any time.

Another useful feature of the keyboard is its 15-character type-ahead buffer, which saves you from having keystrokes go unregistered if you type information or commands into your personal computer before it is ready to receive more information. Auto-repeat is still another helpful, time-saving feature. Most keys on the keyboard will continue to repeat their characters or functions if held down.

In all, these many special features add up to a keyboard that is a delight to use. It helps you quickly become comfortable and proficient with the capabilities of your personal computer from IBM.

Display options

The IBM Color Display, the IBM Monochrome Display and more . . .

How to select the right display for your system. To determine the most appropriate display for your personal computer from IBM, you should answer two important questions: What will the computer be used for? What display quality is sufficient for your needs and within your price range?

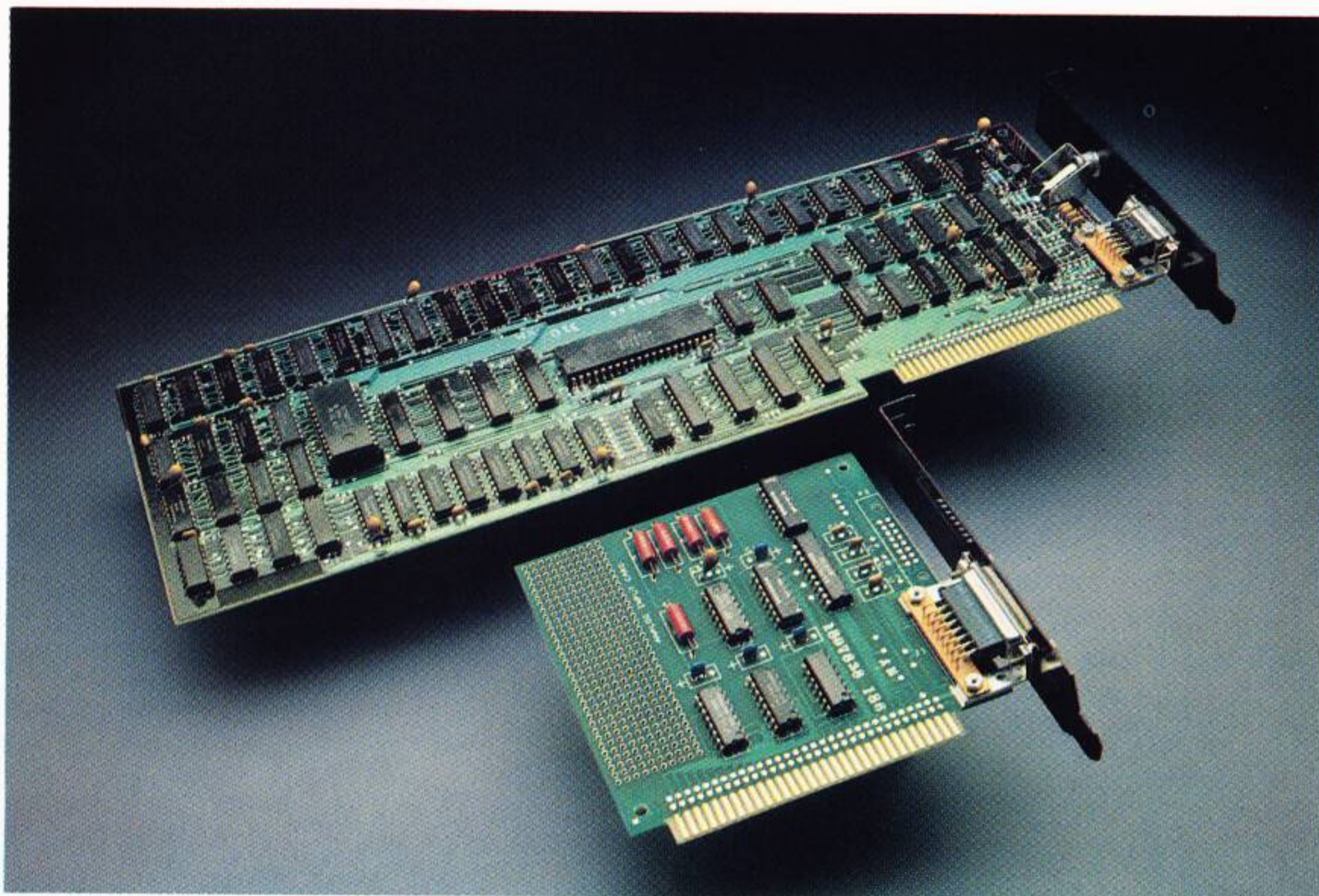
If your computer will be used primarily for viewing *textual* information for extended periods of time, the IBM Personal Computer Monochrome Display is your best bet. However, a video monitor* or your home TV set* equipped with an RF modulator* may also be used. In general, the IBM Monochrome Display presents sharper, clearer images than either a video monitor or a TV set.

If the computer will be used mainly for color and graphics displays, the IBM Personal Computer Color Display or another RGB monitor is recommended although, again, a TV set with an RF modulator may be used. RGB monitors are more expensive than standard color monitors; however, they feature separate red, green and blue inputs to provide a clearer, more detailed image.

Display adapters. Whichever display you select must be supported by an appropriate adapter, which plugs into one of the system expansion slots in your System Unit. The diverse levels of video output are available only by connecting the proper video display to your personal computer from IBM with the proper adapter.

You may use the IBM Personal Computer Color/Graphics Monitor Adapter with the IBM Color Display, another RGB monitor, or a black-and-white or color video monitor. The Color/Graphics Monitor Adapter is also required for supporting a black-and-white or color TV set.

The IBM Monochrome Display and Printer Adapter is required for supporting the IBM Monochrome Display.



▲ *The Color/Graphics Monitor Adapter (background) offers you a wide range of color and/or graphics capabilities. The Game Control Adapter (foreground) supports the use of joysticks and game paddles.*

If you wish, you may have both display adapters in your system and use more than one kind of display output. Also, as its name suggests, the IBM Monochrome Display and Printer Adapter offers you the advantage of supporting both the IBM Monochrome Display and the IBM Graphics Printer or another compatible printer with just one system expansion slot.

The Color/Graphics Monitor Adapter. The IBM Color/Graphics Monitor Adapter plays a key role in enabling a personal computer from IBM to support the IBM Color Display and other high-resolution color monitors.

Two APA graphics modes. Both high- and medium-resolution graphics modes are available with the Color/Graphics Monitor Adapter. You can control every dot on the

screen to create graphs, charts, diagrams and other graphics.

With the Color/Graphics Monitor Adapter, the IBM Color Display offers both a high-resolution black-and-white mode and a medium-resolution color mode. In the medium-resolution mode, you can use two sets of colors at a time. Each set includes three colors that may be used against a fourth, background color.

A text mode capable of displaying 256 characters in 16 foreground and 8 background colors. The text mode supported by the Color/Graphics Monitor Adapter displays up to 25 lines of text, with either 40 or 80 characters per line. The text mode also supports up to 16 foreground or character colors on any of 8 background colors.

*Video monitors, TV sets, audio cassette recorder/players, modems, joy sticks, game paddles and RF modulators are not part of the IBM Personal Computer offering and must be purchased separately.

The IBM Color Display

*Displays appealing graphics
in a rainbow of colors*

High-quality color and graphic displays. The IBM Personal Computer Color Display is a high-resolution RGB monitor that displays graphic images and text in a wide range of colors. With the IBM Color Display, you may view colorful and visually compelling graphs, charts, diagrams, drawings and more with your personal computer from IBM. The display provides the support needed to produce striking graphics and color-enhanced data displays.

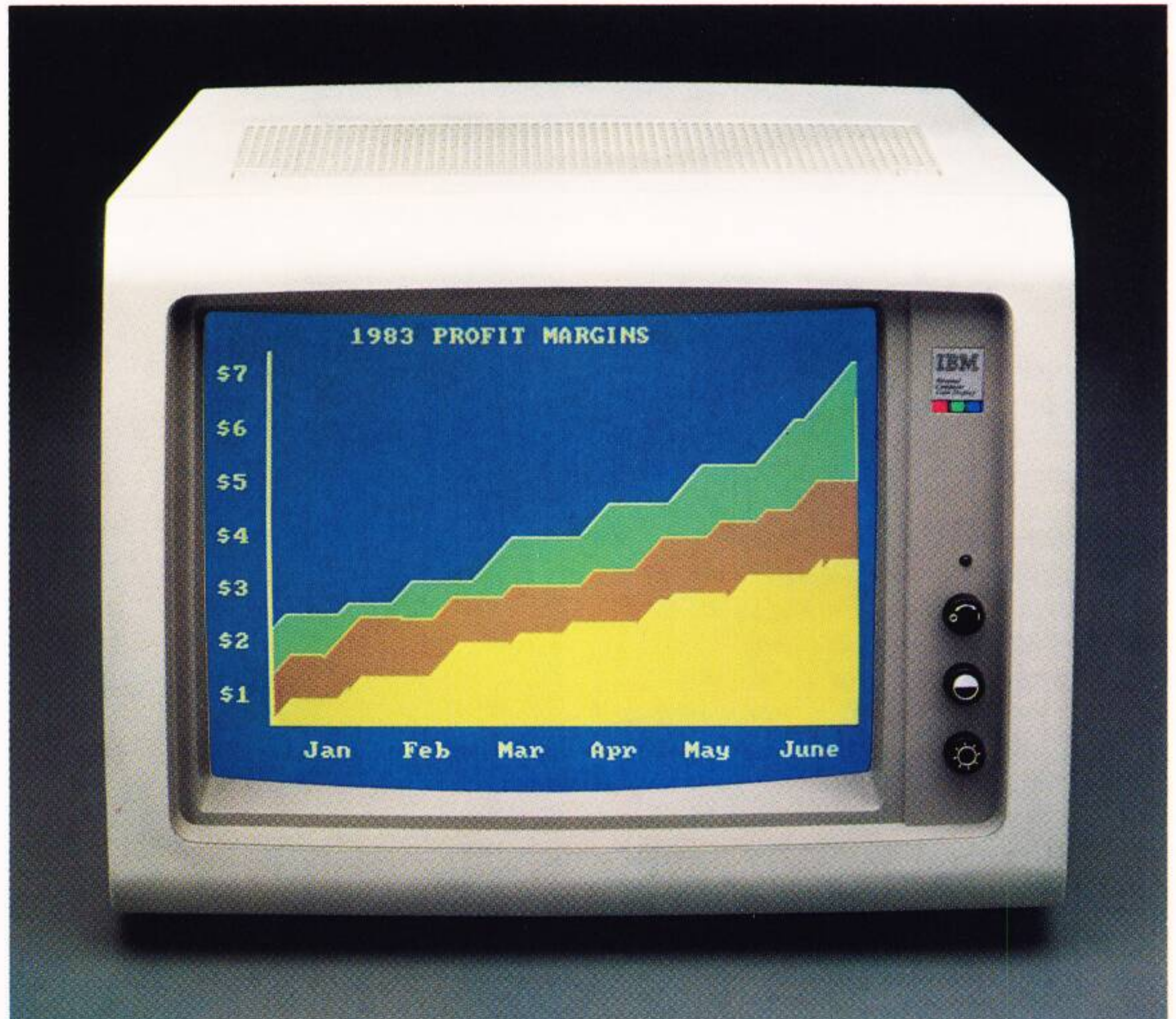
What's more, by adding the IBM Color Display to your system, you can enjoy a growing number of color video games and use programs that require or support a color display.

Colors are crisp...clear...vivid. The IBM Color Display features a high-resolution 8 x 8-dot character matrix for sharp graphic images.

The display's three primary colors—red, green and blue—and the intensity signal all operate independently, offering you command of up to 16 colors for text or 8 colors for graphics (two sets of 4 colors each) when used with the IBM Color/Graphics Monitor Adapter. The sharp, clear color graphics are further enhanced by the black mask contrast feature.

The 16 colors attainable are:

- Red
- Dark Gray
- Light Red
- Blue
- Magenta
- Light Blue
- Light Magenta
- Green
- Brown
- Light Green
- Yellow
- Cyan
- Light Gray
- Light Cyan
- Black
- White



BASIC simplifies the creation of graphics. By using the BASIC programming language built into every personal computer from IBM, you can produce color graphics relatively simply.

BASIC enables you to issue simple, one-word commands to generate a wide variety of graphic shapes and designs. For example, you may type "CIRCLE" on the keyboard to command the computer to draw a full or partial circle. You may enter the command "PAINT"

to fill a given area with any of the colors available. Additional BASIC commands include "DRAW," "COLOR" and "LINE."

Images can be guided to their proper place on the display by directing the built-in, flashing white cursor under your control. You may also use a light pen (not supplied by IBM) to augment graphics in specific areas of your display.

The IBM Color Display

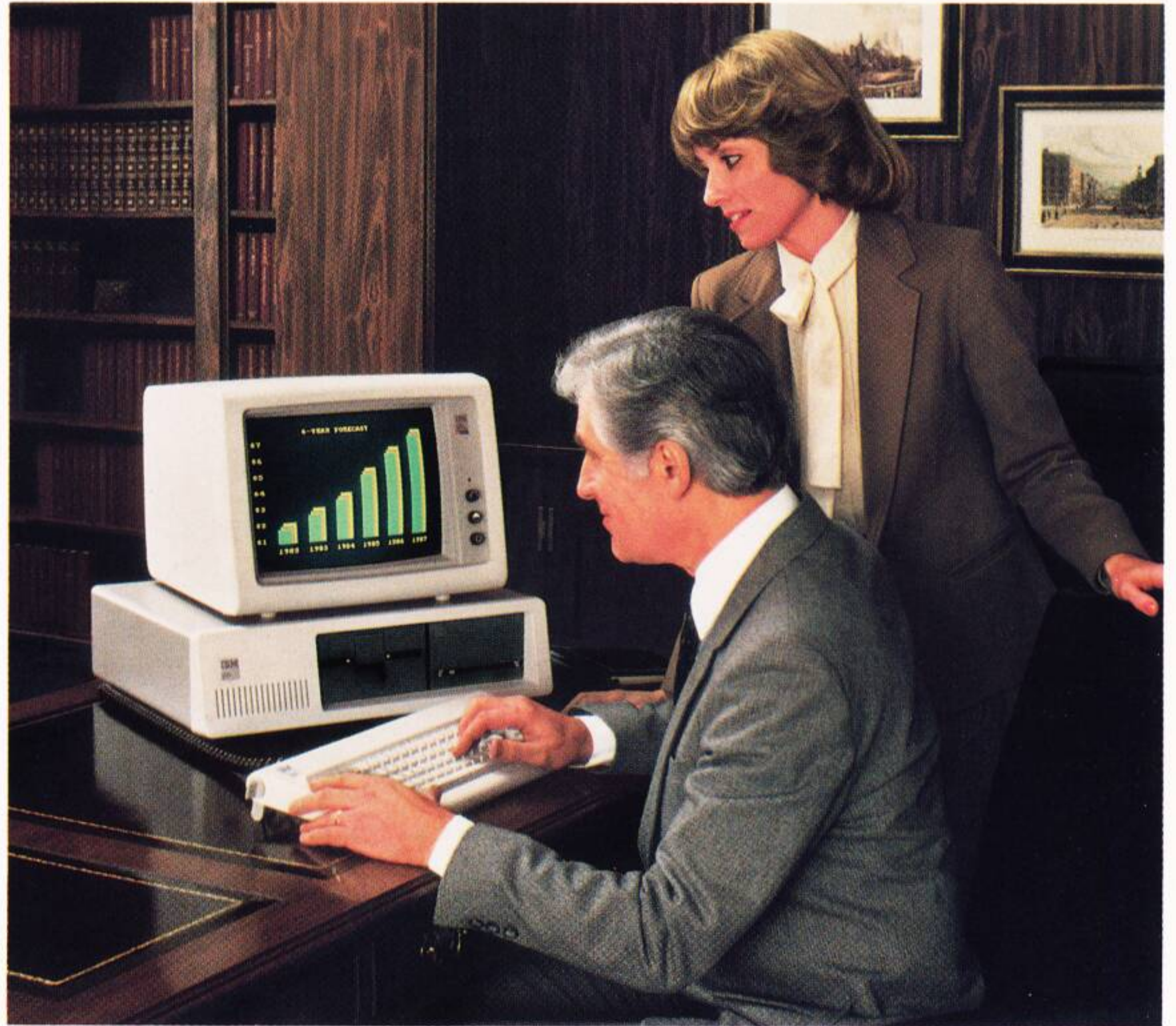
Large viewing area. The IBM Color Display screen measures a full 12½ inches (diagonal measurement), providing you with a sizable viewing area. The IBM Color Display enables you to view up to 25 lines of text at once, with up to 80 characters per line. Being able to see so much text all at once means that large forms and documents can be handled more easily.

And, although personal computers from IBM have separate text and graphics modes, text can also be displayed while the graphics mode is in use.

Highlighting options. In addition to the broad highlighting capabilities available to you through the use of color, the IBM Color Display offers you a number of ways to make specific words, characters or images stand out even more.

For example, a character, dot or array of dots can be made to appear brighter than the surroundings. Images can also be displayed in reverse (interchanging foreground and background colors). You can also underline images and make them blink.

These highlighting features can be used to alert viewers to key information in various areas of the display. They are especially valuable for business, educational and scientific applications.



Controls at your fingertips. The brightness, contrast and power-on/off controls are conveniently located on the front panel of the IBM Color Display. A power-on indicator is also located on the front panel. Controls that are required less frequently—the vertical hold and vertical size controls—are located on the rear panel of the display.

A stylish addition to your system. The IBM Color Display boasts the same attractive styling features as the rest of the IBM Personal Computer product line. Its smart two-tone gray housing makes the IBM Color Display a handsome addition to your system wherever you may use it—in the office or at home, classroom or lab.

The IBM Monochrome Display

A high-resolution video display designed for your viewing comfort

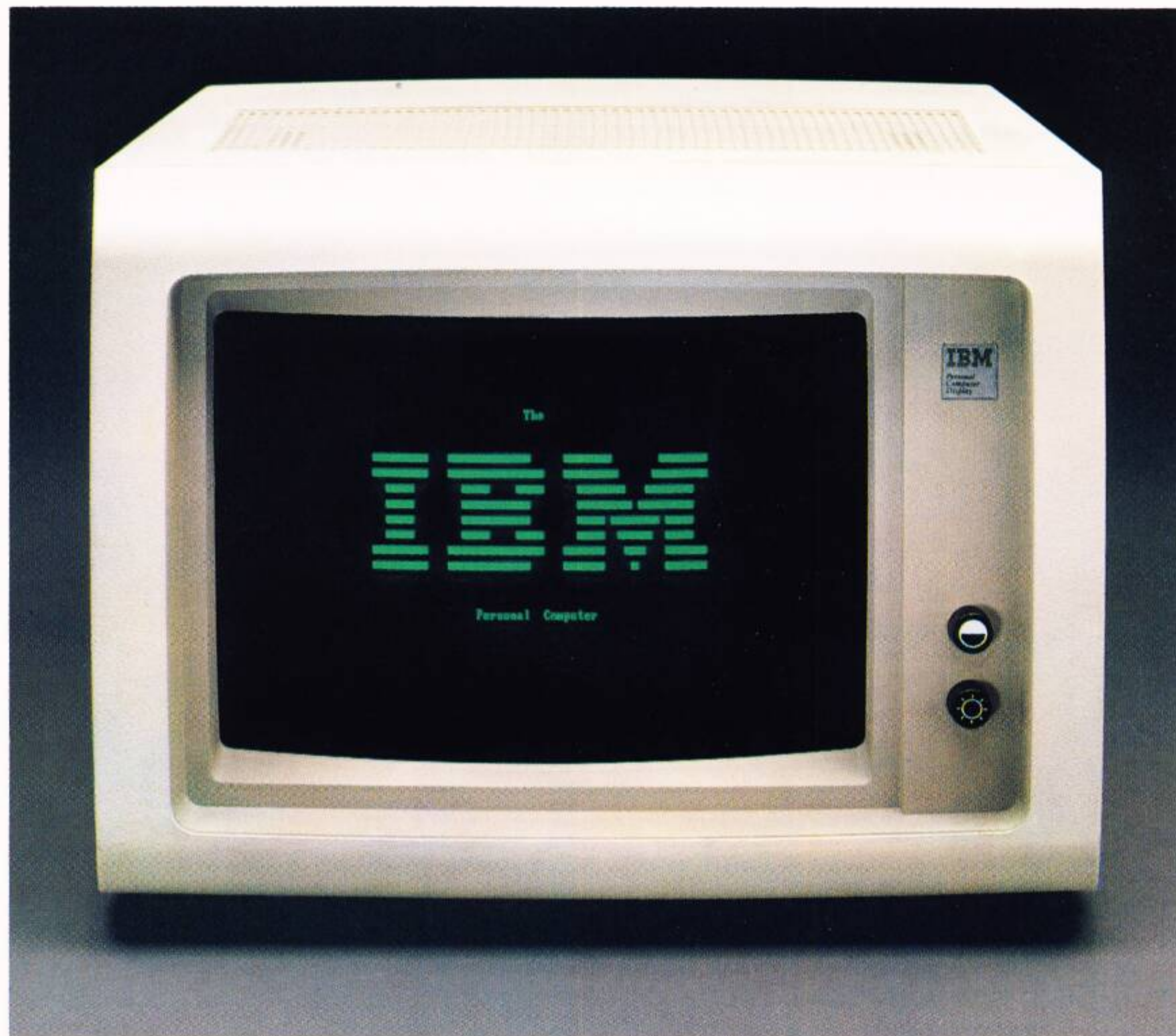
Displays 25 lines of 80 characters each. The IBM Personal Computer Monochrome Display is a high-quality, high-resolution display designed to provide a crisp, clear and easy-to-read presentation of text and numeric data. It permits you to view up to 25 lines of information with 80 well-formed characters per line.

The 256-character set supported by the IBM Monochrome Display includes both uppercase and lowercase characters, numbers, miscellaneous graphic characters, and more. For maximum reading comfort and visibility, each character is displayed in high-persistence green phosphor.

The IBM Monochrome Display makes a stylish fit atop or beside the System Unit. Since it's also powered by the System Unit, one on/off switch is sufficient to control both units. The display is compact and light, with an 11½-inch screen (diagonal measurement).

Brightness and contrast controls. Brightness and contrast controls, conveniently located on the front panel of the display, allow easy adjustment to accommodate your particular viewing preference and variations in room lighting. To reduce glare and soften reflections, the screen itself is coated.

High resolution for greater reading comfort. The IBM Monochrome Display achieves a high-resolution image by using more dots of illumination per each square inch than regular monitors or TV sets. A 9-dot-wide by 14-dot-high character box provides easily discernible characters. Even character "descenders" are shown, giving letters such as "g" and "p" their proper appearance.



These important features help to provide increased eye comfort when using your personal computer from IBM—especially during periods of extended use.

Highlighting choices. With the IBM Monochrome Display, individual characters can be highlighted through a number of special features or characteristics. A character can be made brighter or displayed in reverse (displaying the background in green and the character in black). To attract extra attention, a character can be underlined or made to blink.

See for yourself. The only way to fully appreciate the high resolution and easy reading benefits of the IBM Monochrome Display is to see it for yourself. Compare it to others; we're confident that you'll notice a difference right away.

The IBM Graphics Printer

*A fast, versatile printer
for both graphic images and text*



Dependable and economical. The IBM Graphics Printer is a versatile, low-cost, quality dot matrix printer for your personal computer from IBM. Its combination of graphics and text printing capabilities provides you with the flexibility to produce a wide range of attractive, customized documents.

This compact, all-purpose printer features four modes of all-points-addressable (APA) graphics, with up to 120 dots per inch horizontally and 216 dots per inch vertically—enabling you to print sharp, clear images.

Three character sets. Besides its graphics capabilities, the IBM Graphics Printer offers three separate sets of text characters. One set resembles the characters you see on your display screen, enabling you to print in English. The second set features international characters, allowing you to print in

four different languages: French, Spanish, Italian and German. The third set consists of miscellaneous characters and symbols.

Prints up to 80 characters per second. The IBM Graphics Printer operates in both directions—printing one line from left to right, the next line from right to left, and so on—at speeds of up to 80 characters per second (80 CPS). Most short documents can be produced and in your hands within a few minutes of your command.

For versatility, select from varied print styles and sizes. The printer forms characters with a 9 by 9-dot pattern in several styles and sizes of dot matrix print. You may select from 18 different printing styles. In addition, four sizes of print are available. These range from 5-pitch (5 characters to the inch), which permits up to 40 characters per horizontal line, to 16½-pitch, for up to 132 characters per line.

You can further customize your documents by choosing from normal, compressed and emphasized printing modes. Each of these modes may be enhanced by double-striking, subscript, underlining and superscript capabilities.

With the IBM Graphics Printer, you have the flexibility of mixing sizes and styles of dot matrix print—plus selecting the line spacing and line feeding you prefer—to create different formats for various documents. Also, these features are programmable. Many of the IBM Personal Computer software products take advantage of these special printer features in the diverse printed documents they produce.

Printer intelligence. Whenever the IBM Graphics Printer runs out of paper, a sensing device sets off a buzzer to alert you. Another automatic sensing device can be set up to position each sheet of perforated, continuous-form paper properly, so that the printing starts and stops where you wish on each page, leaving suitable top and bottom margins.

The printer attaches to the System Unit via an optional IBM Personal Computer Printer Cable. This durable, six-foot-long cable can also support various other printers, including some letter-quality printers.

The printer is supported by the same adapter in the System Unit that supports the IBM Monochrome Display, or by a separate printer adapter. It accepts forms up to three-ply thick and from 4 to 10 inches wide, with sprocket holes along the sides. Printing paper is easily loaded into the printer and feeds from behind.

Convenient printer stand. An optional IBM Personal Computer Printer Stand is available. This attractive, sturdy, smoked-plexiglass stand supports the printer and provides a convenient, space-saving lower level for storing a supply of printing paper or preprinted forms.

The Hardware Reference Manuals

*Comprehensive, well organized
and easy to understand*

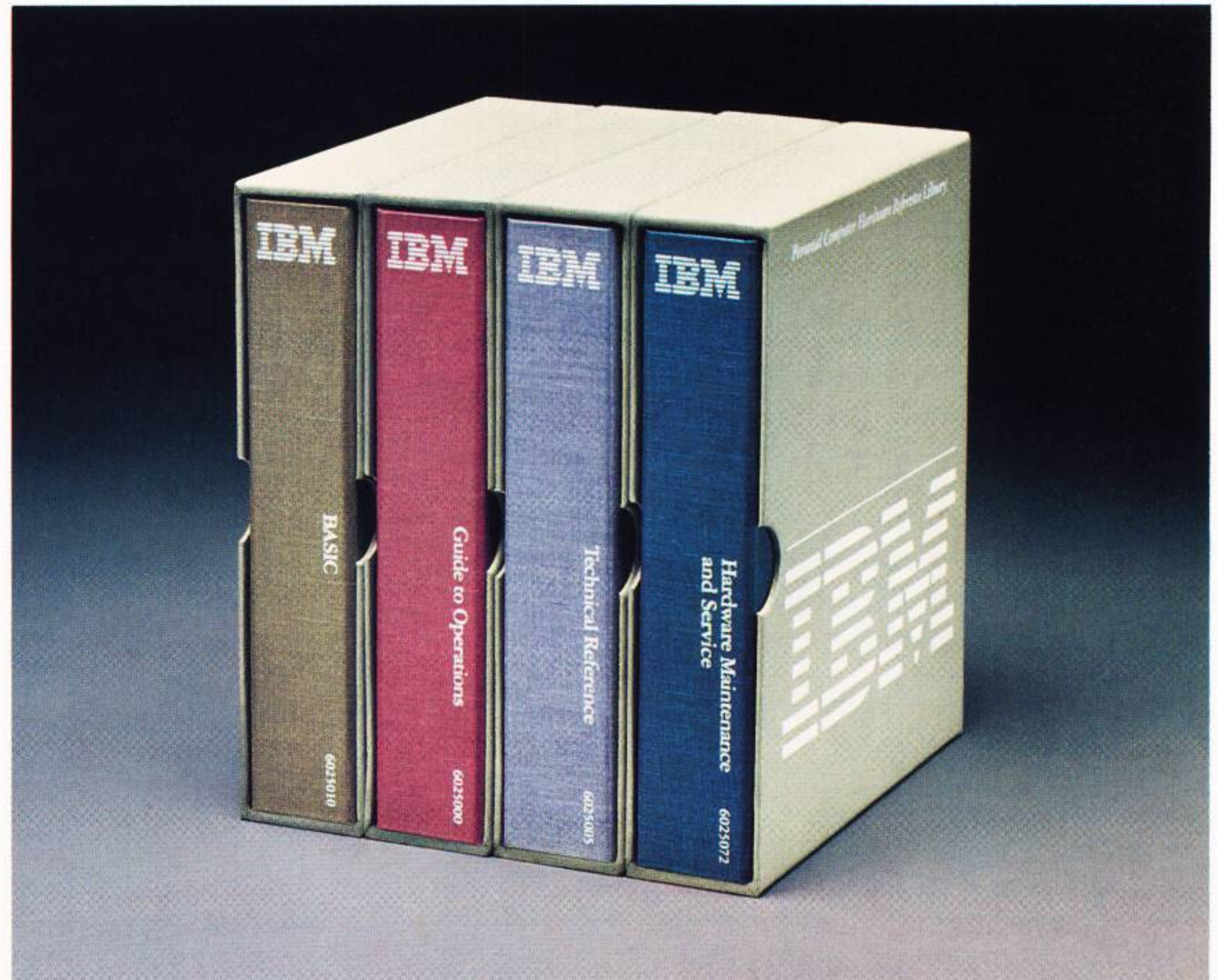
IBM stands by you. Through years of experience introducing people to the powerful performance capabilities of computers, IBM recognizes the need for—and the value of—excellent hardware and software documentation.

That's why each personal computer from IBM, regardless of configuration, comes with two important reference manuals: "Guide to Operations" and "BASIC." Two additional reference manuals are also available: "Technical Reference" and "Hardware Maintenance and Service."

These comprehensive and easy-to-understand reference manuals can help you achieve a working familiarity with your computer in a short time. They also provide a quick, direct reference source for most questions you may have.

Guide to Operations. The first reference manual you should review when you are considering a personal computer from IBM is Guide to Operations. It summarizes the capabilities of the computers and explains the various options available. It also provides the information you need for setup and initial operation.

Guide to Operations includes a brief description of each component as well as an introduction to using the IBM Disk Operating System (DOS) and the BASIC programming language. It is written in a friendly, tutorial manner.



BASIC. The BASIC reference manual includes the information you'll need for learning about BASIC. It includes a comprehensive section that describes each BASIC command, function, statement and variable. Other sections describe the use of the BASIC program editor, function keys, the diskette input/output options, and other topics.

Technical Reference. The Technical Reference manual for personal computers from IBM is for programmers, engineers involved in hardware and software design and others who want to know in greater detail how the computer was designed and works.

This reference manual includes a functional specification for every piece of hardware in the IBM Personal Computer product line. One section describes the BIOS for personal computers from IBM. Another section includes highly detailed hardware specifications, pinouts for peripheral connectors, and more.

Hardware Maintenance and Service. This publication details many aspects of troubleshooting a personal computer from IBM. It includes instructions for identifying the failure of a replaceable unit, a parts catalog and a section on preventive maintenance.

Four "sample" system configurations for personal computers from IBM

This chart indicates which plug-in adapters will be required to support the following system configurations

	64/256KB Memory Expansion Option	Diskette Drive Adapter	Fixed Disk Drive Adapter	Color/Graphics Monitor Adapter	Monochrome Display and Printer Adapter	Printer Adapter	Communications Adapter(s)**	Expansion Unit/System Unit Attachment Cards
IBM Personal Computer System Unit 64KB of User Memory One 180KB Capacity* Diskette Drive IBM Monochrome Display			YES			YES		
IBM Personal Computer System Unit 512KB of User Memory IBM Expansion Unit Two 360KB Capacity Diskette Drives One 10MB Fixed Disk Drive IBM Color Display IBM Graphics Printer Modem† (for communications)	YES	YES	YES	YES	YES		YES	YES
IBM Personal Computer XT System Unit 128KB of User Memory One 360KB Capacity Diskette Drive One 10MB Fixed Disk Drive IBM Monochrome Display IBM Graphics Printer Modem (for communications)			YES	YES		YES		YES
IBM Personal Computer XT System Unit 512KB of User Memory Expansion Unit Two 360KB Capacity Diskette Drives Two 10MB Fixed Disk Drives IBM Color Display IBM Monochrome Display IBM Graphics Printer Modem (for communications)	YES	YES	YES	YES	YES	YES		YES

*The IBM Disk Operating System (DOS) 2.0 offers increased formatted diskette capacities of 180KB for single-sided and 360KB for double-sided diskettes.

**The Communications Adapter(s) may be the Asynchronous Communications Adapter, the Binary Synchronous (BSC) Communications Adapter and/or the SDLC Communications Adapter, depending on your requirements.

†Modems are not part of the IBM Personal Computer offering and must be purchased separately.

Software Products



Software Products

A wide range of carefully selected programs

Software can expand your horizons.

Software products enable you to take advantage of the many capabilities of your personal computer from IBM. By doing so, you may increase your business, professional and personal productivity.

IBM Personal Computer software is a resource for personal growth and enrichment. It offers the potential for individuals to share knowledge and experience on a one-to-one basis.

Software can involve you physically and intellectually. It's yours to command and use over and over again. The software you use with your personal computer from IBM becomes an extension of your own capabilities. It can help you work, plan, analyze, organize, learn, create and even relax. Software can expand your horizons.

A growing library of carefully selected programs. When the IBM Personal Computer was announced, it was accompanied by a range of program packages to satisfy a variety of business, professional, educational, entertainment and personal needs. Since then, more and more software for personal computers from IBM has continued to expand the library of programs that you may select from.

Before a program is made available, IBM subjects it to an extensive series of tests. Only when we're sure that a program has been well conceived, well written and is easy to use will we include it in the IBM software library.

In short, IBM Personal Computer software products can help you get the most productive, most creative use out of your high-performance, 16-bit personal computer from IBM.

Software compatibility. Software compatibility means that most programs that run on an IBM Personal Computer will also run on an IBM Personal Computer XT*.

IBM software compatibility helps protect your software investment. It enables you to exchange program and data files with other users of personal computers from IBM. What's more, if you had an IBM Personal Computer XT in the office and an IBM Personal Computer at home, for example, you could run many of the same programs at both places.

Complete, easy-to-use documentation. Programs for personal computers from IBM come with the necessary 5¼-inch diskettes or cassettes and an easy-to-use reference manual (or instruction booklet). The documentation is well organized, easy to understand and thorough. It takes you step by step through everything from setting up the diskettes to using the programs, so you may become comfortable with the software in a short time.

Each reference manual comes in an attractive, hardcover, D-ring binder with its own slipcover. Most manuals also come with a helpful Quick Reference Card, which can be used for fast access to commands and features.



See for yourself. The following pages are your guide to what's available and exciting in IBM Personal Computer software. This section provides you with an overview of the features and capabilities of each program.

See for yourself why personal computers and software products from IBM can be extremely valuable, personal tools for you in these modern times.

**Programs are compatible provided that you use the appropriate program version and IBM Disk Operating System, and that each computer has the memory/storage capacities required to support the programs.*

Professional/Personal Programs



A variety of versatile, productive programs for use at home or at work

Software to help you work, plan, schedule, organize

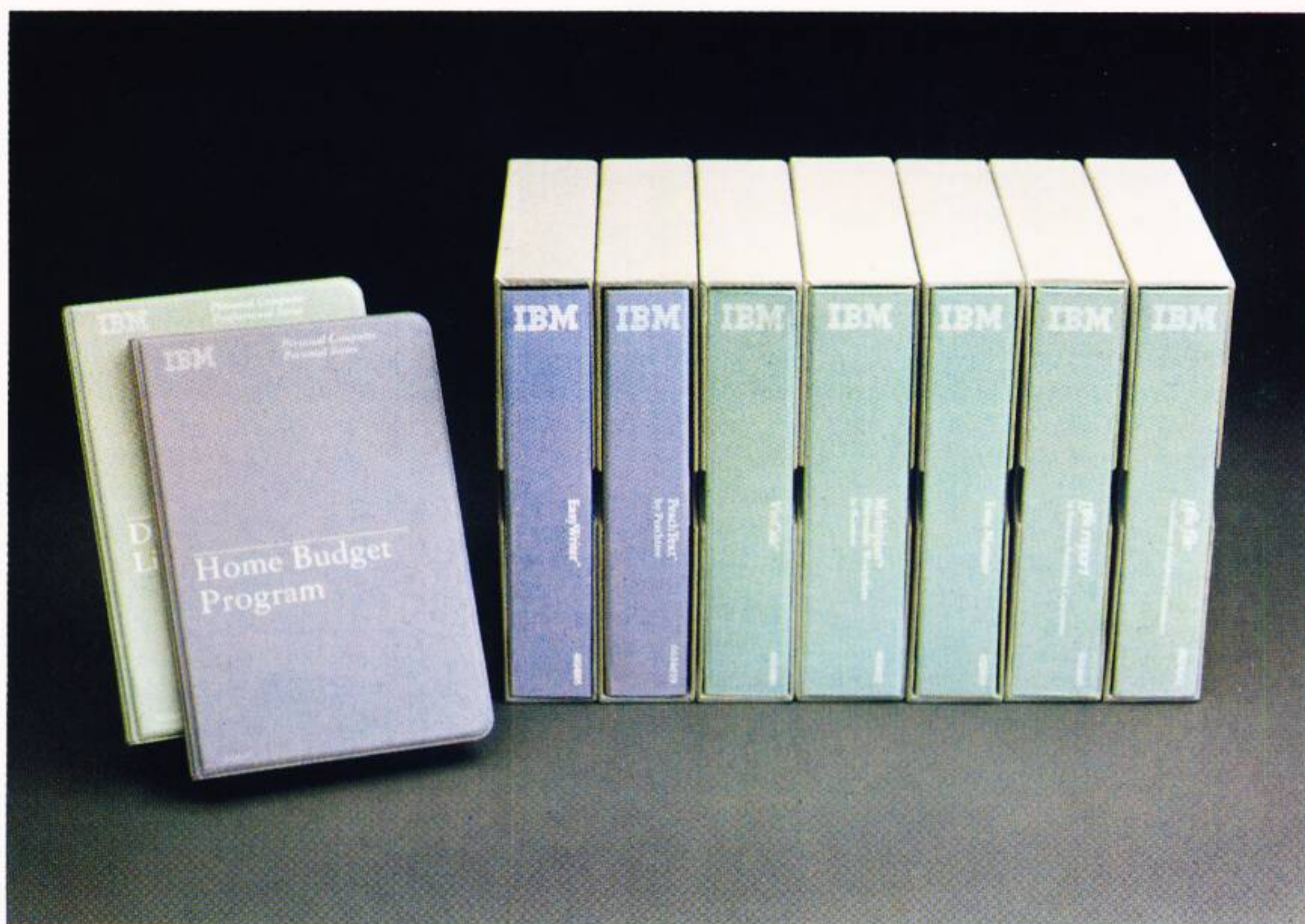
Who can benefit from a personal computer from IBM? As people first become intrigued with the power and capabilities of personal computers from IBM, one of the questions they often ask is: "How can I put one to practical, cost-effective use on a regular basis?"

The answer: There are as many uses for a personal computer from IBM as there are jobs to be done, problems to be solved, plans to be made, schedules to be kept, files to be maintained, and information sources to be accessed. Its uses are as varied as your needs . . . as limitless as your imagination.

A personal computer from IBM as a word processor. Just about anyone can put PeachText* or EasyWriter* to good use as a time-saving word processing system. With capabilities ranging from writing business letters to filing recipes, they are valuable, multipurpose, everyday tools.

As a super-calculator and electronic worksheet. Multiplan* and VisiCalc* are highly innovative and versatile planning and analysis programs. Each can help simplify most kinds of financial planning and analysis—from making complex cost projections for large projects to keeping track of your home budget. Even people who usually don't like working with numbers often find that programs such as these make tedious "number-crunching" tasks easier to handle.

As an electronic filing system. With pfs:*FILE and pfs:REPORT, your personal computer from IBM can provide you with an easy, efficient way to maintain information and create a variety of helpful reports. pfs:FILE is a valuable tool for organizing data you need to keep at your fingertips. And when you add pfs:REPORT, you are able to



produce customized summaries that enable you to present information stored in pfs:FILE in whatever formats best meet your needs.

As a computerized budget management system. The Home Budget program is a financial record-keeping system designed for people with no computer or accounting background. It can help you keep track of checking accounts, savings accounts, credit-card expenses, loans and dozens of other accounts you specify. You can use Home Budget to manage your income and expenses more effectively.

As an automated personal calendar. If you, like most people, find a personal calendar or a "to do" list helpful, you will value the many ways Time Manager* can improve on the way you plan, organize and record your time and activities. It can be of great assistance in scheduling and recording your time more effectively, more productively.

At work or at home, the benefits multiply. Whatever your initial reasons may be for using a personal computer from IBM at work, you may find that programs like these offer more benefits than you expected. There are many ways these versatile software offerings can help you perform better than ever.

When you use your personal computer from IBM at home, you have the opportunity to introduce your family to the many capabilities these professional and personal programs put at your disposal. Think of the advantages they offer you as well as your spouse and children.

*PeachText is a trademark of Peachtree Software Incorporated. EasyWriter is a trademark of Information Unlimited Software, Incorporated. Multiplan is a U.S. trademark of Microsoft Corporation. VisiCalc is a trademark of VisiCorp. pfs: is a registered trademark of Software Publishing Corporation. Time Manager is a trademark of The Image Producers, Incorporated.

PeachText

A word-processing program to help you write with speed and ease

For beginner and expert alike. PeachText* is an advanced word-processing program for use on personal computers from IBM. It was designed to help you write and edit text quickly and easily—and to help you become more efficient as your skills develop.

If you are not familiar with the speed and convenience of word processing, you'll find that PeachText will show you the time-saving advantages of word processing over ordinary typing. And as the program tutorial helps guide you through the basic, intermediate and advanced levels of instruction, it can help you realize just how easy writing and editing can become.

As you sharpen your word-processing skills and your demands increase, you may find that you appreciate PeachText's versatile editing capabilities even more.

Editing made easy. By offering you a range of advanced editing capabilities, PeachText can help you write and edit with speed and ease. Simple commands from a multiple-choice menu allow you to write, correct, store, display and print many kinds of documents.

You can edit out single characters or entire pages of text. You can move sentences, paragraphs or pages of text to other locations in the text. You can also insert sections of one document into another.

The real time-saving element is that you can perform all these tasks and make all your revisions *before* the text is printed. You no longer need to make numerous draft copies, proofread repeatedly or wait for retyped corrections. Simply make corrections and revisions on the display screen. You can then view the completed, formatted text on the screen to see exactly how it will appear on paper.

*PeachText is a trademark of Peachtree Software Incorporated.

PeachText includes a "Help" Menu as an added, user-friendly feature. This menu offers you easy access to information about various capabilities of the program. For example, the screen shown here explains the function of each command on the main menu.

Well suited to business and professional word processing. Because it is so powerful and so easy to use, PeachText may be considered a convenient productivity tool . . . especially for business and professional use. It enables you to produce finished documents quickly and conveniently by placing a wide range of editing capabilities at your fingertips.

PeachText also offers you the capability to produce personalized form letters or documents. You can set up the program to get data such as name and address information from a diskette file and place it at specific locations in a document . . . automatically.

Furthermore, if your personal computer from IBM is equipped with 128KB or more of user memory, PeachText will take advantage of the full 128KB of memory. It provides up to 55,000 characters of memory, or the equivalent of approximately 44 pages of typewritten text, as available document workspace.

As a result, you can directly edit a large document faster and easier when the complete document is held in user memory. Documents too large to be stored in available memory may be edited in segments. Given the number of documents that most businesses and professional offices must prepare in an average week, PeachText could be a considerable time-saver.

SCREEN 1 - Description of PeachText Menu Instructions

Below is a list of PeachText commands. To make a selection, return to the Peachtext Menu, type the two letters preceding the command and then press the 'ENTER' key.

Selection:	Function:
ED Edit Document	Creates a new document or revises an old document.
PR Print Document	Prints a formatted document.
CO Copy Document	Makes a duplicate copy of a document.
DE Delete Document	Erases a document from a disk.
RE Rename Document	Changes the name of a document.
DI Display Directory	Displays the document names which are on a disk.
CH Change Default	Allows you to change the default disk drive.
?? Get Help!	Displays and describes PeachText commands.
EN End PeachText	Allows you to leave PeachText and return to DOS.

Press 'ENTER' key for help menu or press 'Esc' key for PeachText menu: _

PeachText

How it works

Writing with PeachText. When you sit down in front of your personal computer from IBM and begin to use PeachText, remind yourself that what you'll be doing essentially is typing. The IBM Personal Computer Keyboard is similar to a typewriter keyboard, with the addition of a calculator-like numeric pad on the right and computer function keys on the left. To enter text, just type; the text will appear simultaneously on the display screen.

Whether your personal computer from IBM includes a high-resolution IBM Monochrome Display or an IBM Color Display, it lets you view up to 25 lines of 80 characters each, in both uppercase and lowercase. You have the capability to easily review your PeachText documents as you are editing.

Instant advantages. The benefits of word processing with PeachText should soon become apparent. First of all, there's no need for a carriage return key; text continues onto the next line automatically. The "word wrap" function keeps the text within the margins, so you can just keep typing. If you make an error, just return to the error with the cursor-control keys and type the correct character(s) over the error.

If you forget a word or sentence while working on a draft, simply move the cursor to the appropriate location, press the "insert" key and type the additional text. PeachText will move the existing text to make room for it. Also, when you delete information, PeachText automatically closes any gaps. If deletions create enough room on a line for the first word of the next line to be moved up, this will be done automatically by the word wrap feature.



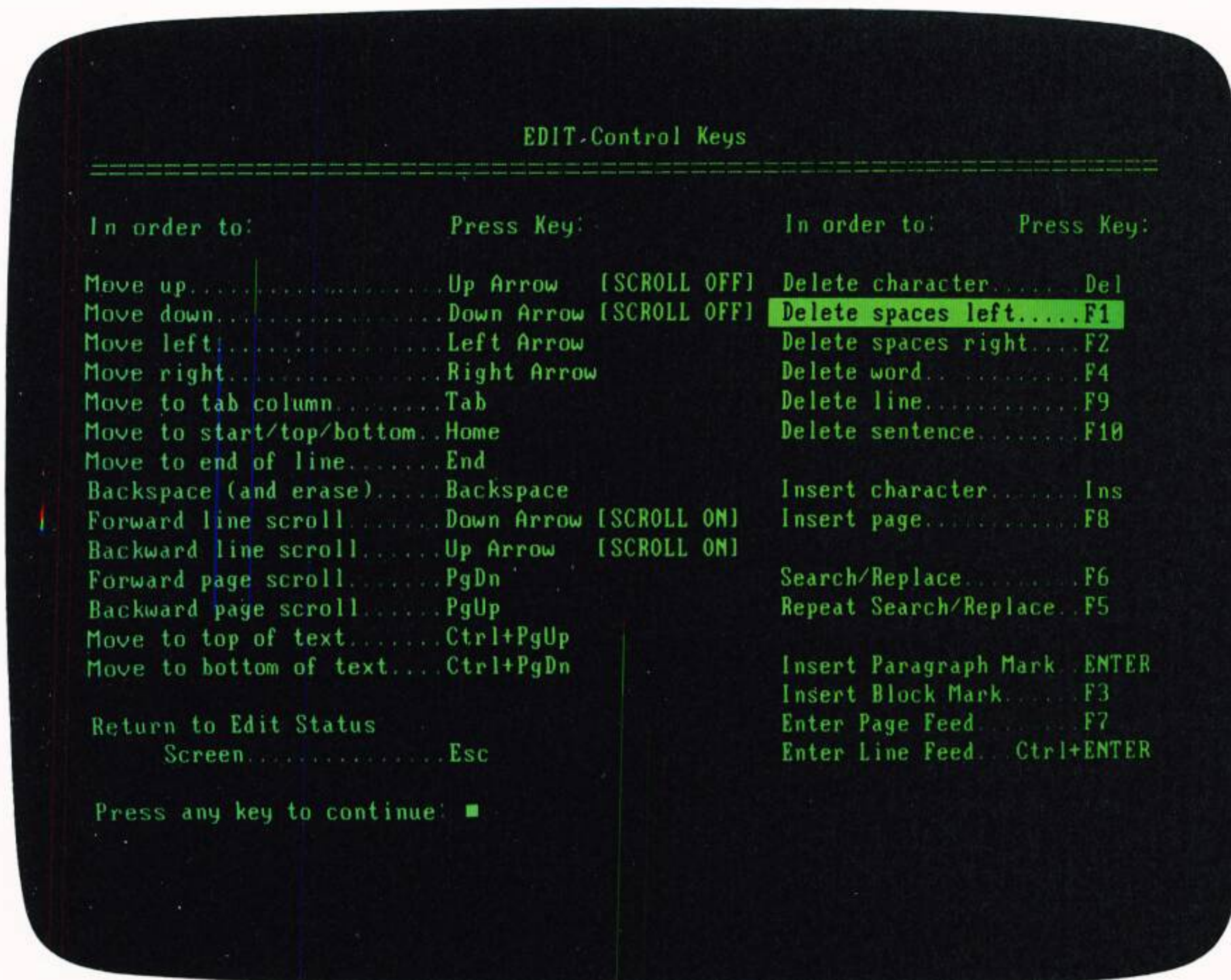
PeachText also features a built-in erasure safeguard system. For example, the first time you press the "delete-word" function key, PeachText highlights the word that is to be deleted. The second time you press the key, PeachText deletes the word. The "delete-sentence" and "delete-line" function keys also operate in this way. This double-strike system helps prevent accidental erasure. It also provides you with the opportunity to change your mind about making a deletion. After pressing one of these function keys the first time, you can cancel the command by pressing any other key.

Speed and convenience. The PeachText function keys and simple commands allow you to perform a number of detailed editing tasks quickly and easily. By simply pressing the appropriate keys, you can:

- *Move sentences, paragraphs or entire pages of text.* While editing a document, if you find

that a particular paragraph should be deleted or moved to another place in the text, just give the proper commands and PeachText will do it for you.

- *Insert a block of text from one document into another.* For example, if you want to incorporate information from your interoffice memo into a form letter for regional sales personnel, you can do it with PeachText.
- *Locate and edit specific references throughout a document.* "Search and Replace" allows you to selectively locate and change all or some of the references to a specific character, word or phrase in a body of text. This function is especially useful for changing dates and/or names that appear throughout a document without having to find and edit each reference yourself.



PeachText's editing commands enable you to position the cursor where you want it; to scroll to previous or following sections of a document; to insert or delete a character, space, word, line or sentence; and more.

Special features. PeachText also includes a number of special features that emphasize convenience in editing.

"The Editor" enables you to load a document that has been stored on a diskette or fixed disk and enter it into the computer's memory. You may then continue working on the document, edit it and return the revised document to storage.

"The Formatter" takes a document in edited form and prints it according to your formatting instructions. For example, while you are editing a body of text, you may wish to indent a direct quote and arrange a list of items in a column-and-row format. Enter the appropriate instructions at specific locations in the text and The Formatter follows these instructions during printing.

Another feature enables you to edit one document while others are being printed. You don't have to wait for one project to be printed before beginning to edit another. PeachText allows you to do both simultaneously.

Other features of PeachText include underlining, automatically printed headings and footlines, boldface type and a variety of printer functions and commands.

Easy to learn. The organized, easy-to-read PeachText reference manual uses a self-teaching system that ranges from basic to advanced. Lessons are presented in a tutorial format that takes the beginner from the elementary through the more sophisticated program functions. Error messages are clear and informative, providing the user with suggestions concerning available options.

In addition, the PeachText program itself acts as a visual learning aid whenever you need it. With the PeachText Help screen, you have an added, user-friendly feature to guide you through any rough spots. If you forget which command to use, or need a reminder on how to continue, just ask PeachText for help by pressing the "?" key.

A program that grows with you.

PeachText accommodates beginners and experts alike. It can start as simply as you want it to and keep pace with you as your skills develop, or it can be ready for demanding word-processing projects immediately.

What you get. The PeachText software package includes:

- Program Diskette
- Demonstration Data Diskette
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 64KB of user memory and one diskette drive, an 80-column display, a printer, and the IBM Disk Operating System (DOS). Two diskette drives are recommended. When this program and/or its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required.

EasyWriter 1.1

*Turn your computer into
an easy-to-use word processor*

An easy way to put words to work.

EasyWriter* is a versatile, easy-to-use program that provides you with the capability to write, revise, edit and print many types of documents quickly. You may perform many editing procedures—from correcting errors to inserting phrases to moving entire paragraphs from one part of a document to another—before your work is even printed. You may easily store what you have written and switch from one document to another.

Perhaps the most significant benefits of EasyWriter may be realized when you are editing and revising. With EasyWriter, you can make any changes as you are writing, or at a later time, right on the display screen of your personal computer.

EasyWriter may help improve your writing and working: no more waiting as a finished document is being typed; no more editing comments and arrows all over a page; no more retyping a complete page or document to accommodate a few changes. Typing workloads may be significantly reduced. Paper and copying costs may also be reduced. Most importantly, the time saved may be spent on more productive work.

Convenient word-processing features.

The following is a summary of just a few of the many features and capabilities that are available with EasyWriter. Many of these usually are available only with a more advanced, much more expensive word processing system.

- *Cursor movement:* You can move the cursor up, down, left, right, to the end of a file, or to the top of the screen with single keystrokes; you can move the cursor to the beginning of a file by pushing two keys simultaneously.



- *Insertion/deletion:* You can insert or delete a character, word, line, space, paragraph or an entire section of text anywhere within a document.
- *Search and replace:* You can have the program automatically search and replace specified single characters or strings, including words, phrases, sentences, etc., up to a maximum of 49 characters. Or you can have it stop at each occurrence of a specified string so you can replace or edit at each location.
- *Diskette access:* You can save, delete, revise, copy, append, link, protect, unprotect or print diskette files.
- *Formatting printed text:* You can: set right, left, top and bottom margins; set single, double, triple or incremental spacing between lines; justify text; center lines; and repeat standard headings and/or footlines on each page of a document.

Electronic files at your fingertips.

EasyWriter is not only a new way to write but also a fast, convenient way to maintain and access files. Files can be used to note the progress of various projects, to maintain a dynamic "to do" list, to store documents and related information you may need for future

reference, to list addresses and phone numbers, and to facilitate many other filing tasks. You can then switch from file to file, add to, edit or print out a complete file.

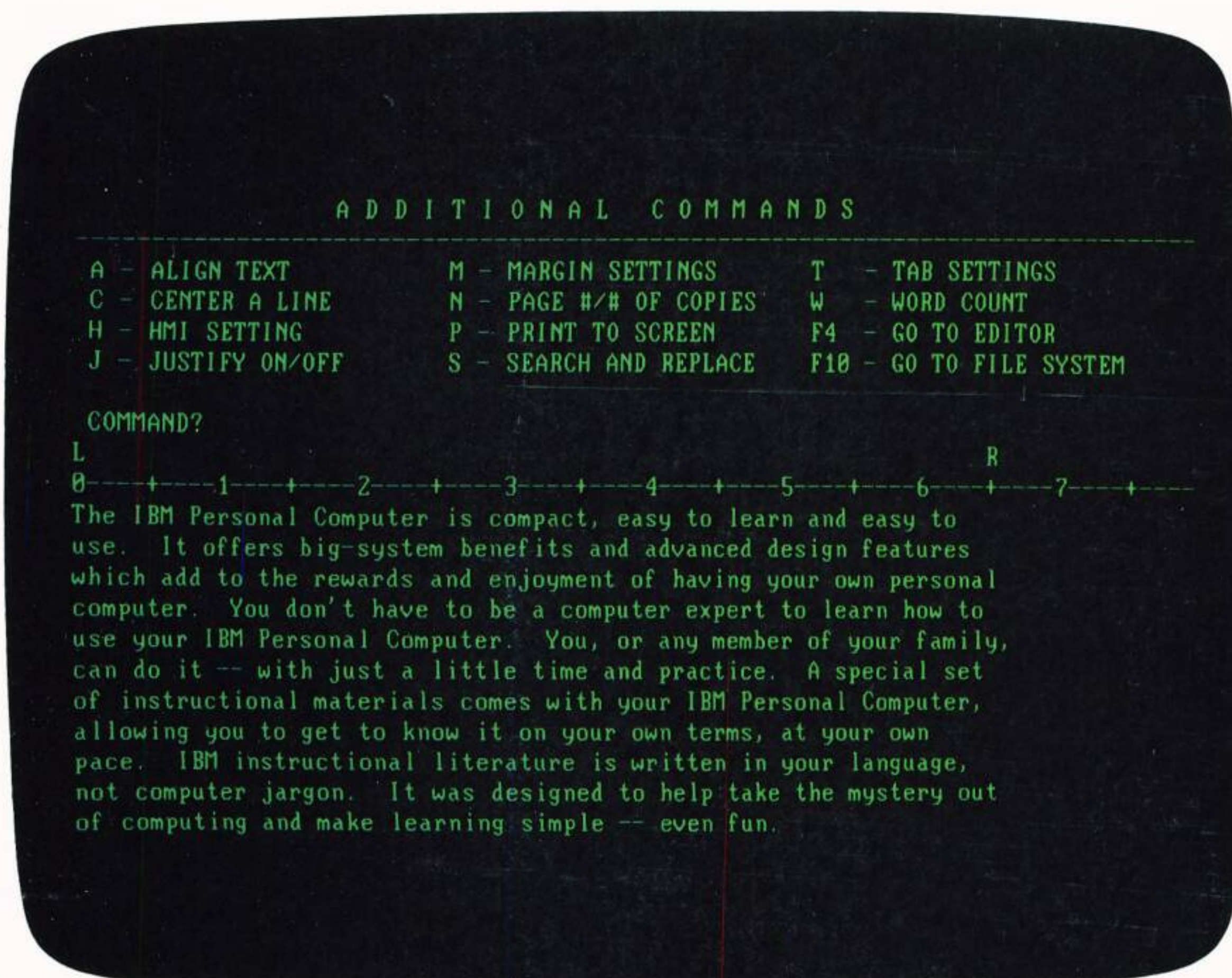
A revised, improved and updated EasyWriter. EasyWriter 1.1 is a revised and improved version of the original product, Version 1.0. This newer EasyWriter significantly enhances the usefulness and performance of the program. For example: Improvements have been made to usability in menu and control keys for inserting text and block moves. 360KB capacity[†] diskette drives are now supported. What's more, with a transfer program, VisiCalc* print files may be merged into EasyWriter documents.

How it works

EasyWriter lives up to its name. Most people will find that EasyWriter is a very user-friendly program that can be learned quickly even without prior word processing experience. All EasyWriter functions—text entry, filing, editing and printing—are performed by selecting the appropriate single-keystroke commands from multiple-choice menus displayed on the computer's screen.

The EasyWriter reference manual is clearly written and well organized. The manual takes you through practice sessions to help you become comfortable with the program as quickly as possible. A Quick Reference Card is also included to provide you with convenient instructions about commands used most often.

EasyWriter features an organized three-level structure that is easy to master: the File System Menu level, the Edit level, and the Additional Commands Menu level. A Help Menu is also available to assist you if you're ever confused about how to continue, or if you forget which command to use.



EasyWriter's three command menus make it simple for you to choose the single-letter command you need to perform any one of various tasks. The Additional Commands Menu, shown here, appears above the text of the document you are working on. It displays commands that enable you to set different margins or tabs, align or justify the text you have written, and more.

The File System Menu. This menu lists 20 available commands that enable you to save, retrieve, delete, print, revise and link entire texts or sections of text. It also provides reference information such as a full list of the documents on the storage diskette currently being used and the number of characters in—or size of—each document. A 180KB capacity storage diskette can hold more than 64 files, with a maximum of 24,000 characters per file. A 360KB capacity diskette can store more than 112 files.

The Edit mode. The EasyWriter Edit mode is where all entry and revision of text are done. If you want to start a new document or create a file, just start typing. The text you type will appear on the display screen as it is typed—similar to text filling a page as you type on a standard typewriter. But, unlike typewriting, you can type as fast as you wish; the EasyWriter “word wrap” feature automatically starts writing on the next line when the preceding one is full.

Whether your computer includes a high-resolution IBM Personal Computer Monochrome Display or another 80-character display, it will enable you to view up to 25 lines of 80 characters each, in both uppercase and lowercase. This provides you with the capability to easily review previous sections of your work as you are writing. You may also view the preceding or following page with the touch of a key.

The Additional Commands Menu. This menu can be displayed above the text on your screen. It lists 12 different single-key commands, which perform a variety of formatting procedures, such as setting margins or tabs and aligning or justifying text.

Extensive print formatting flexibility. EasyWriter also places at your service a useful array of what are termed Imbedded Commands. These permit you to custom-format each document by: adjusting three margins; numbering pages; adding up to three separate headings to each page of a document; and providing for single or double spacing, variable sheet length, and single-sheet feed.

The net result: it's a great investment in yourself. If you write letters, notes to yourself, lists, reports, papers, articles, etc.—even on an occasional basis—EasyWriter could be a great investment in your personal time and productivity. It can help you write faster, easier and better . . . today and for years to come.

What you get. The EasyWriter software package includes:

- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 64KB of user memory and one diskette drive, an 80-character display, a printer, and the IBM Disk Operating System (DOS). When this product's data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required. However, the program itself cannot be stored on a fixed disk.

*EasyWriter is a trademark of Information Unlimited Software, Incorporated. VisiCalc is a trademark of VisiCorp.

†The IBM Disk Operating System (DOS) 2.0 offers increased formatted diskette capacities of 180KB for single-sided and 360KB for double-sided diskettes.

Multiplan

A versatile problem-solving tool

Multiplan at a glance...

Learn to use Multiplan quickly and easily	Easy-to-follow training guide and tutorial diskette can help speed learning.
Find help without losing your place	Press one key to display a Help text... return to your problem-solving right where you left off.
Use full English-word commands	If you understand English, you'll understand Multiplan's commands... displayed at the bottom of your screen.
Perform multiple recalculations automatically	Change one figure and related figures will be revised automatically... it's easy to link any secondary worksheets affected.
Combine data from other worksheets	Consolidate your worksheets with information from other worksheets to create summary reports.
Use color to distinguish each window	Highlight key sections... assign each window a different color... avoid space-consuming borders... display eye-catching character graphics.
Activate functions with one keystroke	Single-keystroke commands and functions help speed learning and problem-solving.
Enjoy the ease of cell-pointing	Cursor-control keys direct your return to any cell in seconds... you don't have to enter row/column coordinates.
Assign English names to cells	No need to use numerals to identify cells or cell groups.
Reformat cell and column sizes automatically	Display and printout boundaries adjust to accommodate each entry... individual column widths adjust as well.
Solve mathematical problems with computer speed	Multiplan helps solve everything from the simple to the complex... from "1 + 1" to trigonometric equations—it even resolves circular references automatically.
Protect your data	"Lock in" critical data to help prevent accidental loss.

Ideal for planning and forecasting. Multiplan* is a versatile software package that enables you to create "electronic worksheets" on your personal computer from IBM. It can help you arrive at solutions to a wide variety of problems... quickly, easily.

Multiplan offers you many advantages over traditional ways of arriving at your answers. Designed for people with little or no computer experience, Multiplan permits you to create customized electronic worksheets—up to 255 rows long by 63 columns wide.

Multiplan is especially useful for financial modeling, planning and forecasting. It can also be used to calculate engineering and scientific formulas.

Multiplan enables you to perform a wide range of calculations automatically. And whenever you change a figure or formula that is part of the calculation, the program will automatically recalculate the entire worksheet—and linked secondary worksheets—based on the revised information. This capability simplifies the process of solving "What if...?" problems.

Easy to learn. Although Multiplan offers you many powerful, advanced features for organizing and manipulating information, it was designed to be easy to learn and use.

IBM provides you with a tutorial diskette that features sample worksheets, explains commands and shows you how to move around the worksheet. Furthermore, the tutorial program directs you to appropriate sections in the reference manual for more detailed information.

The manual's first eight chapters form a detailed training guide—a tutorial section that provides you with step-by-step instructions for using the program. The balance of the manual tells you how to construct more sophisticated models. As an added benefit, a color-coded keyboard aid is included with the product.

*Multiplan is a U.S. trademark of Microsoft Corporation.

Help is always at hand. Multiplan constantly displays the most frequently used commands, so you don't have to remember them.

What's more, an on-line "Help" text is just a keystroke away. The Help text can provide you with information about the command or function you are using at the moment. It can be accessed at any time, offering you immediate and specific aid. You may then return to your worksheet right where you left off.

You can also review the Help text in its entirety to find answers to a wide variety of questions that may arise as you operate Multiplan. In addition, Multiplan comes with a Quick Reference Card—another helpful tool that offers you fast answers for fast problem-solving.

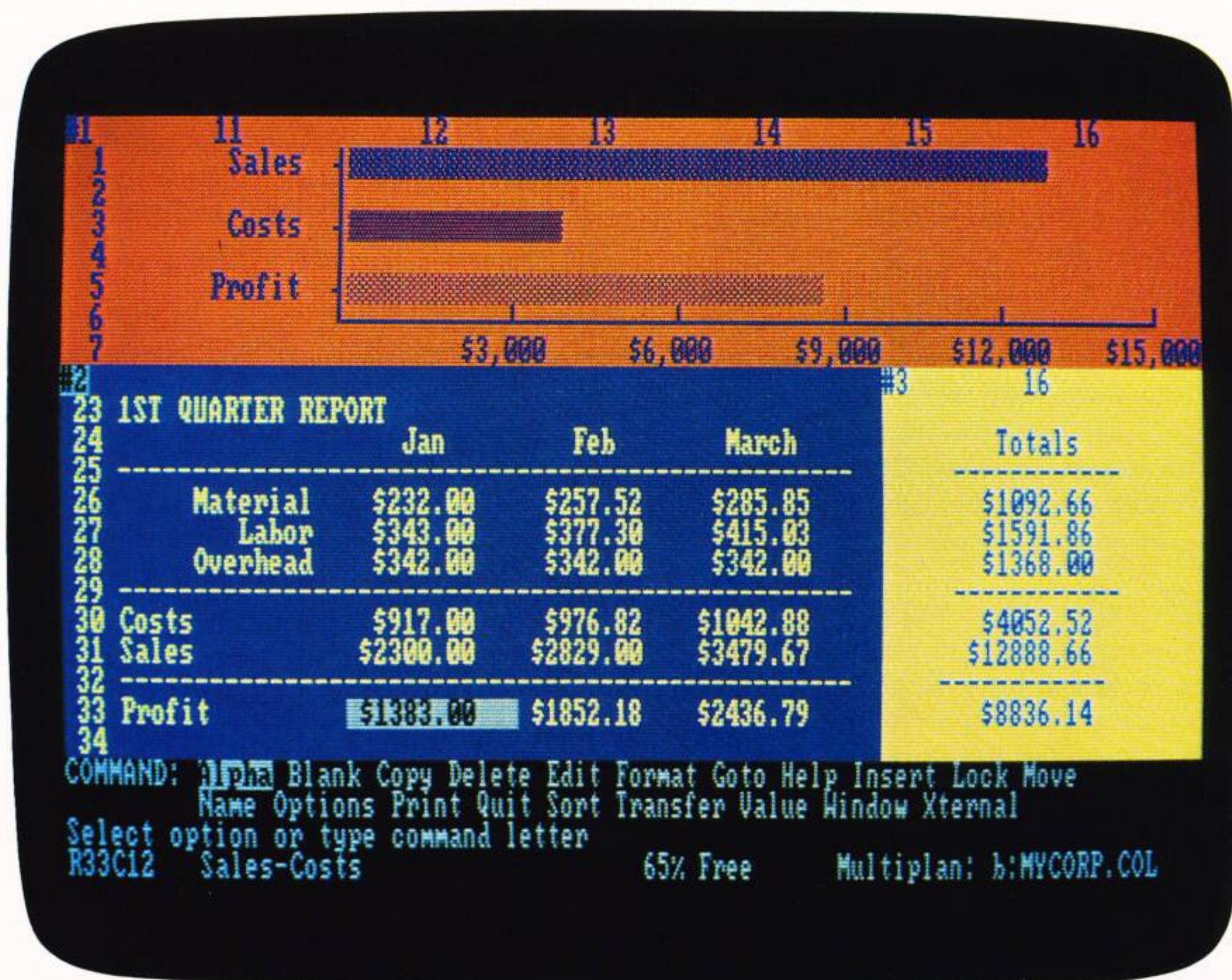
How it works

Your keyboard is your key to fast operation. IBM's Multiplan has been customized specifically for use on the familiar, typewriter-like keyboard provided with both the IBM Personal Computer and the IBM Personal Computer XT.

For instance, your knowledge of the function keys and numeric keypad on your keyboard should speed and simplify your ability to learn and use various functions—many can be invoked with a single keystroke.

Multiplan also helps make it easy for you to create formulas and perform a number of text processing operations, such as moving, inserting and deleting data, rows and columns.

Automatic calculation simplifies financial planning. With Multiplan, tedious and repetitive financial paperwork may be greatly simplified. Let's say that you have created the sample worksheet shown here to project a product's sales, costs and gross profits for each month during the first quarter of next year.



Each Multiplan worksheet provides you with useful information, such as the row/column indicator—which tells you where the cursor is currently located—and the worksheet name. Multiplan also displays frequently used commands for easy reference, including:

- Help**—to invoke an online help text
- Lock**—to help protect cell contents
- Sort**—to arrange data to your specifications
- Xternal**—to consolidate worksheets

This display features three windows. The upper window displays a bar chart that provides a graphic overview of the projected profit picture. The chart is formed from some of the special ASCII characters you have available with Multiplan and your personal computer from IBM. The chart reflects profits after costs have been subtracted from sales. The lower window on the left breaks out the major cost categories plus the sales figures month by month and the resulting profit prediction. The lower right window

shows a projection of combined totals for the first quarter of next year and the last quarter of the current year.

Think of all the ways Multiplan can help you quickly perform projections and analyses that might take far longer if you were to attempt them manually.

Multiplan commands are full English words. Multiplan is easy to use because the commands are full English words. You do not have to memorize cryptic phrases.

A list of frequently used commands is displayed below each worksheet. These commands include Sort, Insert, Delete and Format, among others.

Multiplan

Simply enter your information into cells. Each worksheet starts as an arrangement of intersecting rows and columns. The ultimate size and appearance that each worksheet takes is up to you. You are able to vary the widths of individual columns, type long lines of text, etc.

Each space created by the intersections—one column wide by one row high—is called a cell. You fill out the worksheet by entering words, numbers or formulas into the cells. In this respect, the electronic worksheet is much like a ledger that can contain headings, values and/or formulas.

Each cell can possess a value that appears on the screen and a formula for computing that value. A formula may be as simple as "Sales-Cost," or it may be more complex, containing functions and references to other cells (for example, "previous cells times a number"). The potential for the value of one cell to depend on the values of other cells is a key benefit of Multiplan worksheets.

Cell-pointing speeds you to any cell. Multiplan simplifies the process of returning to a cell. Rather than enter a cell's coordinates, all you have to do is "point" to the cell you wish to return to. Pointing is accomplished by pressing the cursor-control keys on the keyboard. You can also use cell-pointing to generate formulas and refer to cells for other purposes.

Use English words to name cells. Multiplan also enables you to assign an English-word name to a cell or group of cells. For instance, you can identify a whole row of cells with one word, say, "Profits." Many other electronic spreadsheet programs require you to use numerals instead of words.

Once you've entered information into a cell, you may protect that information from loss. As a built-in safety factor, Multiplan provides you with the ability to "lock" cell information, helping to prevent unintentional editing.

Automatic reformatting. If your text entries exceed cell boundaries, no problem: Multiplan's built-in reformatting feature automatically lets text spill over into adjacent cells to accommodate text entries that are longer than the width of a cell. This may be accomplished quickly and easily.

Combine data from several worksheets. Multiplan enables you to "link" worksheets that are stored on the same diskette or fixed disk. Linking allows secondary worksheet calculations to be automatically updated as you revise the primary worksheet. This feature is especially useful for consolidating worksheets to create detail and summary reports, for example.

View up to eight windows at once. When you form a worksheet that is too large to be displayed in its entirety on your video monitor, you may view up to eight "windows," or sections, of the worksheet at one time. You may also "scroll" any window.

These features enable you to make a recalculation in one area of the worksheet and study its effects in other sections.

Solve mathematical equations—even circular references. Multiplan enables you to solve a wide range of mathematical equations—from simple arithmetical problems to complex statistical, logical, trigonometric and string equations.

In addition, Multiplan—unlike most other electronic spreadsheet programs—helps you solve circular references with computer speed and accuracy.

For example, you may want to calculate the amount of a bonus based on net profit. Net profit, however, depends on the size of the bonus. The bonus size, in turn, must be subtracted from gross profit to determine net profit . . . a seemingly endless circle.

Multiplan's "iteration" capability helps you evaluate the problem, convert it into a

workable equation, and solve the equation—all with a few keystrokes.

Color your world of information. Each Multiplan window can be separated from the others through the use of up to 16 foreground and background colors[†]. Color-highlighted windows are not only more attractive, they also save you from having to add borders that take up usable working space.

A separate color may be used for each window to highlight information throughout the worksheet. You may create customized graphics and add attractive borders to your printed reports.

Multiplan puts the full ASCII character set at your disposal. What's more, Multiplan enables you to obtain a wide variety of special print effects by capitalizing on capabilities of the IBM Personal Computer Graphics Printer—and the variety of dot matrix print styles and sizes the printer offers.

What you get. The Multiplan software package includes:

- Program Diskette
- Tutorial Diskette
- Users' Reference Manual
- Users' Quick Reference Card
- Function Key Template

System requirements: A minimum of 64KB of user memory and one diskette drive, a 40- or 80-character display, and the IBM Personal Computer Disk Operating System (DOS). When this program and/or its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required.

[†]Requires an IBM Personal Computer Color Display, an IBM Personal Computer Color/Graphics Monitor Adapter, or compatible equivalent products.

VisiCalc 1.1

*A powerful program
for planning and analysis*

A multipurpose problem-solver.

VisiCalc* is a multipurpose planning and problem-solving program for business executives, professionals, accountants, analysts, home-budget managers and planners of all kinds.

It combines the ease and familiarity of three basic problem-solving tools—a pocket calculator, a pencil and a sheet of paper—with the powerful memory and display screen capabilities of your personal computer from IBM.

With VisiCalc, you may easily do corporate or family budget planning, financial and statistical analyses, sales projections and business plans, cash flow projections, market analyses, and much more. In addition, VisiCalc may help you do them faster, easier, more accurately and with greater flexibility than by hand or with a calculator.

An "electronic worksheet." VisiCalc enables you to use your computer's display screen as a "window" through which you may create and manipulate a large "electronic worksheet" with up to 63 columns across and 254 rows down. Clearly, that's large enough for most problems or charts. You can move, or scroll, this window in all four directions to view any part of the worksheet. You can also split the screen, horizontally or vertically, into two windows—each of which can be scrolled. This permits you to view and compare any two parts of the sheet at the same time.

The intersections of the columns and rows define thousands of entry positions, each identified by its row-column coordinates. The VisiCalc "cursor" is a white box one column wide and one row deep. The cursor can be scrolled to any one of the entry positions, and any value or label you type will be displayed within the cursor box.

*VisiCalc is a trademark of VisiCorp.

	A	B	C	D	E	F	G	H
1	-----							
2	RECEIPTS 9/29/83 Receipt Handling-Cost Estimates							
3	-----							
4		1983	1984	1985	1986	1987	TOTAL	
5	-----							
116	-----							
117	C Receipts -----							
118	TOTAL/MO	348	1899	2593	1991	1832	7863	
119	EMPLOYEES	0.65	3.56	4.06	3.73	1.93		
120	-----							
121	D Receipts -----							
122	TOTAL/MO	275	1445	1946	1572	959	6197	
123	EMPLOYEES	1.14	5.98	8.06	6.51	3.97		
124	-----							
125	Management & Costs -----							
126	EMPLOYEES	4.30	12.88	16.32	13.50	0.49		
127	MANAGMENT	0.43	1.29	1.63	1.35	0.85		
128	TOT EMPL	5	14	10	15	10		
129	COST/YEAR	57960	631812	938494	832556	551700	3011722	
130	CST/RECPT	72.30	134.97	141.56	152.44	153.00	142.38	

Once you become familiar with VisiCalc, chances are you'll find yourself using it to create many different worksheets to help you plan, analyze and solve problems—for professional and personal needs.

At each position on the worksheet, you may enter a value—a formula that consists of numbers, arithmetic operators, functions or references to other positions—or a label describing some part of the worksheet.

By entering values on the worksheet, you may set up charts, tables and records. Formatting commands enable you to control the appearance of each entry. You may make the VisiCalc worksheet look just like a checkbook register, a profit-and-loss statement, or almost any type of document that uses columns and rows.

A powerful productivity tool. VisiCalc may be put to use right away because you may begin creating worksheets to solve

problems without knowing a great deal about programming languages or how computers work. With its flexibility, ease of use, convenient editing capability and high-speed computation, it can help you increase your personal productivity. It could also expand your ability to handle more complex planning or analytical jobs.

How it works

Learning how to use VisiCalc. VisiCalc is so powerful and offers so many helpful features and commands that the best way to learn how to take full advantage of its capabilities is to use the five-lesson tutorial program included in the VisiCalc reference manual. The manual takes you step by step through virtually all program operations as you create worksheets and use all the efficient program commands.

VisiCalc 1.1

The VisiCalc reference manual also includes a well-illustrated chapter on the command structure and a Quick Reference Card, which lists all major commands and features. In all, with just a little time and practice, this manual will aid you in learning to use the program and in mastering its capabilities.

An easy-to-use command structure.

One of the reasons VisiCalc is so popular as a multifunction tool is that it is well designed and easy to use. It places at your fingertips various levels of commands. The first level includes 15 single-letter commands, which use a mnemonic principle to make them easy to remember. For example, "B" is the Blank command, "C" is the Clear command, "D" is the Delete command, and so on.

Creating and manipulating a worksheet.

Entering and changing values and labels on a worksheet are straightforward procedures. To enter data, simply position the cursor box where you want the data to appear and type in the entry.

Most worksheets you create will probably have headings for each column and row along the top of the sheet and down the left-hand side. These headings can be "locked" into place so that you can scroll to any section of even the largest worksheet and still retain the headings that identify the data.

Formulas can be as simple as a comparison of one sales figure to another, or as complex as a high-level scientific problem. Formulas can be used to relate data from various parts of the worksheet to each other in very flexible ways. They can also use the standard VisiCalc functions, which include summation, net present value, average, integer, trigonometric functions, and others.

An important "shortcut." One especially convenient shortcut the program offers is a "Replicate" command, which copies—or replicates—formulas, labels, numbers, formats, etc., down columns or across rows. This allows you to repeat a formula automatically with different values substituted. The formula you use to compute one week's budget requirements, for example, could be replicated for the next 51 weeks in a year. But you only have to enter the formula once.

"What if?" enables you to see the future. An important source of VisiCalc's effectiveness lies in the fact that personal computers from IBM "remember" the formulas and calculations you use while working through a problem. If you change a value on the worksheet, all related values change as the computer instantly recalculates the entire worksheet.

Such recalculation makes the VisiCalc program a powerful planning and forecasting tool. Not only may you easily correct mistakes you have discovered after a worksheet has been completed, but you may also explore alternatives.

Suppose, for example, you're using the VisiCalc program to do sales projections. You may want to know what the impact on your company would be if a specific product doesn't sell as well as you have anticipated. What if you sell only 200 units a month instead of 250? What if you sell 300? What if one of your sales representatives quits and it takes six weeks to bring a new person up to quota? What is the value of a training program that brings new sales representatives up to the desired pace in two weeks . . . six weeks . . . three months?

Create a library of VisiCalc worksheets.

You can save entire worksheets as files on storage diskettes—including the data, formats and labels on the worksheet. You may create as many worksheets as you wish to plan, analyze, forecast and solve problems. Then, you can go back to these worksheets at any time to reuse them with new data.

Major VisiCalc features. The following are some of the more important capabilities at your command with this powerful program:

- *Editing entries:* You may easily edit the contents of any one of thousands of entry positions; the computer will recalculate the entire worksheet based on the new entry.
- *Fast calculations:* The speed of calculation on your personal computer from IBM is significantly faster than that of most other personal computers.
- *Formatting flexibility:* You can alter the format of the entire worksheet—change the column width, align left or right, show two decimal places, etc.
- *Replicating formulas:* You can automatically copy a single formula, or a row or column of formulas, and specify the source and target ranges to be copied.
- *Saving worksheets:* You can save worksheets on diskettes, save only the data, or save any part of a worksheet.
- *Split screen:* You can split the screen to view two parts of a worksheet at the same time to simplify data checking and comparison.
- *Insert and delete:* You can add or delete entire rows or columns on your worksheet to accommodate a problem that is more complex than you had originally thought.

What you get. The VisiCalc software package includes:

- Program Diskettes (2)
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 64KB of user memory and one diskette drive, a 40- or 80-character display, and the IBM Disk Operating System (DOS). When this product's data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required. However, the program itself cannot be stored on a fixed disk.

Home Budget

*An accurate and easy way
to manage your home finances*

Balance your budget with computer ease. Home Budget provides you with a simplified, systematic way to make budgeting decisions, such as what bills you should pay immediately, how much out-of-pocket money should be spent for groceries and other day-to-day necessities, and how much you should budget for emergencies.

Even without any bookkeeping or accounting experience, you should be able to use Home Budget quickly and effectively.

Keep on top of your household expenses. Using Home Budget, you may organize your personal finances on a storage diskette and, with a few quick keystrokes, you should know where you stand. Home Budget helps you decide how to use your money to meet your financial goals more effectively by providing you with a better way to keep track of them. It's more than just a record-keeping system. It's an easy way to form a money plan that can help you manage your expenses as they relate to your income.

Information that you enter into the system on a monthly basis can keep you informed of the status of as many as 48 accounts, including charge accounts and savings accounts, as well as standard budget items such as food, auto expenses and utilities. This information can also be used to assist you in planning for once-a-year expenditures and even in coping with unexpected financial burdens.

How it works

Using the Home Budget reference manual, you may learn to create monthly records of income and expenses and then form your own money plan. The manual tells you what

the program can do for you and carefully guides you through step-by-step instructions for its use.

Create your own accounts. First, you create an account for your income called the cash account. You then enter, change and view your account categories. Once these procedures are performed, you should be able to enjoy the full benefits that Home Budget offers: the ability to itemize, total and reconcile your budget.

Reconciling your budget simply means balancing it. You may use the program to find out exactly how much you've spent in each account and how much you have left. Of course, Home Budget does all the addition and subtraction and tells you if you've gone over or under budget, on a monthly and yearly basis.

Review your budget status at any time. All commands and operations correspond with symbols on your IBM Personal Computer Keyboard. For example, the ten function keys make it simple to record transactions, such as transferring funds into and out of expense accounts, recording refunds to expense or charge accounts, recording payments and expenses, and more. There's even a function key that presents a "Help" menu at any time.

As daily expenses are entered into the system, a complete expense history is automatically recorded. Budget status information is available to you at any time, and month-to-date and year-to-date comparisons may be made.

Approximately 4,000 entries may be recorded on a single-sided 180KB capacity* diskette (8,000 on a double-sided 360KB capacity diskette), which provides the average household with the capability to maintain more than one year's worth of budget records.

Control your expenses. If expenses come in at a higher or lower rate than expected, you can make entry changes as needed. In other words, in addition to budget status, details of individual or all accounts for one month or all months to date can be displayed and adjusted, and a status report can be printed.

You can make additional notes at expense entry time, and detailed information can be displayed or listed. This capability is especially useful for keeping track of such items as tax-deductible expenses.

A personal home manager. The Home Budget program can inform you of your charge account status as well as the status of your medical, clothing and other expenditures. If expenses such as baby-sitting, travel, entertainment, cleaning, housekeeping services or golf fees exceed what you might normally include in miscellaneous, you can enter them into separate accounts.

What you get. The Home Budget software package includes:

- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 64KB of user memory and one diskette drive, and the IBM Disk Operating System. Neither the program nor its data files can be stored on a fixed disk. To make the most effective use of Home Budget, you should also have an IBM Graphics Printer with a printer interface, and a second diskette drive.

*The IBM Disk Operating System (DOS) 2.0 offers increased formatted diskette capacities of 180KB for single-sided and 360KB for double-sided diskettes.

pfs:FILE and pfs:REPORT

A computerized information management system

An easy way to organize information. With pfs:*FILE and pfs:REPORT, your personal computer from IBM can provide you with an easy, efficient way to store and retrieve information and create reports. These programs were designed to help improve your ability to manage information—to help you perform your job more efficiently.

pfs:FILE can help you handle your information storage and retrieval requirements and can operate as a stand-alone program. pfs:REPORT enables you to prepare tabular reports from the information contained in pfs:FILE. pfs:FILE is a prerequisite for operating pfs:REPORT. Each program comes with its own reference manual and diskette and may be purchased separately.

Electronic files at your fingertips. pfs:FILE and pfs:REPORT can be useful in business and professional offices, at home and at school, or anywhere you wish to use an IBM Personal Computer or IBM Personal Computer XT.

For example, inventory managers may find pfs:FILE an effective way to store, update and process information regarding current inventories. By adding pfs:REPORT, you can compile this information in a wide variety of useful ways and print attractive tabular reports.

Personnel managers may use the programs to search their files and generate reports, such as a list of employees who have been employed by the firm less than five years, from five to ten years, and so on. Or the programs may be used to break out a list of all employees by salary, by department, by title, etc.

**pfs: is a registered trademark of Software Publishing Corporation.*



In short, pfs:FILE and pfs:REPORT can provide you with helpful tools that may enable you to manage information more productively.

How it works

A computerized filing system. pfs:FILE enables you to enter and retrieve information in a logical, orderly manner. You design simple forms on your display screen that satisfy your information management requirements, then save them on a file. Information is then entered in the appropriate places on each form, which makes finding information and scanning files a simple matter. Of course, you may add, revise or delete any information whenever you wish.

The pfs:FILE reference manual provides you with step-by-step instructions that make form design a simple process.

For example, suppose you have designed an employee history in pfs:FILE of all personnel working in the Southeast. The blank form might look like the screen shown at right.

Information retrieval—accomplished by making simple selections from multiple-choice menus—is fast and reliable and is not limited by the order in which information is stored.

Selective recall. Information can be selectively retrieved in a variety of ways. For instance, you can specify *matches*—e.g., all your clients living in the southeastern United States. Or you can use pfs:FILE to provide you with matches plus *ranges*—such as all accounts with revenues between \$150,000 and \$500,000.

```

Employee Name:
Address:
Department:
Supervisor:
Title:
Job Description:

Employee #:
Social Security #:
Sex:
Starting Date:
Salary:

-----
File: EMPLOYEE      FORM1      Page1
F2-Print Form      F5-Date    F6-Time    F10-Continue

```

pfs:FILE enables you to create forms on your display screen that best meet your information filing needs.

You also have the ability to print forms as they appear on the display. You can even print mailing labels.

For example, if you manage information for a social or religious organization, you may categorize your membership by such criteria as address, years of membership, etc. Then, you can use pfs:FILE to print labels for targeted mailings.

Computer-generated reports save you time. pfs:REPORT enables you to print tables that consist of up to 16 vertical columns and as many rows as you like. Each column can correspond to an item in your file, and each row can contain the information from a single form.

pfs:REPORT can sort the rows alphabetically or numerically and do calculations on the numerical information in columns or rows. Think of the time and trouble it could save.

If, for example, you are using pfs:FILE to maintain purchase history information, you could use pfs:REPORT to generate a report listing all items purchased in the last month, week, or even the last few days.

Using the same information filed in pfs:FILE, you could also print a report that shows the parts currently in stock, another report indicating the total value of parts currently in your inventory, and a variety of other reports.

A title you select will appear at the top of each page in the report, and the pages will be numbered in sequence automatically.

A powerful combination. pfs:FILE by itself is a valuable tool for organizing data that you need to keep at your fingertips. When you add pfs:REPORT, you are able to produce customized summaries that enable you to present pfs:FILE data in a variety of clear and attractive formats.

Together, pfs:FILE and pfs:REPORT form a powerful combination that may help you manage your information more easily, more effectively.

What you get. pfs:FILE and pfs:REPORT both include:

- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: Both programs require a minimum of 64KB of user memory and one diskette drive, an 80-column display, and the IBM Disk Operating System (DOS). When these programs and/or their data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required. A printer is optional for pfs:FILE and preferred for pfs:REPORT.

Time Manager

An efficient, automated way to plan, organize and keep track of your activities

Organize your time more effectively.

Time Manager* was designed to help you plan and organize all your daily and monthly activities. Plus, it assists you in compiling accurate records for analysis or accounting purposes.

You'll find Time Manager most useful as a daily organizer to keep yourself on top of each day's activities. With its electronic day, month and year calendars, it enables you to enter into your personal computer from IBM anything you want to do or remember. From meeting times and deadlines to birthdays and golf dates—everything will be listed according to your priorities.

Ideal for anyone whose time means money. More than an automated personal calendar, Time Manager also provides you with useful data indexing capabilities.

Daily entry information can be automatically filed for cross-referencing later. It's an effective way to maintain complete and accurate files on companies, people, projects, events and much more—all of which can be displayed with a few quick keystrokes.

What's more, Time Manager can help you manage various accounting responsibilities. For instance, you can help simplify your tax filing by displaying all deductible expenses for the year. You can also create expense reports, informal accounting reports, project evaluations and more.

In all, Time Manager helps you do everything that's expected of you and everything you expect of yourself—on time, all the time.

*Time Manager is a trademark of The Image Producers, Incorporated.



How it works

Most people can learn to use Time Manager effectively within a short time, usually within an hour.

The Time Manager reference manual carefully guides you through each step. Time Manager data diskettes provide you with sample entries to help you quickly understand all the features of the program.

All commands and operations correspond to symbols on your keyboard. Also, no memorization is required; just keep the Quick Reference Card provided with your manual alongside your computer.

Organize today and every day from now on. Once you've mastered Time Manager, you will have a management tool to help you organize your professional and personal time.

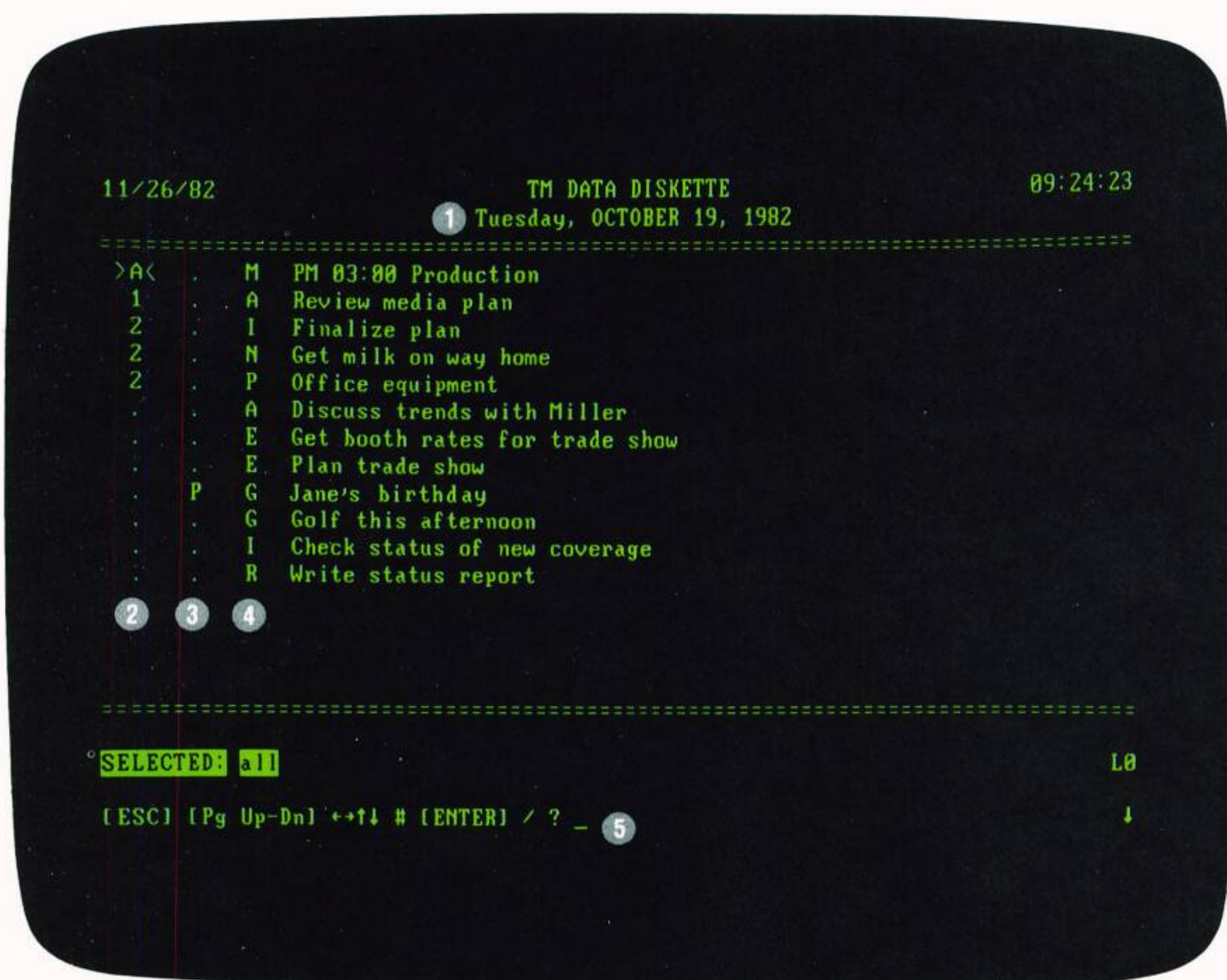
Time Manager enables you to pass easily among month, day and entry displays, similar to a camera equipped with a single lens for taking wide-angle, normal and close-up pictures.

Once you've selected a day, you may create a dynamic "to do" list of all your appointments, meetings, deadlines—both your professional and personal activities—in sequence from top to bottom according to priorities you assign. Special priority activities not completed on one day will automatically appear on your next day's agenda.

Entries you mark "Permanent" (such as birthdays, anniversaries or other events that fall on the same date every year) can be recorded on your next 12-month diskette. The diskette containing all the previous year's information remains intact as a history file that can be reviewed whenever you wish.

Time Manager also enables you to compile lists of miscellaneous information. For example, items such as phone numbers, addresses, meeting notes and casual jottings you wish to retain can all be displayed in seconds.

Time Manager is a money manager, too. This versatile software system helps you control two of your most precious resources: time and money. As you make an entry on your personal calendar, for example, you can label it for cross-reference into one of 26 separate categories. By doing so, you can display such useful breakdowns as time and expenses related to particular subjects.



You'll find this capability ideal for totaling the number of hours logged on individual projects, for cataloging and studying business expenses or sales call patterns, or simply for verifying your telephone bills. Think of the time you could save by electronically tracking the categories you select.

It's even an automated accounting tool. Time Manager enables you to create a variety of business and personal accounting reports. You can maintain numerical data stored in your daily entries in nine categories, such as accounts payable and receivable, expenses and commissions.

This capability can be especially valuable at tax time. You can quickly generate a report on all your deductible expenses throughout the year. (Add a printer to provide hard-copy verification of each expense.)

Use Time Manager to issue expense reports, project evaluations, internal accounting reports, billing records, monthly income summaries, invoices or most any other accounting-related format you require. Each of these types of reports uses Time Manager's capability to scan and select numerical data to form totals over a finite number of days or months.

In short, Time Manager has broad potential for computing all types of operating expenses and numerous other sums.

◀ Each Time Manager "day" display provides you with a great deal of important information about your personal agenda.

- 1 The current month, day, year and time are displayed at the top of the screen.
- 2 A "Priority" Column displays the class of priority you have assigned to each entry.
- 3 The letter "P" in the "Permanence" Column is used to mark important events that fall on the same day every year, such as birthdays and anniversaries.
- 4 A "Category" Column permits you to assign a code to each entry, such as "T" for tax-deductible expenses. You can command the system to search through months of entries to create reports listing entries with a specific code.
- 5 A menu appears at the bottom of the screen to remind you of the keys that permit you to move from day to day or month to month, make an entry, and so on.

What you get. The Time Manager software package includes:

- Program Diskette
- Sample Data Diskettes (2)
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 64KB of user memory and one diskette drive, a 40- or 80-character display, and the IBM Disk Operating System. Neither the program nor its data files can be stored on a fixed disk. To make the most effective use of Time Manager, you should also have an IBM Graphics Printer with a printer interface, and a second diskette drive.

Diskette Librarian

*A cataloging system
for your diskette library*

Helps you find diskettes fast. Diskette Librarian was created to help you organize all your diskettes and find the ones you need quickly. It is a computerized catalog of filenames; each entry can include information that documents the date and size of each file and the filenames stored on each diskette.

Diskette Librarian can be extremely useful to users who maintain a sizable diskette library. If you fall into this category, you know that a label often is not enough. It's easy to forget the contents of each diskette and what information you've stored under each filename.

Diskette Librarian saves you the time and trouble of putting each diskette in your personal computer from IBM to locate the information you need. In addition to your primary program and storage diskettes, Diskette Librarian can also help you keep track of backup files and diskettes and the memory space available.

How it works

The Diskette Librarian instruction booklet explains how to catalog your diskette library through a system of simple commands.

Your diskette catalog is just a keystroke away. With Diskette Librarian, your catalog of diskettes can be readily available on your display screen; it can also be printed. Lists of filenames, arranged alphabetically, can be displayed with information indicating which diskette each file is on, the date that file was created and the size of the file. Diskettes can also be arranged alphabetically by name, showing the number of files on each, the date that diskette was last updated and the space remaining.

Diskette Librarian allows you to use up to three lines to describe the contents of your diskettes and files.

Regardless of the number of diskettes you have, you can use Diskette Librarian to help find a letter, report or any document—even if you filed it weeks or months ago.

Set up a program to meet your requirements. Diskette Librarian enables you to create and update your files; add, delete or save files; and add comments to describe the contents on the diskettes. Using SETUP commands, you will learn to control how Librarian saves, lists and prints your catalog.

The program also helps you select the display that meets your particular needs. For example, you can display only the diskette

or the file portion of the catalog, look for one specific file or diskette, enter a diskette name to see a list of the files on that diskette, or generate a selective printout. And the CHECK command helps you identify files without backup copies or files containing a newer version in your catalog.

What you get. The Diskette Librarian program package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, a display, and the IBM Disk Operating System. Neither the program nor its data files can be stored on a fixed disk.

Files:

```
AUTOEXEC.BAT
* LIBRARIAN          9/24/82      128
CATALOG.BAT -- Batch file which runs
Librarian.
* LIBRARIAN          9/24/82      128
CATALOG.CAT -- Stores this
consolidated catalog.
* LIBRARIAN          9/24/82     1,152
CATHLP3.TXT
* LIBRARIAN          9/24/82     1,996
CATHLP4.TXT
* LIBRARIAN          9/24/82      537
CATHLP5.TXT
* LIBRARIAN          9/24/82     2,456
CATMAIN.BAS -- Main Diskette Librarian
program.
* LIBRARIAN          9/24/82    26,880
```

Command:

```
—
1 MENU  2 UPDATE 3 LIST  4 PRINT 5 LOAD
```

Business Programs



The Peachtree Accounting System for personal computers from IBM

The versatile Peachtree Software Accounting System includes five powerful business accounting programs:

- General Ledger 1.1
- Accounts Receivable 1.1
- Accounts Payable 1.1
- Inventory Control 1.1
- Payroll 1.1

Is it the right system for your business?

This accounting system is highly versatile, offering the flexibility necessary for many applications in larger businesses and professional accounting environments.

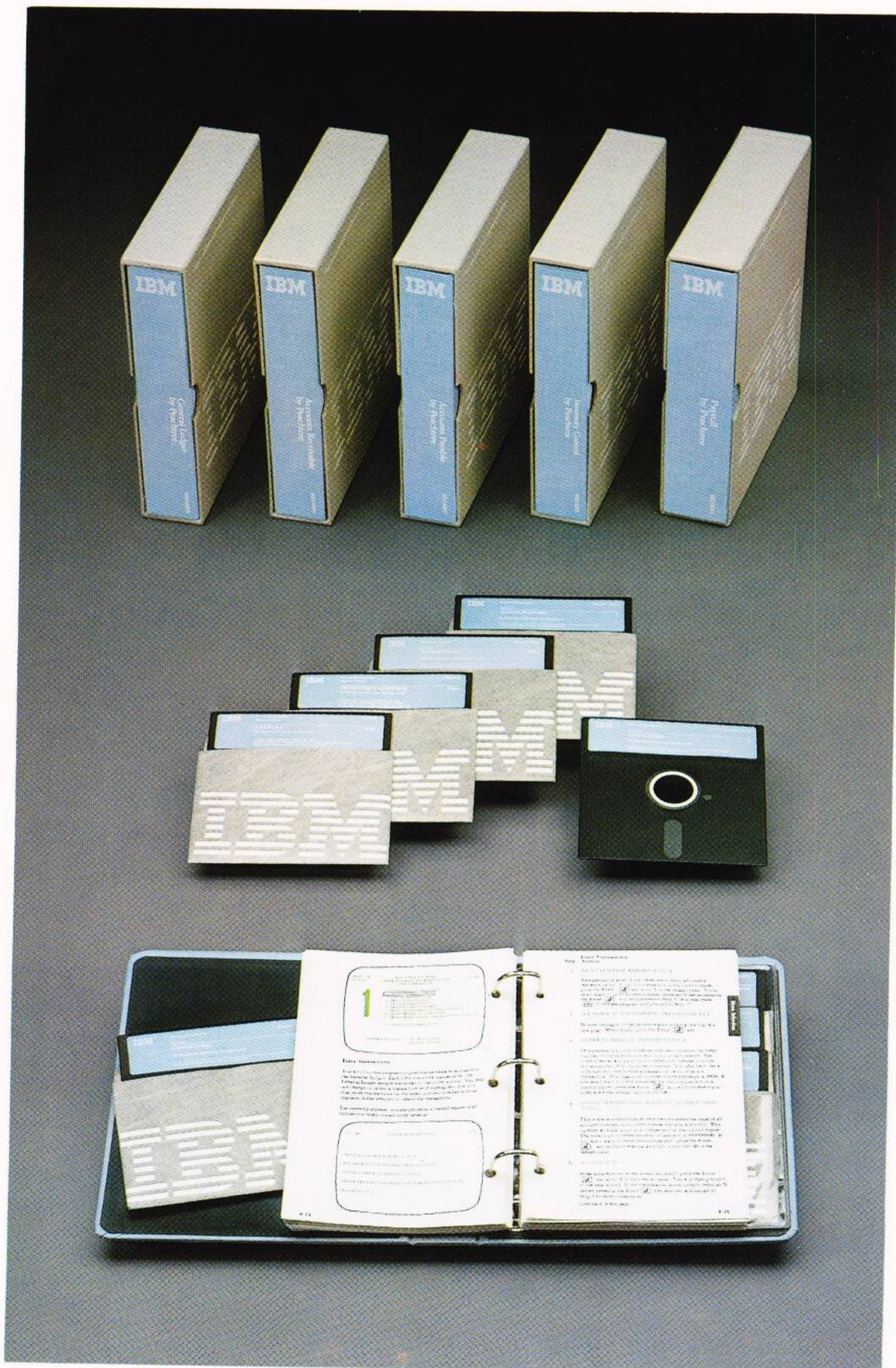
The General Ledger chart of accounts, for example, was designed to be fully customized to meet your requirements. It offers the capability to make the system extremely detailed to meet the specific, complex needs of various methods of operation.

Use only the program packages your business needs. General Ledger is the most important and most basic software package in the Peachtree system because it produces the overall financial statements needed to monitor the financial health and profitability of a business. Each of the other packages may be used alone or together with General Ledger, depending on your specific requirements.

The standard accounting procedures and high level of customization offered by the Peachtree system require that you have a knowledge of accounting practices.

Fixed disk compatibility. Version 1.1 of the Peachtree Accounting System programs and the data files you create using these programs can be stored on a fixed disk. However, Version 1.0 of these programs and the associated data files cannot be stored on a fixed disk. Both versions may be used with diskette drives.

Fixed disk storage allows you to access large amounts of information—up to 10MB per fixed disk—quickly and conveniently. What's more, you do not have to continually remove and insert diskettes, as you do when using a diskette drive.





Major system benefits:

- *Interactive, menu-driven programs*—assist you in running the various programs
- *Flexible system configuration*—can be customized to meet your accounting requirements
- *Time and labor savings*—automatic processing, posting and file updating can help you realize significant savings
- *Software compatibility*—Peachtree's Accounts Payable, Accounts Receivable and Payroll can be set up to post information to General Ledger automatically, helping you reduce work and improve accuracy
- *Forced entry-balancing option*—helps prevent

out-of-balance entries from being posted to your master files

- *A range of data integrity features*—helps you maintain a high level of data accuracy
- *Two levels of password protection*—help protect your data files and system files from unauthorized access
- *Clear, comprehensive user documentation*—includes detailed instructions on everything from getting started to day-to-day operations

General Ledger. General Ledger 1.1 is the heart of the Peachtree Accounting System. It offers fast and easy access to large volumes of information on key facets of the current and historical financial health of your business.

Accounts Receivable. Accounts Receivable 1.1 can help you tighten control over both current and aged receivables. Its capabilities enable you to perform such basic functions as printing up-to-the-minute statements, aging reports and detailed, computerized billings. It also permits you to track sales by product, by group type or by department, depending on your individual needs.

Accounts Payable. Accounts Payable 1.1 can help you maintain complete control over all payables and purchase transactions. It features a full range of A/P functions, including an impressive financial forecasting capability.

Inventory Control. A powerful, efficient tool for inventory management, Inventory Control 1.1 was designed to help increase merchandise control and reduce inventory investment. You assign each item of inventory a department and item code that identifies the item's record. The record helps you maintain vendor and cost data, three pricing levels for sales, and reorder levels—as well as year-to-date and period-to-date sales amounts and quantities.

Payroll. Use Peachtree's Payroll 1.1 to automate a wide range of payroll operations, from check writing to producing 18 valuable control reports, file listings, transaction registers and tax reports.

System requirements: Peachtree's General Ledger, Accounts Receivable, Accounts Payable, Inventory Control and Payroll programs each require a minimum of 64KB of user memory and two diskette drives, an 80-character display, a printer, and DOS. When using DOS 2.0, a minimum of 128KB of user memory is required. This amount of memory and DOS 2.0 also support the storage of these programs and/or their data files on a fixed disk. If your system includes a fixed disk drive, only one diskette drive is required.

The BPI Accounting System for the IBM Personal Computer

Cost-effective accounting management. Accounting management—and all of the precise record-keeping and paperwork that go with it—is a job that can be greatly simplified with the help of the BPI Accounting System.

The BPI Accounting System is a set of business accounting programs that can run on an IBM Personal Computer but not on an IBM Personal Computer XT. The five programs that make up the accounting system include:

- General Accounting
- Accounts Receivable
- Inventory Control
- Payroll
- Job Cost

Use only the program packages your business needs. General Accounting is the foundation of the BPI Accounting System. It helps maintain the accounting ledgers and produces the overall financial statements most businesses need to manage their finances. The other BPI packages for the IBM Personal Computer—Accounts Receivable, Inventory Control, Payroll and Job Cost—may be used alone or together with General Accounting, depending on your specific requirements.

Major system benefits:

- *Flexible design*—several options help you tailor the program packages to your company's needs
- *Easy to learn and use*—you need neither prior knowledge of computers nor expert typing skills
- *Time and labor savings*—automatic processing, posting and file updating can help you realize significant savings

- *Interactive, menu-driven programs*—program menus assist you in performing various accounting functions without memorizing commands
- *Data accuracy*—the programs automatically check for valid entries and zero-ending balances
- *Software compatibility*—Accounts Receivable, Payroll and Inventory Control can be set up to automatically post summary information to General Accounting, helping to save you work and improve accuracy
- *Well-written, comprehensive documentation*—accompanying aids include detailed instructions and illustrated examples

General Accounting. With the General Accounting program, the procedures of ledger posting, financial statement preparation, check writing and closing the books may be performed with computerized speed and accuracy.

Accounts Receivable. The Accounts Receivable program is an automated cash management tool that can help you tighten control of receivables. The system also enables you to produce detailed management reports quickly and easily.

Inventory Control. BPI's Inventory Control package enables you to quickly generate purchase orders, write invoices, maintain a general and auxiliary journal, provide customer and vendor information, and produce management reports for tighter control.

Payroll. The BPI Payroll package can be tailored to perform a wide range of payroll procedures. It can also help you generate a variety of useful management and accounting reports.



Job Cost. BPI's Job Cost program tracks both labor and non-labor costs for any job. You can compute projected job costs, store up to 500 accounts and produce a series of critical reports.

System requirements: The BPI General Accounting, Accounts Receivable, Inventory Control, Payroll and Job Cost programs each require a minimum of 64KB of user memory and two diskette drives, a 40- or 80-character display, a printer, and DOS. When using DOS 2.0, a minimum of 128KB of user memory is required. Neither the programs nor their data files can be stored on a fixed disk.

A range of products to support various communications capabilities

Establish interactive, on-line communications with a wide variety of computers and information networks

Access to the resources of data networks . . . right from your desk. The performance and storage capabilities of a personal computer system from IBM make it a highly effective tool for managing information. When you add communications support, that same computer enables you to access and interact with a range of information networks, mainframe computers and other data network resources . . . as well as other personal computers from IBM, and more.

A personal computer from IBM can be equipped to emulate a variety of asynchronous, binary synchronous and synchronous terminals, and communicate over switched or leased lines.

A dual role . . . which could more than double your benefits. A personal computer from IBM has the capabilities to function both as an intelligent terminal and as an independent computer, a dual role that could increase productivity and enhance performance.

In medium and large corporations, for example, important information that is maintained in a corporate data center could be accessed by key managers throughout the organization with personal computers from IBM equipped for communications. The information could serve a range of specialized needs at the operational level. Finance people could use it to plan budgets. Marketing people could analyze data and prepare profitability studies. Sales managers could use it to track sales and manage districts.

At each operational level, applications software—which offers you capabilities such as electronic spreadsheet analysis, word processing and data base management—could be used to process and manipulate data to

better serve the specialized needs of each discipline. In this way, the communications value of a personal computer from IBM is multiplied. Furthermore, procedures may be set up so that all this can be done while preserving the all-important factors of central data base security and integrity.

Improving productivity. Personal computers from IBM equipped for communications could help speed the flow of information throughout an organization. Important, up-to-the-minute data from a central computer could be copied and stored locally, analyzed and processed to serve a variety of operational needs, compiled into management plans and reports, and sent back to the central computer to serve as a resource for the entire organization. It could also be distributed to other departments and network resources.

The communications applications that a personal computer from IBM may be used for include:

- Message transmission
- Electronic mail
- Data collection, formatting, checking and editing
- Interactive data entry
- Searching and updating files
- Batch data transmission
- Transaction processing
- Inquiry and update
- Creation of source files
- Interactive program development

In short, personal computers from IBM are among those helping to change the way medium and large businesses store, process and distribute their data.

Information services serve professional and personal needs. A personal computer from IBM with asynchronous communications support enables you to take advantage of the many information retrieval services and commercial information networks now being offered to personal computer users on a subscription basis.

The Dow Jones* News/Retrieval* Service. One such network is the Dow Jones News/Retrieval Service. It offers you current information on stocks, bonds, commodities and options. You may also obtain news articles from *Barron's*, *The Wall Street Journal* and the Dow Jones News Service* as well as corporate profiles and 10-K extracts.

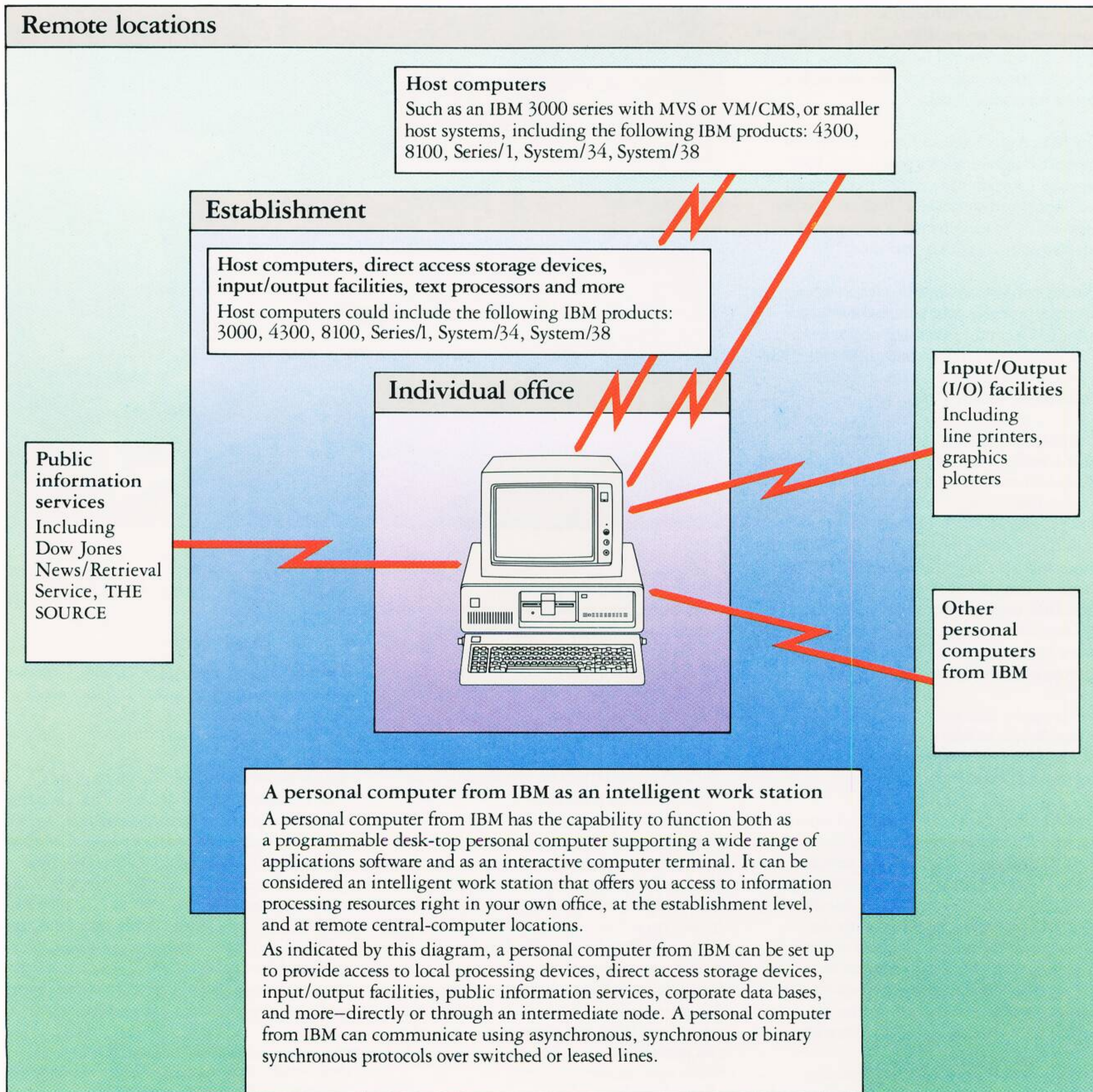
THE SOURCE** There is also THE SOURCE, America's Information Utility, which communicates such diverse information as news, airline schedules, restaurant guides, stock prices and classified ads.

THE SOURCE can be accessed through a local telephone call in over 400 cities around the world. One of its most popular services is an automatic search of UPI news stories, which enables you to select topics related to the keywords you specify. THE SOURCE also offers a special data base about personal computers from IBM.

Information services are growing in scope and number as more people become involved with personal computing. Some serve highly specialized users, and many also offer an electronic mail service that allows you to communicate with other points along the network.

*Dow Jones is a trademark of Dow Jones & Company, Incorporated. Dow Jones News Service and Dow Jones News/Retrieval are registered trademarks of Dow Jones & Company, Incorporated.

**THE SOURCE is a service mark of Source Telecomputing Corporation, a subsidiary of The Reader's Digest Association, Incorporated.



Asynchronous Communications Support 2.0

At home or at work, you can have ready access to needed information

A personal communications network. Computer communications—long recognized by the business world for their speed, power and cost-effectiveness—are now available to you on a personal level.

The IBM Asynchronous Communications Support Program allows you to link your personal computer from IBM to networks and input/output devices. It offers you personal access to an expanding universe of information . . . quickly and easily.

The Asynchronous Communications Support Program provides your personal computer from IBM with the operating characteristics of an asynchronous (start/stop) Teletype* ASR 33/35, a teletypewriter with automatic send/receive features.

The program enables you to communicate with a wide variety of computers that utilize ASCII (American Standard Code for Information Interchange), which is used by most host processors and terminals. The dimensions of use multiply, since the program not only supports the system as an interactive terminal but also allows personal computers from IBM to communicate with one another, and to exchange data and program files with larger host computers equipped with the appropriate interface hardware.

The program also provides software support to enable you to take advantage of many information retrieval services and public information networks.

Transferring files upstream and downstream. The ability of a personal computer from IBM to exchange data and program files with most IBM mainframe systems is a key element in a large company communications environment. In effect, with the Asynchronous Communications Support Program, your personal computer from IBM can provide access to the more powerful processing capabilities and the extensive storage capacities of larger time-sharing systems.

*Teletype is a trademark of Teletype Corporation.



Major program features:

- Conversing interactively with another computer on the network, a user may specify:
 - Transmission bit rate, from 75 to 9,600 bps
 - Parity, to analyze any error or loss of bits during transmission
 - Number of stop bits
 - Line turnaround characters
 - ECHO or no-ECHO for the local or host computer—an additional check on the accuracy of the transmission
- Once the specifications for a particular host have been established, they can be stored and automatically retrieved for later use; this eliminates repetition of the setup procedure to save time
- Binary files can be converted to ASCII format, and the reverse
- If two Asynchronous Communications Adapters are installed in your personal computer from IBM, you may use either of the two ports
- Menu options for:
 - Dow Jones News Service

–THE SOURCE
–VM/370
–TSO

What you get. The Asynchronous Communications Support Program 2.0 includes:

- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 64KB of user memory and one diskette drive, the IBM Asynchronous Communications Adapter, a 40- or 80-column display, and the IBM Disk Operating System (DOS). When this program and/or its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required. The user must provide the necessary cabling and a full duplex modem[†] for connection to a host computer. The user must also obtain subscriptions and passwords required for host access.

[†]"Modem" stands for MODulator DEModulator. This device usually connects a computer and a telephone line and converts digital signals to audio tones.

3101 Emulation

Provides function similar to an IBM 3101 Display Terminal

Provides specification files for popular 3101 configurations. The 3101 program offering includes several specification files that support popular uses of a 3101 terminal, saving you the trouble of creating your own specification files. Simply select the specification options you want—such as line characteristics and keyboard mapping—and the program is ready to use. If you have unique requirements, you may create your own specification files.

The specification files allow you to operate with the following popular systems and services:

- VM/370, MVS/TSO
- IBM 8100 Information System
- IBM System/34
- IBM System/38
- IBM 7426 Terminal Interface Unit (TIU) for the IBM 8100 series mainframes
- Yale IUP for Series/1
- 3101 Pass-through (PVM)
- Extended information services, such as:
 - Dow Jones News Service
 - THE SOURCE
- Communications with another personal computer from IBM
- IBM Information Network

Transfer ASCII files to and from host computers. The IBM 3101 Emulation Program provides your personal computer from IBM with characteristics similar to those of an IBM 3101 Display Terminal, Model 20, with some differences.

Thus, it enables you to access and transmit ASCII format files from host computers to local storage on your personal computer from IBM, and vice versa. In addition, ASCII files may be converted to and from binary format.

This program also supports access to external information networks and enables you to communicate and exchange files with another personal computer from IBM.

Your system can emulate a 3270 terminal. The 3101 Emulation Program, used along with compatible host support, can also make your personal computer seem to be a 3270 terminal. The IBM 3270 Information Display System is a very popular series of products that offers a great variety of features and performance capabilities.

What you get. The IBM 3101 Emulation Program includes:

- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 64KB of user memory and one diskette drive, an 80-character display, and the IBM Disk Operating System (DOS). When this program and/or its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required. The user must provide the necessary cabling and a full duplex modem for connection to a host computer.

Besides providing the hardware requisites, the user must also obtain the subscription(s), password(s) and communications protocol information for host access, and perform the setup procedure. New specification files may be created as host communication requirements change or are added.

The Asynchronous Communications Adapter

With the IBM Asynchronous Communications Adapter and a communications support program, you can link your personal computer from IBM to a wide range of outside devices or networks. These can be connected by telephone using a modem or directly by cable when the device is nearby.

Features of the adapter:

- Speeds of from 50 to 9,600 bps
- Character lengths of 5, 6, 7 or 8 bits
- Error detection by parity generation of additional odd or even bit, mark or space; alternatively, no parity generation or error check

- Modem and data transfer control
- Complete status reporting

Support for special peripheral devices. With the Asynchronous Communications Adapter, you may also attach various peripheral devices to a computer. Among them are plotters, voice recognition devices, electronic keyboards and printers.

Some applications software packages provide the option of sending program output via the Asynchronous Communications Adapter to "letter quality" printers. This permits the use of a personal computer from IBM for correspondence without program modification.

Up to two Asynchronous Communications Adapters may be installed in a single IBM Personal Computer. The IBM Personal Computer XT includes one Asynchronous Communications Adapter as an added feature.

What you get. The Asynchronous Communications Adapter includes:

- EIA RS-232-C interface (25-pin male "D" shell connector), the standard for interconnection between data terminals and data processors
- Instructions for the installation of options

System requirements: A minimum of 32KB of user memory and one diskette drive. Users are responsible for obtaining necessary modems, cables and communications options for attaching their system to peripheral devices or selected personal computers from IBM.

You may select from a variety of software options to support asynchronous communications, depending on your requirements. The software you use may be the IBM Asynchronous Communications Support Program, the IBM 3101 Emulation Program, a sample support program named COMM that comes with your IBM Disk Operating System, or any applications software written to support the Asynchronous Communications Adapter.

Binary Synchronous 3270 Emulation

Supports communications with a host system as a BSC 3270 terminal

Provides you with access to a BSC network. Your personal computer from IBM may be used for interactive communications with a Binary Synchronous (BSC) host system. The IBM Binary Synchronous 3270 Emulation Program allows you to interact with a host system as one of the following IBM 3270 type terminals:

- 3271-2/3277-2 (over leased lines)
- 3274-51C/3278-2 (over leased lines)
- 3275-2 (over switched and leased lines)
- 3276-2 (over leased lines)

Support for a BSC interface. Some basic requirements for this program are a hardware option called the IBM Binary Synchronous Communications Adapter and a modem. The BSC program supports the use of both for transmission at speeds of up to 9,600 bps over switched or leased lines. The program also offers constant line trace, error logging and communications statistics accumulation.

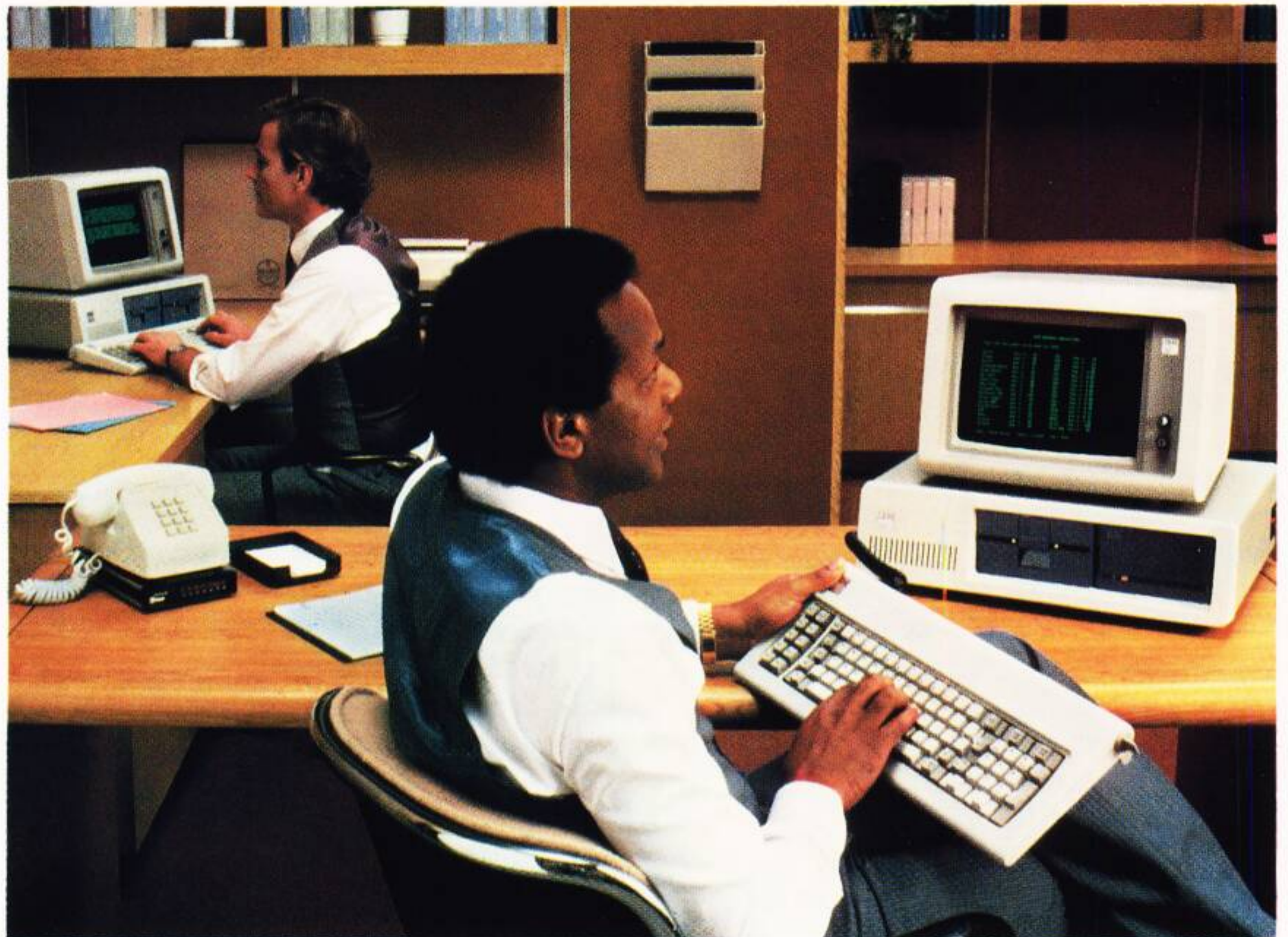
BSC 3270 Emulation features:

- 12 program function keys
- Local print key
- Audible alarm
- EBCDIC (Extended Binary Coded Decimal Interchange Code) line transmission support
- Keyboard numeric lock
- Status line messages
- IBM 3279 Base Color Mode support
- Nonbuffered or separately addressable buffered printer support

Tailor the communications environment. A Configuration Utility is provided with the program to help you tailor it to your needs. The Configuration Utility provides menus to prompt you for the various options available, using default values for the most common configurations.

What you get. The BSC 3270 Emulation Program includes:

- Program Diskette
- Users' Reference Manual
- Keyboard Template



System requirements: A minimum of 128KB of user memory and one diskette drive, an IBM BSC Communications Adapter, an IBM Communications Adapter Cable or equivalent, an 80-column display, a printer, and the IBM Disk Operating System (DOS). When this program and/or its data files are stored on a fixed disk, DOS 2.0 is required. It is the user's responsibility to provide a modem, the necessary cables and the required support from a host system with compatible IBM 3270 Display System support.

The BSC Adapter

Program controlled data transfer. The IBM Binary Synchronous Communications Adapter, when used in conjunction with the BSC 3270 Emulation Program, offers you the ability to access a network using BSC protocols. The network may be either switched or leased line.

The BSC Adapter plugs into one of the system expansion slots in your personal computer. Only one Asynchronous Communications Adapter (instead of two) may be installed when a BSC Adapter is also installed. An IBM Communications Adapter Cable or equivalent is required to connect the Adapter to a modem. This double-shielded, ten-foot grounded cable ensures high integrity of data.

What you get. The BSC Adapter includes:

- EIA RS-232-C interface
- Installation instructions

System requirements: A minimum of 128KB of user memory and one diskette drive, an IBM Communications Adapter Cable, and the IBM BSC 3270 Emulation Program. Users are responsible for obtaining necessary modems, cables and communications options for attaching their system to compatible host computers.

Systems Network Architecture

3270 Emulation and RJE Support

High-speed, high-performance communications in one of two SNA modes

A dual-mode program. The IBM System Network Architecture (SNA) 3270 Emulation and Remote Job Entry (RJE) Support Program was designed for high-speed synchronous data communications. It permits you to use a personal computer from IBM as an intelligent terminal to communicate with a host computer in one of two modes: SNA 3270 or SNA 3770 RJE.

As a result of the widespread popularity and flexibility of SNA networks, this program offers you many significant communications advantages. It enables you to use your personal computer from IBM for applications ranging from data entry to inquiry and update to transaction processing.

Support for the IBM SDLC Adapter.

A basic requirement for this program is a hardware option called the IBM Synchronous Data Link Control (SDLC) Communications Adapter. The SNA 3270 Emulation and RJE Support Program contains, first of all, the access method software to support the SDLC Adapter when used for either SNA mode. The program supports both switched and leased lines, a modem and on-line diagnostics.

SNA 3270 Emulation. This program was designed to make your personal computer from IBM appear to a host computer as an IBM 3274 Model 51C, Logical Unit (LU) Type 2 Control Unit. The 3274 is widely used to direct the operations of a 3278 display station and printers.

A personal computer from IBM, therefore, will emulate many 3278 display station features:

- Same screen formats, substituting status line messages for status line
- 24 program function keys, local print key
- Audible alarm
- Line transmission support for EBCDIC used in mainframes

- IBM 3279 base color (4-color) mode support
- User-definable 3270 keys
- IBM 3287-1 and -2 Printer support
 - for local copy
 - for host-initiated screen print

SNA 3770 Remote Job Entry Support.

This program offers users of personal computers from IBM the ability to enter batch processing jobs into the host system. Instead of collecting jobs and taking them to a host processor location for entry by a network operator, you may submit the same data, or job batches, through your personal computer.

RJE Support allows your personal computer to interact with the host computer as an IBM 3770 communications terminal with the following features:

- Functional Management (FM) Header Type 1
- Transmission Subsystem (TS) Profile 3 and FM Profile 3
- Decompression of data outbound from host; compression of data sent to host
- Transmission support for ASCII or EBCDIC
- Support of console, card/punch and printer

In addition, you may transmit and receive source and object data in a format compatible with your IBM Disk Operating System (DOS). You may also control printing format by channel control, page size, tab setting and line density.

What you get. The SNA 3270 Emulation and RJE Support Program includes:

- Program Diskette (contains both program modes)
- Users' Reference Manual
- Keyboard Template

System requirements: A minimum of 128KB of user memory and one diskette drive, an SDLC Communications Adapter, a Communications Adapter Cable, an SDLC modem, a printer, an 80-column display, and the IBM Disk Operating System (DOS). When this program and/or its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.0 are required.

The SDLC Adapter

Support for synchronous data communications. Working with extensive information files maintained in powerful central processors may be done more efficiently by communicating in a synchronous rather than asynchronous mode through either switched or leased lines. This can be accomplished with a personal computer from IBM equipped with an IBM SDLC Communications Adapter and the appropriate hardware and software support.

The SDLC Adapter plugs into one of the system expansion slots in your personal computer; only one may be installed. Only one Asynchronous Communications Adapter (instead of two) may be installed when an SDLC Adapter is also installed. An IBM Communications Adapter Cable or equivalent is also required to connect the adapter to a modem. This double-shielded, ten-foot grounded cable ensures high integrity of data.

Features of the SDLC Adapter:

- EIA RS-232-C interface
- Speeds of up to 9,600 bps
- Modem control functions
- Program-controlled data transfer
- Electrical wrap and error status reporting
- Field-installable and replaceable
- Interrupt system controls
- Complete status reporting

What you get. The SDLC Communications Adapter includes:

- EIA RS-232-C interface
- Instructions for the installation of options

System requirements: A minimum of 128KB of user memory and one diskette drive, the IBM Communications Adapter Cable, and the IBM SNA 3270 Emulation and RJE Support Program. It is the user's responsibility to provide a modem, the necessary cables and the required support from a host system with compatible 3270 Display System support.

Dow Jones Reporter

A fast, on-line source for business and investment information

A world of financial information only a phone call away. Dow Jones* Reporter can help you make fast, accurate financial decisions based on information that is updated every few minutes.

This helpful program provides you with quick access to the massive information resources of Dow Jones, publisher of *The Wall Street Journal*. Investors can request current-day quotations on stocks, corporate bonds, Treasury issues, mutual funds and much more. (Federal Trade Commission regulations require current stock quotations to be delayed by at least 15 minutes.)

In addition to the day's stock quotations, you can get daily quotations from the past 24 days, plus monthly and quarterly summaries spanning several years. Furthermore, to help you make accurate business and investment decisions, you can review or receive profiles and 10-K extracts that describe all companies listed on either the New York or American stock exchanges. You can also request additional statistics on up to 3,200 leading companies and 180 industries.

How it works

Your Dow Jones Reporter reference manual provides easy-to-follow, step-by-step instructions. So does the Operating Guide and Directory of Symbols from Dow Jones, which is included with the manual.

You'll quickly learn how to select the information you require from multiple-choice menus displayed on your computer screen. You'll learn how to issue commands by using keyboard symbols at your fingertips. You'll also receive your own personal password from Dow Jones. This will enable you to access the information you need while

assuring that only you and those you designate can utilize the service with your password.

Turn your personal computer from IBM into an electronic newspaper. To help you make the right decisions—right away—Dow Jones Reporter enables you to uncover happenings within 90 seconds of the time they're reported by the Dow Jones News/Retrieval* Service. You can gain access to late-breaking news, or news from weeks before, from *The Wall Street Journal*, *Barron's* and the Dow Jones News Service* (the "Broadtape," America's only business newswire). If a news item breaks after the publication's deadline, you may learn about it before the next edition.

You may review headlines about specific companies, industries or anything indexed during the past 90 days. If you want to read the full story behind any headline, just issue the appropriate commands and the complete text of the article will appear within seconds. (Some stories are capsulized for the sake of brevity.) You also have the option of simply requesting the most current story on a given subject.

Study long-term stock performances.

Dow Jones Reporter also provides you with historical stock quotations to help you make informed investment decisions based on performance patterns.

Simply select the stocks, the exchanges and the time period. You can research the last few weeks—from the most recent 12 days to the previous 13-24 days. Plus, you can request monthly or quarterly summaries from several prior years.

Receive in-depth profiles on thousands of companies. Dow Jones Reporter's DISCLOSURE ONLINE offers you profiles and 10-K extracts on all publicly owned companies listed on the New York and American exchanges, plus over 6,000 major OTC-traded companies.

In addition to profiles and extracts, Dow Jones Reporter also provides access to extensive corporate data—including fundamental and technical statistics on 3,200 important companies and 180 industries.

On-target investment decisions. Combined with your judgment, experience and intuition, Dow Jones Reporter can provide you with information you may use to make on-time, on-target business and investment decisions.

What you get. When you buy Dow Jones Reporter, you will receive:

- Users' Reference Guide, published by IBM
- Dow Jones News/Retrieval Service Operating Guide and Directory of Symbols, published by Dow Jones & Company, Incorporated
- Dow Jones News/Retrieval Information Services Agreement (tells how to receive your password)
- Program Diskette
- One free hour of connect time during non-prime hours

System requirements: A minimum of 64KB of user memory and one diskette drive, a 40- or 80-column display, an Asynchronous Communications Adapter, and the IBM Disk Operating System (DOS). Neither the program nor its data files can be stored on a fixed disk. Users are responsible for obtaining necessary modem, cable and communications options for attaching their system to peripheral devices.

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Entertainment Programs



Microsoft Adventure

A fun-filled, action-packed computer fantasy game

Imagine a journey through a labyrinth of mysterious caves.

Imagine what would happen if you were on that journey and you met up with giant green snakes . . . rumbling volcanoes . . . fuming sulfur lakes . . . pesky trolls . . . and nightmarish monsters.

Imagine that, and many more surprises, and you have the fantasy/logic software game called Microsoft Adventure.

Adventure is fun and exciting. And you can enjoy it all with your personal computer from IBM.

How it works

Hunt in "Colossal Cave." When the game starts, you find yourself in a lush forest beside a small building. By entering simple commands and answering questions, you explore the area, find the entrance to the cave and discover how to enter it. Once you enter Colossal Cave, you rely on your skill and intuition to survive and find treasures.

Scoring. The challenge of Microsoft Adventure is figuring out how to explore the cave and find the treasures. The game provides enough clues and hints to allow you to successfully explore the entire cave and obtain a "Grand Master" rating. Although this may sound simple, it requires skill and a keen sense of logic.

A perfect Microsoft Adventure score is 350. Points may be accumulated by getting into the cave, exploring each part of it, locating treasures, and transporting them out of the cave. On the other hand, points are subtracted for asking the program for help, accepting hints or quitting.



Be a "Grand Master." Adventure is a challenge to both beginners and experienced players alike. The deeper one goes into the cave, the more sophisticated the level of play becomes. At the end of each game, your performance is rated according to one of nine categories . . . from "rank amateur" to "seasoned adventurer" to "Grand Master."

As you prove yourself sufficiently skilled, more sections of the cave—with greater treasures and correspondingly greater hazards and puzzles—open up to you. Because the cave is inhabited by living and "thinking" opponents, each Adventure session will be totally unique.

Enter the "Repository." The ultimate goal of Adventure is to exhibit a mastery of play that will gain you entrance into the "Adventure Repository." Here, you'll have a shot at the Grand Master game.

But, watch out. Be careful. Only would-be Grand Masters with finely tuned Adventure magic skills and experience can survive the final tests.

Since advanced players can survive in Colossal Cave for hours, Adventure allows you to stop the action in the cave. You can use your personal computer from IBM for other things and return days or weeks later to continue your Adventure journey.

What you get. The Microsoft Adventure software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 32KB of user memory and one diskette drive, and a display. This program cannot be stored on a fixed disk.

Microsoft Decathlon

*An action-packed game
of athletic competition*

Become a world-class champion. Here's your chance to become a champion in the greatest of all athletic competitions—the decathlon.

The decathlon has been called the truest test of an athlete. It demands excellence in 10 different events that encompass three diverse athletic disciplines—running, jumping and throwing.

Go for the gold, the silver or the bronze medal in this exciting game which simulates the famous 10-event track-and-field competition. You'll compete on a personal computer from IBM just as if you were in the challenging finals of the real event. You'll run the 100-meter dash, leap the broad jump, hurl the shot in the shot put, attempt the high jump and race 400 meters. Then you'll compete in the 110-meter hurdles, the discus throw, the pole vault, the javelin throw and the 1,500-meter run.

How it works

Playing Microsoft Decathlon makes it easy to imagine yourself in actual competition. Each event is presented in animated graphics. You interact with the animation in real time, using the keyboard to manipulate the figures on the display screen. Music and sound effects add to the drama. To be victorious, you'll need a good sense of timing, fast reflexes and excellent coordination.

Scoring. As many as six athletes may compete in Decathlon, or you may play by yourself. You are awarded points for each event based on how your performance matches up to world champion standards.

After each event, you may display a Standings Table of each player's cumulative score. This table will enable you to compare the achievements and point totals of up to six competitors.

Let the games begin. Once each competitor has selected one of 32 countries to represent, the first event—the 100-meter dash—begins. Each event contains built-in instructions regarding how the event is to be conducted and which keyboard controls are to be used for interaction between the player and the animated figure on the screen.

You may practice any or all events as many times as you wish before the events begin. After you have completed each practice event, the computer will advise you of your performance. Then you will respond to questions such as: How many athletes will be competing? What is each athlete's first name? Which country would each like to represent?

In the high jump, for example, the program explains the rules of the competition and allows you to determine what height you want to attempt first. It then displays these instructions:

Press the SPACE BAR to begin your approach.

Press the X key to plant your take-off foot.
Press the ENTER key to jump.

Once you press the SPACE BAR to begin your approach, the computer will monitor your speed and your decreasing distance from the crossbar. You must press the X key to plant your foot before you reach the crossbar and then wait until you've moved to the angle at which you wish to jump before pressing the ENTER key. It will take coordination and good timing to clear a high jump—some of the same skills needed in the actual field event.

In running events such as the 100-meter dash, the 400-meter dash and the 1,500-meter run, competitors race against one another two at a time. The computer will announce who should be in Lane 1 and who should be in Lane 2. As the race is under way, you can see your progress against the competition and the clock.



Part of the fun and challenge of Microsoft Decathlon is controlling the movements of animated figures via the IBM Personal Computer Keyboard.

The awards ceremony. Once all 10 events are completed, the program will announce the winner of the gold medal. A few seconds later, it will display the final standings of all the participants. You'll be able to judge which events you do best in and which ones you need to improve on to better your score next time.

You can easily get caught up in the challenge and excitement of Microsoft Decathlon—especially when you play it with your family and friends. It's just one more way your personal computer from IBM can bring you hours of fun and pleasure.

What you get. The Microsoft Decathlon software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, a color display, and an IBM Color/Graphics Monitor Adapter. This program cannot be stored on a fixed disk.

Adventure in Serenia

*An exciting adventure game
in an enchanted land*

Mystery and danger. Prepare yourself for excitement each time you go on an Adventure in Serenia with your personal computer from IBM.

Your mission in this challenging software game is to rescue the beautiful Princess Priscilla, who's been kidnapped by the wicked Wizard Harlin. The Wizard has locked away the Princess in his remote castle, hidden beyond the mountains to the north. To reach the castle, you must cross deserts, swim oceans and climb mountains. You will also have to learn magic . . . even dig for buried treasure.

Many strange beasts have been known to inhabit this curious land, for Serenia is anything but serene. For example, there's that troublesome snake just north of the village. You must also beware of scorpions hiding behind rocks.

How it works

Adventure in Serenia is easy to learn and fun to play on your personal computer from IBM. Everything you need to know, including the program's simple one- and two-word commands, is clearly explained in the instruction booklet that accompanies the game. And you'll enjoy the entertaining sound effects, which help bring the game alive.

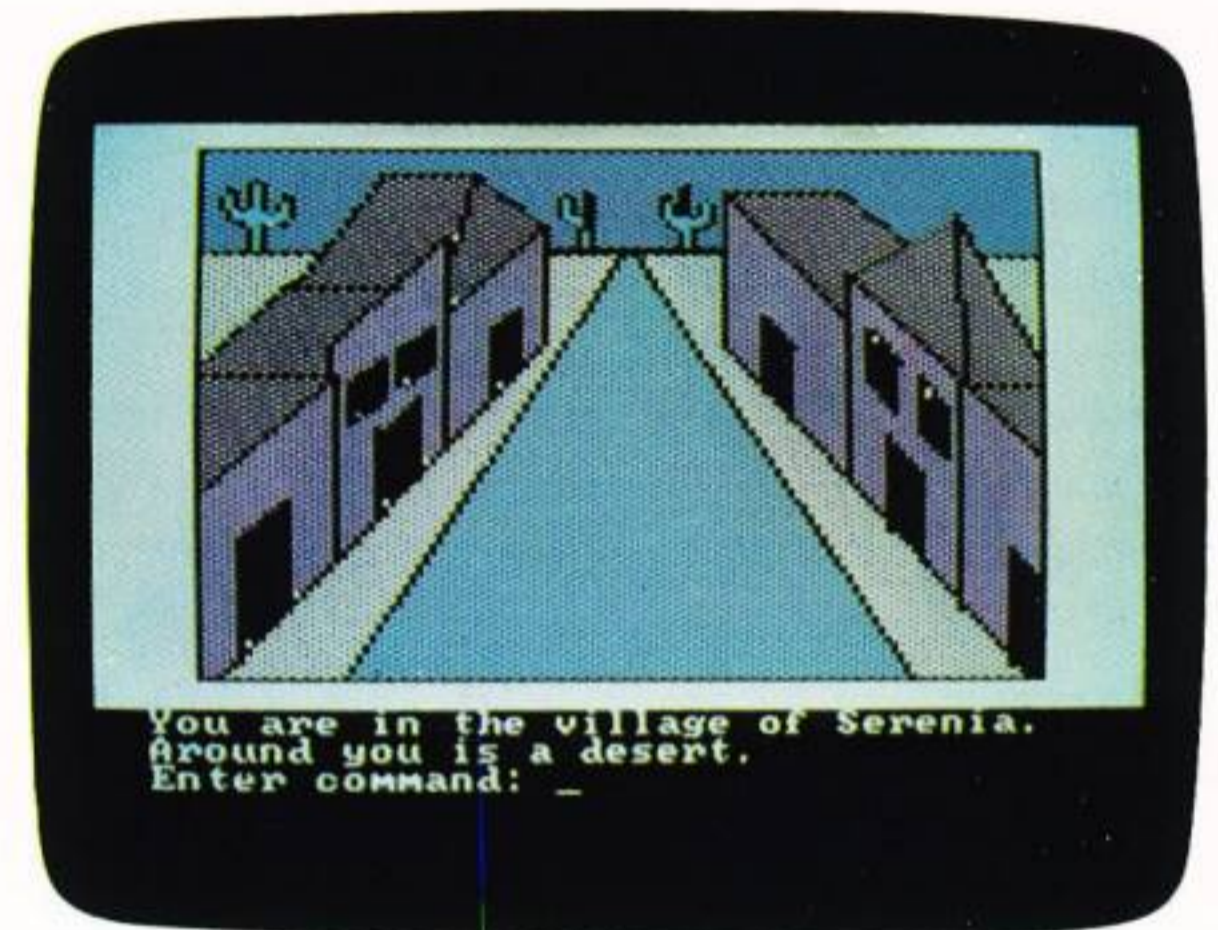
As you search for the Princess and the means of saving her, the upper portion of your computer's screen displays a colorful picture of your current surroundings. Four lines of text at the bottom of the screen describe what is happening. The text advances with the action, but you can always return information to the screen with a single keystroke.

No direction is safe. Danger lurks behind every tree and rock along your way, no matter which direction you select. You travel throughout Serenia by telling the computer the direction you wish to go: NORTH, SOUTH, EAST, WEST, UP or DOWN. During your journey, you may find places that call for jumping, climbing—even flying!

Help is at hand. As you travel, you may stumble upon weapons that you can use to protect yourself from creatures great and small. You may command the computer to fetch these things for you. But be on the lookout for magical side effects. Some objects may have been planted along your path by the Wizard to delay your mission.

At times, you may see something in the picture and want a better view of it. For example, you might find a box and want to see if there is anything inside. To look inside, try a command such as "LOOK BOX." If there is anything helpful inside, you may be provided with a closer view.

Return to a game hours or days later. Since Adventure in Serenia is not a game that you will usually solve in one sitting, you can issue a SAVE GAME command to save the game in progress.



Your adventure begins in peaceful Serenia—but watch out for the deadly snake blocking your path just north of the village.

What you get. The Adventure in Serenia software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 48KB of user memory and one diskette drive, a color display, an IBM Color/Graphics Monitor Adapter, and the IBM Disk Operating System. This program cannot be stored on a fixed disk.

Casino Games

Your stake in the exciting world of chance

Pit your skill against the house . . . go for a showdown against the dealer . . . try for a payoff from a one-armed bandit.

You and as many as three other players can take your chances at Blackjack, Poker and Slot Machine . . . three of the most popular games in Las Vegas and Atlantic City.

And now, they can be just across the table from you . . . on a personal computer from IBM. All that's missing is the financial risk.

Casino Games is an entertaining software package that creates a fast-paced, competitive arena in which you can test your playing skills . . . and the odds.

The official rules of the games prevail. It's so close to the real thing that, after the first few minutes of play, you can easily imagine yourself amid the green playing tables and bright lights of a real casino.

How it works

You start by typing in the number of players (there can be up to four) and their names (up to eight letters for each). When the names have been entered, the Casino Games menu appears. The first player chooses which game to play, and players can pass up their turns if they wish.

Each player begins with \$500, courtesy of the "house"; this is the role played by your personal computer from IBM, which banks your winnings . . . or keeps track of your losses.

If your remaining chips fall below \$10, you can choose Slot Machine to try to build up your stakes. When there are two or more players, you leave the game when you have either broken the bank by winning one

million dollars or lost all your money. If you're the only player, you can automatically start over.

The games are played with the IBM Personal Computer Keyboard, using single-key commands. This enables you to focus on the monitor screen, where the action takes place.

Blackjack. The object of this fast-moving game is to be dealt two or more cards that total 21, or as close to it as possible without going over 21. Meanwhile, the dealer is trying for the same. The higher of the two hands wins, unless one has been unwise or unlucky enough to "bust out" by exceeding the magic number of 21. Blackjack requires a minimum bet of \$10.

That's the basic game, but there are additional rules and options that give it even greater dimension. For example, the dealer must stand pat at 17, giving the player the opportunity to beat the house by drawing more cards. And it is possible, under certain circumstances, to double your bet or to insure it against a possible win by the dealer. All this information is in the instructions accompanying the program package.

Slot Machine. The almost hypnotic attraction of the slot machine depends in large part on the eternal hope that the next pull of the lever will yield the winning combination.

You can share in the same hope . . . minus the physical exertion. Your computer will respond to each slot machine command by lining up a row of the traditional symbols electronically. The minimum bet is \$1, and the various winning arrays are multiplied by suitable odds that are shown each time they come up.

Besides providing a change of pace from watching the fall of the cards, Slot Machine is a means of recouping—or trying to—when your original stake has dwindled below the minimum bet for the two table games.



Interesting, entertaining visuals and sound effects help make playing more fun.

Poker. It's the classic game of five-card stud—nothing wild and no jokers in the deck. You need at least \$30 to play . . . a \$10 ante and two minimum bets of \$10 each.

If you've ever been fascinated by stories of fabulous draw poker matches, of hands that opened with a gold piece and were called with a 10,000-acre deed, you should enjoy the ways in which this game catches the spirit of those legendary battles.

You can win—or lose—on anything from a high card to a straight flush. Or you can break even on a "push," or tie. Here again, the instructions in your program package provide you with the values of the various hands in relation to one another.

What you get. The Casino Games software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 64KB of memory and one diskette drive, a color display, an IBM Color/Graphics Monitor Adapter, and the IBM Disk Operating System. This program cannot be stored on a fixed disk.

Strategy Games

Four exciting games to challenge your reasoning powers

A choice of stratagems. Add Strategy Games to your repertoire of software for your personal computer from IBM, and you can enjoy a contest of wits whenever the spirit moves you.

You can call up a menu of four board games on your display. There's Checkers for Beginners, an introductory level game that shows you the fundamentals of checkers and allows you to practice your skills; Elusion, a new game created for personal computers from IBM; Battleship, the hide-and-seek war at sea game that has been waged for nearly a century; and Reversi, an evolution of a British game called Halma, which has enjoyed a surge in popularity in the last decade.

Whichever game you choose, it will test your ability to devise a winning strategy, whether you are playing against another person or the computer itself.

And each is an object lesson in the value of thinking ahead to counter your opponent's strategies.

How it works

Checkers for Beginners. Checkers for Beginners can be played between you and a personal computer. You'll have to go far to find a partner who is willing to challenge you any time of the day or night and one less likely to gloat over its own performance or criticize yours.

The game sets itself up on the screen of your personal computer, inviting you to make the first move, luring you into all the pitfalls of the unwary and overeager—and offering your computer the opportunity to do the same.

Elusion. The object of the game is to capture not the pieces but the squares on the board—and win by making the last move. Moreover, you can choose the size of the playing board—25 squares or the more difficult 36. The second player can be either a friend or the computer.

Each square is numbered. You move in a straight line in any direction by using the appropriate keys on your IBM Personal Computer Keyboard. You can't move to or through a square once it has been occupied.

The game board display keeps track of all the moves. It tells you where each player has last moved and indicates which squares have been taken and so are blocked to either player.

If you play against the computer, you have the option of going first. If you play against a friend, Player 1 goes first. There's a slight advantage to going second. But think of the satisfaction in moving first—and still ending up the winner!

Battleship. Battleship is actually three games in one, but the object in all of them is to sink your opponent's navy by guessing where your adversary's ships are hidden.

In the first version, you try to sink the computer's navy. In the second, you and the computer try to sink each other's navy. In the third, you and a friend battle it out.

Where two fleets are involved, you automatically take command of four submarines, three destroyers, two aircraft carriers, and one battleship.

As the naval commander, you place your ships in whatever formation you choose, which is concealed from your opponent—who does likewise. Then you alternate salvos, using the keyboard to designate the coordinates of the square where you suspect an enemy ship may be located.

Hits and misses are signaled to the players, together with the hit ratio and the identity of ships sunk. Victory goes to the player who first sinks all opposing ships.

Reversi. Descended from a British game called Halma (from the Greek "leap"), Reversi is also a cousin of Chinese Checkers, which has the same origins.

This is a somewhat simplified version, but do not be deceived; a high order of strategy is required to master the game. Moves must be planned well in advance to defeat your opponent, the computer.

The object of Reversi is to occupy the most squares on the board with your game pieces. Each side tries to capture the other's game markers. Every time this happens, the squares where the action occurs flip to the color of the victorious player.

The higher scorer wins. If neither you nor the computer can make a move—even if some of the squares are not occupied—the one with the highest score to that point wins or, if there is a tie score, the game ends in a draw.

You have the choice of opening first or second, but the early stages are less important than the end-game. You should know, however, that the squares along the edges of the Reversi board are highly desirable, and the corners are the best positions. Your personal computer already knows.

What you get. The Strategy Games software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements. A minimum of 64KB of user memory and one diskette drive, a color display, an IBM Color/Graphics Monitor Adapter, and the IBM Disk Operating System. This program cannot be stored on a fixed disk.

Educational Programs



A tool for learning

*Introducing students of all ages
to the world of computer capabilities*

A learning experience. With a personal computer from IBM, learning activities may be more productive, more creative and more fun . . . in school or at home.

A personal computer from IBM, with its powerful 16-bit microprocessor and other state-of-the-art design features, offers you and your family a teaching aid for learning about the operation and capabilities of computers . . . what computers are all about.

For children, a personal computer can be a smart "classmate" to study with—to help with homework and to help learn a range of basic subjects. It interacts with children, one-to-one, in a "user-friendly" way.

You don't have to be a computer expert to learn how to use your computer. All it takes is a little time and practice. A special set of easy-to-understand reference manuals is provided by IBM to help take the mystery out of computing and familiarize you with your personal computer from IBM.

Start with math and typing. IBM Personal Computer educational software products could help your children learn important skills that may aid them in school.

Arithmetic Games, Sets 1 and 2, and Fact Track* may help your children develop and refine math skills. Drills and practice sessions are presented as enjoyable, challenging games. Children can use these programs at different skill levels and learn at their own pace.



Another educational program, Typing Tutor, was designed to help build typing speed and accuracy. It's easy to use and creates individualized drills in order to match each typist's needs and skill levels.

BASIC . . . an easy way to learn programming. With the popular, easy-to-use BASIC programming language that comes with every personal computer from IBM, children—and adults—may begin to learn how to write their own programs. The computers offer three levels of BASIC as well as other programming languages such as COBOL,

two types of FORTRAN and Pascal, and three assembler-language programs.

The educated choice. To help make learning more productive, choose a personal computer from IBM and its associated educational software. They can be an educational experience for children and adults each time they are used.

**Fact Track is a trademark of Science Research Associates, Incorporated.*

Arithmetic Games

An enjoyable way to build skills and speed in math

Children sharpen their skills while they play. Playing Arithmetic Games on a personal computer from IBM is a great way to help children develop and refine their math skills . . . while they enjoy countless hours of entertainment.

Arithmetic Games is an excellent educational aid. Players participate in different types of arithmetic drills involving addition, subtraction, multiplication and division.

The educational and self-improvement value of the drills is made more rewarding by the entertainment qualities of these challenging computer games. The games were designed to stimulate the imagination. The enjoyable game approach to math drills could help children learn faster. Continuous audio and animated color video feedback motivate and inspire them to perform . . . to learn.

Children can match wits with the computer in a game of BEANO . . . defeat all their opponent's ROCKETS in an exciting outer-space battle . . . identify the hidden formula of the DISCOVERY MACHINE before their turns are used up . . . and solve the computer's clues to discover the secret number in NUMBER CHASE.

Each of the four games can be played at different levels—from easy for beginners, to intermediate, to difficult for more experienced players.

In addition, Arithmetic Games is a great way to introduce children to computers. As they play the games, they may become comfortable with using the personal computer and begin to understand some of the capabilities of computer technology.

How it works

Children don't have to be computer experts to play Arithmetic Games on a personal computer from IBM. Any member of your family can do it—with just a little time and practice.

An instruction booklet shows how to set up the game, so play can begin by simply inserting the appropriate diskette.

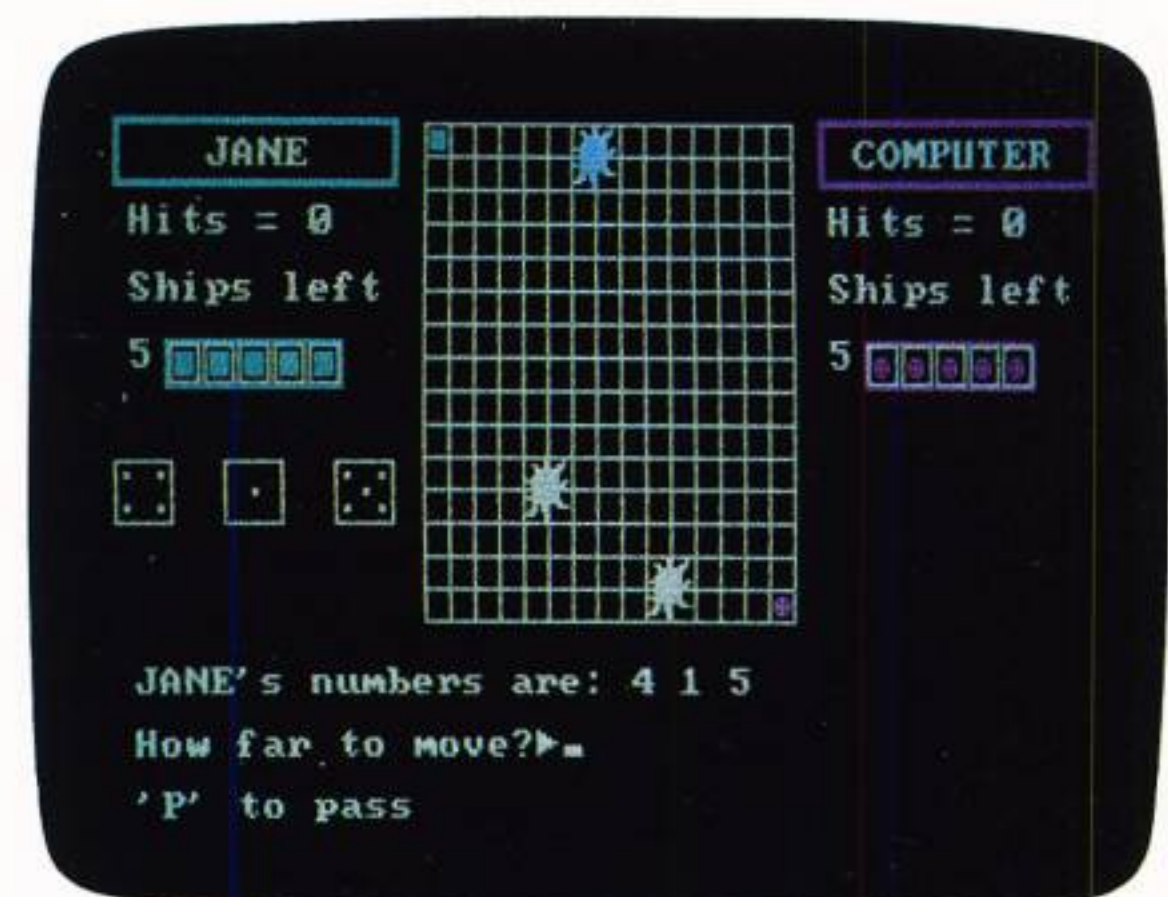


Interesting, entertaining visuals and sound effects help make math drills enjoyable.

BEANO. A BEANO card has 25 squares. Most are numbered but one or more are "FREE." The computer rolls the dice. Using the numbers on the dice, players try to match one of the numbers on their cards.

To win, a player must fill a row, column or diagonal with beans.

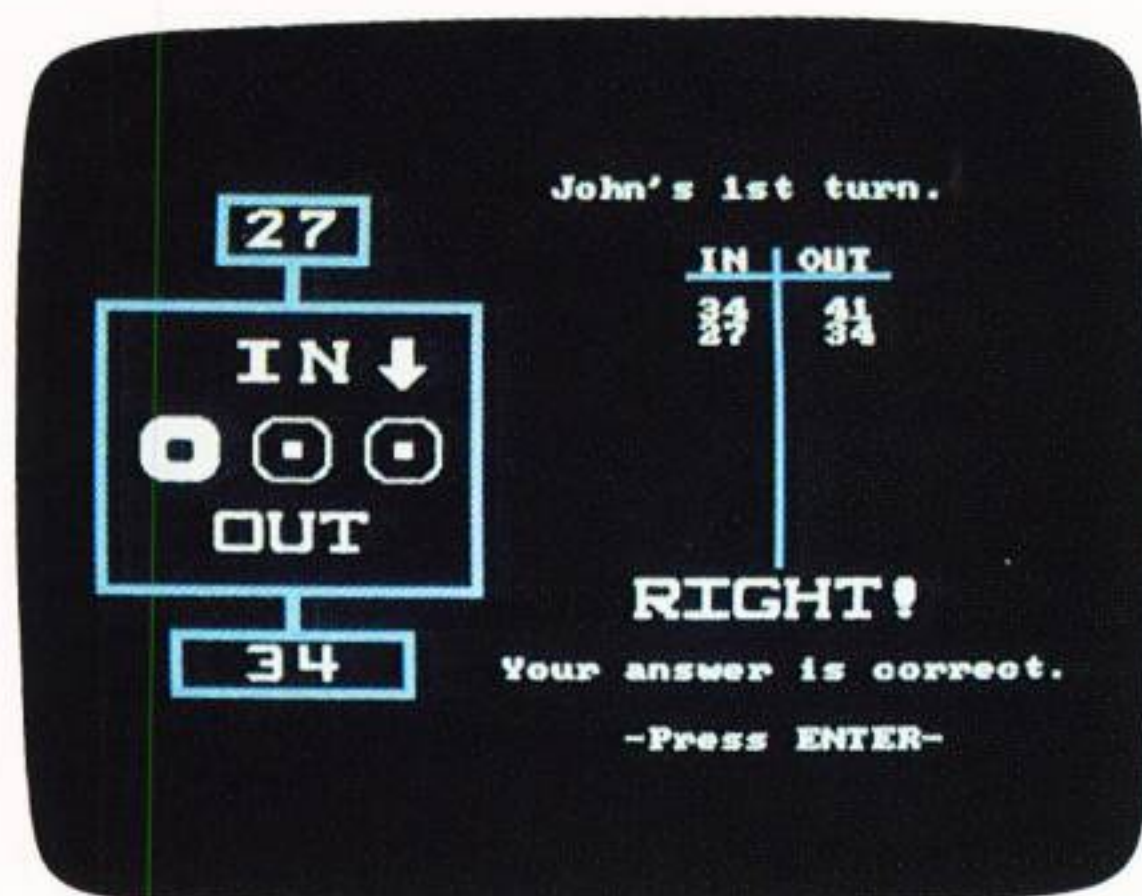
Players can either add, subtract, multiply or divide the numbers on the dice—in any order—to get one of the numbers on their cards. When they do, the computer puts a "bean" on that number. If they can't match one of the numbers on their cards, they must pass a turn.



To win at ROCKETS, players must destroy all opposing rockets in an outer space battle.

ROCKETS. In ROCKETS, the screen becomes a field in outer space with 225 squares and a number of black holes that a player's rockets cannot pass through or fire through. Each player starts the game with five rockets and operates one rocket at a time. The object of the game is for a player to move his or her rockets into position to fire at and destroy the opponent's rockets.

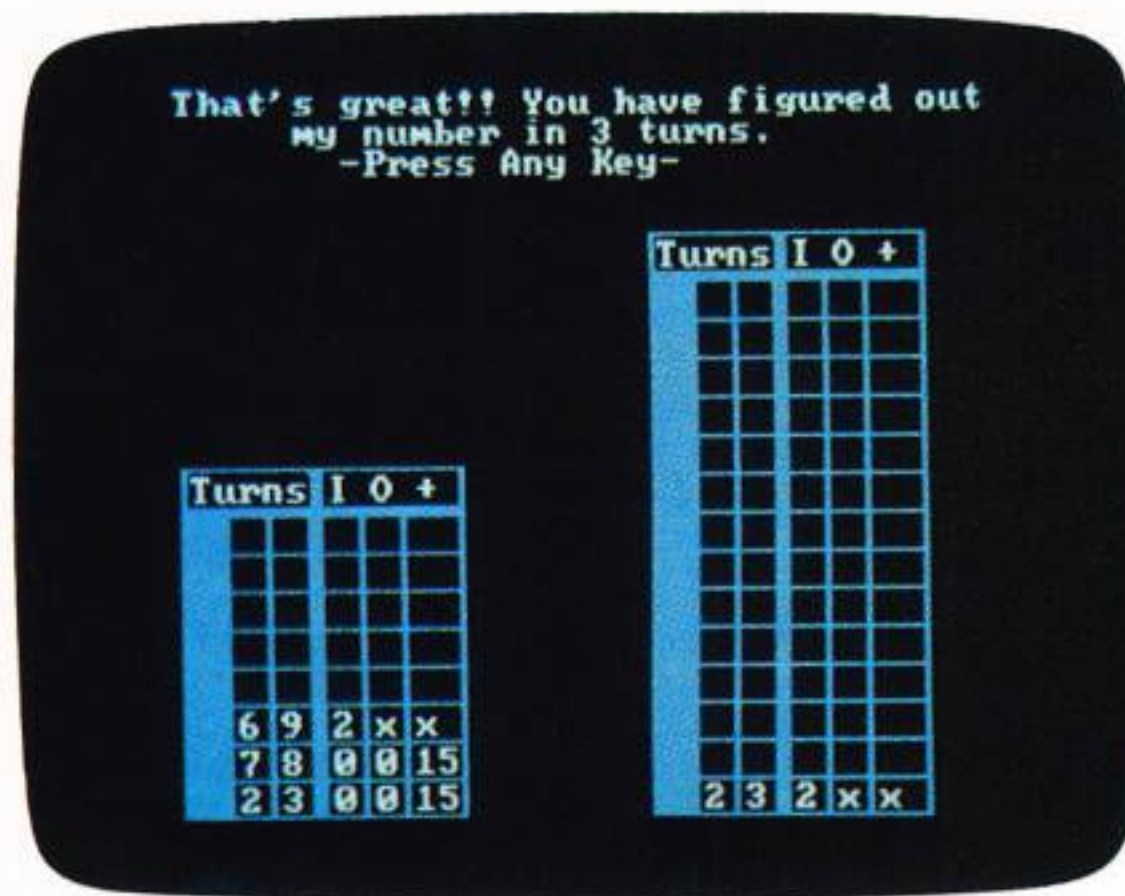
The computer rolls two or three dice, depending on the level of play, and a player must add, subtract, multiply or divide these numbers in any order to arrive at a number that can be used to attack the competitor's rocket. Once a player arrives at a number, he or she can move that many spaces up, down, left or right. The player's rocket then fires in any of four directions and destroys any alien rocket it hits. But players must watch out for the black holes!



Using only the number in and the number out, DISCOVERY MACHINE players must discover the computer's secret calculation to win.

DISCOVERY MACHINE. The DISCOVERY MACHINE takes a number in, performs a secret calculation and sends a new number out. Seeing only the number taken in and the number sent out, players try to discover the mathematical calculation the program has made.

The calculation could involve addition, subtraction, multiplication or division... or even squaring the number, and it may involve either one or two operations. A winner is declared when the calculation is discovered by guessing three "out" numbers in a row.



NUMBER CHASE players must solve the computer's clues to win.

NUMBER CHASE. In NUMBER CHASE, the computer makes up a secret number and players try to determine the number by using clues that the computer provides. When two play, each person takes a turn and has a separate number to guess. When someone plays alone, he or she tries to guess the computer's number. Players can also make up a number for the computer to guess.

What you get. There are two sets of Arithmetic Games. Set 1 includes BEANO and ROCKETS. Set 2 includes DISCOVERY MACHINE and NUMBER CHASE. Each set is packaged and sold separately, and each package includes:

- Program Diskette
- Users' Instruction Booklet



System requirements: Both sets of Arithmetic Games require a minimum of 64KB of user memory and one diskette drive, a color display, an IBM Color/Graphics Monitor Adapter, and the IBM Disk Operating System (DOS) 1.1. To use these programs with DOS 2.0, a minimum of 96KB of user memory is required. Neither of these programs can be stored on a fixed disk.

Fact Track

*An enjoyable way to learn
and practice arithmetic*

Improve skill and speed in math. Fact Track* is an easy-to-use program designed to help users learn arithmetic on a personal computer from IBM.

Fact Track can be used to aid in learning simple addition, subtraction, multiplication and division of single- and double-digit numbers.

The Fact Track package is organized according to levels of difficulty. It can be used at home or in the classroom by children of various grade levels, or by anyone who would like arithmetic practice. Users can have fun playing with Fact Track—and, at the same time, they'll be learning basic arithmetic skills.

With Fact Track, all computational skills depend on arithmetic facts: the sums and products of 1-digit numbers (for example, $6 + 8 = 14$) and the corresponding subtraction and division combinations (for example, $14 - 8 = 6$).

Fact Track provides measurable results. Mastery of the arithmetic facts can be measured in two ways with Fact Track: (1) knowledge of the correct answers and (2) rate of response. The final goal is instantaneous recall of the answers to all 390 questions in the software package.

In the classroom. At school, a personal computer from IBM and Fact Track can be adapted to the way a teacher wants students to practice arithmetic. The teacher's standards for accuracy and speed become the program's standards. Students can operate Fact Track individually for learning at their own pace or can work together in groups.

With Fact Track, the student or the teacher selects a method for timing the work. The program then presents the various exercise selections. As an option, users may set a time

goal against which to compare actual performance. A format is also available in which users race a rocket whose speed is determined by the time goal.

How it works

The Fact Track instruction booklet clearly explains how the program operates.

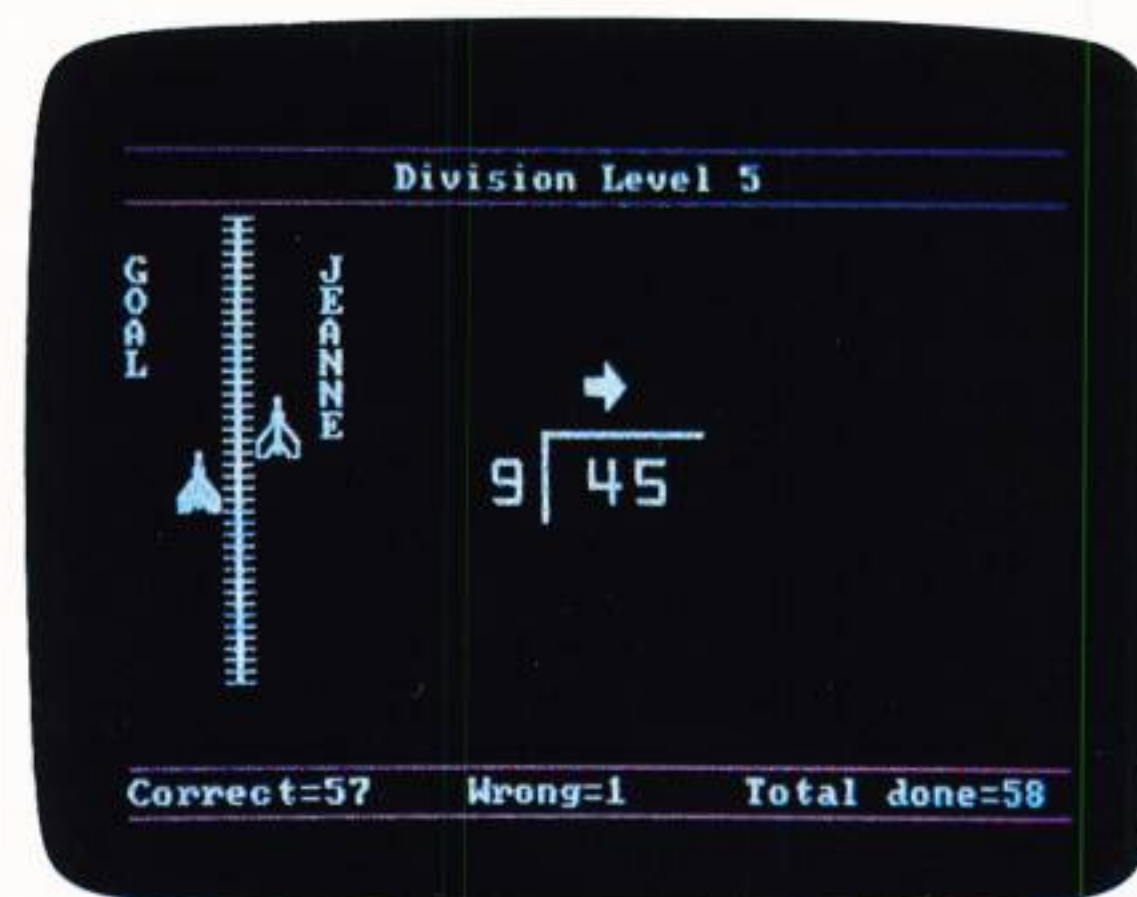
All the facts are at your fingertips. All the mathematical problems are stored on the Fact Track program diskette. When the user tells the computer which type of fact is needed, the program delivers the information in random order.

There are various ways to use Fact Track. For example, each answer can be typed on the IBM Personal Computer Keyboard; Fact Track then reports on the user's performance and lists all errors. Or the answers can be written on paper and the program simply displays the correct answers. Another option enables users to set goals to compare against actual performance.

Three ways to sharpen arithmetic skills. Students can use three Fact Track operation modes to improve their mathematical skills.

Option 1 allows students to select a number of problems and the amount of time required to solve them. Once they become competent within the first time period, they can strive to shorten the time they need to solve the same number of problems.

Options 2 and 3 enable students to race against the clock or against goal levels set by each individual. Option 2 was designed for use with groups of students—as many as can see the screen—as well as individuals. It's ideal for testing students all at once on addition or division. Option 3 enables students to try to increase the number of problems they solve in a given time while maintaining or improving accuracy.



▲ To make learning more fun, Fact Track offers a race format in which a player tries to beat a rocket whose speed is determined by a goal he or she has set.

If any students have trouble following the options at the start of the Fact Track program, the teacher may provide them with a list of characters to type to produce the appropriate drill. For example, the sequence A, 1, 1 in response to the various choices will produce 20 Level 1 addition facts and then display the time taken by the student to complete them. Forms are provided in the booklet to track results.

What you get. The Fact Track software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, a 40- or 80-character display, an IBM Color/Graphics Monitor Adapter, and the IBM Disk Operating System (DOS) 1.1. To use this program with DOS 2.0, a minimum of 96KB of user memory is required. Neither the program nor its data files can be stored on a fixed disk.

*Fact Track is a trademark of Science Research Associates, Incorporated.

Typing Tutor

A productive way to develop and sharpen typing skills

Improve typing speed and accuracy.

Typing Tutor is a fast and easy way to learn or improve typing skills. This software package enables users to build and improve typing speed and accuracy—with the familiar, typewriter-like IBM Personal Computer Keyboard.

Typing Tutor helps beginning typists to quickly progress to an advanced level of proficiency the right way: by the touch-typing method. If you're simply out of practice, the program may help you revive your skills. Even if your typing is "good or better," Typing Tutor may help you become a faster and more accurate typist.

Typing Tutor differs from most classes or lessons in its unique ability to constantly monitor your progress as you learn. It then incorporates this information as it creates new lessons specifically tailored to your needs.

How it works

Become a typing "drillmaster." Typing Tutor is easy to use and may be personalized to suit your needs and skill level. It offers you a choice between learning new keys or drilling for increased speed and accuracy.

Typing Tutor is specifically tailored to the keyboard of your personal computer from IBM. The special characters (@, #, %, etc.) that you may use when programming your computer are included in the drills the program prepares. Numbers are also given special emphasis to help you enter your program faster.

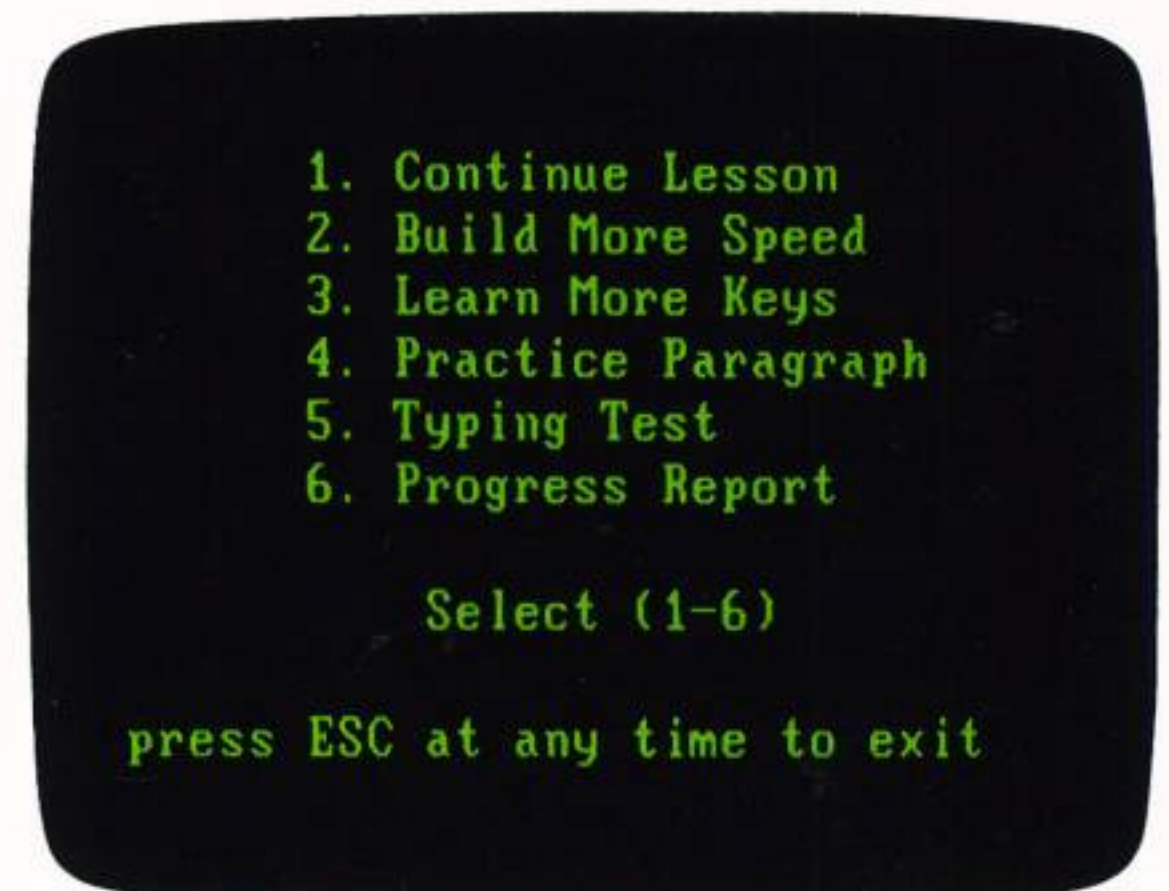
Individualized typing drills. Typing Tutor keeps track of the keys you know, the keys you are learning—and, of course, the keys you don't know. It uses this information to create individualized typing drills designed to increase your speed and accuracy. These drills are based on Typing Tutor's built-in vocabulary. In addition, Typing Tutor quickly adjusts to your skill level each time you use it.

Typing Tutor helps you track your progress. In addition to tabulated results, you will also receive progress reports. These reports will detail the keys you have learned to date, the average number of words per minute you have typed, the average accuracy at which you typed, an average corrected speed (average speed multiplied by average accuracy), and your highest corrected speed to date.

What makes Typing Tutor so practical, easy to use, and effective is its exclusive "Time Response Monitoring," or TRM*, software. TRM is a system for monitoring the keyboard 100 times a second. The information received from TRM is analyzed by your personal computer to monitor your skills and progress.

In the classroom. The diskette version of Typing Tutor has features that make it suitable not only for use in your home but for use in the classroom as well. Up to 39 students can record their progress on the diskette and return to their lessons where they left off. Teachers can develop their own test paragraphs for students and can monitor the progress of each student individually.

*Time Response Monitoring and TRM are registered trademarks of The Image Producers, Incorporated.



Typing Tutor enables users to select the drills they want to concentrate on.

What you get. The Typing Tutor software package includes:

- Either a Program Cassette Tape or a Program Diskette, depending on whether you are using an audio cassette recorder/player[†] or a diskette drive to run the program
- Users' Instruction Booklet

System requirements: A minimum of 48KB of user memory and one diskette drive (or an audio cassette recorder/player and 32KB of user memory), a 40- or 80-character display, and the IBM Disk Operating System (DOS) 1.1. To use this program with DOS 2.0, a minimum of 64KB of user memory is required. Neither the program nor its data files can be stored on a fixed disk.

[†]Audio cassette recorder/players are not part of the IBM Personal Computer offering and must be purchased separately.

Operating Systems and Languages



Select from a range of operating systems and languages

Three different operating systems, three levels of BASIC, COBOL, two types of FORTRAN and Pascal, three different assemblers, and more

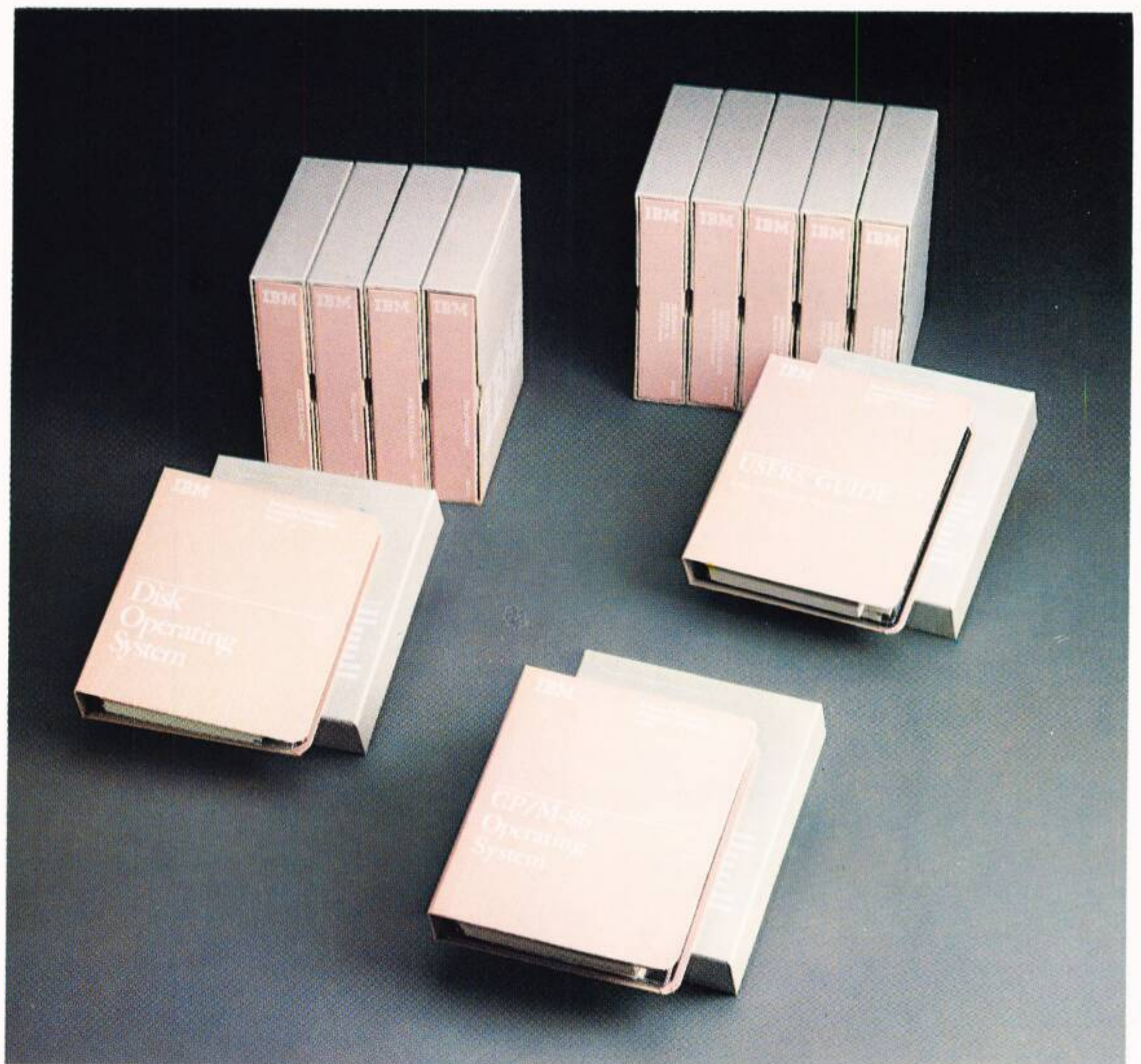
IBM Disk Operating System, CP/M-86* and the UCSD p-System.* In the short time since it was introduced, the IBM Personal Computer has built up a very impressive list of system software and language offerings. You can select any of three popular operating systems: the IBM Disk Operating System (DOS), CP/M-86 and the UCSD p-System. Each offers a range of unique capabilities, opportunities and packaged software. You can also build your own library of programming languages—each with special advantages of its own.

For programmers. Whether you're a professional programmer or a student, or would just like to learn to program in your spare time, you'll find that personal computers from IBM offer you flexibility and performance that are hard to match. They combine the superior power and speed of a 16-bit microprocessor with a range of hardware, software, operating systems and language products to allow individuals to use their system at a personal level.

For packaged-software users only. Even if you're not a programmer and don't plan to use your computer to develop or modify your own programs, you will find that the selection of IBM Personal Computer operating systems is your passport to large and growing libraries of packaged software.

The IBM Disk Operating System, of course, provides the system support you need to use most of the IBM Personal Computer software diskettes on both the IBM Personal Computer and the IBM Personal Computer XT. It will also support a large number of programs sold by other manufacturers. For this reason, most owners of personal computers from IBM buy DOS with their system.

*CP/M-86 is a trademark of Digital Research, Incorporated. UCSD p-System is a trademark of the Regents of the University of California.



Each of the other two operating systems, CP/M-86 and the UCSD p-System, offers you access to independently sold programs developed to run with these respective operating systems on the IBM Personal Computer (but not on the IBM Personal Computer XT). Because both CP/M-86 and the UCSD p-System run on many different types of microcomputers, many of the programs they support have been converted for use on personal computers from IBM—and the number and variety of these programs are increasing rapidly.

Your professional program development system. With its broad range of operating systems and languages, a personal computer from IBM is at your command. Use it to develop programs to solve all types of problems, to help you in your work, and simply to make life easier.

The following pages offer you an overview of the capabilities and features of the IBM Disk Operating System, CP/M-86, the UCSD p-System and the languages they support.

Disk Operating System (DOS) 2.0

System control made simple

A range of program support capabilities. The IBM Disk Operating System (DOS) 2.0 is a master program that provides the required support between hardware for personal computers from IBM and a wide range of applications programs.

DOS 2.0 supports one or more 5¼-inch, single- or double-sided 160KB or 320KB diskettes, and increases their formatted capacity to 180KB and 360KB, respectively, thus allowing more information to be stored on each data diskette. What's more, DOS 2.0 also supports one or two fixed disk drives on personal computers from IBM.

The DOS diskette contains two very important programs, Disk BASIC and Advanced BASIC, both of which are easy to use and help you write your own programs. In addition, the DOS diskette contains utilities and sample programs, including one that enables your personal computer to communicate with other computers.

Advanced program development made easy. If you're interested in developing and modifying programs to meet a variety of needs, DOS is for you.

DOS offers you fast input/output performance so that most diskette operations may be executed quickly. The DISKCOPY and DISKCOMP commands use all available memory, so diskettes can be copied and compared quickly and with minimal diskette handling. Also, the MODE command provides Asynchronous Communications setup and serial printer support, so you can redirect parallel printer output to a serial printer or a remote printer with the Asynchronous Communications Adapter. These and other important features provided with DOS 2.0 make the IBM Disk Operating System responsive to your needs.

DOS also provides an input/output interface for programs written for the BASIC Interpreter. In addition, DOS provides the support you need to develop and run programs using the IBM Personal Computer Macro Assembler, FORTRAN Compiler, COBOL Compiler, BASIC Compiler or Pascal Compiler.

DOS also offers you a range of advanced capabilities that helps simplify program design. You can write on or read from the 5¼-inch diskettes. You can even transfer a copy of DOS to another diskette to simplify system startup and reduce diskette handling.

A line editor enables you to create, display or change source (text) files. With the debug utility, you can display, change or trace a program in memory. A linker is included to allow you to combine the object output of the compilers and Macro Assembler into relocatable modules, which may then be loaded and run on your personal computer from IBM. This enables you to develop applications in a modular fashion. DOS also offers background printing, which enables you to print data files while you perform other functions.

In addition, DOS permits the "chaining" of a series of commands to produce a predetermined sequence of programs. You may also designate a single program or a complete series of programs to begin automatically whenever the system is turned on or restarted.

Among the enhancements that DOS provides for applications development is support for converting some of the output (EXE) files from the LINK program to command (COM) format to reduce the size of the files and speed loading. In addition, enhancements to Disk and Advanced BASIC include faster program loading.

Disk and Advanced BASIC. By providing a high-level interface, DOS brings you numerous programming language capabilities.

Disk and Advanced BASIC are extensions of the BASIC language, which comes with every personal computer from IBM. These extensions provide additional instructions, commands and functions.

Disk BASIC adds DOS file support, date, time of day and communications capabilities to the BASIC language. Advanced BASIC adds advanced key trapping, advanced graphics—including viewports, windows, paint tiling and line styling—plus music and other capabilities. Both extensions also offer tree-structured directories (that also support DOS tree-structured directories) and double-precision transcendental functions. Each of the two extensions is available on the DOS diskette.

A higher memory requirement. DOS 2.0 offers functions not available in previous versions (1.0 and 1.1) and it has a higher user memory requirement (DOS 2.0 is approximately 12KB larger than DOS 1.1). However, most DOS 1.0 and 1.1 programs will run under DOS 2.0 without change.

Since DOS 2.0 uses more memory, some programs may no longer be able to fit in the same size machines. The program will still require the same amount of user memory but, with DOS 2.0 taking more memory, the amount remaining for the program will be less. In these cases, a program may have to be divided into smaller segments, or more memory may have to be added to the system.

What you get. The IBM Disk Operating System includes:

- DOS Diskette
- DOS Supplemental Program Diskette
- Users' Reference Manual

System requirements: A minimum of 64KB of user memory and one diskette drive (128KB for systems with a fixed disk drive), and a 40- or 80-character display.

Disk Operating System (DOS) 2.0

A summary of IBM BASIC statements

BEEP—beep the internal speaker
CALL—call machine-language subroutine from BASIC
CHAIN—execute a new program, retaining values of program variables
CHDIR—change directory
CIRCLE—draw circle, ellipse, arc or wedge
CLOSE—set foreground and background colors
COM... ON/OFF/STOP—enable/disable activation of ON COM... GOSUB
COMMON—mechanism to pass variables to CHAINED program
DATA—standard DATA statement
DATES—set date
DEF FN...—user-defined function
DEF SEG—define current segment of memory
DEF USR—define starting address for USR call
DIM—dimension arrays
DRAW—draw a graphics command string
END—end program
ERASE—reclaim memory from arrays no longer being used
ERROR—simulate a given error condition
FIELD—define fields within a file buffer
FOR... TO... STEP—standard FOR loop
GET (disk I/O)—get a record from a random-access file
GET (graphics)—put graphics information from screen to array
GOSUB—execute subroutine
GOTO—continue execution at specified line
IF... THEN... ELSE—standard IF statement
INPUT—read data from keyboard or data file
KEY—redefine one of ten function keys
KEY... ON/OFF—enable/disable activation ON KEY GOSUB
LET—standard assignment statement
LINE—draw line, box, solid box or graphics screen

LINE INPUT—read an entire line from keyboard or data file
LOCATE—position cursor
LPRINT—print to printer
LPRINT USING—print to printer according to given format
LSET—left-justify a string within a field
MIDS—substring substitution statement
MKDIR—make directory
NEXT—end FOR loop
ON COM/KEY/PEN/STRIG... GOSUB—interrupt by given event to BASIC subroutine
ON ERROR GOTO—enable error-trapping routine
ON... GOSUB—standard computer GOSUB statement
ON... GOTO—standard computer GOTO statement
OPEN—open a disk or communication file
OPTION BASE—allow array subscripts to start at 0 or 1
OUT—output a byte to a port
PAINT—fill an area of the graphics screen with color
PEN ON/OFF/STOP—enable/disable activation of ON PEN GOSUB
PMAP—map physical and world coordinates
POKE—put a specified value into a byte
PRINT—print to video display or file
PRESET—plot a graphics point in the background color
PSET—plot a graphics point in a given color
PUT (disk I/O)—write a record to a random-access file
PUT (graphics)—draw a stored image on the graphics screen
RANDOMIZE—start a new pseudo-random number sequence
READ—read information from DATA statements
REM—standard remark statement
RESTORE—reset pointer to DATA statements
RESUME—return from an error routine
RETURN—return from a subroutine
RMDIR—remove directory
RSET—right-justify a string within a field
SCREEN—choose text or graphics screen for video display
SOUND—generate sound from the speaker

STOP—stop program execution
STRIG ON/OFF—enable/disable joystick button
STRIG... ON/OFF—enable/disable activation of ON STRIG... GOSUB
SWAP—exchange the values of two variables
TIMES—set time
VIEW—define viewports
WAIT—standard Microsoft WAIT statement
WEND—end WHILE loop
WHILE—program loop that executes as long as given condition is true
WINDOW—redefine coordinates of screen
WRITE—output data to video screen or file

A summary of IBM BASIC commands

AUTO—generate line numbers automatically
BLOAD—load machine-language (binary) program
BSAVE—save machine-language program
CLEAR—clear program variables
CONT—continue interrupted program
DELETE—delete a range of BASIC lines
EDIT—edit a line of BASIC
FILES—list all or selected files on disk
KILL—delete a disk file
LIST—list BASIC lines
LLIST—list BASIC lines to printer
LOAD—load a BASIC program file
MERGE—merge a BASIC program file into an existing program
NAME—rename a disk file
NEW—erase current program
RENUM—renumber BASIC program
RESET—close all disk files
RUN—load and run program
SAVE—save current program
SYSTEM—exit BASIC and return to DOS
TRON, TROFF—turn tracing option on and off

A summary of BASIC statements and commands. DOS includes Disk and Advanced BASIC, which feature many easy-to-use English-like commands and statements.

Programming in BASIC

BASIC learning and program development tools

BASIC: Your bridge between English and computer programming. BASIC is the most popular personal computer programming language—and with good reason. BASIC statements and commands are derived from the English language. If you are fluent in English, you should find it fairly simple to learn and use BASIC.

Your personal computer from IBM and the IBM Disk Operating System provide you with the fundamental tools you need to program in BASIC. And when you add the optional BASIC Compiler, you can speed up the run times of your programs.

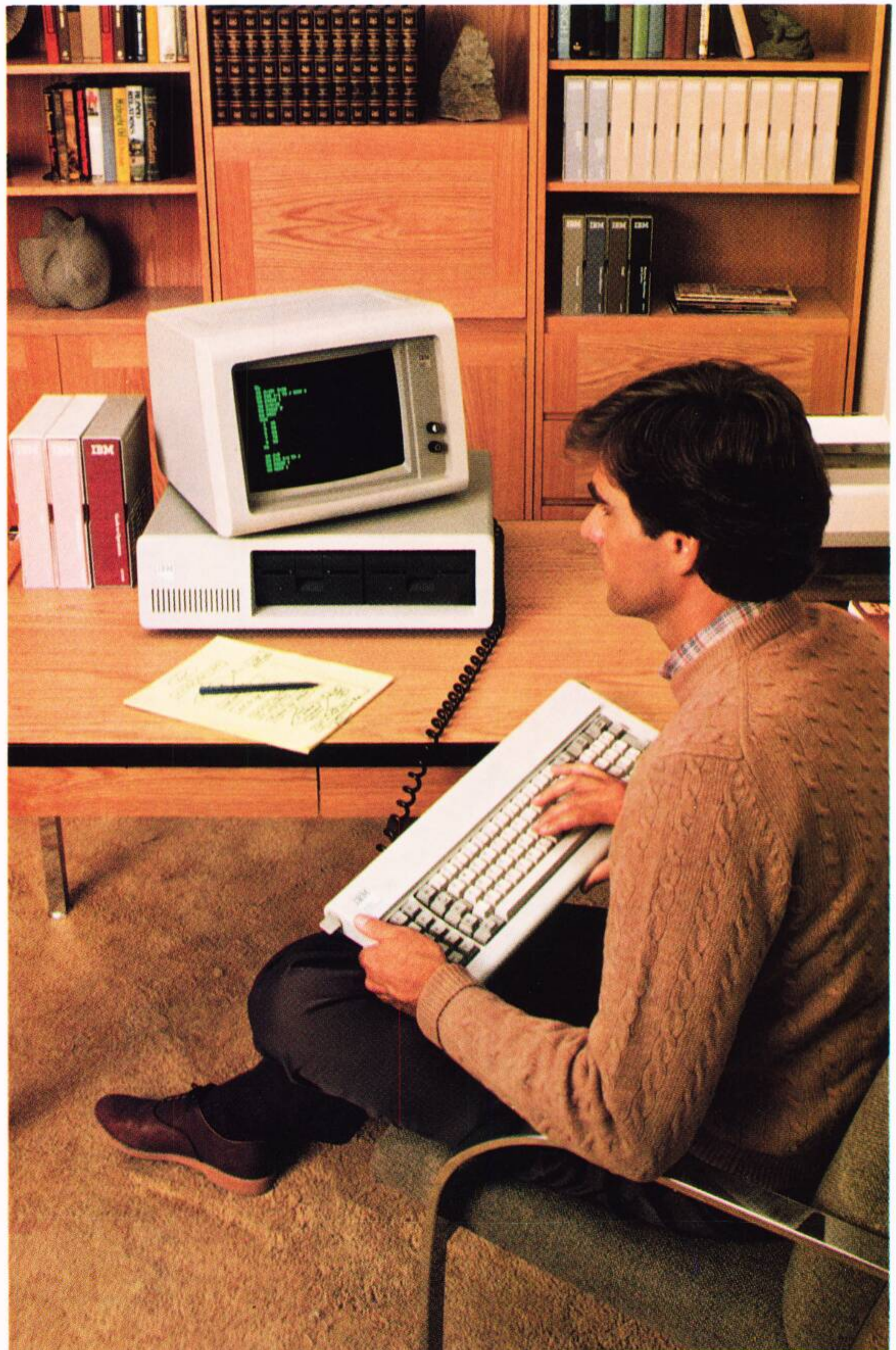
BASIC Primer. If you need help in getting started in BASIC programming, consider BASIC Primer, which is described below. It was designed to teach BASIC to beginners.

BASIC Programming Development System. If you are an experienced BASIC programmer, then you should find BASIC Programming Development System, described herein, a valuable aid for developing more sophisticated BASIC programs.

BASIC Primer

BASIC Primer is a helpful software package designed to teach the fundamentals of writing and editing programs in BASIC on personal computers from IBM. It provides students with an “electronic workbook” filled with simple lessons that combine keyboard practice with easy-to-follow BASIC programming exercises.

BASIC Primer is extremely user friendly. Lessons are clearly written, enabling even young students to learn on personal computers from IBM. Moving graphics help make learning fun. Frequent reviews are incorporated into the lessons to help ensure that adequate levels of comprehension are achieved. What's more, words of encouragement are provided to students as they progress.



Programming in BASIC



Students enjoy practical benefits as they learn. BASIC Primer teaches students a variety of practical programming skills. For instance, they learn how to build a program for keeping checkbook records and for alphabetizing the information in a diskette file. BASIC Primer also provides students with lessons for using data files and for saving programs, thereby enhancing their computer operating skills.

What you get. The BASIC Primer software package includes:

- Program Diskette
- Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, a display, and the IBM Disk Operating System. Neither the program nor its data files can be stored on a fixed disk.

BASIC Programming Development System

The BASIC Programming Development System package consists of two programs with a total of four utilities that can help simplify the writing and editing of sophisticated BASIC programs. The first program includes a Text File Editor and a Structured BASIC Preprocessor. The second program offers you a BASIC Formatter and a BASIC Cross-Reference.

Text File Editor. The Text File Editor helps you create and edit BASIC programs by providing you with both line and full-screen editing capabilities. It offers you a full range of line editing commands, plus formatting commands for word processing. It also enhances your printing and filing capabilities. On-line help is provided for referencing specific commands. The Text File Editor enables you to create DOS files in the popular ASCII format.

Structured BASIC Preprocessor. The Structured BASIC Preprocessor enables you to process structured BASIC source files. It expands structured macros into actual BASIC statements and converts labels into line numbers. It also combines lines automatically and removes remarks to save storage space. One other key benefit: the Structured BASIC Preprocessor enables you to preprocess existing unstructured BASIC programs.

BASIC Formatter and Cross-Reference. These two utilities work together on ASCII files to produce formatted and cross-referenced listings of unstructured BASIC source programs. Although they are options on the same menus, you can use each of them separately.

Other important benefits of the BASIC Formatter and Cross-Reference utilities can help you:

- Separate and indent FOR-NEXT, IF-THEN and WHILE-WEND statements to show a program's structure
- Separate and indent DATA, DIM and field statements to enhance readability
- Indent all code so that line numbers remain visible, with continuation lines indented past the line numbers
- Break multiple statements into single lines
- Place blank lines before and after remarks

To help you master the four utilities, a special tutorial section is included in the reference manual that accompanies the product.

In short, the BASIC Programming Development System may greatly enhance your ability to develop complex programs written in BASIC.

What you get. The BASIC Programming Development System software package includes:

- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 96KB of user memory and one diskette drive, a display, a printer, and the IBM Disk Operating System. Neither the program nor its data files can be stored on a fixed disk.

DOS-supported languages

*A selection of languages
to meet your programming needs*

BASIC Compiler

BASIC programs can be written and tested, using the BASIC Interpreter, and run on your personal computer from IBM with the BASIC Compiler. The BASIC Compiler yields benefits in terms of faster run times and is highly compatible with the BASIC Interpreter. An added benefit is that programs can be distributed without source code, thus safeguarding the design.

What you get.

- BASIC Compiler Diskettes (2)
- BASIC Compiler Manual

System requirements: A minimum of 64KB of user memory and one diskette drive to produce the final load module. DOS is required to support program input/output. When using DOS 2.0, a minimum of 128KB of user memory is required. This amount of memory and DOS 2.0 support the storage of the program and/or its data files on a fixed disk.

Macro Assembler

The IBM Personal Computer Macro Assembler is an optional software product that offers you the capability to develop and assemble programs. Assembler-produced programs may be called from BASIC programs as well as from other high-level languages such as Pascal, COBOL and FORTRAN. You may create an assembler language program by using the text editing capabilities of DOS, then using the Macro Assembler to assemble the program.

As on larger computers, programs written in assembler language are assembled into machine code that may run several times faster than equivalent BASIC Interpreter routines. Additionally, the assembler permits you to utilize more than 75 internal functions provided by DOS that can help you do more complex programs.

What you get.

- Macro Assembler Diskette
- Macro Assembler Manual

System requirements: A minimum of 96KB of user memory and one diskette drive (64KB for the sub-set assembler, which is provided with the Macro Assembler diskette), and DOS. When using DOS 2.0, a minimum of 128KB of user memory is required. This amount of memory and DOS 2.0 support the storage of these programs and/or their data files on a fixed disk.

FORTRAN Compiler

As a FORTRAN user, you may take advantage of the power of DOS to develop and run FORTRAN programs. The FORTRAN Compiler for personal computers from IBM is an optional software product that enables you to develop programs in a version of FORTRAN-77, a popular computer language for scientific and engineering applications. These programs can then be compiled down to native object code and run on your personal computer from IBM.

What you get.

- FORTRAN Compiler Diskettes (3)
- FORTRAN Compiler Manual

System requirements: A minimum of 128KB of user memory and two diskette drives, and DOS. When using DOS 2.0, a minimum of 192KB of user memory is required. This amount of memory and DOS 2.0 support the storage of the program and/or its data files on a fixed disk. If your system includes a fixed disk drive, one diskette drive is required.

COBOL Compiler

The COBOL Compiler permits you to develop your own programs in COBOL, a language designed specifically for business applications. This COBOL is a version of the popular ANSI 1974-level standard, with extensions that support color and screen formatting.

What you get.

- COBOL Compiler Diskettes (2)
- COBOL Compiler Manual

System requirements: A minimum of 64KB of user memory and two diskette drives, and DOS. When using DOS 2.0, a minimum of 128KB of user memory is required. This amount of memory and DOS 2.0 support the storage of the program and/or its data files on a fixed disk. If your system includes a fixed disk drive, only one diskette drive is required.

Pascal Compiler

This product provides you with a system development environment for the creation and execution of Pascal programs. The compiler produces efficient object code. The structured programming facilities and extensive data structures make Pascal useful for large applications programs.

What you get.

- Pascal Compiler Diskettes (3)
- Pascal Compiler Manual

System requirements: A minimum of 128KB of user memory and two diskette drives, and DOS. When using DOS 2.0, a minimum of 192KB of user memory is required. This amount of memory and DOS 2.0 support the storage of the program and/or its data files on a fixed disk. If your system includes a fixed disk drive, only one diskette drive is required.

UCSD p-System

A professional software development system

The UCSD p-System* is a widely accepted software system that can help everyone—from the sophisticated programmer to the student—to use a personal computer from IBM as a software development tool. Or it can be used by non-programmers with packaged programs designed to operate on the UCSD p-System.

A general-purpose software package. Though designed for program development, the UCSD p-System can also be used for many special-purpose applications. Examples include word processing, computer-assisted instruction, interactive business data processing, communications, process control and scientific analysis.

The UCSD p-System is composed of several distinct programs, often called “segments.” Each segment is written in UCSD Pascal.* The major segments are the filer, editor, compilers, assemblers, linker and debugger. These programs perform the various house-keeping tasks for program development and execution on a computer system.

Menu-driven command structure. Two significant advantages of the UCSD p-System are that it's easy to learn and simple to use.

The UCSD p-System Operating System, filer and editor are all menu-driven. A prompt-line is continually displayed at the top of the screen, with nearly all of the current commands visible. These commands are invoked by a single keystroke and the organization is hierarchical. That is, striking a key generally causes either an action to be performed or another promptline to be displayed that details new commands at a different and “lower” level.

*UCSD p-System and UCSD Pascal are trademarks of the Regents of the University of California.

The “command level,” the highest level of the operating system, is visible to you as a promptline that appears when the system is turned on or restarted. These commands are straightforward and self-explanatory.

A favorite application development vehicle. One reason the UCSD p-System is a favorite application development vehicle is that the compilers, assemblers, editor, linker and file handler may be integrated within a single, powerful system. In this way, you get a comprehensive set of software tools to help improve your programming productivity.

The complete UCSD p-System for your personal computer from IBM includes:

- An interactive microcomputer operating system with program chaining, standard input and output redirection (including command files), dynamic overlays, and dynamic memory allocation.
- Diskette file-handling capabilities, single-keystroke commands, runtime support routines, block I/O service routines, and support for asynchronous processes.
- Your choice of either a Pascal or a FORTRAN Compiler or both (optional).
- A powerful, screen-oriented editor, which runs in both programming and text-editing modes.
- A very powerful file handler to manipulate diskettes and diskette files.
- A Macro Assembler for personal computers from IBM that produces code that can be linked to your FORTRAN or Pascal programs.
- A linker for link-editing assembly code into Pascal or FORTRAN modules.
- Dynamic runtime binding of separately compiled or linked modules into a host program, so one copy of the object code for a library module may be shared by many programs.
- An efficient, compact interpreter for executing p-code.
- A library of program modules and other utilities.
- A native code generator to convert p-code to native machine code for improved performance.

- Advanced turtlegraphics, offering extended capabilities and graphics displays.
- A print spooler that queues printed output.
- A symbolic debugger for UCSD Pascal.
- A complete set of documentation.

Choice of high-level languages. One measure of the excellence of an operating system is its ability to support your choice of high-level languages. Naturally, a system that supports more than one language can be more useful and offers you more diverse programming support than a system that supports only one.

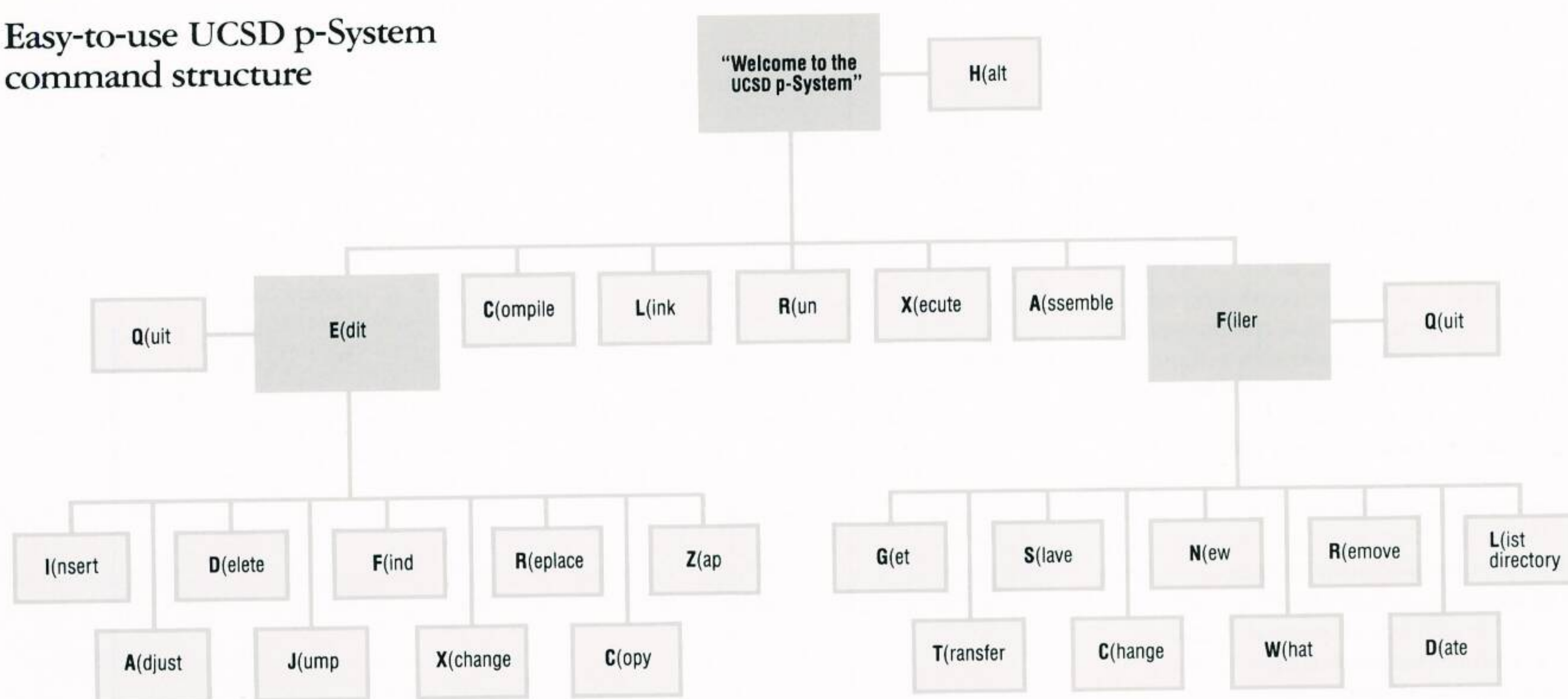
The UCSD p-System is this kind of advanced operating system. It enables you to use your personal computer as a convenient development system . . . which may include fully integrated Pascal and/or FORTRAN Compilers. And the unique p-code format produced by the system may be transported to other computers with the p-System.

UCSD Pascal. This widely accepted, high-level language has all the key features of Pascal as defined by its developer, Niklaus Wirth. Users will appreciate its structured programming approach, which enhances program writing.

With the UCSD p-System, you may also take advantage of separately compiled Pascal modules that may be available in existing program libraries. These modules can be large and contain numerous overlays so that very large application systems may be built.

Learning to solve complex problems with UCSD Pascal. UCSD Pascal is coming into widespread use for writing complex programs in almost all fields where computers are applied to practical problems. The extensions beyond the standard language in UCSD Pascal have been included to facilitate teaching by using non-mathematics-oriented problem examples and to facilitate writing a variety of large interactive programs.

Easy-to-use UCSD p-System command structure



The UCSD p-System features a menu-driven command structure of single-keystroke commands that are straightforward and self-explanatory.

FORTTRAN... a popular language for scientific and engineering programming. Your UCSD p-System can also include a FORTRAN-77 Compiler. FORTRAN users may take advantage of the power, portability and completeness of the p-System on their personal computers. What's more, this is an up-to-date ANSI-77 FORTRAN.

With the UCSD p-System, FORTRAN-77 and UCSD Pascal are fully integrated and compatible. So you may develop systems that are part Pascal and part FORTRAN, taking advantage of the best features of both languages. You may also utilize the many programs already written in these languages.

What you get. The complete UCSD p-System includes:

- Program Diskettes (5)
- Pascal Diskette (shipped only with UCSD Pascal)
- FORTRAN Diskette (shipped only with FORTRAN-77)
- Operations Guide for the UCSD p-System
- Users' Guide for the UCSD p-System
- Beginners' Guide for the UCSD p-System
- Internal Architecture for the UCSD p-System
- UCSD Pascal Reference for the UCSD p-System (shipped only with UCSD Pascal)
- FORTRAN-77 Reference for the UCSD p-System (shipped only with FORTRAN-77)

System requirements: The UCSD p-System, with FORTRAN-77 or UCSD Pascal, or both, requires a minimum of 64KB of user memory, two diskette drives, and a display. Neither the programs nor their data files can be stored on a fixed disk.

UCSD p-System Runtime Support

The UCSD p-System operating system. This software package is the operating system for the UCSD p-System product. With this operating system in place, you do not have to purchase the full p-System to run UCSD p-System programs that have been written in UCSD p-System BASIC*, UCSD Pascal or FORTRAN-77.

System requirements: A minimum of 64KB of user memory and one diskette drive. Neither the program nor its data files can be stored on a fixed disk.

*The UCSD p-System Runtime Support package does not support IBM Personal Computer BASIC or Display-writer UCSD p-System BASIC.

CP/M-86

A 16-bit CP/M operating system

CP/M and your personal computer from IBM. CP/M-86* is a new, 16-bit generation of the widely used CP/M* operating system, one of the earliest 8-bit microcomputer operating systems available.

CP/M is one of the standard operating systems in the microcomputing field. Because of hardware differences, all CP/M systems are not the same; therefore, conversion will be required on programs that run on non-IBM versions of CP/M in order to run these programs on the IBM Personal Computer.

CP/M-86 operates similarly to CP/M-80; the major difference is that CP/M-86, which uses the more powerful commands available through the 8088 microprocessor in your personal computer, can operate much faster. The extended memory space available with the 16-bit 8088 microprocessor enables CP/M-86 to be more powerful than the 8-bit microprocessor.

A full set of control and programming utilities. An efficient and powerful operating system, CP/M-86 is a set of programs that can help you operate your personal computer and perform routine work functions. The system contains programs that allow you to create, erase, rename and copy files. You may also create, test and run assembler language programs; format diskettes; print data from files; display the directory of a diskette; and so on. Of course, it allows you to run applications programs developed or converted for use with CP/M-86 and your personal computer from IBM.

*CP/M is a registered trademark of Digital Research, Incorporated. CP/M-86 is a trademark of Digital Research, Incorporated.

Built-in Commands

DIR—Displays a list of file names from a diskette directory.
DIRS—Displays a file name list of those files marked with the SYS attribute.
ERA—Erases a file name from a diskette directory and releases the storage occupied by the file.
REN—Enables you to rename a file.
TYPE—Writes the content of a character file to your console output device.
USER—Enables you to change from one user number to another.

Transient Utility Commands

ASM86—Translates 8086 assembly language programs into machine code form.
ASSIGN—Enables you to direct input and output to the peripheral devices attached to your computer.
COPYDISK—Creates a copy of a diskette that may contain CP/M-86, program files, and data files.

DDT86—Helps you check out your programs and interactively correct “bugs” and programming errors.

ED—Enables you to create and alter character files for access by various commands and application programs.

FUNCTION—Programs the function keys and the numeric keypad on your keyboard.

GENCMD—Uses the output of ASM86 to produce an executable command file.

HELP—Displays information on how to use CP/M-86 commands.

NEWDISK—Formats a factory-fresh diskette for use with CP/M-86.

PIP—Combines and copies files.

PROTOCOL—Establishes the “handshaking protocols” used by the serial interfaces.

SPEED—Sets up your computer’s Asynchronous Communications Adapter to communicate with other machines.

STAT—Enables you to examine and alter file status.

SUBMIT—Sends a file of commands to CP/M-86 for execution.

TOD—Sets the date and time displayed in the status line at the bottom of your display.

There are two types of CP/M-86 commands. If a command keyword identifies a program in memory, it is called a built-in command. If a command keyword identifies a program file on diskette, it is called a transient utility or simply a utility. A command keyword identifies a program that resides either in memory as part of CP/M-86 or on a diskette as a program file.

The device-handling capabilities of CP/M-86 are ready to control various system devices as soon as the operating system is loaded into your computer’s memory. CP/M-86 can support up to two physical drives or four logical drives, the IBM Graphics Printer, the IBM Asynchronous Communications Adapter, the IBM Monochrome Display, and the IBM Color/Graphics Monitor Adapter (including light pen—not supplied by IBM).

CP/M-86 also includes dynamic memory management capabilities that control the allocation of memory and assign specific memory areas to applications programs.

The operating system manages up to a full megabyte (1,048,576 bytes) of main memory, so it can allow applications programs to take full advantage of the 16-bit microprocessor address space. In addition, through a user-defined memory configuration table, CP/M-86 manages noncontiguous memory locations. This feature allows multiple programs to reside in memory simultaneously.

Helpful, user-friendly features. CP/M-86 is, in several respects, very communicative about what it is doing. When you start it up, it counts off “READING 1 . . . 2 . . . 3 . . . 4” as it loads the four disk sections of its main program into memory. It then displays a list of the hardware components it detects as installed and working in your personal computer, providing you with a good quick check that the system is working properly.

When you command CP/M-86 to format a disk, the first result is a screen message stating which disk drive you've ordered to perform the formatting procedure. The message warns, "ALL DATA WILL BE ERASED FROM THE DISK," and asks, "Is this what you want (y/n)?" If "yes," the program then displays a running progress report as data tracks are written and verified.

When CP/M-86 is operating on your personal computer, it uses the bottom line of the screen for a "status" display—which includes a status message written by the system, followed by the current user number and the actual or elapsed time and date.

Advanced software development benefits

CP/M-86 offers you a range of advanced programming utilities to help you create or modify programs for personal computers from IBM. It contains 13 programs, or "command files," including assembler, editor and debugger programs.

ED, a line-oriented and context editor.

The ED utility enables you to create and edit a diskette file. You may create and change character files line by line or by referencing individual characters within a line. You may also create or alter the file named in the file specification.

The ED utility uses a portion of your user memory as an active text buffer where you add, delete or alter the characters in the file. You interact with ED in either "command" or "insert" mode. Single-letter commands can be used to: read text from the buffer; move the CP—an imaginary "character pointer"—in the buffer; or change the ED mode of operation.

The ASM86 Assembler. The ASM86 utility converts 8088 assembly language source statements into machine-code form that will run on your personal computer. It typically produces three output files from one input file. The output files are given the following file types: an LST file contains the annotated source listing; an H86 file contains the 8086 machine code in "hex" format; and an SYM file contains all programmer-defined symbols with their program-relative addresses.

You control the assembly process by including optional parameters in the parameter list. Each is a single-parameter letter followed by a single-letter device name.

DDT-86, a Dynamic Debugging Tool.

The DDT-86 program allows you to test and debug programs interactively in a CP/M environment. After displaying its sign-on message and prompt character "-", DDT-86 is ready to accept operator commands.

Various DDT-86 commands enable you to enter assembly language statements, compare blocks of memory, display memory in hexadecimal and ASCII, trace program execution, and much more. A command can have up to 64 characters and must be terminated with the return key.

CP/M-86 puts you in control. With the CP/M-86 assembler, line-oriented text editor and debugging tool, you have the development tools you need to write high-performance assembly language programs... programs that may help to offer users full control over the advanced capabilities and impressive speed of the 16-bit personal computers from IBM.

Other program development utilities include programs to produce command files, to display a file directory, to define function keys, and more.

CP/M-86 compatibility. CP/M-86 files are compatible with the versions of CP/M for the 8080, 8085 and Z-80* based microcomputer systems. CP/M-86 includes additional facilities to account for the increased address space of the higher-speed 16-bit processor. Utility programs such as ED, PIP and STAT operate in the same manner as their CP/M-80 counterparts. This makes CP/M-86 especially convenient for programmers already familiar with the CP/M system, and it simplifies conversion of software developed to run under CP/M to your computer's 16-bit system.

Unless conversions are made, the purchase of CP/M-86 does not automatically provide support for existing CP/M-80 applications programs for 8-bit CPUs. CP/M-86 programs running on other 16-bit microcomputers will run on your computer once the files have been converted to the appropriate diskette format and the machine-specific code is changed.

CP/M-86: a time-tested operating system. CP/M-86 offers you the advantages of a time-tested, modular operating system as well as a system that enables you to command the wide range of capabilities available with your personal computer from IBM.

What you get. The CP/M-86 software package includes:

- CP/M-86 Diskette
- Users' Reference Manual

System requirements: A minimum of 32KB of user memory and one diskette drive, and a display. Neither the program nor its data files can be stored on a fixed disk.

*Z-80 is a registered trademark of Zilog.

Program Editors

A menu-driven editor and an all-purpose, command-driven editor

Professional Editor

A full-function, full-screen editor. Professional Editor is a full-screen editor that can help streamline program and text development on a personal computer from IBM. This versatile software package was designed for professional programmers and others who may have complex program and text editing needs.

With Professional Editor, up to 24 lines of data can be displayed on your screen at one time. You may modify information on any portion of the screen—making full use of the keyboard and display capabilities of your personal computer.

A full-feature editing program. Professional Editor provides you with several editing capabilities that you may achieve with a few quick keystrokes. Files and program options are selected from multiple-choice menus that appear on the computer's screen. What's more, as a helpful reminder, the role of each program function key is displayed at the bottom of the screen.

The function keys and cursor-control keys enable you to perform several critical editing functions, such as:

- *Insertion and deletion:* Professional Editor enables you to insert and delete characters or lines anywhere in the text. As a precaution, deleted characters or lines are temporarily saved in memory and may be recovered if a deletion is made in error.
- *Scrolling:* Professional Editor provides you with extensive scrolling capabilities. For example, you may scroll forward or backward through a file, left and right over lines on the screen, and to the top and bottom of the text. In addition, an optional automatic scrolling capability changes the portion of the file that is displayed on the screen when the cursor is moved out of the current screen.
- *Search and change:* Professional Editor enables you to find and change specific character strings located throughout a document.

Word processing functions. Professional Editor offers useful word processing features to help you prepare readable finished texts. For example, an automatic word-wrapping feature saves you from having to press a return key at the end of each line. As the text reaches the right-hand margin, the word-wrapping feature automatically advances the following text to the next line.

In addition, text formatting features allow selected blocks of text to be reformatted to fit between margins that you define. You may justify text and center lines within text. Professional Editor also provides variable tabs that may be redefined during the editing session.

What you get.

- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 64KB of user memory and one diskette drive, an 80-character display, and the IBM Disk Operating System (DOS). When using DOS 2.0, a minimum of 128KB of user memory is required. This amount of memory and DOS 2.0 support the storage of the program and/or its data files on a fixed disk.

Personal Editor

A command-driven, full-screen editor for writing programs and small documents. Personal Editor is a reasonably priced software package designed for all-purpose use. It provides many editing and word processing features, enabling you to create and edit programs and documents on your personal computer from IBM with efficiency and ease.

Some of Personal Editor's high-performance features include:

- Word processing features, such as tab and margin settings, word wrapping, and reformatting of text

- Paragraph, line and sentence markers enable you to move, copy, erase and overlay text
- Editing of up to 20 DOS ASCII files at one time in memory
- 1- to 255-character line lengths

Besides providing you with extensive editing and word processing capabilities, Personal Editor enables you to develop your own *personal* editing style. You are able to re-define up to 99 keys and key combinations on your IBM Personal Computer Keyboard.

If you do not wish to personalize the key functions, Personal Editor assigns key definitions from a separate key definition file, the *profile*. You may make minor changes to the profile.

A user-friendly program editor. Personal Editor is easy to operate. Just start the program and the screen acts as a blank piece of paper on which to write anything you want. A comprehensive Help file assists from the beginning—it's just one keystroke away. A special tutorial section is included in the program manual to simplify the learning process.

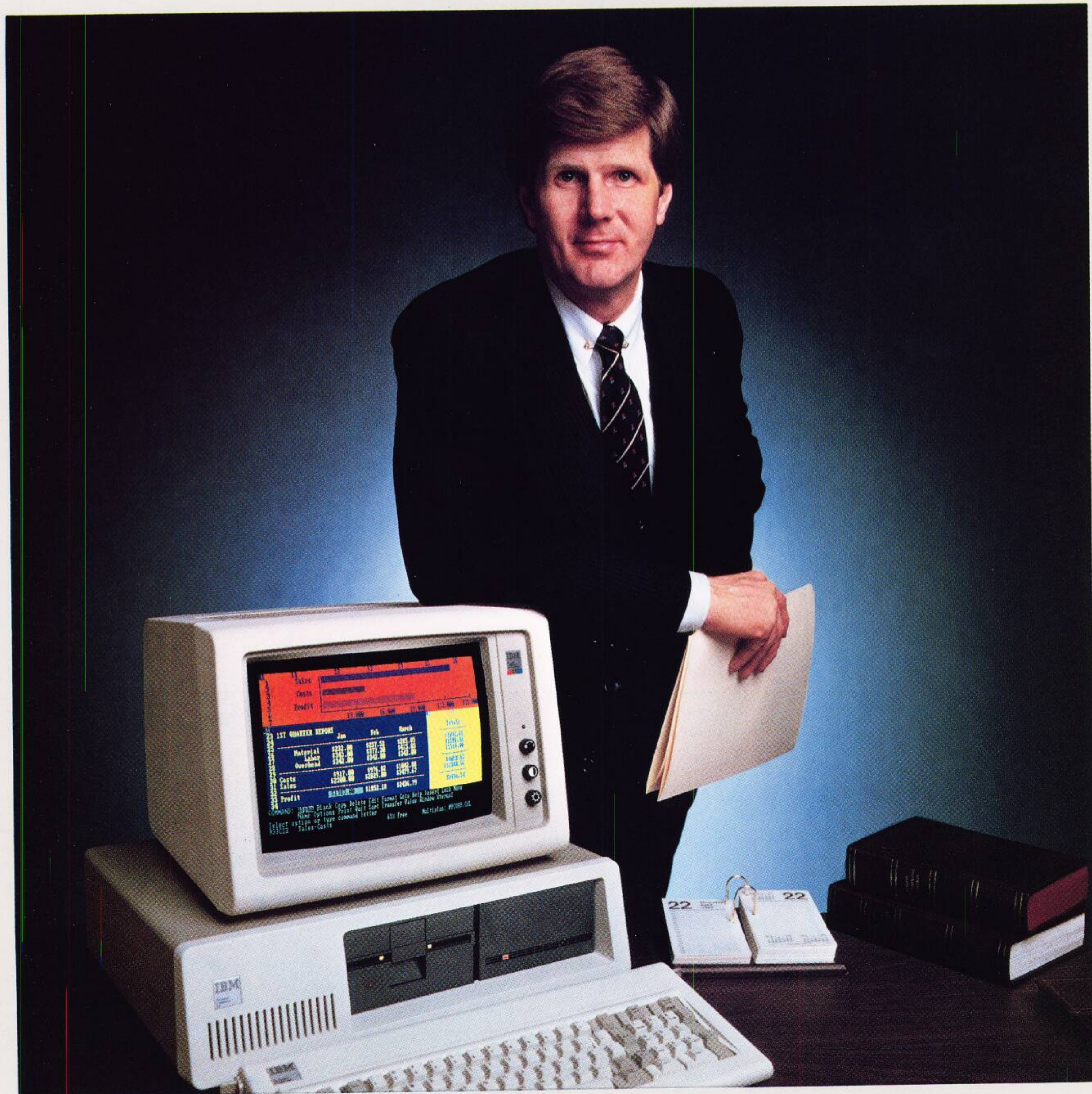
Personal Editor operates quickly; it scrolls pages with computer speed and searches large files to change text in seconds. In short, Personal Editor is a self-styling editor that both programmers and writers of small documents can use to speed and simplify text creation.

What you get.

- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Card
- Users' Keyboard Guide

System requirements: A minimum of 64KB of user memory and one diskette drive, a video display, and the IBM Disk Operating System (DOS). When using DOS 2.0, a minimum of 128KB of user memory is required. This amount of memory and DOS 2.0 support the storage of the program and/or its data files on a fixed disk.

IBM Sales and Service Support



Sales and service support for personal computers from IBM

Quality: an IBM hallmark



Quality is the word most often associated with IBM and its personal computers: quality in IBM's design and manufacturing processes . . . and in sales and servicing.

Quality control

IBM is dedicated to providing personal computer systems that are in proper working condition. Many quality control steps are taken to ensure that each system performs correctly the first time . . . and every time.

For example, components and assemblies are carefully tested at numerous points throughout the manufacturing process. Prior to shipping, units are randomly selected, assembled and carefully retested. These are some of the steps taken by IBM in a conscientious quality control program.

In short, IBM builds quality into its micro-computer product line. We constantly strive to maintain the standards of excellence that IBM corporate and individual customers have come to expect—and deserve.

Prompt, expert service

IBM is ready and able to provide you with responsive, professional service.

There are several service options to choose from: you can arrange for on-site warranty service . . . pickup and delivery . . . plus mail-in and carry-in service. Your IBM Marketing Representative will be happy to help you determine the service option that's right for you.

The IBM-trained technicians who will service your equipment are thoroughly familiar with IBM's high standards of service; they are ready to help you protect your personal computer investment.

Make a quality buying decision today

Find out how easy it is to operate a personal computer from IBM . . . to learn how much one can do for you.

Ask your IBM Marketing Representative for a hands-on demonstration. Feel free to discuss your specific requirements. Learn about the system configurations that can meet your corporate and personal requirements most effectively.

For details regarding quantity purchases, or for additional information regarding personal computers from IBM, please call your IBM Marketing Representative.

Software system requirements and support

Use this chart to help determine what your personal computer system needs to run the programs of your choice

Legend:

X = Supported	P = Supports programs
XX = Preferred	DF = Supports data files
XXX = Required	D = Diskette version
A = Asynchronous Communications Adapter	T = Tape version
B = Binary Synchronous Communications Adapter	SS = Sub-set assembler version
S = Synchronous Data Link Control Communications Adapter	L = Not used by compiler but supported by language

	Minimum Diskette Drives	Fixed Disk*	Operating System with DOS 2.0/ with DOS 1.1	IBM Color/ Graphics Monitor Adapter	IBM Color/ Graphics Monitor Adapter	Medium-Resolution Display with IBM Color/ Graphics Monitor Adapter	IBM Monochrome Display and Printer Adapter	IBM Monochrome Monitor Adapter	Communications Adapter	Printer with appropriate adapter	Game Control Adapter
Business Programs											
Peachtree Accounting System (IBM Disk Operating System (DOS) 1.1 included in program)											
General Ledger 1.1	2		P, DF	DOS	128/64	X		X		XXX	
Accounts Receivable 1.1	2		P, DF	DOS	128/64	X		X		XXX	
Accounts Payable 1.1	2		P, DF	DOS	128/64	X		X		XXX	
Inventory Control 1.1	2		P, DF	DOS	128/64	X		X		XXX	
Payroll 1.1	2		P, DF	DOS	128/64	X		X		XXX	
BPI Accounting System (IBM Disk Operating System (DOS) 1.1 included in program)											
General Accounting	2			DOS	/64	X	X	X		XXX	
Accounts Receivable	2			DOS	/64	X	X	X		XXX	
Inventory Control	2			DOS	/64	X	X	X		XXX	
Payroll	2			DOS	/64	X	X	X		XXX	
Job Cost	2			DOS	/64	X	X	X		XXX	
Communications Programs											
Asynchronous Communications Support 2.0	1		P, DF	DOS	128/64	X	X	X	A	X	
3101 Emulation	1		P, DF	DOS	128/64	X		X	A	X	
Binary Synchronous 3270 Emulation	1		P, DF	DOS	128/128	X		X	B	XX	
SNA 3270 Emulation and RJE Support	1		P, DF	DOS	128/128	X		X	S	XX	
Dow Jones Reporter	1			DOS	128/64	X	X	X	A	XX	

*Requires DOS 2.0 and a minimum of 128KB of user memory.

Software system requirements and support

	Minimum Diskette Drives	Fixed Disk*	Operating System with DOS 2.0/with DOS 1.1	Minimum User Memory IBM Color/with DOS 1.1	IBM Color/Graphics Monitor Adapter	Medium-Resolution Display with IBM Color/Graphics Monitor Adapter	IBM Monochrome Monitor Adapter	IBM Monochrome Display and Printer Adapter	Printer with appropriate adapter	Communications Adapter	Game Control Adapter
Educational Programs											
Arithmetic Games	1		DOS	96/64	XX	X					
Fact Track	1		DOS	96/64	XX	X					
Typing Tutor	1		DOS	64/48 32 (T)	X	X	X			X	
Entertainment Programs											
Microsoft Adventure	1			32	XX	X	X				
Microsoft Decathlon	1			64	XX	X					
Adventure in Serenia	1			48	XX	X					
Casino Games	1		DOS	64	XX	X					
Strategy Games	1		DOS	64	XXX						
Operating Systems and Languages											
Disk Operating System (DOS) 2.0	1			64	X	X	X	A	X		
Disk Operating System (DOS) 1.1	1			32	X	X	X	A	X		
BASIC Compiler	1	P, DF	DOS	96/64	X	X	X	A(L)	XX	X(L)	
FORTRAN Compiler	2	P, DF	DOS	160/128	X	X	X		XX		
COBOL Compiler	2	P, DF	DOS	96/64	X	X	X		XX		
Pascal Compiler	2	P, DF	DOS	160/128	X	X	X		XX		
Macro Assembler	1	P, DF	DOS	96/64 128/96(SS)	X	X	X	A	XX	X(L)	
BASIC Primer	1		DOS	128/64	X	X (80 col.)	X		X		
BASIC Programming Development System	1	P, DF	DOS	128/96	X	X	X		XX		

Legend:

X = Supported	P = Supports programs
XX = Preferred	DF = Supports data files
XXX = Required	D = Diskette version
A = Asynchronous Communications Adapter	T = Tape version
B = Binary Synchronous Communications Adapter	SS = Sub-set assembler version
S = Synchronous Data Link Control Communications Adapter	L = Not used by compiler but supported by language

	Minimum Diskette Drives	Fixed Disk†	Operating System	Minimum User Memory with DOS 2.0/with DOS 1.1	IBM Color/Graphics Monitor Adapter	IBM Color/Graphics Monitor Adapter	Medium-Resolution Display with IBM Color/Graphics Monitor Adapter	IBM Monochrome Display and Printer Adapter	IBM Monochrome Display with Printer Adapter	Communications Adapter	Printer with appropriate adapter	Game Control Adapter
Operating Systems and Languages continued												
UCSD p-System	2			64	X	X	X	A	X	X		
UCSD Pascal	2		UCSD p-System	64	X	X	X	A(L)	X	X(L)		
FORTRAN-77	2		UCSD p-System	64	X	X	X	A(L)	X	X(L)		
UCSD p-System Runtime Support	1		UCSD p-System	64	X	X	X	A	X	X		
CP/M-86	1			32	X	X	X	A	X			
Personal Editor	1	P, DF	DOS	128/64	X	X	X		X			
Professional Editor	1	P, DF	DOS	128/64	X	X (80 col.)	X		X			
Professional/Personal Programs												
PeachText	1	P, DF	DOS	128/64	X		XX	A	X			
EasyWriter 1.1	1	DF	DOS	128/64	X		XX	A	XX			
Multiplan	1	P, DF	DOS	128/64	XX	X	X		XX			
VisiCalc 1.1	1	DF	DOS	128/64	X	X	XX		XX			
Home Budget	1		DOS	128/64	X	X (80 col.)	X		XX			
pfs:FILE	1	P, DF	DOS	128/64	X		X		X			
pfs:REPORT	1	P, DF	DOS	128/64	X		X		XX			
Time Manager	1		DOS	128/64	X	X	XX		X			
Diskette Librarian	1	P, DF	DOS	128/64	X	X	X	X	X			

†Requires DOS 2.0 and a minimum of 128KB of user memory.

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