IBM

The Guide

to personal computer offerings from IBM

Volume IV

Presenting the IBM
Personal Computer AT–
IBM's most powerful
personal computer
(See Page 10)

Presenting the IBM PC product line

The Guide to personal computer offerings from IBM is your prime reference source on the IBM Personal Computer product line.

The Guide reviews features and benefits of each IBM PC hardware system. It can help you determine which system or systems can satisfy your personal computing needs.

The Guide, published by IBM, not only describes IBM PC hardware but also reviews the rapidly expanding family of IBM PC software products.

Read about IBM PC software for almost every application—from planning and analysis to entertainment . . . from word processing to education . . . from communications to programming . . . and more.

In short, *The Guide* can help you learn just about everything you need to know about IBM PC products—and how they can benefit you professionally and personally.

Table of Contents

# More new ways to manage information more productively

Since IBM introduced its first personal computer in 1981, people everywhere have discovered ways to use personal computers from IBM to become more productive.

Today, people in offices, homes, classrooms, laboratories and factories are using personal computers to help them work better with words, numbers and graphic images. They are finding ways to do things faster, easier, more efficiently.

Personal computers from IBM are being used to write letters and reports...to generate spreadsheets for sales analysis and investment management...to automate business accounting systems...to track home budgets...to learn...to entertain...to do dozens of things better and faster than ever before.

New hardware. To help address new computing needs, IBM continues to expand its line of personal computer products. This issue of *The Guide* features two major new additions to the IBM Personal Computer product line:

IBM Personal Computer AT.™ IBM's newest personal computer—the IBM Personal Computer AT—is also its most powerful. The IBM Personal Computer AT offers you faster processing speed, more user memory, and greater storage capacity than ever before offered in a personal computer from IBM. To complement the Personal Computer AT—and the PC and PC XT as well—the new IBM PC Enhanced Color Display, with the Enhanced Graphics Adapter, offers a wide selection of colors for graphics, a high-contrast screen, and graphics expansion options.

IBM *Portable* PC. For those who need to compute on the go, IBM now offers the IBM *Portable* PC, complete with a built-in amber display. You can carry it from desk to desk ...office to office...office to home. And you can use it to run nearly all the programs designed for IBM PCs.

Hardware enhancements. Anticipating future computing requirements, IBM has added enhancements to its familiar line of personal computers.

More new ways to manage
information more productively

IBM PC*jr*.™ Both IBM PC*jr* models now offer a brand new keyboard plus memory expansion options that can boost PC*jr*'s user memory to 512KB. These features, combined with a slimline diskette drive (standard on the IBM PC*jr* Enhanced Model), enable you to work with larger spreadsheets, longer documents, bigger files…and enter data faster and more easily than before. Along with these enhancements, there is the new IBM PC*jr* Color Display—with a built-in speaker system—designed especially for use with PC*jr*; it is a high-performance yet low-cost color display for viewing both graphics and text.

IBM Personal Computer. The versatile IBM PC, the first personal computer offered by IBM, now has 256KB of user memory standard (expandable to 640KB). It features high-speed, 16-bit processing power; high-capacity user memory; optional diskette storage; and a variety of displays and printers. And, with added communications support, the IBM PC has the capability to access and interact with subscription information networks, mainframe computers or other personal computers.

IBM Personal Computer XT.™ The IBM PC XT, a more powerful version of the IBM PC, has increased standard user memory of 256KB (expandable to 640KB) and provides convenient fixed disk storage. It can handle many large applications and can serve as the nucleus of a PC cluster. In addition, the IBM PC XT can run most programs written for the PC, PC*jr* and IBM *Portable* PC.

New software. Several new programs have been added to the IBM software library to enhance professional and personal productivity:
- The IBM DisplayWrite Series consists of five programs designed to speed and simplify the preparation of business documents. These programs include powerful text-editing capabilities, a dictionary of approximately 100,000 words to check spelling, and programming to support the exchange of information between IBM Personal Computers.
- The IBM Assistant Series helps you combine data files, reports, electronic spreadsheets and text-processing and graphics programs in integrated information applications.
- The IBM Cluster Program lets you connect up to 64 IBM Personal Computers so that users can exchange messages with or share data stored in any of the interconnected IBM PC systems.
- The IBM PCWriter program helps you create printed correspondence, reports or memos.
- Three new cartridge programs for the IBM PC*jr* include: Andrew Tobias Managing Your Money™ With the IBM PC*jr*, a personal financial planning package; IBM PC*jr* ColorPaint,[1] a versatile color graphics program; and Lotus 1-2-3,[1] a business management program.

Use symbols for quick reference. At the beginning of articles describing software programs and hardware options, you'll find the following symbols; they indicate which IBM PC systems can accommodate that particular product.

Use these symbols to quickly determine if a program or hardware option of interest to you is compatible with your personal computer from IBM.

AT	IBM Personal Computer AT
XT	IBM Personal Computer XT
PC	IBM Personal Computer
PPC	IBM *Portable* PC
PCjr	IBM PC*jr*

Select with confidence. This issue of *The Guide to personal computer offerings from IBM* offers you current, detailed information about the features, benefits and capabilities of the IBM Personal Computer hardware and software product offerings.

The information in this book is intended to expand your knowledge about IBM Personal Computer products so that you will be able to select the product or products best suited for your home, school and business computing needs.

System Hardware
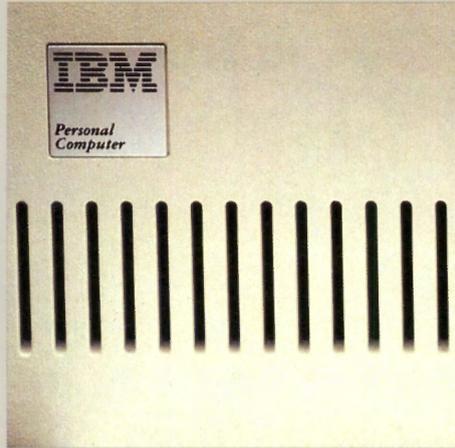
Choosing the right IBM Personal Computer for you

The "at a glance" chart can help you make the choice

IBM System Units at a glance...

This chart was developed to help you compare and evaluate the features of each of the five IBM Personal Computers.

One factor to be considered is the amount of auxiliary storage you need now versus what you may require in the future. If you compare the System Units, you'll see that the IBM Personal Computer AT comes with the most auxiliary storage. This means it can provide fast access to large amounts of information right from the start—and still have room for expansion.

The chart also shows that you can start with an IBM *Portable* PC or IBM PC and later expand it to provide as much auxiliary storage as the IBM PC XT.

IBM offers a number of display and printer options that allow you to customize your PC system to your specific computing needs. Detailed on pages 26-35, these options include:
- IBM Enhanced Color Display
- IBM Personal Computer Color Display
- IBM PC*jr* Color Display
- IBM Personal Computer Monochrome Display
- IBM Personal Computer Color Printer
- IBM Graphics Printer
- IBM PC Compact Printer

Refer to the individual articles on these products for the IBM PC systems on which they are supported.

Once you've determined which computers most closely address your needs, you may save time by reviewing the sections of *The Guide* pertaining only to those products.

IBM *Personal Computer AT*	**IBM** *Personal Computer XT*
Microprocessor High-speed, 16-bit (Intel 80286), 6MHz	**Microprocessor** High-speed, 16-bit (Intel 8088), 4.77MHz
User Memory (RAM)) *Enhanced Model:* 512KB standard, expandable to 3MB *Base Model:* 256KB standard, expandable to 3MB	**User Memory (RAM)** 256KB standard, expandable to 640KB
Permanent Memory (ROM) 64KB; includes BASIC Interpreter, automatic Power-on Self-test, ROM BIOS (Basic Input/Output System), and support for a battery-operated clock/calendar	**Permanent Memory (ROM)** 40KB; includes BASIC Interpreter, automatic Power-on Self-test, and ROM BIOS (Basic Input/Output System)
Auxiliary Storage *Enhanced Model:* One 1.2MB-capacity diskette drive and one 20MB fixed disk drive standard; one additional 20MB fixed disk drive, or one 1.2MB-capacity diskette drive, or one 360KB-capacity diskette drive may be installed in the System Unit *Base Model:* One 1.2MB diskette drive standard; two 20MB fixed disk drives or one 20MB fixed disk drive and one 360KB-capacity or 1.2MB-capacity diskette drive may be installed in the System Unit; maximum system capacity is 41.2MB of storage	**Auxiliary Storage** One 10MB fixed disk drive and one 360KB-capacity diskette drive standard; one additional 10MB fixed disk drive and one 360KB-capacity diskette drive may be added when attaching an Expansion Unit for the IBM PC XT; maximum system capacity is 20,720KB of storage
Expansion Slots[1] 8 standard	**Expansion Slots**[2] 8 standard; 8 more slots can be added with an Expansion Unit, for a total of 16 slots
Standard Adapters *Enhanced Model:* One Fixed Disk Drive/Diskette Drive Adapter and one Serial/Parallel Adapter *Base Model:* One Fixed Disk Drive/Diskette Drive Adapter	**Standard Adapters** One Asynchronous Communications Adapter, one Diskette Drive Adapter, and one Fixed Disk Drive Adapter
Operating Systems IBM Disk Operating System 3.00 or higher; PC/IX 1.10; XENIX	**Operating Systems** IBM Disk Operating System 2.00 or higher; PC/IX 1.00 or higher

[1] *One Expansion Unit is occupied by the Fixed Disk Drive/Diskette Drive Adapter on both models; a second slot on the Enhanced Model is occupied by the Serial/Parallel Adapter; a third expansion slot must be used for the user's choice of display adapter.*

[2] *Three expansion slots are occupied by adapters that come with the IBM Personal Computer XT System Unit. One additional expansion slot must be used for the user's choice of display adapter. In addition, when an Expansion Unit is added, two additional slots are occupied by the attachment cards used to connect the IBM Personal Computer XT to the Expansion Unit.*

IBM *Personal Computer*	IBM *Portable Personal Computer*	IBM *PCjr*
Microprocessor High-speed, 16-bit (Intel 8088), 4.77MHz	**Microprocessor** High-speed, 16-bit (Intel 8088), 4.77MHz	**Microprocessor** High-speed, 16-bit (Intel 8088), 4.77MHz
User Memory (RAM) 256KB standard, expandable to 640KB	**User Memory (RAM)** 256KB standard, expandable to 640KB	**User Memory (RAM)** *Enhanced Model:* 128KB standard, expandable to 512KB *Entry Model:* 64KB standard, expandable to 512KB **User Memory (ROM)** Two 64KB cartridge slots
Permanent Memory (ROM) 40KB; includes BASIC Interpreter, automatic Power-on Self-test, and ROM BIOS (Basic Input/Output System)	**Permanent Memory (ROM)** 40KB; includes BASIC Interpreter, automatic Power-on Self-test, and ROM BIOS (Basic Input/Output System)	**Permanent Memory (ROM)** 64KB; includes BASIC Interpreter, automatic Power-on Self-test, and ROM BIOS (Basic Input/Output System); system diagnostics; also includes Keyboard Adventure program
Auxiliary Storage One or two 360KB-capacity diskette drives 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; maximum system capacity is 20,720KB of storage	**Auxiliary Storage** One or two 360KB-capacity slimline diskette drives; by installing an IBM Expansion Unit, you may also add up to two 10MB fixed disk drives; maximum system capacity is 20,720KB of storage	**Auxiliary Storage** *Enhanced Model:* One 360KB-capacity slimline diskette drive and cassette tape recorder connector standard *Entry Model:* Cassette tape recorder connector standard; one optional 360KB-capacity slimline diskette drive can be added
Expansion Slots[3] 5 standard; 8 more slots can be added with an Expansion Unit, for a total of 13 slots	**Expansion Slots[5]** 7 standard; 8 more slots can be added with an Expansion Unit, for a total of 15 slots	**Built-in-Connectors** Standard on System Unit[6]
Standard Adapters One Diskette Drive Adapter	**Standard Adapters** One Diskette Drive Adapter and one Color/Graphics Monitor Adapter	
Operating Systems IBM Disk Operating System 1.00 or higher; UCSD p-System[4]	**Operating System** IBM Disk Operating System 2.10 or higher	**Operating System** IBM Disk Operating System 2.10 or higher

[3] *One expansion slot is occupied by the Diskette Drive Adapter. One additional expansion slot must be used for the user's choice of display adapter. In addition, when an Expansion Unit is added, three slots are occupied by a Fixed Disk Drive Adapter and two attachment cards used to connect the IBM Personal Computer to the Expansion Unit.*
[4] *UCSD and UCSD p-System are trademarks of the Regents of the University of California.*
[5] *Two expansion slots are occupied by adapters that come with the IBM* Portable *Personal Computer System Unit. In addition, when an Expansion Unit is added, three slots are occupied by a Fixed Disk Drive Adapter and two attachment cards used to connect the IBM* Portable *Personal Computer to the Expansion Unit.*
[6] *See the IBM PCjr article, page 19, for a complete list of options.*

IBM Personal Computer AT

IBM's most advanced and powerful personal computer

High-performance computing. The IBM Personal Computer AT provides faster processing speed, more user memory, and greater disk storage capacity than any other personal computer from IBM.

The IBM Personal Computer AT's greater speed means greater productivity: You can manage data two to three times faster than with other IBM PCs. Its increased user memory gives you up to 3 million characters—almost 1,500 typed, double-spaced, 8½ x 11-inch pages. And its extensive storage capability allows you to handle large applications more easily, so there's no need to split files, segment programs or shuffle diskettes.

One of the most valuable features of the IBM Personal Computer AT is its compatibility with other IBM Personal Computers. This means you can interchange programs with the IBM PC or PC XT[1]—and run most of the software currently available for IBM PCs.

The IBM Personal Computer AT is available in two models—the base model and the enhanced model. Each offers expansion capabilities and supports a variety of IBM displays, printers and communications features.

New higher-speed processor. Each IBM Personal Computer AT model has the new and advanced 16-bit Intel 80286 microprocessor. This high-speed microprocessor accesses and moves information faster than the Intel 8088 microprocessor used in other IBM Personal Computers. As a result, you can process data faster, get results sooner, and work more efficiently.

In addition, an optional Intel 80287 Math Co-processor can be plugged into the System Unit. This microprocessor, designed to perform mathematical calculations quickly, is useful for anyone who spends a great deal of time working with numbers.

Up to 3MB of user memory. The base model IBM Personal Computer AT comes with 256KB (262,144 characters) of user memory, which can be expanded to 512KB (524,288 characters) with memory modules. The enhanced model comes with 512KB. Additional memory expansion option cards permit memory in either model to be increased to 3MB for handling large applications and integrated program series.

Advanced ROM. The IBM Personal Computer AT System Units come with 64KB of Read Only Memory (ROM), which includes BASIC Interpreter, support for a battery-operated clock/calendar, and an automatic Power-on Self-test that checks system components every time you turn on or restart the system.

More data storage. IBM Personal Computer AT fixed disk and diskette storage drives work together to provide quick, easy access to massive amounts of information. These drives access information—from permanent data on a fixed disk to data stored on a diskette—contained in company personnel records, customer and product files, or comprehensive financial records. Use of both drives also speeds access to extensive subscription information and service networks.

The base model contains one 1.2MB diskette drive, which can store a total of 1,228,800 characters of information—the equivalent of about 600 pages—on a single diskette when used with the new version of the IBM Disk Operating System, DOS 3.00. You can add a second 1.2MB diskette drive, a 360KB diskette drive, or—for even more storage—two 20MB fixed disk drives.

The enhanced model also contains the 1.2MB diskette drive and a high-speed, large-capacity fixed disk drive that provides up to 20MB of information storage (20,480,000 characters)—up to 10,000 pages. You can store dozens of programs and data files on a fixed disk for immediate retrieval when you need them.

Both the enhanced and the base models may be configured with one 1.2MB diskette drive and two 20MB fixed disk drives, offering you program and data storage capacity of up to 41.2MB—up to 21,000 pages.

Easy expansion. Another important feature of the IBM Personal Computer AT is its capability to grow as your computing needs become more demanding.

The System Unit contains eight expansion slots for inserting adapter cards that support memory expansion, communications, displays and other optional devices.

One expansion slot is already occupied by a standard Fixed Disk Drive/Diskette Drive Adapter. A second slot on the enhanced model contains a Serial/Parallel Adapter card.

Built-in security. The IBM Personal Computer AT System Unit comes with a built-in keylock that locks the keyboard and the cover of the System Unit, preventing access to the computer.

Enhanced keyboard. The 84-key IBM Personal Computer AT Keyboard is similar in design to the familiar, easy-to-use IBM PC Keyboard but has some added convenience features, including:
- *New enter/shift keys*—enlarged and clearly labeled to assist data entry.
- *Green LED indicators*—light up when "Number Lock," "Scroll Lock" and "Caps Lock" keys are in use.
- *10-foot coiled cable*—allows you to position the Personal Computer AT Keyboard where you find it most comfortable.

Powerful XENIX™ and DOS systems. The IBM Personal Computer AT operates with either of two advanced operating systems: the IBM PC XENIX[2] System or the IBM Disk Operating System (DOS) 3.00.

XENIX, a Microsoft adaptation of Bell Laboratories' UNIX[2] System III, contains three programs for applications development, document preparation and text processing. DOS 3.00, a new DOS version, provides an important hardware/software link, enabling the IBM Personal Computer AT to run most of the software currently available for IBM PCs. XENIX and DOS can co-reside on a fixed disk, so you can choose the appropriate system for specific projects.

[1] *An optional 360KB diskette drive is recommended for transferring programs and other data from your Personal Computer AT to other personal computers.*
[2] *XENIX is a trademark of Microsoft Corporation. UNIX is a trademark of AT&T Bell Laboratories.*

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[1]...plus a
range of standard features and design charac-
teristics 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 files that can be stored 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 of
the programs and information files you
have stored on the large-capacity fixed disk
drive...no need to bother with diskettes.
Of course, the system's 360KB-capacity[2]
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 features that the
IBM Personal Computer XT offers to provide
you with extra performance and added con-
venience in a personal computer system. The
IBM Personal Computer XT offers still more.

With 256KB of user memory 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.

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 sophis-
ticated system configuration...and provide
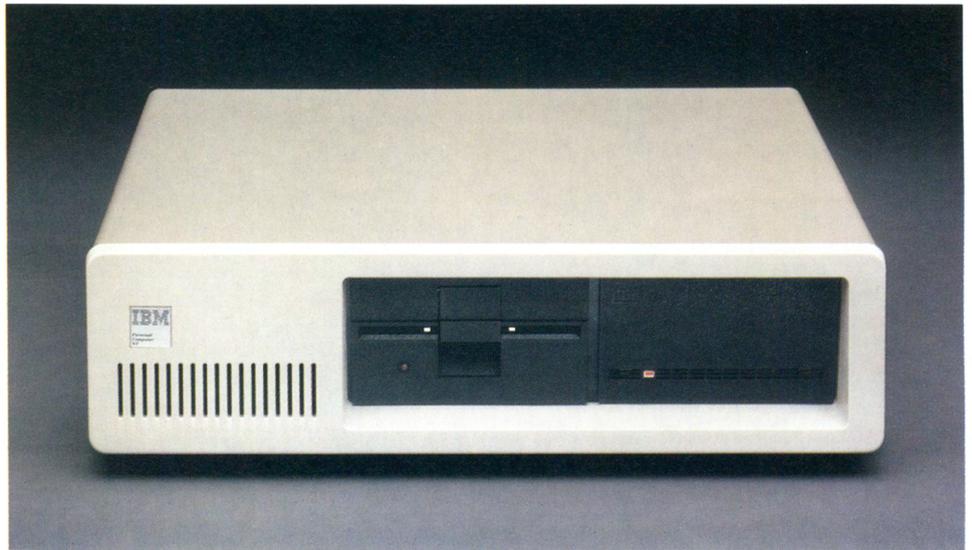
your system with more room for growth.
Six of these slots accept full-size feature
cards. The remaining two accept smaller
feature cards.

The IBM Personal Computer XT System
Unit also includes two full-size feature
cards—a Diskette Drive Adapter and a Fixed
Disk Drive Adapter—that occupy two ex-
pansion slots. In addition, it includes an
Asynchronous Communications Adapter
that you can use to support communications
with host computers, information networks,
other personal computers, and various de-
vices. The Asynchronous Communications
Adapter takes up one of the two smaller
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 fea-
tures...features that people have come to
expect of personal computer products from
IBM. They include:
• The powerful, high-speed, 16-bit Intel 8088
  microprocessor (For even more power, the
  system can support an IBM 8087 Math Co-
  processor, a hardware option that greatly
  increases the speed of math calculations.)

• 40KB of permanent or Read Only Memory
  (ROM)
• A built-in Power-on Self-test that checks out
  key elements of your IBM Personal Com-
  puter XT system every time you turn it on or
  restart it
• 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

Advantages of the fixed disk drive. The
IBM Personal Computer XT system's built-
in 10MB fixed disk drive provides more than
27 times as much storage as a 360KB-capac-
ity diskette. In other words, it's like having
more than 27 diskettes in your computer
at one time...or having the equivalent of
up to 5,120 double-spaced, 8½ by 11-inch
typewritten pages of information at your
immediate disposal.

With this much centrally located storage capacity, you can 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 Multiplan[3] electronic spreadsheet program. The IBM Personal Computer XT system is compatible with a variety of software offerings already available for the IBM PC.

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 programs 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 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 55 times the storage capacity of a 360KB-capacity diskette drive.

For added versatility, an Expansion Unit also provides an additional eight system expansion slots.[4] 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.

[1]*Except an audio cassette interface.*
[2]*The IBM Disk Operating System (DOS) 2.00 or higher increases the formatted capacity of 320KB diskettes to 360KB.*
[3]*Multiplan is a U.S. trademark of Microsoft Corporation.*
[4]*Three expansion slots are occupied by adapters that come with the IBM Personal Computer XT System Unit. One additional expansion slot must be used for the user's choice of display adapter. In addition, when an Expansion Unit is added, two additional slots are occupied by the attachment cards used to connect the IBM Personal Computer XT to the Expansion Unit.*

IBM Personal Computer

*A powerful performer with
room for expansion*

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, permanent or Read Only Memory (ROM), and user memory, also called main 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 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 360KB-capacity[1] diskette drives for faster, more convenient access to
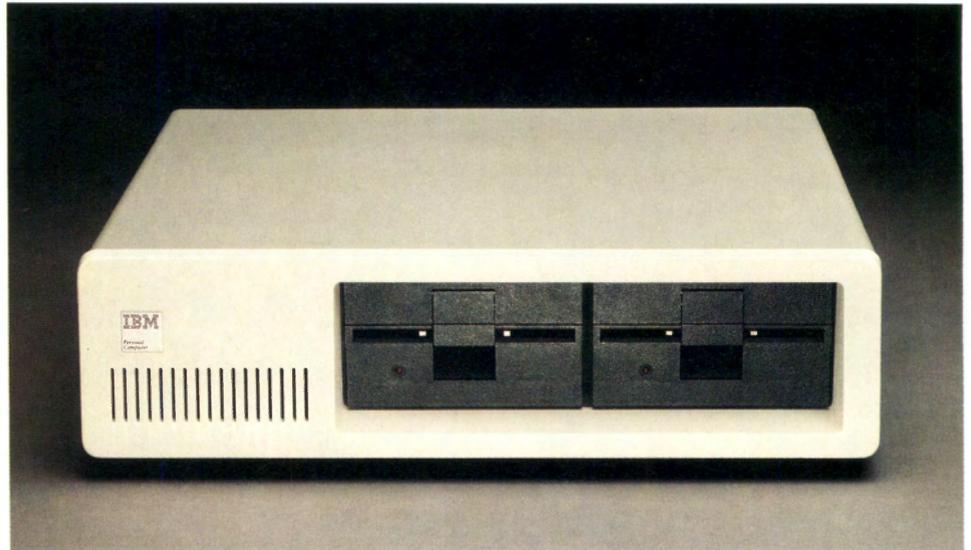
as much as 720KB of information and programs stored on 5¼-inch diskettes
• Add an Expansion Unit[2] for the IBM Personal Computer, which provides you with one 10MB fixed disk drive and eight additional expansion slots[3]

Select from 256KB up to 640KB of addressable user memory. User memory 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.

The IBM Personal Computer comes with 256KB of user memory installed on the System Board. For larger memory requirements, you can easily expand user memory with a 64/256KB Memory Expansion Option or a 256KB Memory Expansion Option. The 64/256KB Memory Expansion Option comes with 64KB of user memory and is easily expandable by adding up to three 64KB Memory Expansion Kits. The 256KB Memory Expansion Option comes with four 64KB RAM modules. These options offer 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 PC 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 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 360KB-capacity diskette drives to your IBM Personal Computer to support 5¼-inch, double-density diskettes.

The IBM Disk Operating Systems (DOS) 2.00 and higher increase formatted diskette capacity to 360KB for double-sided diskettes. As a result, more of the information files you create when using a program can be stored on each data diskette.

A 360KB-capacity, double-sided, double-density diskette can store up to 368,640 characters of information—equivalent to approximately 184 double-spaced, 8½ by 11-inch typewritten pages. With two 360KB-capacity drives in your system, you can have direct access to twice as much 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" no larger than a penny. It can address, or directly work with, more than *one million bytes* of memory.

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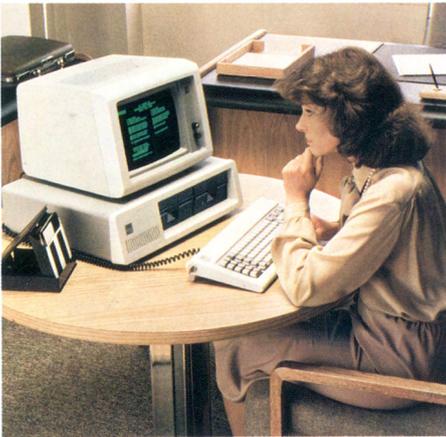
The processing speed of the IBM Personal Computer's microprocessor is fast enough to complete up to 250,000 data transfers, additions, subtractions or other operations each second.

For even more power, the IBM PC can support an IBM 8087 Math Co-processor, a hardware option that greatly increases the speed of mathematical calculations.

40KB of "built-in" memory. The IBM Personal Computer comes with 40KB of Read Only Memory (ROM). The contents of ROM remain when the computer is turned off or re-started (unlike RAM, which loses its contents). The ROM in the IBM Personal Computer

contains three major programs: a set of sub-programs 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 available whenever you wish to compute.

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 or restart it.

BASIC...an integral part of every IBM Personal Computer. The BASIC Interpreter 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 IBM Disk Operating System. (See the Programming section.)

BASIC offers you the capability to store information and programs by using an audio cassette recorder/player.[4] 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.[4]

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

For added versatility, the Expansion Unit for the IBM Personal Computer offers eight additional expansion slots—providing you with more ways to enhance your system. The unit also comes with the IBM Fixed Disk Drive Adapter, which occupies one of the expansion slots; the Expansion Unit attachment card requires another slot.

[1]*The IBM Disk Operating System (DOS) 2.00 or higher increases the formatted capacity of 320KB diskettes to 360KB.*
[2]*Additional electrical outlets are required when using an IBM Expansion Unit.*
[3]*When an Expansion Unit is added to an IBM Personal Computer, three expansion slots are occupied by a Fixed Disk Drive Adapter and two attachment cards used to connect the System Unit to the Expansion Unit.*
[4]*TV sets, audio cassette recorder/players, light pens, joysticks, game paddles and RF modulators are not part of the IBM Personal Computer offering and must be purchased separately.*

IBM *Portable* Personal Computer

A personal computer that goes where you go . . . works where you work

A portable, affordable personal computer. The IBM *Portable* Personal Computer offers you the performance and versatility of the IBM Personal Computer in a portable, reasonably priced package.

The IBM *Portable* PC is compact but powerful. Although it weighs only about 30 pounds and occupies about as much space as a standard office typewriter, the IBM *Portable* PC features the same high-speed, 16-bit microprocessor that drives the IBM PC, PC XT and PC*jr*. What's more, its 256KB of user or Random Access Memory is significantly greater than that of many other personal computers.

A computer that goes with you. You can carry the IBM *Portable* PC from office to office . . . department to department . . . office to home—wherever it can help you most. And you won't have trouble finding a place to put it: The 20 by 17 by 8-inch computer can fit easily on most desks and tables.

The computer's System Unit, display and keyboard can be packed up and transported as a single, self-contained unit. For storing and carrying, the keyboard attaches directly to the computer, protecting the front panel while serving as the base of the unit.

The computer has a built-in carrying handle and comes with a durable carrying bag, complete with handles and a shoulder strap.

IBM PC compatibility. In addition to its performance capabilities and portability, the IBM *Portable* PC offers you another major advantage: It is capable of running most IBM software products designed for the IBM Personal Computer. The IBM *Portable* PC also can use data diskettes created on the Personal Computer AT, PC XT, PC or PC*jr*.

And software can always be close at hand: The system's front panel contains a compartment for storing program and data diskettes.

IBM performance with power to spare. Behind the IBM *Portable* PC's extensive computing power lies the powerful Intel 8088 microprocessor, the same one used in the IBM PC, PC XT and PC*jr*. For even more power, the system can support an IBM 8087 Math Co-processor, a hardware option that greatly increases the speed of mathematical calculations.

The system has 256KB of user or Random Access Memory (RAM), expandable to 640KB. With 640KB of RAM, the IBM *Portable* PC has enough internal memory to run the most sophisticated personal computer application programs available today.

The system also has 40KB of permanent or Read Only Memory (ROM). ROM contains a Power-on Self-test that automatically examines the System Unit whenever you turn the computer on or restart it. ROM also contains BASIC, an easy-to-use programming language that lets you create your own application programs.

The computer's slimline diskette drive gives you access to information stored on double-sided, 360KB-capacity[1] diskettes. In addition, you can add a second diskette drive to provide 720KB of diskette storage—enough space to store more than 368 double-spaced, 8½ by 11-inch typewritten pages. Two diskette drives also offer you faster access to data and let you run application programs that require two diskette drives.

IBM *Portable* Personal Computer

Familiar IBM PC Keyboard. The 83-key, typewriter-like keyboard closely resembles the one used with the IBM PC and PC XT. It contains the full range of text and ASCII characters as well as a 10-digit calculator keypad and 10 programmable function keys for activating frequently used commands.

You can position the keyboard wherever it feels most comfortable—even place it on your lap—because it connects to the computer with a 30-inch coiled cable. When you're carrying the computer from place to place, you can store the cable in a special compartment located in the keyboard.

Easy-to-read amber display. Built into the front of the IBM *Portable* PC is a high-quality, 9-inch (diagonal measurement) display screen. It enables you to view graphics and up to 25 lines of uppercase and lowercase text with 80 characters per line. For viewing comfort, the easy-to-read dot-matrix characters are displayed in amber phosphor.

Brightness and contrast controls, conveniently located on the front panel, can be easily adjusted to accommodate variations in room lighting and personal viewing preferences.

A computer to grow with. Seven expansion slots make it possible for you to increase the capabilities of the IBM *Portable* PC. Two of these slots are taken up by adapters included with the system. The Diskette Drive Adapter lets you add the second diskette drive. And the IBM Color/Graphics Monitor Adapter supports the computer's amber display and allows you to connect an additional color monitor, such as the IBM Color Display.

The remaining five slots accommodate various optional adapters that enable you to connect a wide range of hardware options, including:
- *Printers*—for producing text and graphics printouts.
- *Modems*[2]—for communicating with other computers or tapping into on-line information services via the telephone.
- *Joysticks*[2] and *game paddles*[2]—for operating entertainment programs more easily.
- *IBM Expansion Unit*—for increasing storage capacity by as much as 20MB. The unit comes with one 10MB fixed disk drive and allows you to add a second 10MB drive. With 20MB of fixed disk storage, your IBM *Portable* PC can store the equivalent of more than 10,000 double-spaced typewritten pages of information.

The IBM *Portable* Personal Computer gives you the power of the IBM PC in a compact package—designed to go where you go... work where you work...and fit just about anywhere.

[1]*The IBM Disk Operating System (DOS) 2.00 or higher increases the formatted capacity of 320KB diskettes to 360KB.*
[2]*Modems, joysticks and game paddles are not part of the IBM* Portable *Personal Computer offering and must be purchased separately.*

IBM PC*jr*

*Choose the model that brings
out the best in you*

A versatile performer. The IBM PC*jr* is the most compact–and affordable–IBM PC.

PC*jr* gives you a choice of two powerful, lightweight and expandable models to meet your needs both today and tomorrow.

You can use your IBM PC*jr* with more than a thousand software programs to help organize your budget...analyze financial information ...educate your children...perform word-processing tasks...send electronic mail by phone...play exciting computer games... and much more.

Whatever model you choose, and however you choose to use it, you'll find the IBM PC*jr* to be a versatile tool that can help bring out the best in you.

Two compact and powerful models. The PC*jr* Enhanced Model comes with a double-sided 360KB[1] slimline diskette drive and 128KB of user memory–expandable to 512KB–so it can handle professional applications. The PC*jr* Entry Model has 64KB of user memory–expandable to 512KB with appropriate memory expansion options.

Each PC*jr* System Unit–with the new PC*jr* Keyboard–weighs less than 12 pounds yet packs plenty of computing capability in its compact frame. And each features the same high-speed, 16-bit microprocessor found in the IBM PC, IBM PC XT, and the IBM *Portable* PC.

In addition, each PC*jr* model comes with 64KB of Read Only Memory (ROM) and two cartridge slots for running a growing number of IBM PC*jr* cartridge programs, such as Lotus 1-2-3[2] and Andrew Tobias Managing Your Money™ With the IBM PC*jr*.

PC*jr* Keyboard offers a choice of cord or cordless operation. The innovative IBM PC*jr* Keyboard gives you the freedom of cordless operation[3] by using infrared signals to interact with the System Unit–similar to the way a hand-held remote-control device operates a TV set. The keyboard can be operated within 20 feet of the System Unit (provided there are no obstructions), allowing you to use PC*jr* in a position that's convenient for you.

PC*jr*'s keyboard also gives you the flexibility to use a cord whenever you wish. An optional 6-foot PC*jr* Keyboard Cord is available if you choose electric- over battery-powered keyboard operation. The cord is recommended when more than one system is being used in the same environment.

The PC*jr* Keyboard closely resembles the IBM PC Keyboard in both performance and appearance. As with the IBM PC Keyboard, it meets the demands of professional applications requiring rapid data entry. It has 62 full-sized keys arranged in a typewriter-like layout. The keys have a tactile feel and clicking response to help speed touch-typing of documents. Added comfort and convenience features include:
• *Special color-coded keys*–with letters printed on top of keys.
• *Two typing angles*–5 degrees or 12 degrees– so the keyboard can be adjusted to a position most comfortable for you.

IBM PC*jr*

- *Non-skid base*—to prevent keyboard slippage.
- *Pencil-holder ledge*—located at the top of the keyboard for handy pencil or template storage.

Room for expansion. The user memories of both IBM PC*jr* models can be expanded up to 512KB. This memory expansion is made possible by the addition of up to three IBM PC*jr* 128KB Memory Expansion Attachments. If more than one 128KB Memory Expansion Attachment is added, the IBM PC*jr* Power Expansion Attachment[4] is needed.

BASIC cartridge provides vital support. You can greatly expand the capabilities of your PC*jr* by adding an optional IBM PC*jr* BASIC cartridge. This cartridge has all the functions of Disk and Advanced BASIC—as supplied on the IBM Disk Operating System (DOS)—plus graphics, sound and communications enhancements.

The IBM PC*jr* BASIC cartridge provides support that enables you to:
- Use diskettes as well as cassettes (if DOS 2.10 or higher is present)
- Access outside information services, such as Dow Jones News/Retrieval[5] Service and THE SOURCE,[5] over standard phone lines with the IBM PC*jr* Internal Modem or any compatible external modem[6]
- Draw circles, paint and create other advanced graphics
- Create "windows" by dividing the display screen into sections
- Play and store multivoice music
- Communicate with other systems
- Provide six different screen modes for displaying text and graphics in up to 16 colors

Added support with BASIC cassette. Each PC*jr* System Unit contains a cassette version of the BASIC language. It supports math functions and various other options, such as IBM PC*jr* Attachable Joysticks.

Getting started is simple. IBM has made it easy for you to enjoy your IBM PC*jr* the very first day you use it. First, you're invited to take an on-screen "Keyboard Adventure"—a "guided tour" of the keyboard introducing you to the keys and their functions.

If you have questions afterward, you'll find the step-by-step operating instructions in the Guide to Operations easy to follow. And the Power-on Self-test, which automatically checks out the PC*jr* System Unit and elements each time PC*jr* is turned on or restarted, will assure you that everything's operating correctly.

Color your information for clarity. You can choose from a number of display options for your PC*jr* system. The PC*jr* supports the IBM PC*jr* Color Display and IBM Color Display as well as other compatible color displays.

The IBM PC*jr* Color Display has an attached cable that plugs directly into the back of the IBM PC*jr* System Unit. Other displays[7] may be attached to your System Unit with an appropriate adapter.

You can even use your color or black-and-white TV[6] as a display screen. To attach the computer to your set, use the optional IBM PC*jr* Connector for TV. To resume watching TV, simply flip a switch on the connector.

More options to help you do more. IBM has designed a wide range of options to go along with IBM PC*jr*... options that can increase its versatility and increase your productivity and pleasure. Among them:
- *IBM PC*jr *360KB Slimline Diskette Drive*—offers owners of the PC*jr* Entry Model the opportunity to run many software products

that also run on other personal computers from IBM. (This diskette drive is standard with the PC*jr* Enhanced Model.)
- *IBM PC*jr *Color Display*—a high-contrast, 13-inch (diagonal measurement) display for graphics and text that features 16 colors.
- *IBM PC*jr *64KB Memory and Display Expansion*—doubles the PC*jr* Entry Model's user memory to 128KB, so you can take advantage of software products requiring more than 64KB of memory. It also increases—from 40 to 80 columns—the amount of information you can display on your screen and offers sharper, more detailed graphics. (PC*jr* Entry Models require this option to add the IBM PC*jr* 128KB Memory Expansion Attachment.)
- *IBM PC*jr *128KB Memory Expansion Attachment*—increases PC*jr*'s memory by 128KB; up to three modules can be attached.
- *IBM PC*jr *Power Expansion Attachment*[8] provides the additional power required to operate as many as three side-attached options. It must be in place if more than one PC*jr* 128KB Memory Expansion Attachment is added.
- *IBM PC Compact Printer*—a serial printer that operates at 50 characters per second (CPS); also features all-points-addressable (APA) graphics.
- *IBM PC*jr *Parallel Printer Attachment*[8]—for attaching a parallel printer, such as the IBM Graphics Printer, to the IBM PC*jr*.
- *IBM PC*jr *Internal Modem*—accesses compatible modems over standard phone lines.
- *IBM PC*jr *Speech Attachment*[8]—supports speech and sound with the Writing to Read software program or with other speech programs.
- *IBM PC*jr *Cluster Attachment*[8]—for interconnecting PC*jr*s within the IBM Personal Computer Cluster.

- *IBM PCjr Attachable Joystick*—lets you add to the fun of operating PCjr's entertainment programs. The IBM PCjr System Unit can accommodate two joysticks.
- *Connector for TV (RF modulator)*—enables the PCjr to use most television sets[6] as a display.
- *Cassette interface*—enables you to use an audio cassette recorder/player[6] to run software products available on audio cassette tapes.[9]
- *Carrying case*—protects your IBM PCjr when you're on the go. The carrying case can also hold four cartridges, the IBM PCjr Connector for TV, five diskettes, the IBM PCjr Power Expansion Attachment, and one other side-attached option.

The IBM PCjr offers you a choice of high-performance computers with the power and versatility you need to handle a wide range of computing tasks...and to bring out the best in you.

™ *Managing Your Money is a trademark of MECA.*™
[1]*The IBM Disk Operating System (DOS) 2.10 or higher increases the formatted capacity of 320KB diskettes to 360KB.*
[2]*Lotus and 1-2-3 are trademarks of Lotus Development Corp.*
[3]*Requires four AA batteries.*
[4]*The addition of one internal IBM PCjr 64KB Memory and Display Expansion option and a diskette drive is required for the PCjr Entry Model.*
[5]*Dow Jones is a trademark and Dow Jones News/ Retrieval is a registered trademark of Dow Jones & Company, Incorporated. THE SOURCE is a service mark of Source Telecomputing Corporation, a subsidiary of The Reader's Digest Association, Incorporated.*
[6]*Video monitors, TV sets, external modems, audio cassette recorder/players, light pens, mouse pointing devices, and game paddles are not part of the IBM Personal Computer offering and must be purchased separately.*
[7]*The IBM Monochrome Display does not run on the IBM PCjr.*
[8]*The IBM PCjr Power Expansion Attachment is required if the IBM PCjr Speech Attachment is to be used with either the IBM PCjr Parallel Printer Attachment or the IBM PCjr Cluster Attachment.*
[9]*Requires the IBM Adapter Cable for Cassettes.*
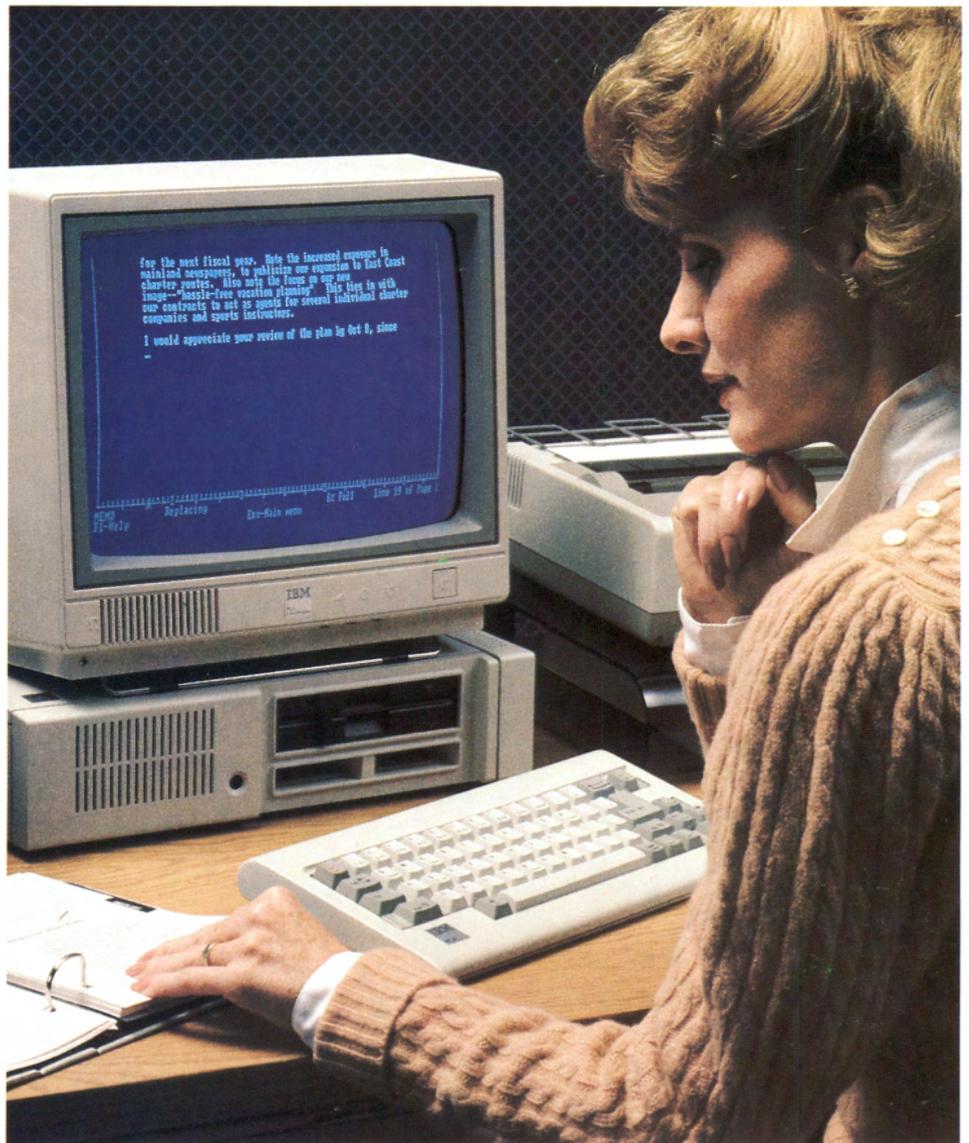
Keyboard for the IBM PC, IBM PC XT, and IBM *Portable* PC

Easy-to-use keyboard with enhanced performance features

The streamlined design and easy-to-use features of the IBM Personal Computer Keyboard, shown here, are common to the IBM PC XT and Portable *PC Keyboards.*

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.

This streamlined IBM PC Keyboard, which is nearly identical to the IBM PC XT and *Portable* PC Keyboards, offers you features that are as practical as they are convenient.

For example, because the keyboard is connected to the System Unit with a coiled cable, it can be operated from your desktop or your lap—in any position most comfortable for you.

The cable that connects the IBM PC and IBM PC XT Keyboards to their respective System Units is six feet long. The IBM *Portable* PC cable is 30 inches long—and can be stored easily in its special keyboard compartment.

For comfort and convenience, the keyboard typing angle can be adjusted up to a 12-degree angle and down to a 5-degree angle.

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 typewriter key 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 placing keyboard aids provided with application programs or 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 word-processing and other programs 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[1] 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 can be used to perform a completely different set of functions. Some often-used BASIC commands—up to 15 characters long—can be entered by simply pressing a single function key each time you want to repeat the command

in a program. You can even write your own applications and program the 10 function keys as you wish.

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 printout 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. If held down, most keys on the keyboard will continue to repeat their characters or functions.

(Left) On the left side of the keyboard for the IBM PC, PC XT and Portable PC are 10 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 to enter, delete or revise information.

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.

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

IBM Expansion Units

*More auxiliary storage capacity for data,
additional expansion capabilities for growth*

XT PC

PPC

A cost-efficient solution to system expansion. Personal computers from IBM may be expanded in a variety of ways. If your requirements involve applications that call for more auxiliary storage than your System Unit can support, you can add an IBM Expansion Unit to your system.

Add 10MB of fixed disk storage plus eight expansion slots. There are two IBM Expansion Units available, one for the IBM Personal Computer and IBM *Portable* Personal Computer, another 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 an electrical outlet. The Expansion Unit slots are identical to those on the System Units, so the Expansion Units can accept any adapter card that the System Units can, with the exception of memory cards, the IBM Diskette Drive Adapter, and the adapter supporting the primary display.

Six of the slots accept full-size adapters. The remaining two 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.

Expand your IBM PC or *Portable* PC system. The Expansion Unit for the IBM Personal Computer and IBM *Portable* PC permits you to enjoy all the advantages of a 10MB fixed disk drive with either system. The fixed disk drive provides over 13 times more storage capacity than you have with an IBM Personal Computer equipped with two 360KB-capacity[1] 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 eight more system expansion slots to the five slots built into the IBM Personal Computer, for a total of 13 expansion slots.[2] The IBM *Portable* Personal Computer, which contains seven system expansion slots, can be expanded with the IBM Expansion Unit to a total of 15 expansion slots.[2]

Double your IBM Personal Computer XT storage. 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 PC XT System Unit, you have the option of installing another 360KB-capacity

diskette drive in its place. With 20MB of fixed disk storage and 720KB of diskette storage capacity in your PC XT system, you can store, access and manage massive amounts of information.

Double your IBM Personal Computer XT expansion opportunities. The eight system expansion slots provided by the Expansion Unit enable you to add 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 eight slots in the IBM Personal Computer XT System Unit.[2]

[1] *The IBM Disk Operating System (DOS) 2.00 or higher increases the formatted capacity of 320KB diskettes to 360KB.*
[2] *When an Expansion Unit is added to a System Unit, two expansion slots are occupied by the attachment cards used to connect the System Unit to the Expansion Unit.*

Display Options and Keylock Option

*Four quality displays and
a system security option*

For viewing text, graphics and numerical data, IBM offers you a choice of four quality displays. The capabilities of these displays depend largely on which IBM display adapter you install in your System Unit.

Also, to protect your system's data—as well as its hardware—from unauthorized access, you can add the IBM Personal Computer Keylock Option security device.

Display Options   `AT` `XT` `PC` `PPC` `PCjr`

How to select the right display for your system. In selecting a display, three important points should be considered: the intended use of the computer, the desired display quality, and the price range.

If your personal computer from IBM will be used mainly for *color and graphics* displays, the IBM Personal Computer Enhanced Color Display, the IBM Personal Computer Color Display, the IBM PC*jr* Color Display, or another RGB monitor is recommended, although a TV set[1] with an RF modulator[1] may be used. RGB monitors generally are more expensive than standard color monitors; however, they provide separate red, green and blue inputs for sharper images.

If your computer will be used primarily for viewing *textual* information for extended periods of time, the IBM Personal Computer Enhanced Color Display or the IBM Personal Computer Monochrome Display is recommended.[2] However, a video monitor or TV set equipped with an RF modulator may also be used. In general, the IBM Monochrome Display or Enhanced Color Display presents sharper, clearer images than either a video monitor or a TV.

The IBM 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.
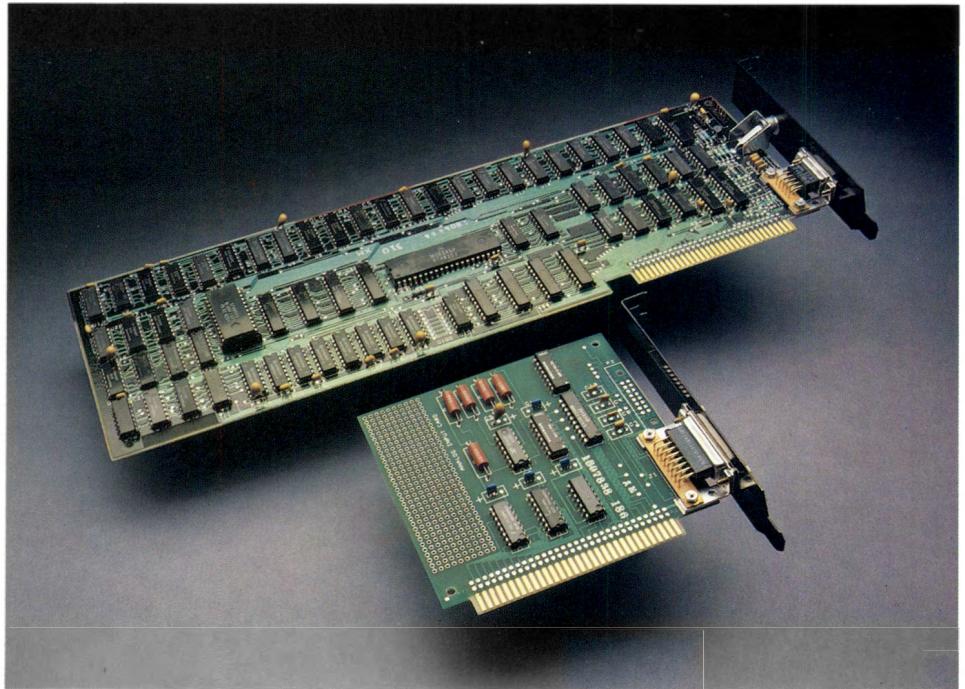
Display adapters. Your display selection must be supported by an appropriate adapter:
- *IBM Enhanced Graphics Adapter*[3]—for the IBM Personal Computer AT, PC XT and PC
- *IBM Color/Graphics Monitor Adapter*—for the IBM Personal Computer AT, PC XT, PC and *Portable* PC
- *IBM Monochrome Display and Printer Adapter*[3]—for the IBM Personal Computer AT, PC XT and PC.
- *IBM PCjr Adapter Cable for the IBM Color Display* and *IBM PCjr Connector for TV*—for the IBM PC*jr*. (A separate adapter is not required for the IBM PC*jr* Color Display.)

The IBM PC*jr* adapters are built into the IBM PC*jr* System Unit. Adapters for other IBM Personal Computers each occupy one system expansion slot.

IBM Enhanced Graphics Adapter. The IBM Enhanced Graphics Adapter supports the IBM Enhanced Color Display and provides text and graphic enhancements for the

IBM Color Display and IBM Monochrome Display with a wide variety of display modes.

The Enhanced Graphics Adapter enables you to make the most of the capabilities of the Enhanced Color Display: It will support 16 colors at one time for 640 x 350 graphics (with the Graphics Memory Expansion Card)—from a palette of up to 64 colors—as well as high-quality color text.

When attached to the IBM Color Display, the Enhanced Graphics Adapter supports 16-color graphics in either the 640 x 200 or 320 x 200 mode.

Display Options and
Keylock Option

With the IBM Monochrome Display, the IBM Enhanced Graphics Adapter provides a 640 x 350 graphics mode and an 80 x 25 character text mode with a 9 x 14-dot character box.

The IBM Graphics Memory Expansion Card increases the number of colors in the 640 x 350 mode from 4 to 16 on the IBM Enhanced Color Display. Graphics memory can be expanded further–to 256KB–with the Graphics Memory Module Kit. This provides added space for more pages of graphics data and a larger area for smooth scrolling/panning.

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 many other displays.

The IBM Color/Graphics Monitor Adapter offers two all-points-addressable (APA) graphics modes: a high-resolution black-and-white mode and a medium-resolution color mode. In the color mode, you can use one of two sets of colors at a time. Each set includes three colors that can be used against a fourth, background color.

In addition, a text mode enables you to display 256 characters in up to 16 foreground and 8 background colors. In this mode, you can display up to 25 lines of text with either 40 or 80 characters per line.

Monochrome Display and Printer Adapter. This adapter offers you the advantage of supporting both the IBM Monochrome Display and a parallel printer while taking up only one system expansion slot.

The adapter supports a 256-character set and displays up to 25 lines of text with 80 characters per line.

IBM PC*jr* Adapter Cable for the IBM Color Display. This special connector cable supports the IBM Color Display on an IBM PC*jr* system. This connector cable enables the IBM Color Display (or other compatible RGB display) to take advantage of the graphics capabilities of the PC*jr*.

IBM PC*jr* Connector for TV. This special adapter was designed to increase the portability of the IBM PC*jr* by allowing you to use a compatible color or black-and-white TV as a display. It attaches easily to the VHF jack of a TV set and includes a two-way selector that permits you to view TV at the flip of a switch.

IBM Personal Computer Keylock Option

XT PC

System Unit security. The IBM Personal Computer Keylock Option is a security device that can assist in protecting against data tampering and theft of system components. It is designed to be attached to the rear corner–nearest the power switch–of an IBM PC XT or IBM PC System Unit or of an IBM Expansion Unit.

Once installed, the Keylock Option assures that the unit can be turned on only by inserting and turning a key. Another safety precaution prevents removal of the key unless it is in the "off" position. In addition, the key cannot be duplicated without special manufacturer's equipment.

Multiple protection. The Keylock Option device is a valuable tool that aids in:
- Preventing unauthorized use of the System Unit
- Protecting confidential fixed-disk data
- Blocking access to mainframe computers through a communications link

The IBM Personal Computer Keylock Option helps protect your system's data and hardware from unauthorized access.

- Controlling access in a multiuser environment
- Preventing access to the display power cord receptacle on the System Unit

Easy to install. The Keylock Option can be easily installed with an ordinary flat-blade screwdriver. No cover or electrical modifications, special wiring or software modifications are required.

The entire IBM Personal Computer Keylock Option weighs less than two pounds and comes with instructions and two keys.

[1]*TV sets and RF modulators are not part of the IBM Personal Computer offering and must be purchased separately.*
[2]*The IBM PC*jr *can be used with almost any black-and-white monitor or black-and-white TV set but does not support the IBM Monochrome Display.*
[3]*Does not support the RF modulator or TV attachment.*

IBM Enhanced Color Display

*A new level of color graphics supported
by an enhanced graphics adapter*

Sharper, more colorful graphics and text.
The IBM Enhanced Color Display—with the
IBM Enhanced Graphics Adapter—provides
many colors for graphics and a high-contrast
screen for both graphics and text.

The IBM Enhanced Color Display and En-
hanced Graphics Adapter, which can be used
with your IBM Personal Computer AT, PC
XT or PC, are compatible with most soft-
ware programs for these three systems. They
also improve the quality of color text in
software programs without requiring repro-
gramming by the user.

The key to creative graphics. When you
use the IBM Enhanced Color Display with
the IBM Enhanced Graphics Adapter, even
simple sketches may appear more vivid and
striking. The display, with a maximum
software compatibility of 640 dots horizon-
tally by 350 dots vertically, supports a wide
selection of color combinations, so you can
produce complex graphs and drawings with
greater detail.

In addition, you can select up to 16 colors
for graphics at one time from a palette of 64
colors.

To expand the graphics capabilities of your
IBM Enhanced Color Display, you can add
two memory-expansion options to the IBM
Enhanced Graphics Adapter:
• *Graphics Memory Expansion Card*—increases
user memory to 128KB from the 64KB built
in to the Enhanced Graphics Adapter; allows
16-color graphics in the 640 x 350 mode
(compared to 4 with the Enhanced Graphics
Adapter card only) and storage of more
user-defined character sets (512 characters
instead of 256).
• *Graphics Memory Module Kit*—increases user
memory to 256KB with proper program-
ming; permits a larger area for panning,
smooth scrolling and storage of more pages
of graphics at one time.
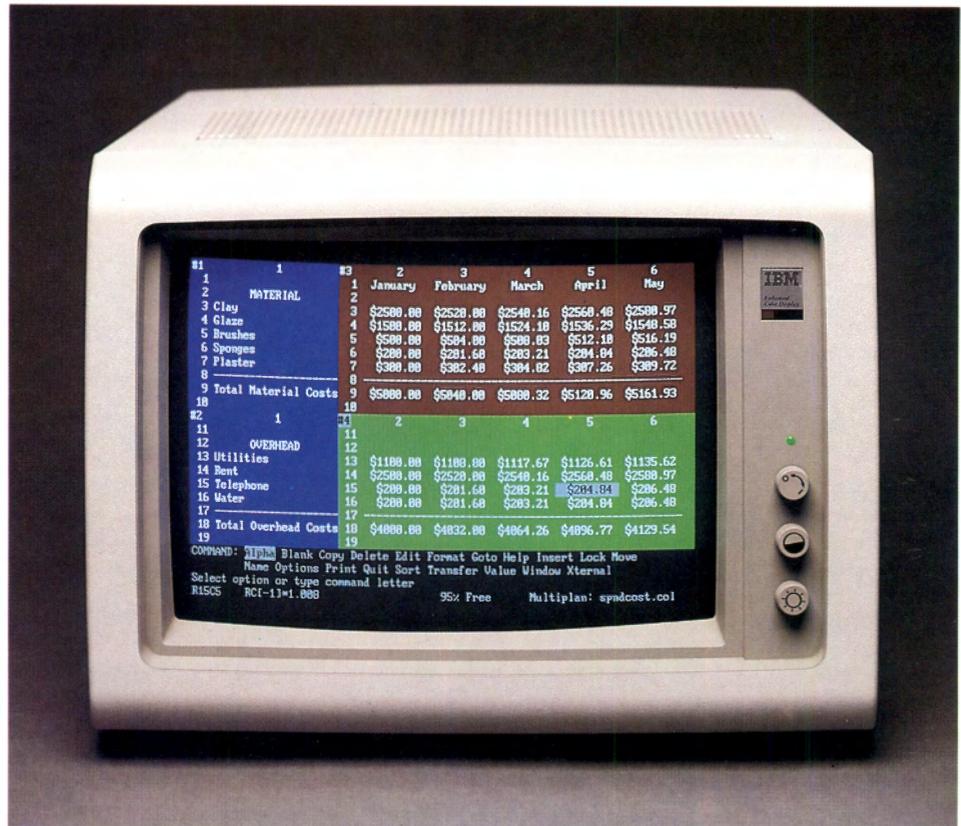
Reduced-glare screen. The IBM Enhanced
Color Display has a 12½-inch (diagonal mea-
surement) dark, etched screen to reduce
glare and give you clearer graphics and text—
so you can work longer and with less eye
fatigue. Brightness and control knobs,
located on the display's front panel, let you
easily adjust screen illumination to conform
to your room environment.

Choice of adapters. To operate the IBM
Enhanced Color Display, you must install
either the IBM Enhanced Graphics Adapter[1]
or the IBM Color/Graphics Monitor Adapter
in a full-sized slot in the System Unit.

The display connects to either adapter with
a cable (included with display). To add
graphics expansion options, you must install

the Graphics Memory Expansion Card in a
connector on the side of the IBM Enhanced
Graphics Adapter. Modules from the Graph-
ics Memory Module Kit can be inserted into
sockets on the Graphics Memory Expansion
Card. (Only one System Unit expansion slot
is required regardless of the amount of
graphics memory installed.)

Compatible design. The IBM Enhanced
Color Display is designed to fit on top of any
IBM Personal Computer AT, PC XT or PC
System Unit.

[1] *Some models of the IBM Personal Computer may require
a new ROM BIOS module.*

IBM Personal Computer Color Display

*Displays appealing graphics
in a variety of colors*

High-quality color and graphics displays.
The IBM Personal Computer Color Display is
a high-performance RGB monitor that dis-
plays graphic images and text in a wide range
of colors. With the IBM Color Display, you
can view colorful and visually compelling
graphs, charts, diagrams, drawings, and
more with your personal computer from IBM.

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

Colors are crisp...clear...vivid. The dis-
play'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.
You can use up to 16 colors at one time and
produce graphics at greater speeds with the
IBM Enhanced Graphics Adapter. The sharp,
clear color graphics are further enhanced by
the black mask contrast feature.
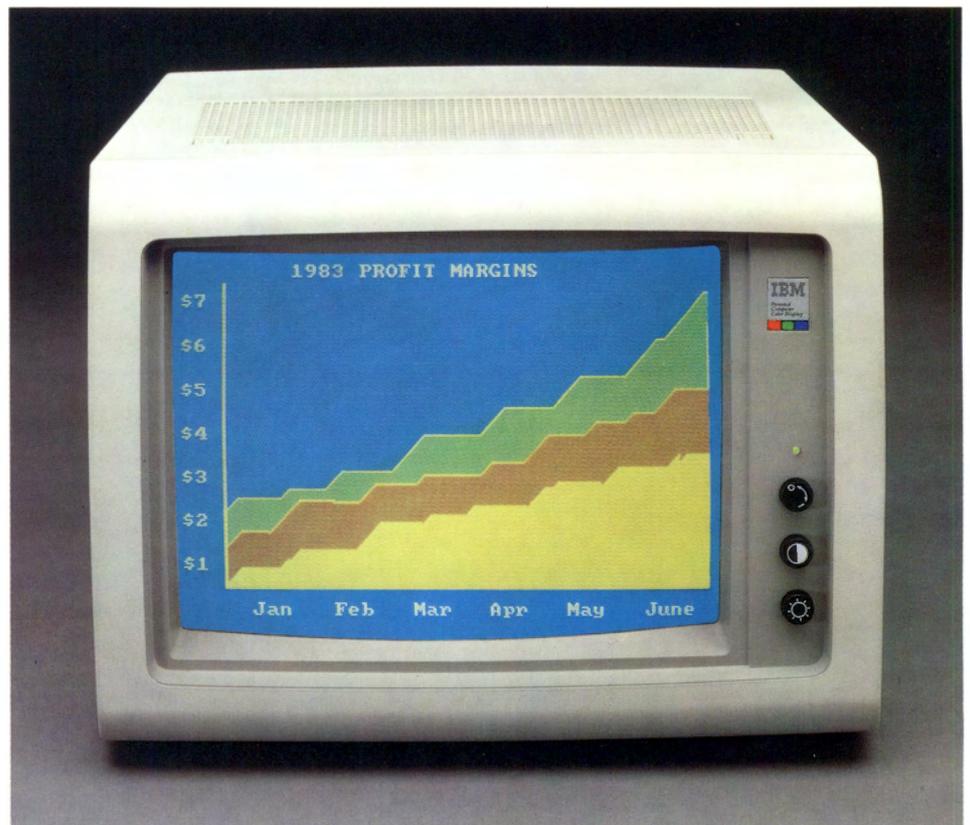
The 16 colors attainable are:

- 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.
Color graphics can be produced on the IBM
Personal Computer Color Display by using
the IBM PC BASIC programming language
(or IBM PCjr BASIC for the IBM PCjr).

BASIC programming language enables you to
issue simple, one-word commands to gener-
ate a wide variety of graphic shapes and
designs. For example, you can type "CIRCLE"
on the keyboard to command the computer
to draw a full or partial circle. You can 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 flashing white cursor under your control. You can also use a light pen (not supplied by IBM) to augment graphics in specific areas of your 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 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 can be made to appear brighter than its surroundings. Characters can also be displayed in reverse (interchanging foreground and background colors). You can also make them blink.

These highlighting features can be used to alert viewers to key information on 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 offers 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.

IBM PC*jr* Color Display

*An affordable display for viewing
graphics and text in up to 16 colors*

The IBM PC*jr* Color Display is a high-contrast, direct-drive RGB monitor ideal for IBM PC*jr* owners. The display produces high-quality color images, is reasonably priced, and can be placed on top of your IBM PC*jr* System Unit.

Sharp, vivid colors. The IBM PC*jr* Color Display, normally operated in the 40-character (320 x 200-line) mode, offers visually compelling color. In the 80-character mode, the IBM PC*jr* Color Display features better character definition and clarity than a color composite monitor.

The 16 colors attainable with the IBM PC*jr* Color Display:

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

Comfort features: Glare is reduced and reflections are softened by a special non-glare, 13-inch screen (diagonal measurement). In addition, the IBM PC*jr* Color Display may be tilted up to a 10-degree angle for flexibility and viewing ease.
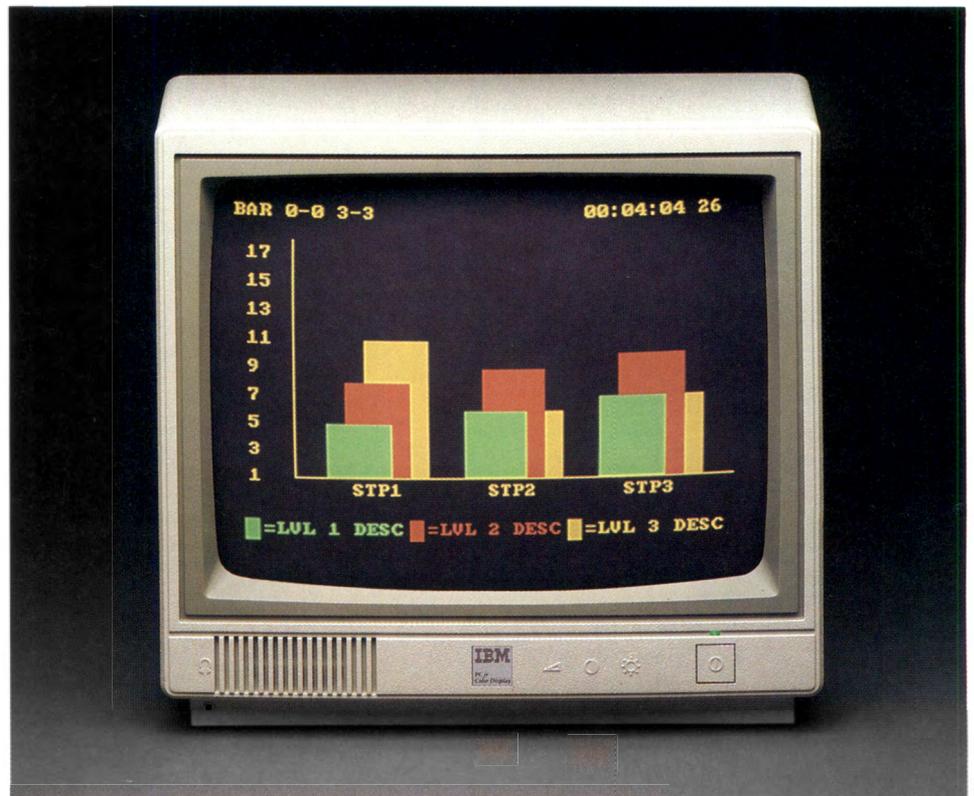
Color-enhanced applications. With its high-contrast screen, the display is ideal for a wide range of personal productivity and graphics applications—especially for viewing diagrams, charts, graphs, drawings and other pictorial elements.

In addition, it enhances the playing of many entertainment programs written for the IBM PC*jr*. Its internal speaker helps enliven games with sound effects. It also enables you to listen to musical programs. A special earphone connection lets you enjoy sound effects and music in privacy.

A full range of controls. Contrast, brightness and volume controls are conveniently located on the front panel of the IBM PC*jr* Color Display. The controls used less often—vertical hold and size—are on the rear panel.

IBM Personal Computer Monochrome Display

A high-quality video display designed for your viewing comfort

Displays 25 lines of 80 characters each.
The IBM Personal Computer Monochrome
Display is a high-quality 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 characters per line.

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

Since the display is 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. Bright-
ness and contrast controls, conveniently
located on the front panel of the display, al-
low easy adjustment to accommodate your
particular viewing preference and variations
in room lighting. To reduce glare and soften
reflections, the screen itself is coated.
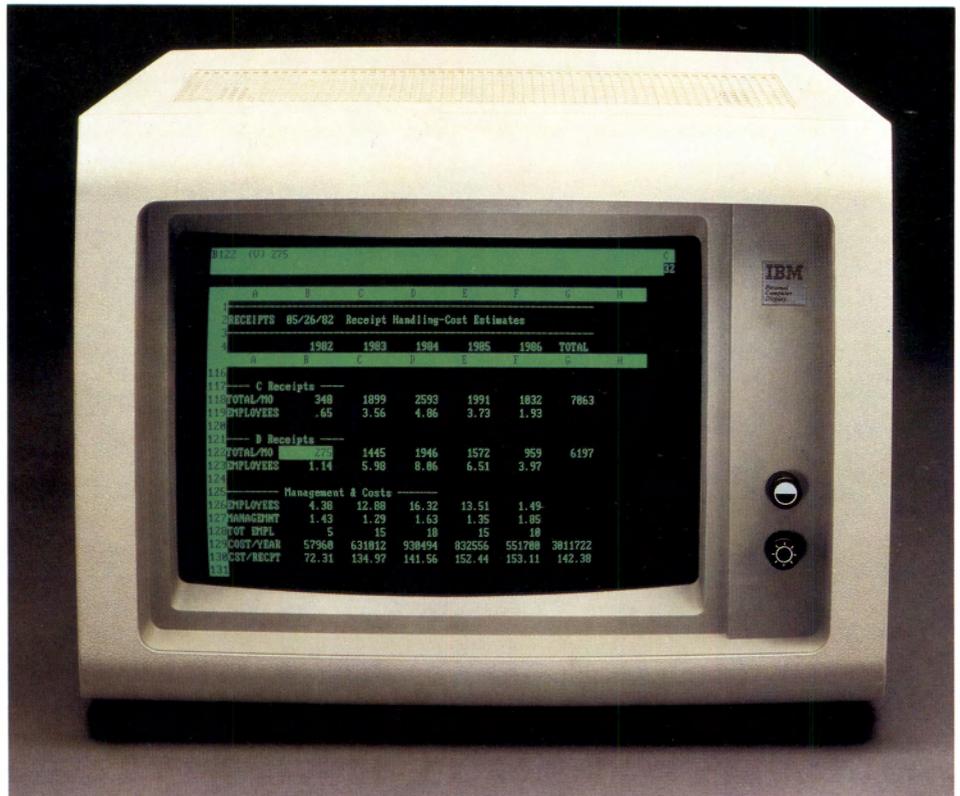
Greater reading comfort. The IBM
Monochrome Display features a 9-dot-wide
by 14-dot-high character box for easily
discernible characters. Even character
"descenders" are shown, giving letters such
as "g" and "p" their proper appearance.

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

Added graphics capability. When you use
the IBM Monochrome Display with the IBM
Enhanced Graphics Adapter, you can gain
new graphics benefits as the screen displays
640 dots horizontally by 350 dots vertically.

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.

IBM Personal Computer Color Printer

Printing of color graphics and text

Enhance your printing capabilities. The versatile IBM Personal Computer Color Printer is a high-performance dot-matrix printer that lets you print charts, graphs, artwork and text in up to eight colors.

You can use an IBM Color Printer with an IBM Personal Computer AT, PC XT, PC or *Portable* PC. The printer's 256 characters include 96 uppercase and lowercase ASCII (American Standard Code for Information Interchange) characters and all the IBM PC special characters.

Once you see the printer's features, it's easy to see how much help the IBM Color Printer can provide—no matter where you plan to use it. The printer's range of performance features makes it especially valuable for heavy-use/high-productivity applications.

Add color and clarity to your work. The IBM Color Printer comes with an easy-to-change cartridge ribbon. The ribbon contains four separate color bands—cyan, yellow, magenta and black—that can be mixed to provide four more colors—green, violet, brown and orange—for a total of eight distinctive hues.

Use these colors individually or in combination to create eye-catching pie charts, bar charts and other graphic forms—to enhance the appearance of your reports and make the information you present easy to understand.

In addition to the 4-color-band ribbon included with the IBM Color Printer, there are two other ribbon options: One has four true colors—green, red, blue and black; the second contains four black bands.

The IBM Color Printer features all-points-addressable (APA) graphics, enabling you to print color graphics that are even clearer and sharper than they appear on your display screen. In the graphics modes, this printer can address 84 dots per inch vertically and more than 168 dots per inch horizontally.

It's programmable. The IBM Color Printer has a number of time-saving, programmable features, which allow you to automatically control:
– Print mode
– Line spacing
– Form length
– Proportional spacing
– Margin and tab setting
– Automatic underlining
– Automatic justification

These programmable features act as an extension of many software products—such as word-processing programs—and can be initiated with just a few quick keystrokes.

Help save time. The IBM Color Printer operates at printing speeds of up to 200 characters per second (CPS) for data-processing quality. Other speeds include:
– 120 CPS with proportional spacing between characters or 110 CPS with fixed spacing between characters, for draft quality
– 35 CPS for near letter quality

All printing speeds can be set manually with control DIP switches or automatically with your program.

Vary printing elements to customize your documents. You can personalize your documents by varying the printing modes, character spacing and boldness. This allows you to differentiate among headlines, subheads and quotations—and even print math and science equations in their "real" forms.

Among the elements you can control:
• Printing modes—including standard, double width, fixed and proportional—all with true lowercase descenders (i.e., letters such as "p" and "g" have their proper appearance)
• "Emphasis" and "double pass"
• Underlining
• Subscripting and superscripting
• Variable line spacing
• Pitch—including 10, 12 or 17.1 characters per inch—for up to 226 characters per 13.2-inch line

Convenience features simplify your job. The IBM Color Printer was designed to provide convenience as well as performance. Here are some of its convenience features:
• *Control panel*—touch-sensitive controls for feeding forms and testing. A special configuration switch on the panel allows the user to set such variables as lines per inch, auto perforation skip, form size and type font.
• *Automatic line buffer*—8KB of RAM to reduce the amount of time spent waiting for your printer to catch up with what you've entered.
• *Tractor-fed paper*—accepts forms from 4 to 16 inches wide and up to 4-ply thick.
• *Sensing device*—signals when the paper has run out.
• *Single sheet paper*—accepts manually-fed paper from 7 to 12 inches wide.

THE IBM PERSONAL COMPUTER COLOR PRINTER

The IBM Personal Computer Color Printer is a versatile, multifunctional printer that attaches to members of IBM Personal Computer family. This paragraph illustrates some of the advanced features of the Color Printer. It utilizes automatic text-justification, proportional spacing and near-letter quality printing.

XYZ Company Expenditures

Administration

Research & Development

Manufacturing
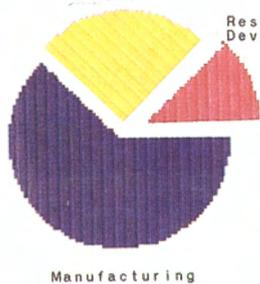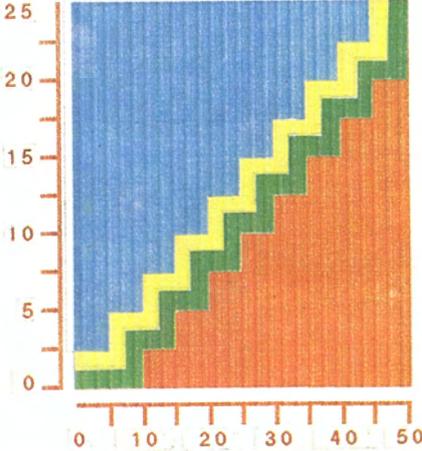
DATA-PROCESSING QUALITY:
Printing Speed: 200 characters per second
Printing Head Travel: Bi-directional, one pass
Printing Sizes: 10 characters per inch (fixed spacing)
12 characters per inch (fixed proportional spacing)
17.1 characters per inch (fixed/proportional spacing)

TEXT QUALITY:
Printing Speed: 110 to 150 characters per second
Printing Head Travel: Bi-directional, one pass
Printing Sizes: 10 characters per inch (fixed spacing)
12 characters per inch (fixed proportional spacing)
17.1 characters per inch (fixed/proportional spacing)

NEAR LETTER QUALITY:
Printing Speed: 30 to 40 characters per second
Printing Head Travel: Uni-directional, two passes
Printing Sizes: 10 characters per inch (fixed/proportional spacing)
12 characters per inch (fixed/proportional spacing)
17.1 characters per inch (fixed/proportional spacing)

The dot-matrix IBM Personal Computer Color Printer lets you print artwork, complex graphics and even text in up to eight colors in the same document.

IBM Graphics Printer

*A fast, versatile printer
you can depend on*

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 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 device can 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 an IBM Personal Computer AT, PC XT, PC or *Portable* PC System Unit via an optional parallel adapter and the IBM Personal Computer Printer Cable. This durable, six-foot-long cable can also support various other printers. To attach the printer to a PC*jr,* use the IBM PC*jr* Parallel Printer Attachment with the Printer Cable.

The printer is supported by the IBM Monochrome Display and Printer Adapter 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.

Dependable and economical. The IBM Graphics Printer is a versatile, low-cost, quality dot-matrix printer for your personal computer from IBM. Its graphic and text printing capabilities provide 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 240 dots per inch horizontally and 216 dots per inch vertically—enabling you to print sharp, clear images.

Besides its graphics capabilities, the IBM Graphics Printer offers a character set that includes English characters, international characters and miscellaneous characters and symbols. These characters are similar to those shown on your display screen.

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 (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, which include four sizes of print. 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 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.

IBM PC Compact Printer

*A lightweight, low-cost printer
that saves desk space*

Small enough to take along. The IBM PC Compact Printer is a low-cost thermal printer that is lightweight—under 7 pounds—and compact; it measures only 12.3 inches wide by 3.5 inches high by 8.7 inches deep. So it takes up very little space.

Print text and more. The IBM PC Compact Printer uses a 5 by 8-dot matrix format. The printer's permanent memory contains the full 128 ASCII character set and many special symbols and characters, for a total of 191 printable characters.

The printer also offers all-points-addressable (APA) graphics, making it possible to print text and tabulations just the way you see them on your screen.

50 characters per second. The IBM PC Compact Printer is a unidirectional printer that prints up to 136 characters per line. In addition, it is speedy enough—50 characters per second (CPS)—to print most short documents in just a few moments. The printer also has a 256-character buffer memory where it can store characters it hasn't printed yet.

Four print modes offer more versatility. The printer offers you four different printing modes:
- *Standard*—up to 80 characters per line
- *Double width*—up to 40 characters per line

- *Compressed*—up to 136 characters per line
- *Compressed/double width*—up to 68 characters per line

By varying these printing modes, you can add emphasis to special points, set off special elements such as quotes, create headings and subheads, and more. The result: documents that are easier to read.

Printouts can be made on standard-size, 8½ by 11-inch thermal paper, packaged either as single sheets or as perforated "fan-fold" sheets. Thermal paper is also available on continuous rolls (8½ inches by 89 feet).

Make the connection easily. If you have an IBM PC*jr*, simply attach the IBM PC Compact Printer Cable (included) to the serial port on the back of the System Unit. If you're using an IBM PC XT, IBM PC or IBM *Portable* PC, you'll need the IBM PC Compact Printer Connector Adapter to connect the printer to an Asynchronous Communications Adapter in your system.

Hardware Reference Manuals

Comprehensive 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
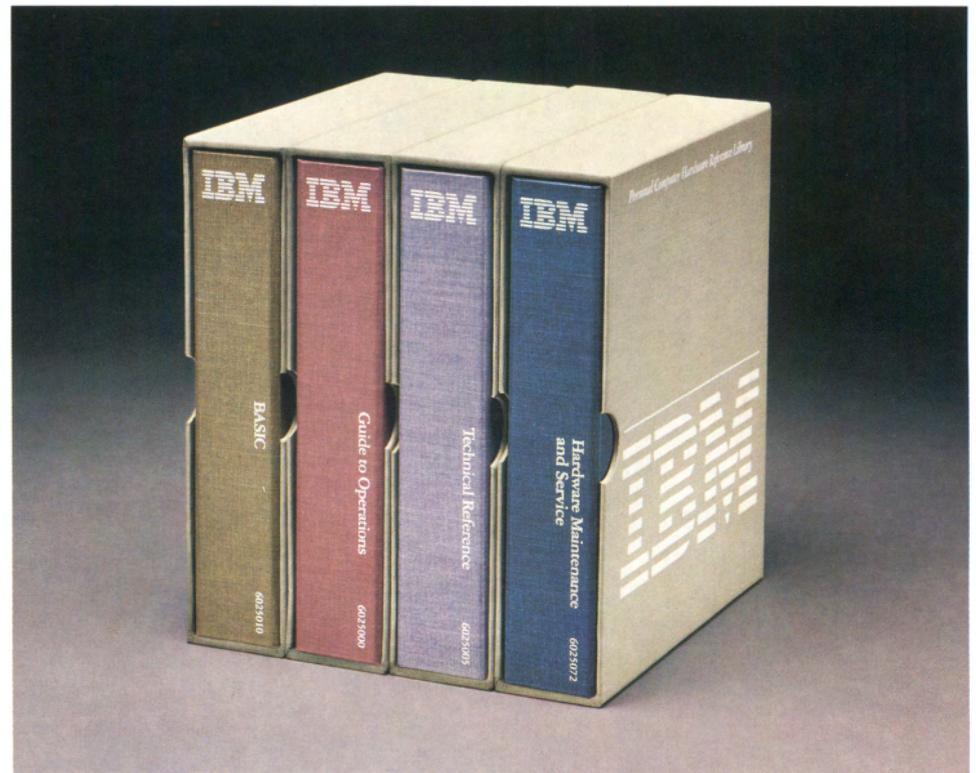
command, function, statement and variable. Other sections describe the use of the BASIC program editor, function keys, the diskette input/output options, and other topics. There is also a section that describes in detail the cartridge and cassette versions of BASIC for the IBM PC*jr.*

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

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 a parts catalog, a section on preventive maintenance, and instructions for identifying the failure of a replaceable unit.

Communications Family

Cluster Program

*Link several IBM Personal Computers into
an efficient information-sharing system*

XT PC

PPC PC*jr*

A cost-effective way for small groups to share information. The Cluster Program and its associated hardware enable you to link a number of IBM Personal Computers to form an interconnected work group or "cluster." For example, a single IBM Personal Computer XT, or IBM Personal Computer with an Expansion Unit, can become a "disk-server" station. The other attached (remote) personal computers in the cluster can then share information and files on the disk server's fixed disk.

Once installed in such a cluster, an IBM PC*jr* with no diskette drive can operate as if it had one. That's because the PC*jr* can use the same disk as other stations in the cluster.

In short, by allowing the sharing of storage capacity, a cluster with a disk server reduces the amount of capacity needed by individual workstations. This can mean a greater return from your overall hardware investment.

Even if there is no disk server in a cluster, workstations can send and receive messages among themselves, transfer files, and more.

Public and private disks—all in one. A major advantage of a cluster that includes a disk server is that the disk can contain both a public (i.e., shared) volume and a number of private volumes.

The public, read-only volume holds programs and information that can be used by all stations in the cluster[1] and offers protection against accidental changes or erasures.

Private volumes are, in effect, "personal" disks. Each private, read/write volume typically consists of the data created or needed by a single station and can be used only by that station.

Thus, even if a cluster contains only one fixed disk unit, each personal computer from IBM can share the public volume and have its own private volumes as well.

Cluster Program at a glance...

Share information and files.	Use a single computer with a fixed disk as a disk server for other stations in a cluster.
Use space on a shared disk as a public volume.	Share programs and read-only information with all stations in the cluster.
Use space on a shared disk as private volumes.	Hold read/write data created or needed by a single station in the cluster.
Save time.	Simultaneously load programs and information files stored in public and private volumes.
Communicate within the cluster.	Send and receive messages or transfer files from station to station.
Use without a disk server.	Workstations can send and receive messages and transfer files among themselves.
Eliminate diskette handling on the IBM PC*jr*.	Program automatically downloads DOS from the disk-server station.

The Cluster Program at work. A cluster can be especially useful in small business and educational environments. Business personnel can use the cluster to help increase both personal productivity and office efficiency. In schools, students can perform test, drill or tutorial exercises that can be loaded automatically from the fixed disk.

A typical small office group, for example, might have an IBM Personal Computer XT functioning as a disk server for four other PCs—including the PC*jr* you use.

To write a thank-you letter to a customer who has just placed a large order, simply load a word-processing program from the public volume on the IBM PC XT's fixed disk into the memory of your PC*jr*—just as if PC*jr* had a diskette drive of its own. If there is a thank-you form letter "shell" stored in either a private volume or the public volume, you could retrieve it easily. The form letter could be customized by using the word-processing program, printed, then stored in the private volume.

No "waiting in line." While you are using this or any other program or file stored on the public volume, the Cluster Program allows any other licensed station to use the material at the same time. In addition, a given station may load several programs and files—from either the public or private volume—at the same time.
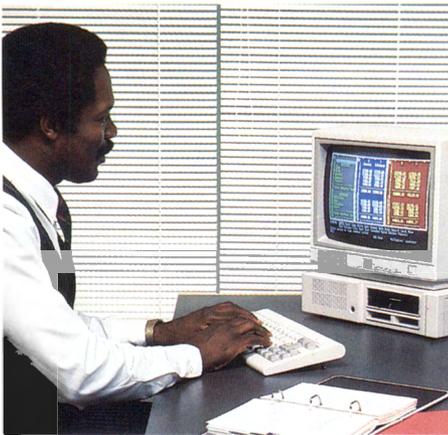
Transfer files, send messages. The Cluster Program also enables station-to-station sending and receiving of messages and files. If you want your secretary to proofread a letter before mailing, for example, the Cluster Program enables you to transfer the file to your secretary's station without leaving your chair. To clarify what you want done with the file, you can send a message through the system to your secretary. An audible beep at her station indicates that a message has been received and filed. The secretary can then retrieve and review the message.

You can also "broadcast" messages to save time. If you reschedule a staff meeting from 3 p.m. to 1 p.m., for instance, you can broadcast a message about the change to every station in the cluster simultaneously.

Using the PC*jr* **without diskette drives.** When PC*jr* stations without diskette drives are turned on, the Cluster Program will automatically download DOS from the disk-server station. Remote stations can then access programs and files from both private and public volumes. In an educational setting, for example, this can help eliminate the need for students to handle diskettes.

Design and installation. Since creating an IBM Personal Computer cluster is more involved than setting up a single personal computer, you should have a person with computer experience oversee the hardware and software installation. To help you design and operate your cluster, IBM provides:
• Instructions to help guide you through the installation and maintenance procedures
• Menu-driven programs that help simplify initial setup, everyday use and maintenance

Before you install the cluster, you should determine the number of computers to be incorporated into the system. Draw a map of the cluster showing the cable layout and the location and station address of each computer. Keep in mind that the main coaxial cable can be up to 1,000 meters (3,280 feet) in length, and the cable connecting each IBM Personal Computer to the main cable can be up to 5 meters (16 feet) in length.

Once your cluster is operational, persons familiar with operating IBM Personal Computers should have no problem operating them in the Cluster Program's environment.

What you get. The Cluster Program software package includes:
• Program Diskette
• Users' Guide

The Cluster Program is also available as a "five-pack" offering. This package consists of five program publications and license agreements and one program diskette. The program license agreements accompanying the Cluster Program Five-Pack permit the use of the program on five machines. The customer is responsible for ensuring that each system user in the cluster is appropriately licensed to use any shared programs.

System requirements: A minimum of 128KB of user memory (256KB for the disk-server computer) and one diskette drive, an 80-column display, an IBM Personal Computer Cluster Adapter,[2] and the IBM Disk Operating System (DOS) 2.10 or higher.

Notes

An IBM PC XT, or an IBM PC with an IBM Expansion Unit option, is required for use as a disk-server station in clusters using the "server" configuration. The disk server must have a double-sided diskette drive. If the cluster does not utilize a disk server, then at least one of the computers in the cluster must have a double-sided diskette drive.

The IBM Personal Computer Cluster Adapter requires one full-size expansion slot. Early-model IBM Personal Computers may require a new ROM BIOS module.

Coaxial cable connectors required to link the computers in the cluster must be purchased separately. A cable kit option—The IBM Personal Computer Cluster Kit—is available.

[1]*IBM Personal Computer program license agreements permit the use of a program on a single machine. The user is responsible for ensuring that each system user in the cluster is appropriately licensed to use any programs shared over the cluster. For non-IBM programs, the vendor's license agreement or the vendor should be consulted to determine licensing requirements.*
[2]*The IBM PCjr requires an IBM PC Cluster Attachment, which attaches to the IBM PCjr System Unit.*

Asynchronous Communications Support 2.00

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

A personal communications network. 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[1] 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 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.

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
- Once the specifications for a particular host have been established, they can be stored and automatically retrieved for later use.
- Binary files can be converted to ASCII format, and the reverse.
- If two IBM Asynchronous Communications Adapters are installed in your computer, you may use either of the two ports.
- Menu-selectable options for:
  - Dow Jones[2] News Service
  - THE SOURCE[2]
  - VM/370
  - TSO

What you get. The Asynchronous Communications Support 2.00 software package 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 display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. When this program and its data files are stored on a fixed disk, DOS 2.00 or higher is required. The user is responsible for providing the necessary cabling and a full duplex modem[3] for connection to a host computer. The user must also obtain subscriptions and passwords required for host access.

[1]*Teletype is a trademark of Teletype Corporation.*
[2]*Dow Jones is a trademark of Dow Jones & Company, Incorporated. THE SOURCE is a service mark of Source Telecomputing Corporation, a subsidiary of The Reader's Digest Association, Incorporated.*
[3]*External modems are not part of the IBM Personal Computer offering and must be purchased separately.*

3101 Emulation, BSC 3270 Emulation, and SNA 3270 Emulation and RJE Support

Communicate with a wide variety of computers and information networks

AT	XT
PC	PPC

3101 Emulation

The 3101 Emulation program includes several specification files that support popular uses of a 3101 terminal and are compatible with the following systems and services:
- VM/370, MVS/TSO
- IBM 7426 Terminal Interface Unit (TIU) for IBM 8100 series computers
- Yale IUP for Series/1
- ASCII Pass-through (PVM)
- IBM Information Network and other information services

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.

What you get. The IBM 3101 Emulation software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 64KB of user memory and one diskette drive, an IBM Asynchronous Communications Adapter, an 80-column display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher and for fixed disk storage. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. The user is responsible for providing the necessary cabling and a full duplex modem for connection to
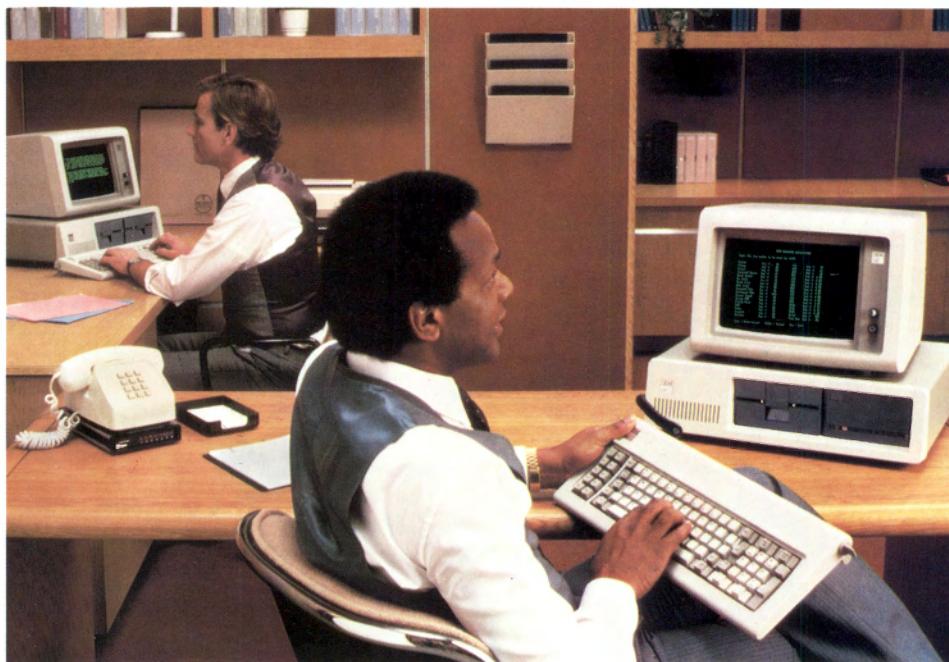
a host computer. The user also must obtain the subscription(s), password(s) and communications protocol information for host access and must perform the setup procedure. New specification files may be created as host communication requirements change.

Asynchronous Communications Adapter

This adapter is required by the Asynchronous Communications Support, 3101 Emulation, Dow Jones Reporter, and Personal Communications Manager programs to access information networks from and/or attach peripherals to an IBM Personal Computer AT, IBM PC XT, IBM PC and IBM *Portable* PC.

What you get. The Asynchronous Communications Adapter package includes:
- EIA RS-232-C Interface (25-pin male "D" shell connector), the standard for interconnection between data terminals and data processors
- Installation Instructions

System requirements: A minimum of 32KB of user memory and one diskette drive. The user is responsible for providing the necessary modems, cables and communications options for connection to peripheral devices or compatible personal computers.

BSC 3270 Emulation, SNA 3270 Emulation
and RJE Support

Binary Synchronous 3270 Emulation

The IBM Binary Synchronous (BSC) 3270
Emulation program allows you to use your
personal computer from IBM for interactive
communications with a binary synchronous
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)

The BSC program offers constant line trace,
error logging and communications statistics
accumulation, among other capabilities.

What you get. The BSC 3270 Emulation
software package includes:
- Program Diskette
- Users' Reference Manual
- Keyboard Template

System requirements: A minimum of 128KB
of user memory and one diskette drive, an
IBM BSC Adapter, an IBM Communications
Adapter Cable or equivalent, an 80-column
display, and the IBM Disk Operating System
(DOS). DOS 3.00 and 2.10 or higher are
required for operation on the IBM Personal
Computer AT and the IBM *Portable* PC,
respectively. DOS 2.00 or higher is required
for fixed disk storage. The user is responsible
for providing a synchronous modem with
modem clocking, necessary cables and sup-
port from a host system with compatible
IBM 3270 Display System support.

BSC Adapter

The IBM Binary Synchronous Communica-
tions (BSC) Adapter is used with the BSC
3270 Emulation program to exchange infor-
mation with a host computer. Other IBM
communications adapters may reside in the
System Unit; however, they cannot operate
concurrently with the BSC Adapter.

What you get. The BSC Adapter package
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. The
user must provide the necessary modems,
cables and communications options for con-
nection to compatible host computers.

Systems Network Architecture 3270 Emulation and RJE Support

The IBM Systems Network Architecture
(SNA) 3270 Emulation and Remote Job
Entry (RJE) Support program transforms a
personal computer from IBM into an intel-
ligent terminal for high-speed synchronous
data communications. You can communi-
cate with a host computer in one of two
modes: SNA 3270 or SNA 3770 RJE.

With this program, you can use applications
ranging from data entry to inquiry and
update to transaction processing.

What you get. The SNA 3270 Emulation
and RJE Support software package includes:
- Program Diskette (contains both modes)
- Users' Reference Manual
- Keyboard Template

System requirements: A minimum of 128KB
of user memory and one diskette drive, an
SDLC Adapter, an IBM Communications
Adapter Cable, an 80-column display, and
the IBM Disk Operating System (DOS). DOS
3.00 and 2.10 or higher are required for
operation on the IBM Personal Computer AT
and the IBM *Portable* PC, respectively. DOS
2.00 or higher is required for fixed disk
storage. The user is responsible for provid-
ing a synchronous modem with modem
clocking, necessary cables and support from
a host system with compatible 3270 Display
or 3770 RJE System support.

SDLC Adapter

The IBM Synchronous Data Link Control
(SDLC) Communications Adapter is used
with the IBM SNA 3270 Emulation and RJE
Support program to exchange information
with a host system. Other IBM communica-
tions adapters may reside in the System
Unit; however, they cannot operate con-
currently with the SDLC Adapter.

What you get. The SDLC Communications
Adapter package 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 SNA 3270 Emulation and RJE
Support program.

Productivity Family

IBM DisplayWrite Series

Helps you accomplish a wide range of word-processing tasks

Five interrelated programs to help increase office efficiency. The DisplayWrite Series is an interrelated group of high-function word-processing and communications software programs designed for both office and home use.

The series consists of: two word-processing programs, DisplayWrite 1 and DisplayWrite 2; two dictionary programs, DisplayWrite Legal Support and DisplayWrite Medical Support; and a high-function binary synchronous communications program, DisplayComm BSC, which can be used in word-processing and data-processing environments.

These interrelated software programs enable you to create, revise, edit and print a variety of general correspondence and multipage documents on IBM Personal Computers.[1] You can also transmit and receive them. What's more, you can merge DOS ASCII print files into documents you are creating.[2]

A spelling-verification aid and a hyphenation feature are built into the DisplayWrite 2 word-processing program through the use of an approximately 100,000-word, general-usage dictionary. DisplayWrite 2 also enables you to create an approximately 4,500-character dictionary of words unique to your business.

In addition to the general-usage dictionary, the DisplayWrite Series includes two separate dictionaries that can be used with the spelling verification and hyphenation capabilities of DisplayWrite 2:
• *DisplayWrite Legal Support*—provides approximately 16,000 legal words.
• *DisplayWrite Medical Support*—provides approximately 79,000 medical words.
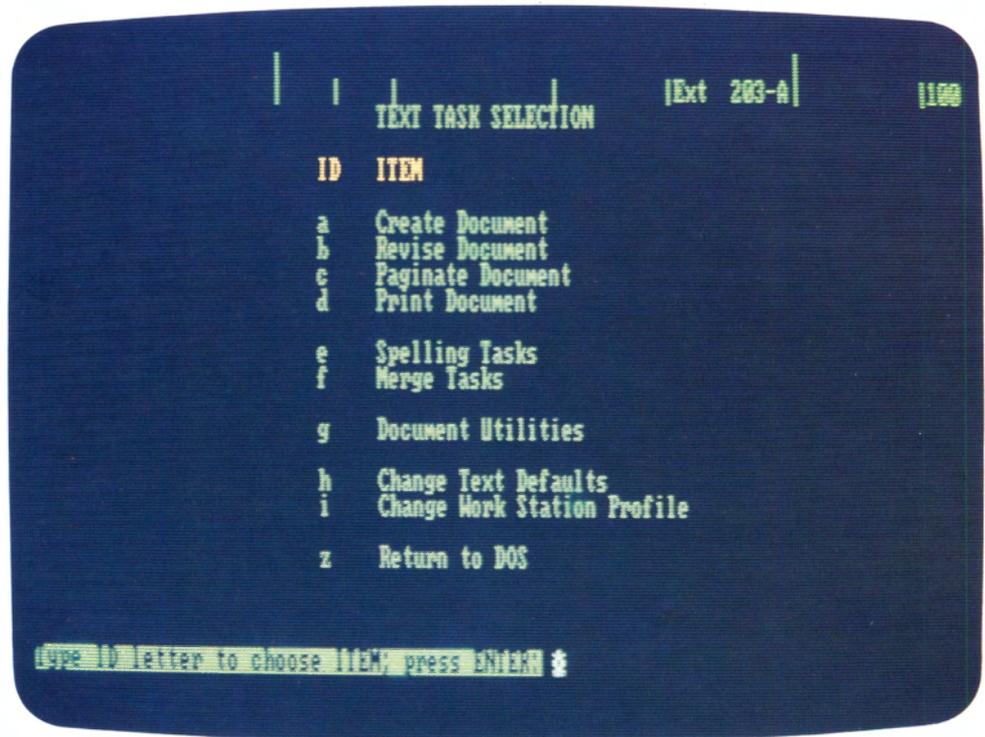
Productivity tool for office and home. If you have an IBM Personal Computer at home and another in the office, you can use the DisplayWrite Series to make the most productive use of your time in both places.

Exchange documents with other IBM systems. Using the DisplayWrite Series, you can exchange documents with other IBM Personal Computers. For instance, you can create a document on your IBM Personal Computer at home and take the diskette to the office to revise it on another IBM PC. By using conversion utilities included with DisplayWrite 2 and DisplayWrite 1, you also can create or revise the document on an IBM PC*jr*,[1] then bring it back to the office for formatting and printing.[2]

Once documents are created and ready for delivery, you can use DisplayComm BSC to transmit them to a number of different IBM

DisplayWrite 2's easy-to-use word-processing selections let you create a wide variety of documents.

systems over a communications line at speeds of up to 4,800 bits per second.

A discussion of each product in the DisplayWrite Series begins on the next page, starting with DisplayWrite 2, the more powerful of the two word processors.

[1]*DisplayWrite 1 is the only program in the DisplayWrite Series that will run on the IBM PCjr.*
[2]*Some editing may be required.*

DisplayWrite 2 Version 1.10

A Displaywriter-like word-processing program

DisplayWrite 2 Version 1.10 is an easy-to-use word-processing program similar to the Textpack 4 Licensed Program for the IBM Displaywriter System. You can use DisplayWrite 2 with a personal computer from IBM to retrieve information from a variety of sources and incorporate all or part of that information into the DisplayWrite 2 documents you create.[1]

How it works

Menus and control keys let you create, revise, edit and print documents. DisplayWrite 2 can help you save time and effort by enabling you to locate and initiate the functions you want. You can create, edit, revise and print a variety of documents without memorizing commands and procedures.

Merge files with text to help tailor documents to your requirements. DisplayWrite 2 enables you to retrieve data from DOS print files, so it can be included in the document you are creating. The merged information can then be edited to suit your particular needs.[1]

Help increase accuracy and efficiency. DisplayWrite 2's approximately 100,000-word dictionary is a tool that helps you check spelling throughout your documents. The program also enables you to create your own "customized" dictionary of up to 4,500 characters. Terms, names and acronyms unique to your business can be included in this dictionary. You can check spelling, hyphenate and paginate an entire document in one simple operation.

Develop statistical text. DisplayWrite 2 assists you in creating statistical text in columns. You can lay out, revise, move, delete and copy columns of numbers as necessary. DisplayWrite 2's four-function math capability lets you add, subtract, multiply, divide, compute averages and calculate percentages—all with a few keystrokes.

DisplayWrite 2 Version 1.10 at a glance...

Use a wide range of word-processing features.	Create, revise, edit and print general correspondence, multi-page documents and statistical tables.
Locate and initiate word-processing tasks.	Use the program's menu- and key-supported functions.
Check spelling and hyphenate words.	Get help by using a built-in dictionary of approximately 100,000 words.
Give documents a finished look.	Paginate and hyphenate your documents automatically in one operation.
Create a "customized" dictionary of up to 4,500 characters.	Compile words, names and acronyms unique to your business.
Use data from other applications.	Merge information from DOS ASCII print files into your documents.[1]
Develop statistical text easily.	Use four-function math to add, subtract, multiply or divide; compute averages or calculate percentages.

Convenience features. DisplayWrite 2 offers the following features to give your documents that "finished" look:
• Professionally presented copy can include headings and footings, right- and left-justified type, and automatic page numbering.
• Global search/replace enables you to locate and change a word or group of characters throughout a document.
• "Go To" function lets you locate specific pages in your document; "Get" function allows you to retrieve information from other files.
• Customized formatting lets you alter the format of a document, a page or even a single line.

What you get. The DisplayWrite 2 software package includes:
• Program Diskettes (2)
• Users' Reference Manual

• Procedure Guide
• Keyboard Templates
• Users' Quick Reference Card

System requirements: A minimum of 192KB of user memory and either two double-sided diskette drives or a double-sided diskette drive and a fixed disk drive, an 80-column display, a printer (optional), and the IBM Disk Operating System (DOS) 3.00. A minimum of 256KB of user memory is required for operation on the IBM Personal Computer AT. This program and its data files can be stored on a fixed disk.

[1]*Some editing may be required.*

DisplayWrite 1

*A menu-driven word-processing
program for the office or home*

DisplayWrite 1—a word-processing applica-
tion for the IBM PC*jr* as well as for the IBM
Personal Computer AT, IBM Personal Com-
puter XT, IBM Personal Computer, and IBM
Portable PC—provides a companion applica-
tion to the DisplayWrite 2 word-processing
program.

It is a menu-driven word-processing pro-
gram—using command keys—with many of
the text functions of DisplayWrite 2.
However, it does not include some of the
more complex formatting and text-editing
functions contained in DisplayWrite 2.

Designed to be easy to learn and easy to use,
DisplayWrite 1 enables you to create, revise,
edit and print general correspondence, in-
cluding multipage documents.

How it works

DisplayWrite 1 provides an excellent intro-
duction to word processing. It enables you
to get acquainted with a variety of word-
processing features at the office . . . or at home.

**Interchange materials with Display-
Write 2.** DisplayWrite 1 provides a con-
version utility to allow you to exchange the
documents on your diskettes with Display-
Write 2. This enhances your ability to work
where and when it is convenient. You can
take diskettes created on an IBM Personal
Computer AT, PC XT, PC or *Portable* PC
home from the office and view or edit them
on your IBM PC*jr,* then take them back
to the office for formatting and printing.[1]

Merge data and check spelling.
DisplayWrite 1 enables you to merge data
from IBM PC DOS ASCII print files.[1] In
addition, you can check spelling by using
the Word Proof[2] program.

What you get. The DisplayWrite 1 software
package includes:
· Program Diskette
· Users' Guide
· Keyboard Template
· Users' Quick Reference Card

System requirements: A minimum of 128KB
of user memory and one double-sided
diskette drive, a display or TV, a printer
(optional), and the IBM Disk Operating
System (DOS) 2.10 or higher. DOS 3.00 is
required for operation on the IBM Personal
Computer AT. This program and its data
files can be stored on a fixed disk.

[1]*Some editing may be required.*
[2]*Word Proof is offered as a separate product.*

DisplayWrite Legal Support and DisplayWrite Medical Support

Specialized dictionaries for DisplayWrite 2

DisplayWrite Legal Support

DisplayWrite Legal Support is a dictionary program of approximately 16,000 legal words that can be used with the spelling verification and hyphenation capabilities in DisplayWrite 2.

DisplayWrite Legal Support helps serve the needs of law firms, legal departments and organizations that use a legal vocabulary. It includes: words used in a variety of legal areas; the approximately 100,000-word, general-usage dictionary contained in DisplayWrite 2; and space for the user to create an approximately 4,500-character supplemental dictionary.

When DisplayWrite Legal Support is in use, its dictionaries replace those of DisplayWrite 2.

What you get. The DisplayWrite Legal Support software package includes:
• Program Diskette
• Instructions

System requirements: DisplayWrite 2 and a minimum of 192KB of user memory, either two double-sided diskette drives or a double-sided diskette drive and a fixed disk drive, an 80-column display, a printer (optional), and the IBM Disk Operating System (DOS) 2.10 or higher. A minimum of 256KB of user memory is required for DOS 3.00. DOS 3.00 is required for operation on the IBM Personal Computer AT. This program and its data files can be stored on a fixed disk.

DisplayWrite Medical Support

DisplayWrite Medical Support is a dictionary program of approximately 79,000 medical words that can be used with the spelling verification and hyphenation capabilities in DisplayWrite 2.
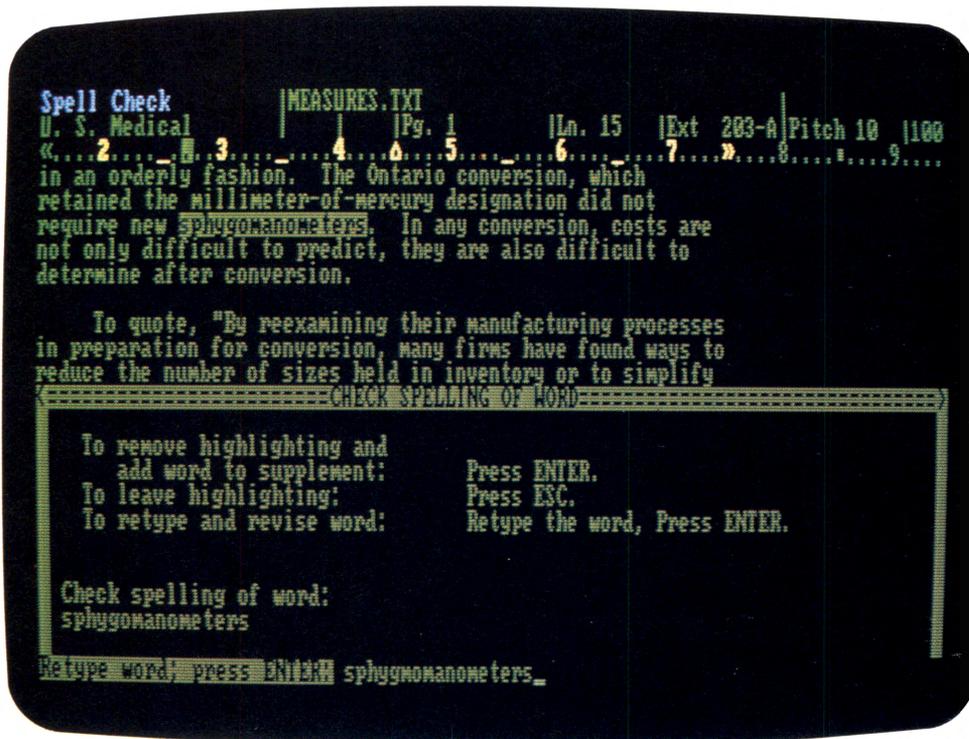
DisplayWrite Medical Support's spell-check feature eases the task of finding correct spellings for medical terms.

DisplayWrite Medical Support is tailored to meet the needs of clinics, doctors' offices, hospitals and medical schools that frequently use medical terminology in their written communications and reports. In addition to medical words, it includes both the approximately 100,000-word, general-usage dictionary contained in DisplayWrite 2 and space for the user to create an approximately 4,500-character supplemental dictionary.

When DisplayWrite Medical Support is in use, its dictionaries replace those of DisplayWrite 2.

What you get. The DisplayWrite Medical Support software package includes:
• Program Diskette
• Instructions

System requirements: DisplayWrite 2 Version 1.10 and a minimum of 256KB of user memory, either two double-sided diskette drives or a double-sided diskette drive and a fixed disk drive, an 80-column display, a printer (optional), and the IBM Disk Operating System (DOS) 2.10 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT. This program and its data files can be stored on a fixed disk.

DisplayComm BSC Version 1.10

A high-function communications program

DisplayComm Binary Synchronous Communications (BSC) Version 1.10, a stand-alone program, enables a properly equipped IBM Personal Computer AT, PC XT, PC or *Portable* PC supported by this application to transmit batch data at line speeds of up to 4,800 bits per second.

Transmit documents. DisplayComm BSC is similar to the Binary Synchronous Communications program for the IBM Displaywriter System. The program provides IBM Personal Computers with the functions necessary to transmit DisplayWrite 2 documents and other DOS ASCII files over a communications line.

When using DisplayComm BSC, you can transmit and receive documents between IBM Personal Computers for reviewing, editing and printing. In addition, the program lets you transmit data—in a variety of formats—to another suitably equipped and programmed:
• IBM Displaywriter
• IBM 6670 Information Distributor
• IBM 5520 Administrative System
• IBM Office System 6
• Compatible IBM host computer
• IBM Personal Computer (including one attached to the IBM Personal Computer Cluster)[1]

DisplayComm BSC also transmits IBM Disk Operating System ASCII (American Standard Code for Information Interchange) files to other appropriately equipped IBM Personal Computers that have DisplayComm BSC.[1]
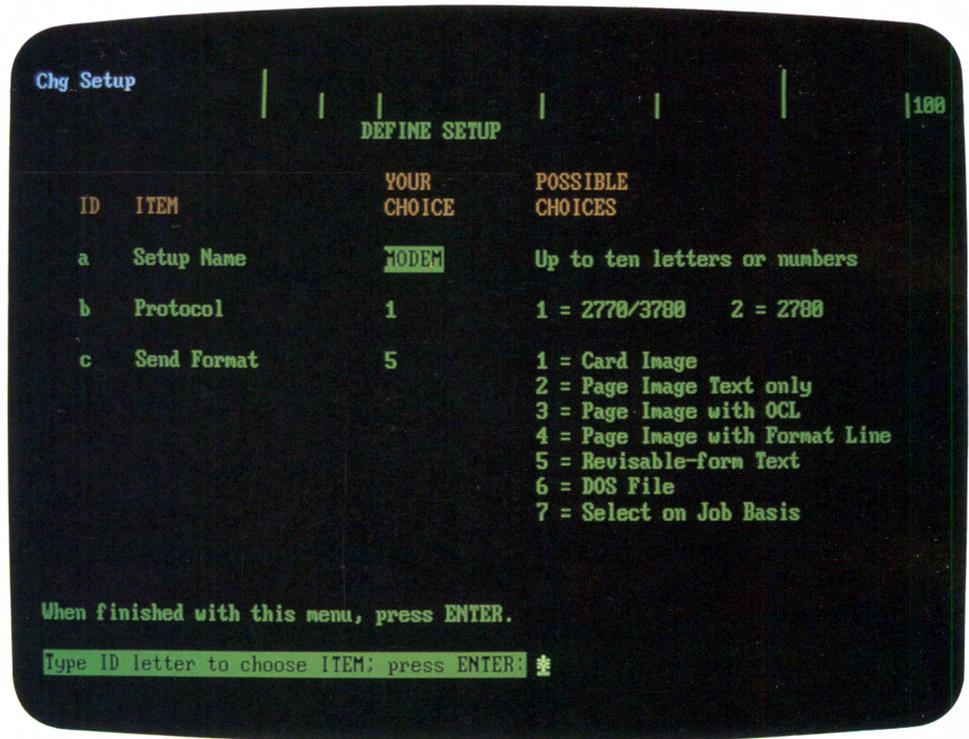
Send documents automatically. DisplayComm BSC enables you to store up to eight communications setups and provides a sending queue of up to 20 documents or files. After appropriate setup of the IBM Personal Computer and an attached modem,[2] you can transmit all of the documents in the sending queue sequentially—without operator assistance.

What you get. The DisplayComm BSC software package includes:
• Program Diskette
• Users' Reference Manual
• Keyboard Template

System requirements: A minimum of 256KB of user memory and two double-sided diskette drives or one double-sided diskette drive and a fixed disk drive, an 80-column display, a printer (optional), the IBM Binary

DisplayComm BSC's Setup menu lets you transmit data in a variety of formats.

Synchronous Communications Adapter, an appropriate external modem and cable, and the IBM Disk Operating System (DOS) 2.10 or 3.00. A minimum of 320KB of user memory is required for DOS 3.00. DOS 3.00 is required for operation on the IBM Personal Computer AT. This program and its data files can be stored on a fixed disk.

[1] *Some editing may be required.*
[2] *Modems are not part of the IBM Personal Computer offering and must be purchased separately.*

PCWriter

*A powerful word processor
for professionals*

| AT | XT |
| PC | PPC |

A flexible, high-performance word-processing program. PCWriter was designed to help increase office productivity by reducing the time and effort needed to create a wide range of documents—from one-page letters to lengthy reports to mass mailings.

PCWriter enables you to handle word-processing tasks at all stages in the creation of a document—from initial draft through final revision. Among them: checking for spelling errors, finding synonyms[1] and printing the final product to your format specifications.

How it works

PCWriter was designed for ease of use. Menus guide you through task selections, so there's no need to memorize complex commands and procedures. For most operations, you can just follow the directions that appear on the screen. As your word-processing skills increase, you can benefit from the convenience and speed of PCWriter's special "fast path" function, which enables more experienced users to "bypass" menus. With "fast path," the screen displays a status line and an information line to help keep you in control of the program operation.

In addition, the PCWriter program includes two useful aids to help make word processing easier to learn. The *Exploring PCWriter* diskette takes you through a detailed pictorial description of the program's functions and features. When used in conjunction with the step-by-step instructions found in a booklet accompanying the program, this diskette can help you become productive with PCWriter quickly and easily.

PCWriter at a glance...

Check spelling or look for new words.	A 120,000-word dictionary and a synonym-finder help give your documents professional "polish."
Develop a convenient "personal dictionary."	Supplement the general dictionary with special names or with words and acronyms frequently used in your profession.
Recall commonly used phrases.	You can store them for instant retrieval in PCWriter's phrase glossary.
Save time.	You can quickly insert, delete, change and rearrange phrases, lines, paragraphs—and much more.
Create professional-looking documents.	Use such capabilities as pagination, hyphenation, headings and footings.
Produce personalized letters.	Use the program's merge feature to generate mass mailings.
Improve operating efficiency.	Print a document while continuing to handle other operations on your computer.
Share common documents or formats.	You can also restrict access to sensitive documents when using PCWriter in a multi-user environment.

Time-saving editing features. With PCWriter, you can quickly edit your text to make it clear and crisp. Words, phrases, lines or blocks of copy can be revised, replaced or edited. You can insert, delete, change, rearrange and copy any part of any document. Single words, complete lines or finished paragraphs can be moved or changed with just a few keystrokes.

PCWriter enables more than one person to access or revise documents created with the program. Whether the computer is located in a stand-alone or cluster environment, the user simply enters a unique operator identification code (ID) to gain access to the

program. In this way, persons other than the originator—assistants, secretaries, typists—can "share" documents.

You can choose to modify the pre-set format, and you can create and store customized formats for later use. By saving formats for financial reports, internal memos, correspondence, proposals and more, you can avoid the time-consuming repetition of creating duplicate formats in the future.

PCWriter

Create personalized form letters.
PCWriter allows you to merge data files with text. For example, you can create a standard reminder letter for past-due accounts. Once you've created the main letter and entered the appropriate "insert" instructions, PCWriter can automatically personalize remaining letters by filling in such variables as client name and address, amount owed, amount past due–virtually any information you choose to include. This feature helps you save time on multiple mailings and, in the case of selected mailings, enables you to use the "prompted" function to select which individual accounts will receive a letter.

Professional polish with PCWriter.
PCWriter brings you spelling and synonym assistance through the inclusion of a 120,000-word, English-language dictionary. When you command the program to check for misspelled words, PCWriter flags a word it doesn't recognize. The spelling-assist function displays the most likely spelling alternatives. A helpful synonym-finding function shows words that PCWriter lists as having comparable meanings to your original choices. Its purpose is to help you select the words that convey your thoughts most effectively and add variety to your writing. Spelling verification, spelling assistance and synonym operations are performed interactively to help you create and edit your documents more effectively.

In addition, PCWriter contains a "personal dictionary" function that enables you to enter and store words frequently used in your business. Once these unique words have been incorporated into the program, PCWriter recognizes them as valid during spelling verification and assistance functions.

Convenience features. PCWriter includes several time-saving features designed to increase your flexibility with this program:
· Global search/replace allows you to locate and change a string of characters throughout a document.
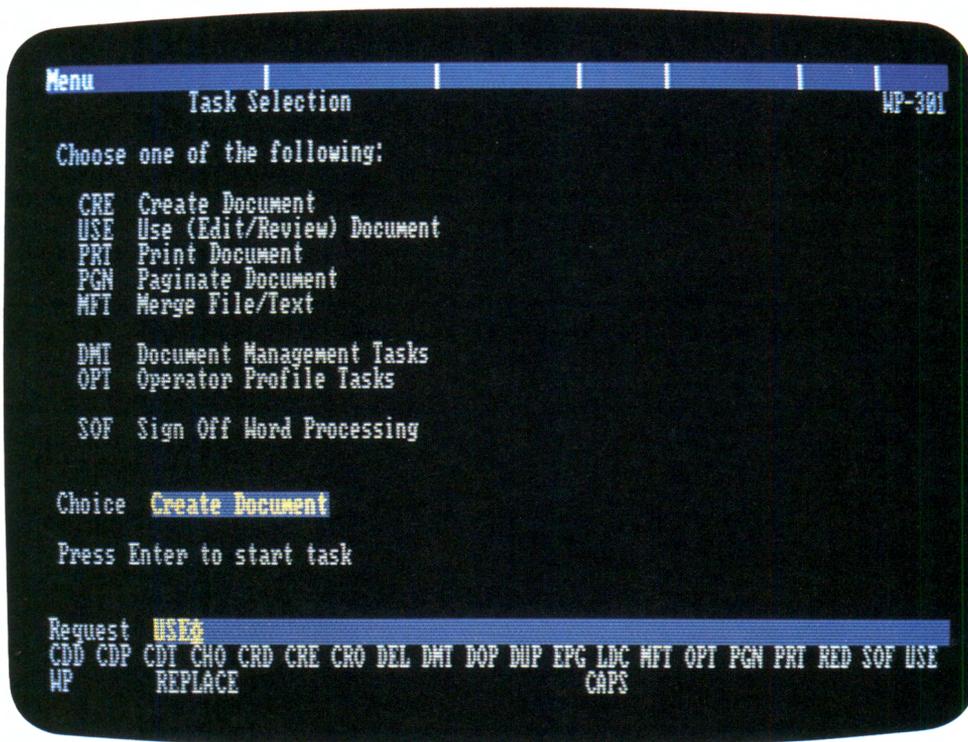
PCWriter starts with a "Task Selection" menu that includes commands to create a document as well as edit, print, paginate, and more.

· Subscript and superscript can be used for formula and mathematical requirements.
· Two modes of cursor movement are provided for rapid access to any point on the screen.
· Justified printing assures even left and right margins.

What you get. The PCWriter software package includes:
· Program Diskette
· Dictionary Diskette
· Users' Reference Manual
· Messages Manual
· Users' Quick Reference Manual
· Users' Quick Reference Card
· Keyboard Template
· *Exploring PCWriter* Diskette
· *Getting Started* Booklet

System requirements: A minimum of 128KB of user memory (192KB of memory is required when operating in the IBM Personal Computer Cluster) and either two double-sided diskette drives or a double-sided diskette drive and a fixed disk drive, an 80-column display, a printer, and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. This program and its data files can be stored on a fixed disk.

[1]Synonym information is based on the American Heritage Dictionary Data Base, Roget's II, The New Thesaurus, owned by Houghton Mifflin Company and used with permission. Copyright © 1982 by Houghton Mifflin Company.

SCRIPT/PC

An advanced text-formatting tool

Create and print professional-looking documents. SCRIPT/PC is a versatile text formatter that makes it easy to use your personal computer from IBM to arrange text in your own customized format—for a newsletter, technical report, manual or user's guide, for example. With SCRIPT/PC and a text editor, you can create text, then print it out to your exact specifications with your IBM Personal Computer Color Printer or IBM Graphics Printer.

Or, with the Asynchronous Communications Support 2.00 software package, you can transfer text to a compatible IBM mainframe computer. Then you can perform any needed additional formatting by using the capabilities of the mainframe's SCRIPT/VS program and have the text printed on the host computer's high-speed printer.

While offering these benefits of mainframe compatibility, SCRIPT/PC lets you perform all but the most specialized formatting tasks on your personal computer from IBM—without having to depend on the availability of mainframe time.

SCRIPT/PC at a glance...

Produce professional-looking documents.	Use the special SCRIPT/PC keyboard commands to generate a table of contents, index, footnotes, boxed text, and more.
Format documents any way you want.	Use a one- or two-column format; also number document pages automatically.
Modify tags for more customized effects.	Use the program's special Generalized Markup Language (GML) tags for formatting.
See your document before it's printed.	Display your text on the screen; make sure it meets with your specifications before you print it out.
Make use of your host computer.	Send formatted documents via an optional asynchronous communications program to your host IBM 370 for high-speed printing.
Perform additional formatting.	Utilize the capabilities of the compatible SCRIPT/VS program that runs on your mainframe.
See immediate results.	Start using SCRIPT/PC right away by following explicit on-screen directions from the program's main menu.

How it works

An easy-to-use markup language. SCRIPT/PC works in conjunction with a text editor, such as Professional Editor or Personal Editor, which creates a text file. You can use SCRIPT/PC to format text as you are writing it or after it has been stored on a diskette. And you have a choice of two simple methods to insert printing commands into the text:
- *Script control words.* These designate paragraphing, index entries, footnotes, merging of files, choice of printing font, and the like.

- *A special markup language.* SCRIPT/PC includes a starter set of Generalized Markup Language (GML) tags that allow you to format documents to your own specifications, e.g., indent three spaces instead of five.

Script control words and GML tags can be used in combination within a document.

Multiple uses. SCRIPT/PC is an ideal text-formatting program for technical documents, manuals, organizational newsletters, and more. Its versatility also makes it a valuable program for anyone with document-formatting needs.

Format documents with minimum effort. Built-in SCRIPT/PC features help you format documents with ease. For example, you can:
- Number pages automatically
- Format with one or two columns per page
- Choose printer fonts
- Develop a table of contents
- Produce an index
- Generate footnote entries
- Tailor GML tags with a Macro facility

SCRIPT/PC

```
              Format a Document

 Format input file-id . . . . . . [_                    ]

 Options                          Choice

 Output device . . . . . . . . . . [S]
 Disk output file-id . . . . . . . [                    ]
 Error message file-id . . . . . . [PRACTICE            ]

 Passes  . . . . . . . . . . . . . [1]
 Page number - start . . . . . . . [1  ]
 Page number - end . . . . . . . . [999]

 Display while formatting  . . . . [Y]
 Display screen pause  . . . . . . [N]
 Printer pause . . . . . . . . . . [N]

 Macro library file-id . . . . . . [GMLLIB              ]
 Options profile file-id . . . . . [PROFILE             ]


 F1  Help    F2  Save Options    F9  Main Menu    F10  Start    Esc  Quit
```
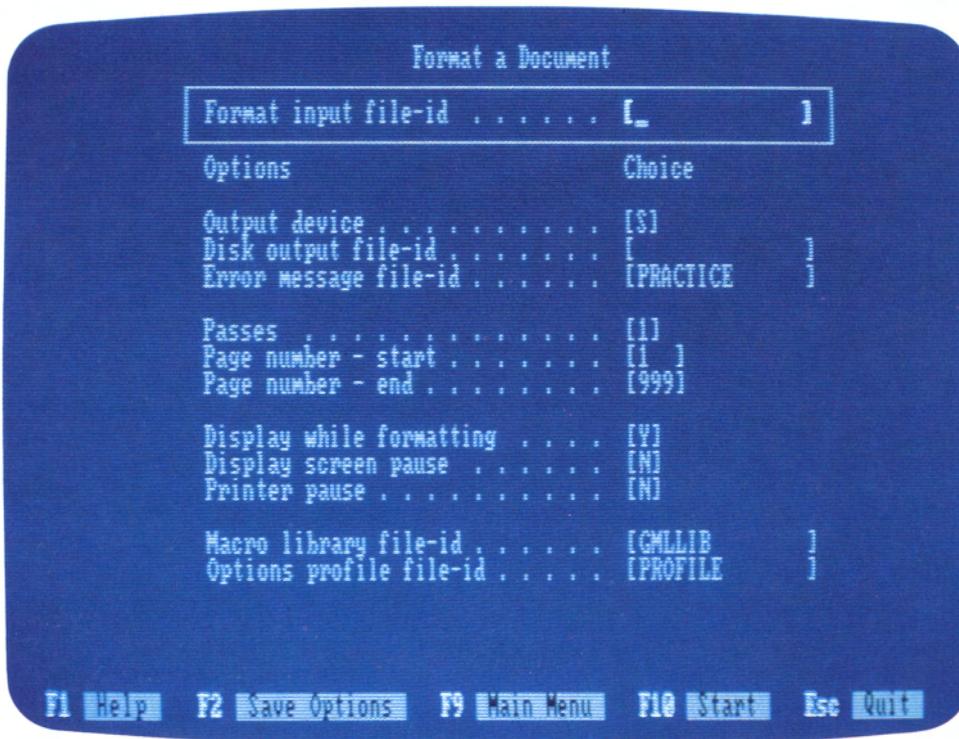
▲
The SCRIPT/PC program includes a special "Format a Document" menu that allows you to define various document-formatting specifications.

See what you're doing. You can display text you are formatting with SCRIPT/PC on your IBM PC screen to make sure it meets your specifications before you print it out as hard copy. Or, as a final check, you can display text while it is being printed on your personal computer's printer.

On-screen assistance. At the start of your formatting project, you'll see a main menu that lists the primary options. After that, explicit directions assist you throughout the program. If you need additional assistance, Help screens are available.

More help for you. Included in the SCRIPT/PC software package is a selection of printed material to guide you through formatting/printing procedures. The 100-page *How To Use SCRIPT/PC* book has step-by-step lessons to quickly familiarize you with the program. In addition, a detailed reference book for those familiar with SCRIPT/VS is included. And, for both the new and experienced user, the Users' Quick Reference Booklet serves as a handy guide to commonly used commands.

What you get. The SCRIPT/PC software package includes:
- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Booklet
- Users' Guide

System requirements: A minimum of 128KB of user memory (192KB with DOS 2.00 or higher) and one diskette drive (two diskette drives are recommended), an 80-column display, a printer, a text editor, and the IBM Disk Operating System (DOS) 1.10 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and *Portable* PC, respectively. When this program and its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required. Linkage with a mainframe computer requires Asynchronous Communications Support 2.00 plus its prerequisites.

Professional Editor

A full-function, menu-driven editor

Streamline editing tasks. Professional Editor is a full-screen editor that can help streamline word processing and program development on a personal computer from IBM. This versatile software package was designed for professional programmers and others who 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 can move from one point in your text to another, go back, rework and revise lines of text.

How it works

A wide range of editing features. Professional Editor's function keys and cursor-control keys enable you to perform several critical editing functions. For example, you can:
- Insert and delete characters or lines anywhere in the text; as a precaution, deleted characters are temporarily saved in memory and may be recovered if a deletion is made in error.
- Scroll forward or backward through a file, left and right over lines on the screen, and up and down the text; an optional scrolling capability automatically "turns the page" whenever the cursor moves off the display screen.
- Find and change specific words and character strings located throughout a document.

Word-processing functions. Professional Editor offers useful word-processing features to help you prepare readable finished texts. Included among them are: automatic word wrapping; indentation for paragraphs or special passages; automatic tab settings; alignment and justification of margins; and text formatting.

Professional Editor at a glance...

Streamline editing.	Professional Editor helps simplify the editing of complex text and programs.
Use multiple-choice menus.	Select files and program options from displays at the bottom of the screen.
Select tab, margin and other settings for one document.	Save and automatically recall them for subsequent documents.
Avoid accidental deletions.	Temporarily save deleted text in memory for immediate recovery.
Use the word-processing features.	Reset margins, justify text, center lines, redefine tabs, and more.
Scroll in all directions.	Move forward or backward, left or right, or from top to bottom of the screen.
Use the "search and change" function.	Find and change all recurring words or phrases within text.
Insert text with a single keystroke.	Add frequently used phrases and data structures to the screen.

Complex operations made simple. Professional Editor was designed to be easy to learn. For assistance, the Users' Reference Manual contains directions that take you through each step of the program. And the Users' Quick Reference Card gives a quick refresher on Professional Editor commands and the keyboard and its functions.

What you get. The Professional Editor 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-column display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* When this program and its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required.

Personal Editor

A full-screen, command-driven editor

Full-screen capability for writing short documents and programs. Personal Editor is a reasonably priced software package designed for writing and editing short documents and programs on IBM Personal Computers. It is a self-styled editor that can help you speed and simplify the creation of text.

How it works

Personal Editor offers a wide range of word-processing procedures:
- Automatic word wrapping
- Text reformatting
- Tab and margin adjusting
- Block shifting
- Paragraph, line and sentence marking—to help you move, copy, erase and overlay text
- Editing of up to 20 text files at one time
- Locating words—to quickly change words frequently repeated throughout a document

If you wish, you can customize keyboard designations to reflect your own editing preferences. You can redefine up to 99 different keys and key combinations for executing your own commands.

Four files organize your work. Personal Editor contains four files that can help you edit more efficiently:
- *Definition file*—specifies the function assigned to every key.
- *Storage file*—saves up to five of your latest revisions.
- *Directory file*—provides a listing of all the files on your data diskette.
- *Spill file*—a special file, of up to 128KB, that temporarily stores an overflow of information unable to fit in memory.

Helpful features. Personal Editor is easy to operate. Just start the program, and the screen acts as a blank piece of paper on which

Personal Editor at a glance...

Create your own text and programs.	Begin writing right away—the screen acts as a blank sheet of paper.
Take advantage of word-processing features.	Set tabs and margins, reformat text and use the word-wrap feature.
Edit text with paragraph, line and sentence markers.	Move, copy, erase and overlay text.
Receive assistance from the start.	Follow comprehensive Help menus and a tutorial section provided in the program manual.
Increase your efficiency.	Edit up to 20 files in memory at one time.
Customize keys to address your needs.	Redefine up to 99 keys and key combinations to make them conform to your editing style.
Revise in seconds.	Quickly scroll through large files to find any text you wish to edit or review.
Save up to five of your latest revisions in a special file.	Go back to double-check recent changes or to restore text to its original format.

you can 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.

What you get. The Personal Editor software package includes:
- 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 display, and the IBM Disk Operating System

(DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*. When this program and its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required.

Word Proof

A spelling checker, synonym finder, and more

AT	XT	PC
	PPC	PCjr

Add proofreading capabilities to your IBM PC. If you want to help eliminate spelling errors in your copy—and add some sparkle as well—you want Word Proof.

Word Proof can identify misspelled words throughout a file and show you how to spell them correctly. What's more, Word Proof can enhance your writing capabilities—and your vocabulary—with a feature that lets you replace words with more colorful synonyms.[1]

Beyond its proofreading skills, Word Proof also has a full-screen editor for performing several simple word-processing functions.

How it works

An electronic dictionary with more than 125,000 words. Word Proof can verify the spellings of more than 125,000 words. Unlike many other proofreading programs, it can even differentiate between root words and their derivatives (such as "responsible" and "responsibilities") to pinpoint misspelled words. Word Proof works by "proofreading" each file and stopping at words it doesn't recognize. It can then present a list of similarly spelled words. You simply select the proper spelling and make your correction accordingly.

You can also create your own personalized list of words and names you use frequently but find hard to spell.

Word Proof at a glance...

Check for misspelled words.	Go through an entire file you've created to check the spelling of all words; the program's word list contains more than 125,000 words.
Get the right spelling of a misspelled word.	The program displays likely candidates for the word you're looking for.
Expand your vocabulary.	Spice up your writing style by having access to synonyms for many words.
Benefit from versatile word-processing functions.	Among Word Proof's word-processing capabilities are full-screen editing, word wrapping, margin setting and "search and replace."
Make the most of Word Proof's interactive support.	Review files created with other IBM PC word-processing programs.
Get help whenever you need it.	Follow explicit on-screen directions, menu prompts and Help screens.
Highlight in color.	Use your color display to review options in a variety of colors.
Print out anything you write.	An optional printer lets you edit and proof hard copy.

Support for other word-processing programs. Word Proof can work on files created with its own editor or on those created with more sophisticated word-processing programs such as PeachText,[2] EasyWriter,[2] HomeWord,[2] Personal Editor and Professional Editor. This interactive support can help simplify and enhance your writing and editing and is especially useful in the preparation of lengthy reports and documents.

It's easy to learn. The Help menu displayed on the screen leads you through each operation. The Users' Reference Manual and Users' Quick Reference Card highlight most operations in clear, concise language. And the Keyboard Template, an overlay, provides a map of the function keys to help you complete operations more quickly.

Word Proof

```
═ Top of File ═

─
═ Bottom of File ═

          ┌─────────────────────────────────────────┐
          │ Help: Function Keys                      │
          │                                          │
          │   F1    Display Help information         │
          │   F2    Spell check starting at cursor   │
          │   F3    Spell check single word          │
          │   F4    Display synonyms for word        │
          │   F5    Display Search/Replace Choices   │
          │   F6    Begin search                     │
          │   F7    Insert blank line                │
          │   F8    Move cursor to next word         │
          │   F9    Erase to end of line             │
          │   F10   Display Command Menu             │
          │                                          │
          │                                          │
          │ Press F1 for more                        │
          │ Press Esc to resume editing              │
          └─────────────────────────────────────────┘

A:WORDPRF.ADL   [ = 13]    1    1  Replace
```

Word Proof's Help menu offers on-screen prompts to help you check spelling, find synonyms and even perform simple word-processing operations.

Perform simple word-processing functions. You can use Word Proof for performing many word-processing functions, including:
• Full-screen editing
• Word wrapping
• Margin setting
• Line length reformatting
• Search/replace

Improve your prose . . . expand your vocabulary. With Word Proof, you can review a list of synonyms and select the one that makes your point in a bold, refreshing way. More than improve your writing, Word

Proof's synonym-finding capability can even help you enlarge your vocabulary: You may soon find yourself substituting new words for those you normally use.

What you get. The Word Proof software package includes:
• Program Diskette
• Users' Reference Manual
• Users' Quick Reference Card
• Keyboard Template

System requirements: A minimum of 96KB of user memory and one diskette drive (two 160KB-capacity diskette drives or one 360KB-capacity diskette drive is required for using the synonym finder), a display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*. When this program and its data files are stored on a fixed disk, DOS 2.00 or higher is required.

[1]*Synonym information is based on the American Heritage Dictionary Data Base, Roget's II, The New Thesaurus, owned by Houghton Mifflin Company and used with permission. Copyright © 1982 by Houghton Mifflin Company.*
[2]*PeachText is a trademark of Peachtree Software Incorporated, an MSA company. EasyWriter is a trademark of Information Unlimited Software, Incorporated. HomeWord is a trademark of Sierra On-Line, Incorporated.*

HomeWord ™

*A word-processing program
for everyone from novice to pro*

Word processing made simple.
HomeWord ™ is so easy to use that it's the
perfect program for introducing almost any-
one to the ease and power of word processing
with an IBM PC*jr*.

The key to HomeWord's ease of operation is
the use of pictures or symbols—instead of
words—to represent functions. For example,
a filing cabinet stands for file functions.
A printer represents printing. To perform
many HomeWord operations, start by select-
ing the appropriate picture. Of course, as
you gain experience in word processing, you
can bypass the symbols and select Home-
Word's functions by using keys designated
for issuing commands.

The benefits of HomeWord are twofold:
Although the program is simple to use, it
can help you perform many complex word-
processing tasks. And that can help make
you more productive as both a writer and
an editor.

How it works

Pictures prompt you at every step. With
HomeWord, your text is displayed in the
upper half of the screen. Beneath the text is
the prompt menu area that displays various
function pictures. To the right of the pic-
tures is a small outline of your document's
format that gives you an idea of how the
document will appear after it's printed.

HomeWord at a glance...

Save time.	Easy-to-use word-processing features can help shorten writing time.
Learn word process-ing quickly.	Simple enough for anyone to learn, even the inexperienced.
Follow the pictures.	Descriptive pictures illustrate each operation.
Edit with ease.	Change sentences, correct spelling, insert punctuation simply.
Change words in a hurry.	You can "search and replace" to alter words, names, dates and phrases quickly.
Refer to the small on-screen outline.	See what your final, formatted document will look like when it is printed.
Revise your format.	Quickly rearrange margins, center text, create headings, and more.
Add emphasis.	Boldface and underlined printing styles help you accent key points.

To select a function, simply move the cursor
to the picture that represents that operation—
no need to type in commands or hard-to-
remember code words. To print a document,
move the cursor to the printer picture. To
open your file menu, move the cursor to
the filing cabinet picture. And to leave the
program, just head for the "exit" sign.

Edit your work with ease. No matter what
type of writing you do, you'll undoubtedly
want to rephrase a sentence, change punc-
tuation, or even move or copy a block of
text. You can do all that automatically with
HomeWord.

HomeWord

To delete a word or phrase, move the cursor to the picture that represents deletion and perform the simple steps that are found right on the screen. The gap caused by the deletion is closed automatically. And, if you want to merge text from a file with the text on your screen, you can do so by moving the cursor to the appropriate picture and following the on-screen instructions.

Search and replace words. This important editing function can save time and trouble. It helps you locate and change frequently repeated names, dates, words and short phrases throughout your document. HomeWord can locate every repeated reference you wish to change—in even the longest documents—in just a few seconds.

Give your document a distinctive look. HomeWord provides you with several layout capabilities. With them, you can change the appearance of your document to make it easier to read and understand. As with all the other HomeWord functions, you just select the appropriate picture of the layout step you want to take. HomeWord's operations include:
• Margin setting
• Headings and footings
• Line spacing
• Tab setting
• Text line centering
• Text justification
• Right and left alignment

Add weight to your words. With HomeWord, you can vary the look of your printing to add special emphasis, for example, or to set off such elements as headings and quotes. You can do this with the program's boldface and underlining type styles (if your printer is equipped to print them).

HomeWord's pictures simplify word processing on PC*jr*

HomeWord enables you to use pictures instead of words to select various functions.

Here are four of the pictures found in HomeWord's main menu, along with a description of the function each picture represents.
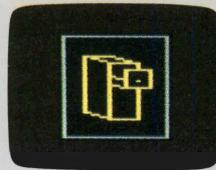
Choosing the File *picture lets you save your document on diskette and get it when you want to use it. You can also erase a document from your diskette and insert one document into another.*

Choosing the Print *picture lets you print your document on the printer or on the screen and set the first page number.*

Choosing the Edit *picture lets you move, copy and delete text. You can find certain words or phrases in your text and, if you want, replace them with others.*
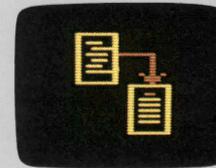
Choosing the Layout *picture lets you determine how your text will look when it is printed. You can set margins, line spacing and tab positions, for example.*

HomeWord also allows you to number pages automatically, make backup documents, and work in either 40- or 80-column formats to accommodate your display screen.

What you get. The HomeWord software package includes:
• Program Diskette
• Users' Reference Manual
• Keyboard Template

System requirements: A minimum of 128KB of user memory and one diskette drive, a display and a printer. Neither the program nor its data files can be stored on a fixed disk.

™ *HomeWord is a trademark of Sierra On-Line, Incorporated.*

EasyWriter 1.15

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

An easy way to put words to work.
EasyWriter[1] is a versatile program that pro-
vides you with the capability to write, revise,
edit and print many types of documents
quickly. You can perform many editing
procedures—from correcting errors to insert-
ing phrases to moving entire paragraphs
from one part of a document to another—
before your work is even printed. You can
easily maintain on electronic files what you
have written, switching from one document
to another to access related information.

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 work-
loads may be significantly reduced. Paper
and copying costs may also be reduced. Most
important, the time saved may be spent on
more productive work.

**A revised, improved and updated
EasyWriter.** EasyWriter 1.15 is a revised
and improved version of EasyWriter 1.10.
This newer version significantly enhances
the usefulness of the program.

How it works

EasyWriter lives up to its name. Most
people will find that, even without prior
word-processing experience, they can learn
EasyWriter quickly. The reference manual
provides practice sessions to help users be-
come comfortable with the program as

EasyWriter 1.15 at a glance…

Quickly move the cursor anywhere in a document.	Move left, right, up, down, to the end of a file or the top of the screen.
Type as fast as you want.	"Word wrap" lets you automatically continue type onto the next line; no need for a carriage return key…just keep typing.
Write and edit simultaneously.	Insert, delete and change text as you type—or at a later time—right on the screen.
Find and edit all multiple references at once.	Find and automatically replace specified characters, words or phrases that recur throughout a document.
Skip to another page instantly.	"Scroll" to the preceding or following page of text at the touch of a key.
Store your docu-ments on diskettes.	Then delete, revise, copy, add, link, protect or print them; even store one document and switch to another.
Keep an organized filing system.	Use program files to track the progress of projects…to maintain lists…to store documents and data for future reference.
Tell EasyWriter how to print your document.	Set margins and spacing, justify text, center lines, number pages, and more.

quickly as possible. And a Users' Quick
Reference Card provides convenient instruc-
tions about commands used most often.

All EasyWriter functions—text entry, filing,
editing and printing—are performed by
selecting the appropriate single-keystroke
commands from one of the following three
EasyWriter menus:

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.

EasyWriter 1.15

```
              A D D I T I O N A L   C O M M A N D S
--------------------------------------------------------------------
A  - ALIGN TEXT         M - MARGIN SETTINGS    T  - TAB SETTINGS
C  - CENTER A LINE      N - PAGE #/# OF COPIES  W  - WORD COUNT
H  - HMI SETTING        P - PRINT TO SCREEN     F4 - GO TO EDITOR
J  - JUSTIFY ON/OFF     S - SEARCH AND REPLACE  F10 - GO TO FILE SYSTEM

COMMAND?
L                                                                R
0---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+---
The IBM Personal Computer is compact, easy to learn and easy to
use.  It offers big-system benefits and advanced design features
which add to the rewards and enjoyment of having your own personal
computer.  You don't have to be a computer expert to learn how to
use your IBM Personal Computer.  You, or any member of your family,
can do it -- with just a little time and practice.  A special set
of instructional materials comes with your IBM Personal Computer,
allowing you to get to know it on your own terms, at your own
pace.  IBM instructional literature is written in your language,
not computer jargon.  It was designed to help take the mystery out
of computing and make learning simple -- even fun.
```

*EasyWriter's Additional Commands menu, shown here,
helps you choose the single-letter command you need to
perform any of several tasks.*

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—enabling you to view up to 25
lines of 80 characters each. You can type as
fast as you wish; EasyWriter's "word-wrap"
feature automatically advances text to the
next line when the preceding one is full.

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

If you forget which command to use, a Help
menu is also available.

Extensive print formatting flexibility.
EasyWriter places at your service a useful
array of what are termed Imbedded Com-
mands. These permit you to custom-format
each document.

**The net result: a great investment in
yourself.** If you write letters, notes to
yourself, lists, reports, papers, articles, etc.,
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). A minimum
of 128KB of user memory is required for
DOS 2.00 or higher. DOS 3.00 is required
for operation on the IBM Personal Computer
AT; DOS 2.10 or higher is required for
operation on the IBM *Portable* PC and IBM
PC*jr*. When the program's data files are
stored on a fixed disk, a minimum of 128KB
of user memory and DOS 2.00 or higher are
required.

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

PeachText

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

AT XT PC

PPC PC*jr*

For beginner and expert alike. PeachText[1] is a high-performance program designed to help you write and edit text quickly—and to help you become more efficient as your word-processing skills develop.

PeachText will show you the time-saving advantages of word processing over ordinary typing. And, as the program tutorial helps guide you through the levels of instruction, you'll realize just how easy writing and editing can become.

Word processing made simple. By offering you a range of advanced editing capabilities, PeachText helps you write and edit with speed and ease. Simple commands allow you to write, correct, store, display and print your text.

You can delete single characters or entire pages of text; move sentences, paragraphs or pages; insert sections of one document into another; and make all your revisions before the text is printed.

PeachText includes a Help menu that offers you easy access to information about the program. For example, you can use the Help menu to learn about the function of each command on the main menu.

Designed for business and professional word processing. By placing numerous editing capabilities at your fingertips, PeachText enables you to produce finished documents quickly.

It also enables you to produce personalized letters and documents. You can get names and addresses from diskette files, for example, then place the information in a document automatically.

PeachText at a glance...

Write quickly and easily.	Simple menu commands allow you to write, edit, highlight, store, display and print documents.
Edit on your screen.	Avoid typing drafts or retyping corrected text.
Type over errors.	Just backspace to any typographical error and type the correct character, word or phrase over it.
Move sentences, paragraphs or pages.	Simply press a few keys if you want a block of text moved elsewhere in a document; even transfer text from one document to another.
Revise text neatly.	Delete text, and PeachText will close any gaps left in the copy; insert text, and PeachText will move the existing text to make room for it.
Personalize your documents.	Retrieve names, dates and addresses automatically and insert them into text; change all multiple references at the touch of a key.
Print to your specifications.	Insert formatting commands as you type, and PeachText follows those instructions during printing.
Edit one document while printing another.	You don't have to wait for one document to be printed before going on to edit another.

Furthermore, if your personal computer from IBM is equipped with 128KB of user memory, PeachText will take advantage of it. The system provides up to 55,000 characters of memory, or the equivalent of approximately 44 pages of typewritten text. As a result, you can edit a large document faster.

How it works

Speed and convenience you'll appreciate. With PeachText, 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 it with the cursor-control keys and type the correct characters over the error.

If you leave out a word or sentence, simply move the cursor to the appropriate location, press the "insert" key, and type the additional text. PeachText will make room for the insertion. Also, when you delete information, PeachText automatically closes any gaps.

PeachText

```
                        EDIT Control Keys
==================================================================

In order to:            Press Key:        In order to:        Press Key:

Move up..................Up Arrow  [SCROLL OFF]  Delete character.......Del
Move down................Down Arrow [SCROLL OFF] Delete spaces left.....F1
Move left................Left Arrow             Delete spaces right....F2
Move right...............Right Arrow            Delete word...........F4
Move to tab column.......Tab                    Delete line...........F9
Move to start/top/bottom..Home                  Delete sentence.......F10
Move to end of line......End
Backspace (and erase)....Backspace              Insert character.......Ins
Forward line scroll......Down Arrow  [SCROLL ON] Insert page...........F8
Backward line scroll.....Up Arrow   [SCROLL ON]
Forward page scroll......PgDn                    Search/Replace........F6
Backward page scroll.....PgUp                    Repeat Search/Replace..F5
Move to top of text......Ctrl+PgUp
Move to bottom of text...Ctrl+PgDn              Insert Paragraph Mark..ENTER
                                                Insert Block Mark......F3
Return to Edit Status                           Enter Page Feed.......F7
     Screen..............Esc                     Enter Line Feed...Ctrl+ENTER

Press any key to continue: ■
```

▲

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

In addition, PeachText features a system that
helps prevent accidental erasure. It even
enables you to change your mind about a
deletion after you've made one.

Special features. PeachText also includes
special features that simplify editing.

"The Editor" enables you to load a document
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 format-
ting instructions. For example, while you
are editing text, you may wish to indent a
direct quote and arrange a list of items in a
column-and-row format.

Another feature saves you time by letting
you edit one document while others are
being printed.

Additional PeachText features include: un-
derlining, automatically printed headings
and footings, boldface type and a variety of
printer functions and commands.

Easy to learn. The organized, easy-to-read
PeachText reference manual offers 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

functions. Clear and informative messages
provide the user with suggestions concern-
ing available options.

In addition, the PeachText program itself can
act as a visual learning aid. The PeachText
Help screen can guide you through any
rough spots.

A program that grows with you. PeachText
can start as simple as you want and keep
pace as your word-processing skills develop,
or it can be ready for tough 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 (two are
recommended), an 80-column display, a
printer, and the IBM Disk Operating System
(DOS). A minimum of 128KB of user mem-
ory is required for DOS 2.00 or higher. DOS
3.00 is required for operation on the IBM
Personal Computer AT;[2] DOS 2.10 or higher
is required for operation on the IBM *Portable*
PC and the IBM PC*jr.* Since two diskette
drives are preferred, operation on the IBM
PC*jr* and on other single-drive IBM PC sys-
tems is not recommended. When this pro-
gram and its data files are stored on a fixed
disk, a minimum of 128KB of user memory
and DOS 2.00 or higher are required.

[1]*PeachText is a trademark of Peachtree Software
Incorporated, an MSA company.*
[2]*This program will run on the IBM Personal Computer
AT with DOS 3.00 but is not supported on a 20MB
fixed disk.*

PlannerCalc

An easy-to-use tool for managing your finances

| XT | PC |
| PPC | PCjr |

Use spreadsheets developed especially for home and office. PlannerCalc[1] turns your personal computer from IBM into a valuable tool for managing home or office finances.

At the touch of a key, you can select any of 25 predefined spreadsheets for viewing on your screen. All you do is "plug in" the financial information called for—totals are calculated automatically.

When completed, the specially designed spreadsheet can help you analyze a given situation, discover patterns and trends, spot potential problems and opportunities, and plan your actions.

With PlannerCalc's split-screen capability, you can compare two different plans. And, at any time, you can have a spreadsheet printed as a permanent record.

Avoid tedious recalculations. Should spreadsheet figures require revision—due to unexpected expenses or an increase in income, for instance—you can change them with just a few keystrokes. PlannerCalc then automatically recalculates the entire spreadsheet based on the new information. This can be done as each figure is changed or after all revisions have been made. You can also insert hypothetical figures and quickly get a "what-if" projection of the effects of changing certain variables.

Customize spreadsheets or create your own. PlannerCalc makes it easy for you to alter spreadsheet column width, align text left or right, and more. If you wish to create a completely new spreadsheet, you can do so quickly by using an IBM text editor or PlannerCalc's simple English instructions. Extensive on-screen Help aids make these instructions easy to learn and use.

PlannerCalc at a glance...

Use any of 25 predefined spreadsheets.	Each covers a different aspect of home and office finances.
Just fill in the blanks.	Spreadsheet headings ask you for needed information and help you avoid overlooking important factors.
Avoid tedious calculations.	PlannerCalc automatically provides totals based on your data.
Change figures and see new totals.	Data throughout the entire spreadsheet is automatically recalculated.
Compare plans.	Split the screen display and view data from two spreadsheets side by side.
Customize predefined spreadsheets.	You can make changes to meet special requirements.
Create new spreadsheets easily.	Use simple English instructions.
Work proficiently right from the start.	Benefit from the program's extensive on-screen Help menus and messages.

How it works

Get started easily. The PlannerCalc reference manual includes a step-by-step tutorial that can help you operate the program correctly right from the start. In addition, Help menus and messages, plus a handy reference card packaged with the program, can help you avoid confusing situations.

Choose your spreadsheet. As you start the program, you'll see a menu of PlannerCalc's 25 predefined spreadsheets. Simply select the one you want to work with. Based on extensive research and experience, the spreadsheets were carefully designed to help you in specific areas of home and office finances. These areas include:

- *Taxes:* Intended for use as a planning tool only, this spreadsheet contains current information for filling out Form 1040 and provides a sample federal tax table.
- *New car:* Compare the monthly costs of maintaining your present car versus those of purchasing a new one with your present car as a trade-in.

PlannerCalc

```
Model Name: FAMILY           Free Space = 94        Size = 27           Defer
                                                            Enter a Command
Monthly Home Budget
January - December
Report: Totals
                     JAN'BUDGET   FEB'BUDGET   MAR'BUDGET   APR'BUDGET   MAY'BUDGET
  10.0  INCOME      <            >
                    ----------   ----------   ----------   ----------   ----------
  11.0  HUSBAND'SAL    2,437        2,437        2,437        2,437        2,437
  12.0  WIFE'SAL       1,562        1,562        1,562        1,562        1,562

  15.5  BEG'SAVINGS    5,000        5,173        5,348        5,524        5,702
  15.7  INT'RATE          12           12           12           12           12

  16.0  INTEREST          50           52           53           55           57

  17.0  DIVIDENDS         50           50           50           50           50

  18.0  TOT'INCOME     4,099        4,101        4,102        4,104        4,106


  ?_


            EscExit F1Help F2Display F9Del Rt
```

Simplify family budget planning using PlannerCalc's predesigned—or your own customized—spreadsheet.

- *Investments—stocks:* This spreadsheet is structured so you can manage virtually any number of stocks on both a total and a transaction basis. You can easily keep track of original investment costs for calculating gains and losses.
- *Loans:* You will find spreadsheets that calculate periodic payments (equal or unequal) and show the breakdown between principal and interest over a period of time. Line-oriented and column-oriented spreadsheet versions are available.

- *Budgeting:* Set up a plan for family income and disbursements, then enter actual amounts and see the differences calculated automatically. There are specialized spreadsheets for individuals, such as youths and college students, and others covering vacation plans and travel expenses.
- *Credit:* See how much you might save on credit-card interest charges if you borrowed money to pay your outstanding balance.
- *Checkbook reconciliation:* Enter the bank's figures and your own to see if they match.
- *Personal financial statement:* This spreadsheet provides a framework for recording pertinent information about your assets and liabilities and producing a net-worth statement.
- *Investments—interest-earning:* Calculate future value by using either discrete or continuous compounding of interest. Two spreadsheets cover investments, two others cover an investment stream.

- *Investments—real estate:* Evaluate a given investment by using a pro forma cash flow projection. You can insert an expected sale price and get both the net present value at a designated interest rate and the internal rate of return.
- *Investments—capital:* Figure the net present value and internal rate of return on a one-time investment.
- *Amortization—Rule of 78s:* Designed for accountants, this spreadsheet calculates finance charges and monthly payments and provides a schedule showing the monthly amortization of principal and interest.

Fill in the blanks on the spreadsheet. Use your keyboard to insert the information called for. PlannerCalc's "prompt line" feature automatically positions your figures in the spreadsheet.

Watch PlannerCalc do the work. When all your figures are in place, you'll see totals appear automatically. Change one or more figures, and the whole spreadsheet calculation changes accordingly—automatically.

Compare spreadsheets. If you want to see an optimum plan next to a fallback plan, for example, you can view both at the same time in a split-screen display.

What you get. The PlannerCalc software package includes:
- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, a printer (recommended), and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.*

[1]*PlannerCalc is a trademark of Comshare.*

Multiplan 1.10

A powerful problem-solving tool

AT	XT	PC
PPC	PC*jr*	

Ideal for planning and forecasting.
Multiplan[1] 1.10 is a versatile program that enables you to create electronic worksheets on your personal computer from IBM.

Multiplan is especially useful for financial modeling, planning and forecasting—even by people with little or no computer experience. It can be used to calculate engineering and scientific formulas, solve mathematical equations—even circular references—and help you quickly make projections and do analyses.

An enhanced version of Multiplan 1.00, Multiplan 1.10 offers added benefits: Worksheet storage has been increased; math accuracy has been improved to 14 significant digits; and print width has been expanded to 512 characters.

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

Included with the program is a tutorial diskette that features sample worksheets, explains commands and shows how to move around the worksheet. Also included is a reference manual that provides step-by-step instructions for using the program and tells how to construct more sophisticated models. As an added benefit, a keyboard template comes with the product. The template fits over the keyboard to help you quickly become familiar with the functions of the various keys.

Help is always at hand. Frequently used commands—full English words—are constantly displayed on the screen. What's more, an on-line Help text is just a keystroke away.

You can review the Help text in its entirety to find answers to a wide variety of questions that may arise as you operate Multiplan. Another helpful tool—a Users' Quick Reference Card—gives you fast solutions to problems.

Multiplan 1.10 at a glance...

|	
Activate functions with one keystroke.	Use single-keystroke commands and functions to help speed problem-solving.
Converse with Multiplan in English.	Avoid obscure symbols or codes; assign English names to cells and cell groups.
Solve a wide range of math equations automatically.	Calculate everything from simple arithmetic problems to complex trigonometric equations.
Recalculate an entire worksheet instantly.	Change one figure or formula, and Multiplan automatically recalculates all related values.
Make room for entries.	If an entry is too large for a cell, simply let the text spill into an adjacent cell.
View up to eight windows at once.	Simultaneously display up to eight sections of a worksheet to compare data.
Create detail and summary reports.	"Link" worksheets and consolidate primary and secondary worksheet data.
Highlight with color.	Use up to 16 colors to add borders to and "paint" each window of a worksheet.

How it works

Your keyboard is your key to fast operation. Your knowledge of the function keys and numeric keypad on your IBM Personal Computer Keyboard should make it easy to learn and use various Multiplan functions—many can be invoked with a single keystroke. The program can also be easily operated via an IBM PC*jr* Keyboard.

Automatic calculation simplifies financial planning. With Multiplan, tedious, repetitive paperwork can be greatly reduced. You can perform projections and analyses like those shown in the worksheet on the next page much faster than if you were to do them manually.

In the worksheet, the monthly costs, sales and profit for three expense categories (blue window) were automatically added to stored figures for the previous quarter to produce a six-month projection (yellow window). The projection was then automatically converted into a bar chart (red window) for visual impact.

Multiplan 1.10
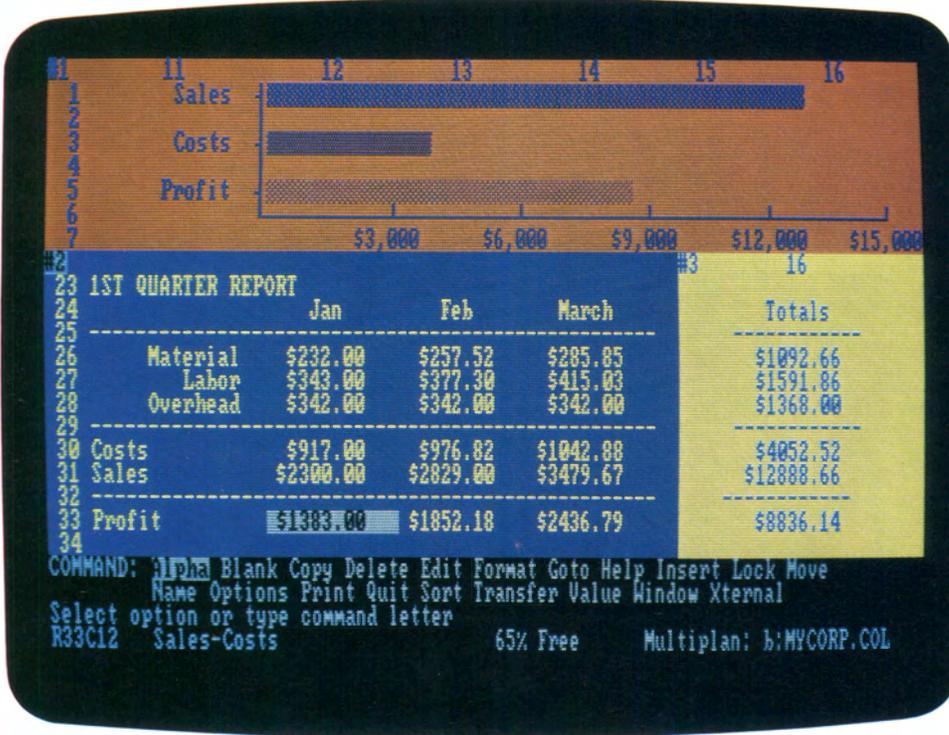
Each Multiplan worksheet provides you with useful information, such as the row/column indicator—which tells you where the cursor is currently located—and the worksheet name. Multiplan also displays frequently used commands for easy reference, including:
***Help**—to invoke an on-line Help text*
***Lock**—to help protect cell contents*
***Sort**—to arrange data to your specifications*
***Xternal**—to consolidate worksheets*

Simply enter your information into cells. Each Multiplan worksheet has a flexible grid of up to 255 rows long by 63 columns wide. Each space created by the grid's 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 worksheet is much like a ledger that can contain headings, values and formulas. Each cell can possess a value that appears on the screen and a formula for computing that value. The potential for the value of one cell to depend on the values of other cells is a key benefit of Multiplan.

Sending the cursor to any cell can be done with speed and ease. Rather than enter a cell's coordinates, all you have to do is "point" to the cell you wish to return to by pressing the cursor-control keys on the keyboard.

Multiplan also enables you to assign an English-word name to a cell or group of cells—unlike many other spreadsheet programs that require numerals instead of words. And, once you've entered information into a cell, you can protect it from loss by "locking" that information into memory.

Automatic reformatting. Text entries can exceed cell boundaries. Multiplan's reformatting procedure automatically accommodates text that spills over into adjacent cells.

Combine data from several worksheets. Multiplan enables you to "link" worksheets that are stored on the same diskette or fixed disk. This feature is especially useful for

consolidating worksheets to create detail and summary reports, for example.

View up to eight windows at once. If the worksheet you've formed is too large for your display, you can view eight "windows," or sections, at one time. You can recalculate data in any window, then study recalculations in other sections.

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.[2] You can obtain a wide variety of special print effects by utilizing the capabilities of the IBM Personal Computer Color Printer or IBM Graphics Printer—and the variety of dot-matrix print styles and sizes the printers offer. You'll also have the full ASCII character set at your disposal.

What you get. The Multiplan software package includes:
· Program Diskette
· Tutorial Diskette
· Users' Reference Manual
· Users' Quick Reference Card
· Keyboard Template

System requirements: A minimum of 64KB of user memory and one diskette drive, a display or TV, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* When this program and its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required.

[1]*Multiplan is a U.S. trademark of Microsoft Corporation.*
[2]*Requires an IBM Personal Computer Color Display, an IBM Personal Computer Color/Graphics Monitor Adapter, or compatible equivalent products.*

VisiCalc 1.20

*An efficient tool for
planning and analysis*

AT   XT   PC

PPC   PC*jr*

A multipurpose problem-solver. VisiCalc[1] 1.20 is a versatile planning and problem-solving program for business executives, professionals, accountants, home budget managers, and planners of all kinds.

From financial and statistical analyses to cash flow projections, from market analyses to home budget planning, VisiCalc can help simplify the solving of analytical problems.

This updated version offers two new benefits to help speed and simplify your problem-solving. One of the new benefits, extended addressing, increases the amount of available worksheet space. The other allows the program itself to be stored on a fixed disk (only data files could be stored in the past).

Electronic worksheets. VisiCalc turns your IBM PC display screen into a "window" through which you can create electronic worksheets up to 63 columns across by 254 rows down—large enough to accommodate most problems and charts. You can move—or scroll—this window in all four directions to view any part of a worksheet and even split the screen horizontally and vertically to compare two worksheet sections at one time.

The intersections of columns and rows define thousands of entry positions, each identified by its row-column coordinates. The cursor can be scrolled to any of these entry positions, and any value or label you type will be displayed within the cursor box. By entering values on the worksheet in this way, you can set up charts, tables and records. And, by using the simple formatting commands, you can make your VisiCalc worksheet look just like a checkbook register, profit-and-loss statement, or almost any type of column-and-row document.

VisiCalc 1.20 at a glance...

Learn VisiCalc's commands quickly.	Use 15 easy-to-memorize, single-letter commands..."B" is Blank, "C" is Clear, "D" is Delete, and so on.
Check and compare data on the display screen.	You can move the window in four directions to view any part of your worksheet; even split the screen to easily compare any two worksheet sections.
Customize a worksheet to your needs.	Alter its format easily—change column width, align text left or right, adjust decimal places, and more.
Revise your information.	Edit the contents of any worksheet entry; add or delete information quickly and easily.
Combine various worksheet entries.	Use simple comparisons, complex scientific formulas, or even VisiCalc's own functions to relate data from one worksheet to another.
Explore "what-if" situations.	Replace a figure in a worksheet, and VisiCalc automatically recalculates the worksheet to show the effect on all other values.
Store formulas for fast recall.	Retrieve formulas whenever you need them.
File worksheets for future use.	Create as many worksheets as you need for problem-solving, then file worksheets, parts of worksheets, or only worksheet data for immediate retrieval.

How it works

Start using this powerful tool right away. You can begin taking advantage of VisiCalc's capabilities almost immediately—even if you don't know a great deal about programming or how computers work. A five-lesson tutorial in the VisiCalc reference manual takes you through each operation in a step-by-step manner, showing you how to create worksheets and use all the simple-to-understand programming commands. In addition, the

Users' Quick Reference Card, which lists all major commands and features, provides you with a handy aid in mastering the program and all its capabilities.

Creating and manipulating your worksheets. Most worksheets you create will probably have headings for each column and row. These headings can be "locked" into place so that you can scroll to any section and still retain the headings that identify the data.

VisiCalc 1.20


```
C128   (V) @INT(C126+C127)                                    C
                                                              32

        A      B       C        D        E        F        G        H
1 -------------------------------------------------------------------
2 RECEIPTS 9/29/84   Receipt Handling-Cost Estimates
3 -------------------------------------------------------------------
4               1983    1984     1985     1986     1987    TOTAL
5
        A      B       C        D        E        F        G        H
116
117 ----  C Receipts  ----
118 TOTAL/MO     348    1899     2593     1991     1032     7063
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  631012   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.

The formulas you use can be as simple as comparing one sales figure to another or as complex as recalculating a series of values based on one or more variables. 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, such as summation, net present value, average, trigonometric functions, and more.

An important "shortcut." One especially convenient shortcut the program offers is the Replicate command, which allows you to repeat a formula automatically, substituting

different values. You can compute a year's worth of weekly budgets by entering the formula just once.

"What-if" allows you to explore alternatives. A major benefit of VisiCalc is that it allows you to examine various alternatives without having to refigure your entire worksheet. Whenever you change a value, VisiCalc automatically recalculates and displays all the related values. For example, you may wish to examine how different variables—such as additional personnel—might affect your sales projections. Or you may wish to see how long a new manufacturing process will take to become cost-effective.

What you get. The VisiCalc software package includes:
• Program Diskettes (2)
• Users' Reference Manual
• Users' Quick Reference Card
• Users' Support Plan Card

System requirements: A minimum of 64KB of user memory and one diskette drive, a display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* When this program and its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required.

¹VisiCalc is a trademark of VisiCorp.

IBM Assistant Series

An interrelated set of productivity tools

A powerful information-management system. The IBM Assistant Series is an integrated set of five information-management programs designed to help boost office productivity:
- *IBM Filing Assistant*—a data base management tool
- *IBM Reporting Assistant*—a customized report producer
- *IBM Writing Assistant*—a versatile word processor
- *IBM Planning Assistant*—an electronic spreadsheet generator
- *IBM Graphing Assistant*—a graph and chart producer

In addition, three IBM Assistant Solutions provide predesigned forms and reports to meet a variety of needs.

IBM Filing Assistant

IBM Filing Assistant is a data base management tool that can help you store, organize, recall and analyze information. You could think of the program as an electronic filing system with additional capabilities to help you compare, analyze and report data correlations at computer speed.

Design your own files. A key benefit of Filing Assistant is the ease with which you can use the program to design forms for storing information. You can quickly create a form that's as simple or as detailed as your needs dictate.

As forms are filled in, records are created by the program and stored permanently on diskettes. Once the information is stored, you can add to, delete from, sort, split or merge the files you've created.

IBM Assistant Series at a glance...

Increase productivity and efficiency.	Accomplish a wide range of critical functions for better management of time and information at the office or at home.
Design your own files.	Create a form as simple or as detailed as needed; store, organize and recall information by using IBM Filing Assistant.
Generate customized reports.	Use IBM Reporting Assistant to design tabular reports from information stored in IBM Filing Assistant.
Produce electronic spreadsheets.	Speed and simplify budget analyses and forecasts with IBM Planning Assistant.
Integrate data into IBM Writing Assistant documents.	Include sections of a spreadsheet from IBM Planning Assistant, charts from IBM Graphing Assistant, and reports generated by IBM Reporting Assistant.
Invoke easy-to-use editing features.	Add or delete characters, center and underline text, and verify spelling with IBM Writing Assistant's 125,000-word dictionary.
Create eye-catching charts and graphs.	Use IBM Graphing Assistant to organize user-entered data or data stored in IBM Filing Assistant into line, pie or bar graphs.
Manage information more effectively.	Handle small business, executive or home record-keeping tasks with IBM Assistant Solutions' predesigned file forms and report templates.

You can create forms up to 32 pages long, with up to 100 fields (areas for data entry) per page. And you can store as many as 2,200 forms on a double-sided diskette—or as many as 29,500 forms on a fixed disk.

Quick access to the facts you need. To initiate a search for one or more files, you invoke the program's Search option, and a blank form appears on the screen. Then you simply fill in the blanks with the search specifications for the information you seek.

A flexible analysis tool. Filing Assistant enables you to enter search specifications for as many items on a form as you desire. It will then display only the file information that matches the specified criteria.

IBM Reporting Assistant

IBM Reporting Assistant enables you to design tabular reports from information stored in IBM Filing Assistant.

Produce customized reports from files. Reports are created according to the retrieval and print options you enter. You can specify full or partial item matches on any number of data fields within a record, then choose which items go into specific columns.

In addition, you can set and align up to 20 columns, center data automatically, underline, set headings and titles, number pages, justify text—and print a report customized to your needs. General and column headings can be easily entered and edited; columns of numbers can be aligned by decimal point.

To help keep confidential information secure, any data field in your report can be "invisible." Information in the invisible fields will not be included in your report printout.

Reporting Assistant also lets you insert reports into other documents created with IBM Writing Assistant—or save them on a diskette or fixed disk. You can even save standard report formats for later use.

IBM Writing Assistant
Version 1.01

IBM Writing Assistant is a versatile, high-function word processor suitable for creating a variety of documents—from interoffice memos to book-length manuscripts.

Integrate data with other IBM Assistant programs. In addition to being a stand-alone program, Writing Assistant is fully integrated with other IBM Assistant programs. Documents you create with Writing
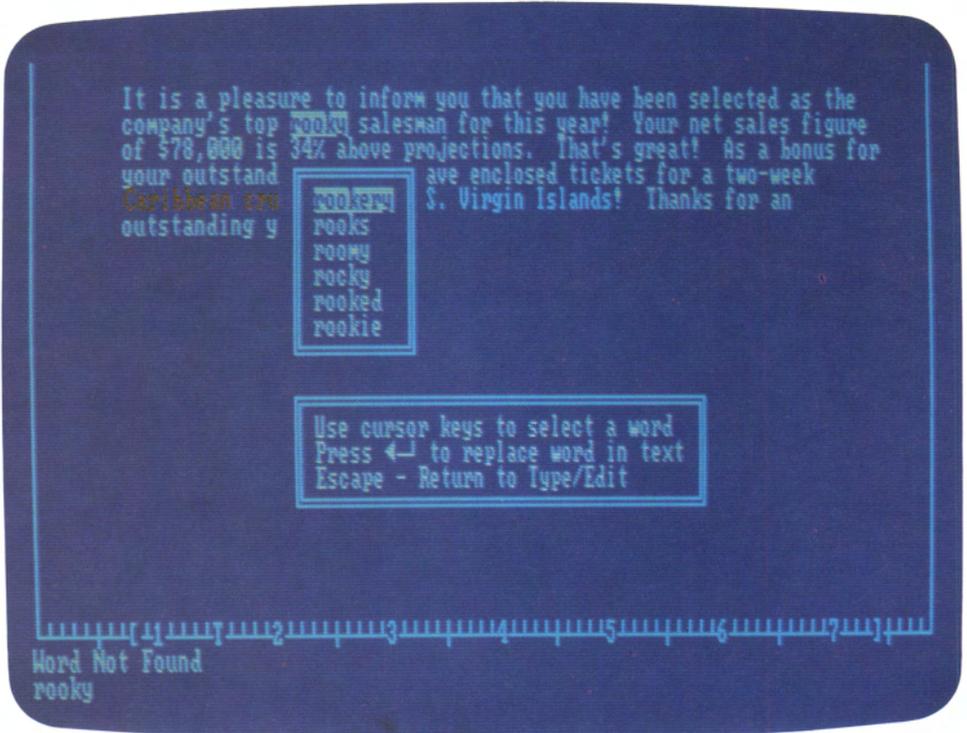
Assistant can include charts created by Graphing Assistant, reports generated by Reporting Assistant, or a spreadsheet produced by Planning Assistant. Such versatility can help make the difference between a good presentation and a superior one.

Check your spelling…automatically. To help make sure a small spelling error doesn't become a big problem, Writing Assistant includes a built-in proofreader. The spelling checker uses the same 125,000-word dictionary as the IBM Word Proof program. You can also supplement the general dictionary with a customized list of words or names you frequently use.

Fast, easy editing. Document revision is easy with IBM Writing Assistant. You can move, insert, copy, delete or repeat blocks of text. Search-and-replace functions can be automatic or prompted. Text centering, underlining and boldfacing are all easy operations that give documents a polished look.

IBM Writing Assistant's built-in spelling checker highlights words it doesn't recognize and displays alternate spelling choices in a "pop-up" window.

On-screen formatting. Writing Assistant has an on-screen formatting feature that helps prevent surprises when your document is printed. You have complete control of margins, tab stops, spacing, formatting, word wrap, decimal tab alignment, and other features.

Color support. Writing Assistant also allows you—with the simple touch of a key—to display and print your text in as many as four colors. You can choose from eight different color combinations available with an IBM PC color display or another compatible color monitor. And, since Writing Assistant fully supports the IBM Personal Computer Color Printer, all or any portions of your text can be printed in color.

Headings	January	February	March	First Quarter Totals	Projections
Revenue					
Northern	$ 5,127.99	$ 5,610.00	$ 7,453.00	$ 18,190.99	$ 19,100.54
Southern	$ 4,887.00	$ 5,186.00	$ 5,099.00	$ 15,172.00	$ 15,930.60
Eastern	$ 5,196.00	$ 5,408.00	$ 6,102.00	$ 16,706.00	$ 17,541.30
Western	$ 4,602.14	$ 5,041.00	$ 5,913.39	$ 15,556.53	$ 16,334.36
Total Revenue	$19,813.13	$21,245.00	$24,567.39	$ 65,625.52	$ 68,906.80
Expenses					
Northern	$ 1,796.88	$ 1,847.43	$ 2,052.66	$ 5,696.97	$ 5,981.82
Southern	$ 1,509.70	$ 1,601.37	$ 1,617.37	$ 4,728.44	$ 4,964.86
Eastern	$ 1,526.53	$ 1,578.68	$ 1,771.79	$ 4,877.00	$ 5,120.85
Western	$ 938.27	$ 1,305.38	$ 1,715.93	$ 3,959.58	$ 4,157.56
Total Expenses	$ 5,771.38	$ 6,332.86	$ 7,157.75	$ 19,261.99	$ 20,225.09
Net Profit	$14,041.75	$14,912.14	$17,409.64	$ 46,363.53	$ 48,681.71

First Quarter Totals only.

| F1-Help | SALES.WKS | | | Repl | 0% Full | R18 C |

With IBM Planning Assistant, you can enter or change data in any spreadsheet column and all related figures will be automatically recalculated.

IBM Planning Assistant

IBM Planning Assistant is a powerful electronic spreadsheet program with a number of time-saving features. Designed to be easy to learn and use, Planning Assistant's simplified menus and readily accessible on-line Help screens will help you quickly analyze budgets and forecasts.

Speed and simplify analyses. Planning Assistant is designed to make entering and editing individual values or entire rows and columns a fast, convenient process.

Designing your spreadsheet is made easier with a number of Quick-Entry features. Consecutive months, for example, can be entered by typing in the starting month, then pressing a single key to enter each succeeding month.

Built-in features. To further facilitate ease of use, many high-function calculation capabilities are built into the program. Instead of trying to remember complex formulas, you need only enter simple key words for such calculations as net present value, future value, payments, average and previous value. And what used to be a time-consuming and often frustrating task—refiguring entire rows or columns of numbers "by hand"—is made simple and fast.

Planning Assistant will recalculate the value of related figures when one figure is changed. For example, if you change an employee's salary on a complex payroll spreadsheet, Planning Assistant will recalculate all the related figures.

Share data with other programs. IBM Planning Assistant can be integrated with other IBM Assistant programs to provide new ways for you to manage and analyze your data. For instance, data you have stored in Filing Assistant can be used in your spreadsheet to facilitate a thorough examination and manipulation of your information. You can even bring in data from other Planning Assistant spreadsheets or numeric data from Multiplan[1] and VisiCalc[1] files.

Planning Assistant also enables you to load numerical data into Graphing Assistant for editing or creating charts and graphs.

IBM Graphing Assistant Version 1.01

You can use IBM Graphing Assistant to graphically illustrate data in your business and personal documents. This program can read data from its stored graphs and from Filing Assistant, Multiplan or VisiCalc files.

Choose the chart you need. Graphing Assistant lets you organize your data into line, bar or pie graphs. You can switch from one type of graph to another with just a few keystrokes, making it easy to select the graph that best illustrates your data.

Create colorful, attention-getting charts. To help you print graphs with professional polish, Graphing Assistant supports the IBM Personal Computer Color Printer as well as a number of other compatible printers and plotters.

IBM Assistant Solutions

IBM Assistant Solutions are predesigned file forms and report templates for use with IBM Filing Assistant and IBM Reporting Assistant. Because they provide you with ready-to-use solutions to common record-keeping

IBM Assistant Series


```
                  HOME  MAILING  LIST
_____

  SEARCH NAME: SMITH
   FIRST NAME: MIKE
    LAST NAME: SMITH              ANNIVERSARY: 72/08/30
       STREET: 7500 OAK BLVD         BIRTHDAY: 50/03/11
CITY/STATE/ZIP: CLEVELAND, OH 44130

   HOME PHONE: 555-9944
   WORK PHONE: 555-9333

     CHRISTMAS CARDS                  BIRTHDAY CARDS
     _____                  _____


SENT 1984: _     RCVD 1984:     SENT '84:     RCVD '84:
SENT 1985:       RCVD 1985:     SENT '85:     RCVD '85:
SENT 1986:       RCVD 1986:     SENT '86:     RCVD '86:
SENT 1987:       RCVD 1987:     SENT '87:     RCVD '87:


MAIL                 Search spec                 Page 1

F1-Help             Esc-Main menu            F10-Continue
```

Remembering important dates is easy when you use IBM Assistant Home Solutions' home mailing list.

tasks, there's no need to create file and report formats for these tasks. The forms and templates provided in any of the Assistant Solutions can be quickly modified, if necessary, to create just the format you need.

There are three Assistant Solutions packages: *IBM Assistant Home Solutions* is a set of seven forms and reports designed to help you keep track of a home inventory, manage home finances, organize mailing lists and discount coupons, and record your bank transactions.

IBM Assistant Executive Solutions is a set of seven forms and reports designed to help you manage mailing lists, keep appointment calendars, handle business and personal checks, keep a personal stock portfolio, and arrange a travel itinerary.

IBM Assistant Accounting Solutions is a set of five forms and reports to help a small business handle a wide range of record-keeping functions. Among them: inventory management, invoice tracking, additions to general ledger, and personnel file and payroll management.

What you get. Each of the five IBM Assistant Series software packages includes:
• Program Diskette
• Users' Reference Manual
• Users' Quick Reference Card
• Keyboard Aid

Each of the three IBM Assistant Solutions software packages includes:
• Program Diskette
• Users' Reference Manual

System requirements: Each program in the IBM Assistant Series requires a minimum of 128KB of user memory and one double-sided diskette drive, a display[2] or TV, a printer (for Reporting Assistant, Graphing Assistant, Planning Assistant and Writing Assistant), and the IBM Disk Operating System (DOS). DOS 2.00 or higher is required for Planning Assistant,[3] while all other Assistant programs and Solutions require DOS 1.10 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*. When these programs and their data files are stored on a fixed disk, DOS 2.00 or higher is required.

[1]*Multiplan is a U.S. trademark of Microsoft Corporation. VisiCalc is a trademark of VisiCorp.*
[2]*With IBM Graphing Assistant and a monochrome display, you can only enter and edit data and then plot it. No graph will appear.*
[3]*The IBM PCjr requires 256KB of user memory to incorporate Filing Assistant information into a Planning Assistant spreadsheet.*

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[1] 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.*

You can receive news reports within 90 seconds and up to 90 days after they are reported. You can request current-day quotations on stocks, corporate bonds, Treasury issues, mutual funds, and much more.

In addition, you can get stock 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 printouts of profiles and 10-K extracts on all companies listed on either the New York or American exchanges. You can also request additional statistics on up to 3,200 leading American companies and 180 key 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.

Dow Jones Reporter at a glance...

Gain instant access to business and investment information.	Use the information to make faster, more accurate financial decisions.
Put your phone to work.	Tap the massive information-gathering resources of Dow Jones & Company.
Review late-breaking financial news.	Receive the news within 90 seconds after it is reported.
Study background stories up to three months old.	Get the full story behind the headline.
Get current stock quotations from all U.S. exchanges.	Receive price quotations for both common and preferred stocks.
Trace stock performances over several years.	Make investment decisions based on the history of specific stocks.
Get in-depth profiles on thousands of companies.	Study extracts on publicly owned companies listed on the New York and American exchanges.
Supplement financial information.	Gain access to statistical data on 3,200 companies and 180 major industries.

You'll quickly learn how to select information 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 for accessing the information you need while assuring that only you and those you designate can utilize the service.

Turn your IBM Personal Computer into an electronic newspaper. Each day, events take place around the world that can have direct and immediate impact on your business and investments.

Dow Jones Reporter

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 fundamental and technical statistics on 3,200 important companies and 180 industries.

What you get. The Dow Jones Reporter software package includes:
· 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, either an Asynchronous Communications Adapter and its appropriate modem and cable or the IBM PC*jr* Internal Modem,[2] a display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. DOS 2.10 or higher and IBM PC*jr* BASIC are required for operation on the IBM PC*jr*. Neither the program nor its data files can be stored on a fixed disk.

[1]*Dow Jones is a trademark and Dow Jones News/Retrieval is a registered trademark of Dow Jones & Company, Incorporated.*
[2]*If an IBM PC*jr* Internal Modem or another auto-dial modem is used, the user must log on in manual entry mode.*

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[1] Service. You can gain access to news 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 can review headlines about 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.

Get current quotes from all U.S. exchanges. You can access price quotations for both common and preferred stocks on the New York, American, Pacific and Midwest exchanges. (Federal Trade Commission regulations require stock quotations to be delayed by at least 15 minutes.)

You can also receive timely updates for U.S. Treasury bonds and notes, options, corporate and foreign bonds, plus national over-the-counter trading.

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.

Personal Communications Manager

An interactive communications program for electronic mail…and more

Your personal communications link. Personal Communications Manager is a versatile communications program that enables any IBM PC to exchange information with other compatible computers over standard telephone lines.

By permitting mail to be sent electronically at any time of day or night, Personal Communications Manager can increase the productivity of anyone who has been communicating by regular mail. It lets you exchange mail over phone lines quickly yet during "off hours" when telephone rates are the lowest. You can also free up your computer to perform more critical tasks during regular working hours.

How it works

The main menu opens the door to improved productivity. Personal Communications Manager's main menu can help you get started quickly. It presents you with a list of program functions that you can use to access large mainframe computers of public information services, exchange electronic mail with compatible computers, and create message text with your IBM PC word-processing program.

Day or night, the mail goes through—electronically. Personal Communications Manager's electronic mail capability provides you with quick and easy access to customers, branches and other departments. By using electronic mail for memos, news flashes and sales updates, you can be sure everyone whose system includes this program and a supported auto-dial modem receives vital information quickly.

Personal Communications Manager at a glance…

|	
Exchange mail over phone lines.	Send and receive mail automatically, day or night.
Take advantage of low telephone rates.	Distribute information during "off hours."
Contact customers, branches and other departments quickly.	Use electronic mail to circulate memos, news bulletins or sales updates in a flash.
Create your own mailing list.	List addresses of individuals you communicate with via electronic mail.
Access outside information sources.	Receive direct communications from such sources as the Dow Jones News/Retrieval[1] Service and THE SOURCE.[1]
Exchange information with other computers.	Transmit spreadsheet programs, graphic images, reports, and more.
Execute a series of instructions with just one keystroke.	Personalize the function keys of your IBM PC Keyboard to simplify complex commands.
Simplify learning with program aids.	Follow simple-to-understand tutorials and on-screen instructions.

With Personal Communications Manager, you can create an address book listing everyone you wish to communicate with via electronic mail. This file can contain up to 10 different mailing lists, each of which has room for as many as 40 different individual addresses or mailboxes.

In addition, Personal Communications Manager's electronic mail feature offers you:
• *Mail logging*—tags all outgoing mail with sender's name and time of transmission
• *Mail review*—allows you to have messages either printed or displayed

Easy access to outside sources. Personal Communications Manager's "Terminal Emulation"[2] capability facilitates direct communications between your IBM PC and other computers. It allows you to access outside information services, such as the Dow Jones News/Retrieval Service, THE SOURCE and CompuServe,[1] and to exchange information and data with other computers.

Personal Communications Manager

```
                    Configuration

Your name (for outgoing mail):    sys2

Your phone number (for replies):  6294

Editor filename:                  edlin.com

Paginate printouts:               no

Drives for receiving:             a

Modem:                            IBM modem (103)
                                  tone dialing
                                  asynch port: COM1

Directory for log files:          a:

Display type:                     color


Is this correct (y/n)? [_]

Press Esc to exit
```

*Personal Communications Manager's Configuration
screen makes it simple for you to enter the information
required to send or receive electronic mail.*

With Personal Communications Manager,
you can personalize the function keys of your
IBM PC Keyboard. With your own coded
keys, you can reduce a complex command to
a single keystroke. For example, you can
chain together a series of instructions that
enable you to dial Dow Jones automatically,
sign on, access the needed information, store
it on diskette or print it, sign off, and hang
up—all with one keystroke.

Send files, graphs, more. Personal Com-
munications Manager's communications
channels can help improve your productivity
in at least two other ways. You can exchange

important data, such as Multiplan[1] work-
sheets, between two computers in two
different locations. And you can transmit
graphic images, mailing lists, reports, and
more to any other compatible computer.

What you get. The Personal Communica-
tions Manager software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB
of user memory and one double-sided disk-
ette drive, a display, an 80-column printer
(recommended), the IBM Disk Operating
System (DOS) 2.10 or higher, and either the
IBM PC*jr* Internal Modem or an IBM
Asynchronous Communications Adapter
and supported auto-dial modem.[3] DOS 3.00
is required for operation on the IBM Personal
Computer AT.[4] The program and its data
files can be stored on a fixed disk.

[1]*Dow Jones is a trademark and Dow Jones News/
Retrieval is a registered trademark of Dow Jones
& Company, Incorporated. THE SOURCE is a service
mark of Source Telecomputing Corporation, a sub-
sidiary of The Reader's Digest Association, Incorporated.
CompuServe is a trademark of CompuServe, Inc.
Multiplan is a U.S. trademark of Microsoft Corporation.*
[2]*With the operating characteristics of an asynchronous
(start/stop) Teletype ASR 33/35. Teletype is a trade-
mark of Teletype Corporation.*
[3]*External modems are not part of the IBM Personal
Computer offering and must be purchased separately.*
[4]*This program will run on the IBM Personal Computer
AT but is not supported on a 20MB fixed disk.*

Mailing List Manager

An efficient tool for handling lists

AT XT PC

PPC PC*jr*

Create, print, even merge mailing lists. Mailing List Manager is a software package that allows you to create, retrieve, print, update and even combine mailing lists—and other data lists—easily and efficiently.

Mailing List Manager offers great versatility because it permits you to custom-design your own data forms and label formats to include any information you consider important. This means you can create very specialized sublists based on the information you've included in your data lists.

You decide which information is important. With Mailing List Manager, you decide which information you wish to store on a fixed disk or diskette, then design your data lists accordingly.

Perhaps you'd like to include an individual's job title as well as name and address on a specific list. Or you might want to add the last time a client placed an order with your company. You can rely on Mailing List Manager to generate a specific sublist based on whatever information you decide to include in your data form.

Mailing List Manager at a glance...

Create your own mailing lists.	Store, update, retrieve, print and even combine lists.
Send out multiple mailings.	Use Mailing List Manager in mail-order businesses and fund-raising organizations.
Combine several lists.	Combine data from several different lists to generate highly selective sublists.
Decide what's important to you.	Customize data formats to highlight information of special interest.
Be selective.	Powerful sorting capability allows you to create subsets containing any specific information you want.
Design your own labels.	Use the display to design labels exactly the way you want them to be printed.
Create form letters.	Use Mailing List Manager with PeachText,[1] EasyWriter[1] or other IBM PC word-processing programs to write and print personalized form letters.
Get help when you need it.	On-line Help text offers quick aid that's only a few keystrokes away.

Mailing List Manager also allows you to merge—or cross-reference—several different lists. Suppose you need to know the total quantity of a specific part in all your inventory locations. Mailing List Manager's combine feature can quickly provide you with the total count as well as the number of parts in individual warehouse locations.

How it works

Print your own labels. You design your own labels right on the screen of your IBM Personal Computer. The information you display on your screen will be printed automatically on each label. And, if you use

Mailing List Manager

```
0496675082              MAILING LIST MANAGER              v1.0
06/20/04                                                09:21:18




            ┌─────────────────────────────────────┐
            │                                       │
            │  SA - Select Address File             │
            │  UA - Update Address File             │
            │  PM - Produce Mailing                 │
            │  DL - Define Label Formats            │
            │  DA - Define Address File             │
            │  CA - Combine Address Files           │
            │  DT - Set Date and Time               │
            │  DI - Display File Directory          │
            │  ?? - Get Help!                       │
            │  EM - End Mailing List Manager        │
            │                                       │
            └─────────────────────────────────────┘


                Enter Selection:[_ ]



   Copyright 1983, IBM Corporation
   Copyright 1983 by Peachtree Software Incorporated, an MSA Company
```

Mailing List Manager's main menu provides you with a quick overview of the program's capabilities. After selecting commands from the menu, you can create and update lists, define label formats, combine lists and update or combine address files.

either the IBM Personal Computer Color Printer or IBM Graphics Printer, you can even give your labels an individualized look by mixing different type styles.

Create your own form letters. You can produce customized form letters by adding information stored on Mailing List Manager data files to files you create with IBM PC-compatible word-processing programs such as PeachText and EasyWriter.

This capability makes Mailing List Manager especially useful for mail-order businesses, fund-raising organizations, and other companies or individuals that frequently send out multiple mailings.

It's easy to learn. To simplify learning, the Mailing List Manager program package includes the Users' Reference Manual and a Users' Quick Reference Card, both of which spell out instructions simply and clearly. In addition, an on-line Help text is always accessible from the main menu with just two quick keystrokes.

What you get. The Mailing List Manager software package includes:
• Program Diskette
• Tutorial Diskette (includes DOS 2.00)
• Users' Reference Manual
• Users' Quick Reference Card

System requirements: A minimum of 128KB of user memory and one diskette drive (two are recommended), an 80-column display, a printer, and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

[1]*PeachText is a trademark of Peachtree Software Incorporated, an MSA company. EasyWriter is a trademark of Information Unlimited Software, Inc.*

TopView

*Operate several programs
simultaneously*

Multiple program capabilities. TopView creates a work environment that enables your personal computer from IBM to run a number of software programs concurrently— as many as will fit into your computer's memory. And you can run several different applications or multiple copies of the same program at the same time.

Open windows to your most frequently used programs. TopView lets you divide the screen on your personal computer into several overlapping "windows" to display portions of various programs at the same time. You can then switch back and forth between programs[2] quickly and efficiently, increasing your productivity.

TopView is also useful in situations where you must interrupt a program to run one or more other programs on the computer. When you are ready to resume working on the original program, you simply press a few keys. TopView automatically returns you to the exact point where you left off.

How it works

View multiple programs. You can view several programs through various windows on the display screen. The window in the foreground of the screen will show the program that's currently receiving input. Windows in the background will display programs that are either responding to the input or remaining inactive. Size and placement of the windows is determined by you.

Use a pointing device. With proper added support, TopView lets you use a variety of optional "mouse" pointing devices to control the pointer on the screen. A "mouse" helps you move the selection pointer on TopView

TopView at a glance...

Keep frequently used programs in memory.	Just select a program from the menu, which can be updated at any time.
Compare data on your screen.	View parts of several programs simultaneously as TopView "overlays" window upon window at your command.
Adjust your windows.	Change the size of the window you're working on...move it around on the screen...expand it back to full-screen size.
Move to any point or any window on the screen.	Use your keyboard or an optional "mouse" pointing device.[1]
Electronically cut, copy and paste.	Move text from one program window to another.
Pick up where you left off.	Return to a program by pressing a few keys; TopView puts you at the exact point where your work was interrupted.
Get help easily.	Use the pop-up Help screens and interactive tutorial.

menus much faster than is possible with the cursor-control keys. It also gives you greater flexibility in moving the pointer around the display screen.

Adjust text easily. On some applications, TopView lets you copy, cut and paste blocks of text. The copy function copies a block of information you have marked for transfer and holds it for the paste operation. The cut function deletes this marked text from the window (and the application). The paste function then transfers the block of text to the new location you have indicated.

Easy-to-use, pop-up menus. TopView's pop-up menus, which appear only when requested, quickly guide you through the program's varied functions. After you've selected the function you need, the pop-up

screen disappears, and you once again have the full display screen to work with.

Learn TopView quickly. An interactive tutorial diskette packaged with TopView helps you learn about many of the program's functions by actually trying them out in a controlled environment.

What you get. The TopView software package includes:
• Program Diskette
• Tutorial Diskette
• Users' Guide
• Users' Quick Reference Card

TopView and TopView
Programmer's ToolKit

System requirements: A minimum of 256KB[3] of user memory[4] (512KB recommended) and two double-sided, double-density diskette drives (or one double-sided, double-density diskette drive and one fixed disk drive), an 80-column display, a mouse pointing device (optional), and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and IBM *Portable* PC, respectively. The program and its data files can be stored on a fixed disk.

TopView Programmer's ToolKit

Design your own TopView applications. The TopView Programmer's ToolKit is a powerful set of aids to help programmers design TopView-compatible applications. The ToolKit is designed for IBM Personal

Computer users who have a general understanding of IBM PC system concepts and experience with IBM PC Assembler language.

TopView Programmer's ToolKit lets you:
- Create and store your own TopView windows, which can include Help screens, error messages, forms and menus.
- Save time by electronically copying previously designed windows into subsequent application designs.
- Change the size or content of any window you've created and stored.
- Custom-design your application to support a "mouse" or other pointing device.
- Speak the same language as TopView by using the assembler interface defined in the kit.
- Follow examples that make application development easier.

What you get. The TopView Programmer's ToolKit software package includes:
- Program Diskettes (2)
- Users' Reference Manual
- Users' Quick Reference Card

System requirements: A minimum of 256KB[3] of user memory[4] and two double-sided, double-density diskette drives (or one double-sided, double-density diskette drive and one fixed disk drive), an 80-column display, the TopView program, a parallel printer (optional), a mouse pointing device (recommended), and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively.

[1] *Mouse pointing devices and other pointing devices are not part of the IBM Personal Computer offering and must be purchased separately.*
[2] *Application programs designed specifically to run with TopView can use all of its functions. Other existing application programs can use TopView's switching function but may not be able to use other functions.*
[3] *512KB of user memory or more recommended.*
[4] *The IBM 3270 PC Models 4 and 6 require a minimum of 448KB of user memory (640KB recommended), DOS 2.10 and Control Program 1.20.*

FileCommand, Fixed Disk Organizer, Diskette Librarian and Time Manager 1.05

Programs that enhance your organizational skills

FileCommand `AT` `XT` `PC` `PPC` `PCjr`

FileCommand is a versatile data base management program that provides you with an efficient way to manage and access the files you've stored on fixed disks or diskettes. By displaying a directory of all your files, FileCommand helps you quickly sort through the specific file or subfile you need.

FileCommand also lets you assign DOS commands to keyboard function keys, enabling you to issue multiple commands with a single keystroke.

What you get. The FileCommand software package includes:
• Program Diskette
• Users' Reference Manual

System requirements: A minimum of 64KB of user memory and one diskette drive, an 80-column display, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*. A minimum of 128KB of user memory and DOS 2.00 or higher are required for fixed disk storage.

Fixed Disk Organizer `AT` `XT` `PC` `PPC`

Fixed Disk Organizer helps you organize all the information that is stored on your fixed disk drive...providing quicker access to and greater control over your programs.

Fixed Disk Organizer enables you to create simple menus to select application programs and issue complex DOS commands easily. It also lets you create your own Help texts, passwords, batch files, and more.
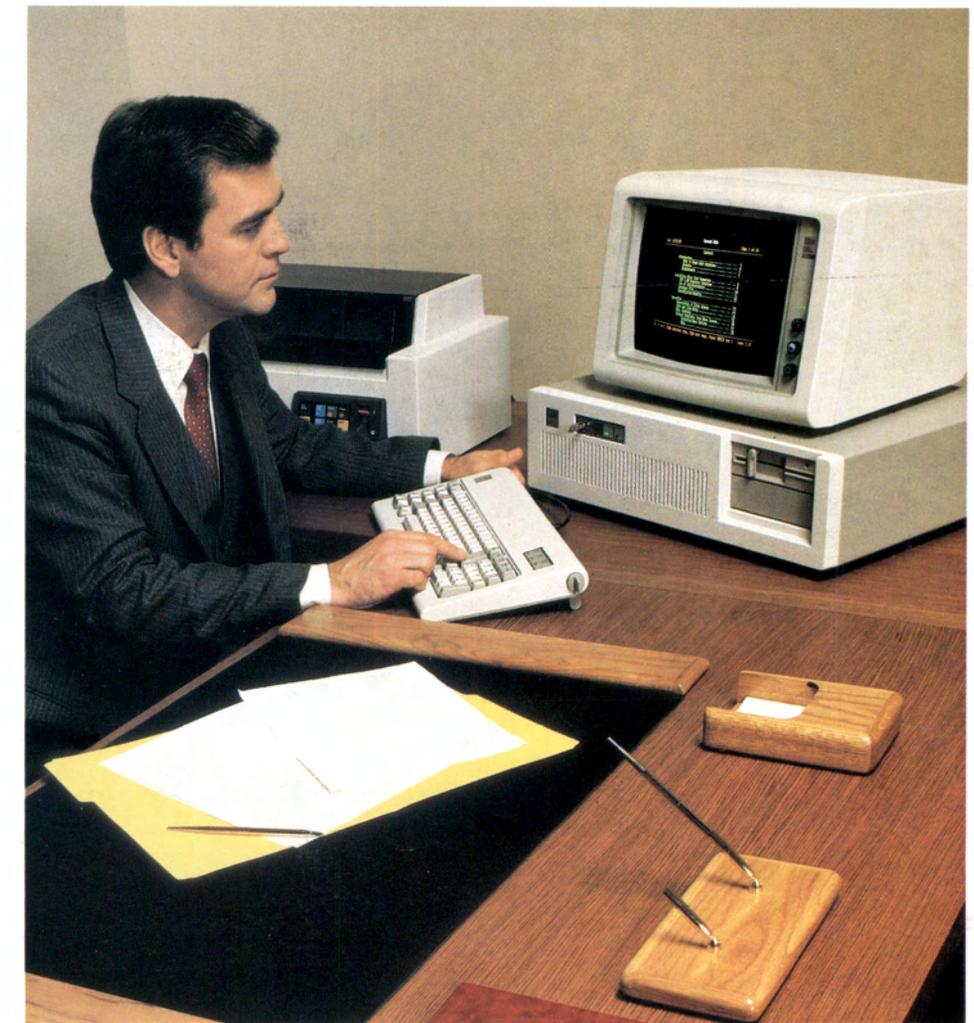
What you get. The Fixed Disk Organizer software package includes:
• Program Diskette
• Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one diskette drive, a fixed disk drive, an 80-column display, and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. This program and its data files can be stored on a fixed disk.

Diskette Librarian and
Time Manager 1.05

```
                              Master Menu
Date: 10-03-1984                                    Page 1 of 1
Time: 00:01:17                                       Version 1.00


          1. Word Processing
          2. Electronic Spread Sheets
          3. Communications
          4. Business
          5. Development Tools
          6. DOS Commands




     ┌─────────────────────────┬──────────────────────────┐
     │ ↑ or ↓ point to option  │ F1 Help                  │
     │                         │ F7 Quit                  │
     │ ENTER select option     │ F9 Menu Maintenance      │
     └─────────────────────────┴──────────────────────────┘
```

▲
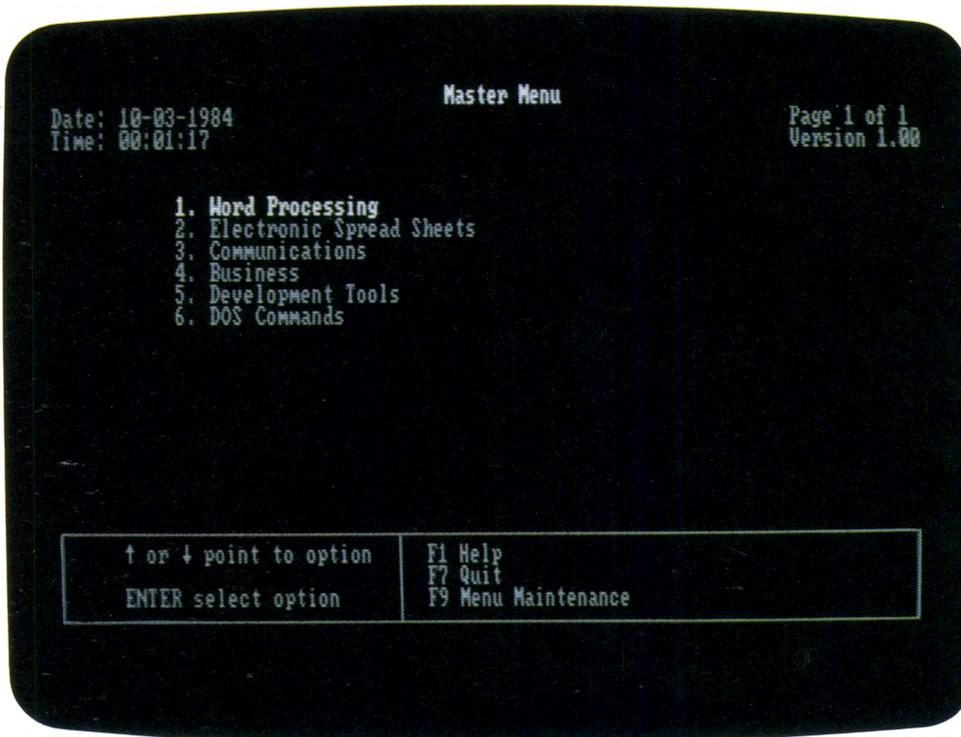
*This Fixed Disk Organizer menu can help you organize
your files. Simply divide your programs into the six
categories shown above. Fixed Disk Organizer menus
can be revised at any time.*

Diskette Librarian   `AT` `XT` `PC` `PPC` `PCjr`

Diskette Librarian is an automated indexing
system that catalogs and provides vital infor-
mation about your diskettes and their files.

As your diskette library grows, you may
want to remind yourself of the contents of
each diskette or the location of a particular

file. With Diskette Librarian, you can effi-
ciently organize your diskettes and quickly
find the information contained on them.

What you get. The Diskette Librarian
software package includes:
• Program Diskette
• Users' Reference Manual

System requirements: A minimum of 64KB of
user memory and one diskette drive, a display,
and the IBM Disk Operating System (DOS).
A minimum of 128KB of user memory is re-
quired for DOS 2.00 or higher. DOS 3.00
and 2.10 or higher are required for operation
on the IBM Personal Computer AT and the
IBM *Portable* PC, respectively. DOS 2.10 or
higher and IBM PC*jr* BASIC are required for
operation on the IBM PC*jr*. DOS 2.00 or
higher is required for fixed disk storage.

Time Manager 1.05   `XT` `PC` `PPC` `PCjr`

Time Manager[1] can help you budget your
time more effectively by organizing all your
daily and monthly activities. Its electronic
day, month and year calendars enable you to
prepare detailed agendas for keeping track of
everything from business conferences to
tennis dates.

In addition, Time Manager's cross-referenc-
ing function allows you to use data from
your calendars to compile accurate records
for filing or accounting purposes.

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 display,
and the IBM Disk Operating System (DOS).
A minimum of 128KB of user memory is
required for DOS 2.00 or higher. DOS 2.10 or
higher is required for operation on the IBM
Portable PC and the IBM PC*jr*. To make more
effective use of Time Manager, you may want
to add an IBM Personal Computer Color
Printer or IBM Graphics Printer with a
printer interface, and a second diskette drive.
Neither the program nor its data files can be
stored on a fixed disk.

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

Business Family

Peachtree Accounting System

*A cost-effective way to automate
your business accounting procedures*

AT	XT
PC	PPC

The Peachtree Software Accounting System
enables many small- and medium-size
businesses to enjoy the speed, accuracy and
efficiency of a computerized accounting
system—all at an affordable cost.

General Ledger 1.10

General Ledger 1.10 keeps the accounting
data you need at your fingertips. This versa-
tile business management program can
help you record and monitor income and
expenses more effectively and, at the same
time, significantly reduce the time and labor
usually associated with manual accounting.

By offering you fast access to current and
historical financial data, General Ledger can
prove to be a valuable tool for managing
finances today...and planning for tomorrow.

What you get. The General Ledger software
package includes:
- Program Diskettes (2)
- Demonstration Data Diskette
- Users' Reference Manual
- *Getting Started on IBM
  Peachtree Accounting* Manual
- Users' Quick Reference Card

Accounts Payable 1.10

Accounts Payable 1.10 was designed to help
you improve and simplify the management
of outgoing cash. It is an automated, flexible
system for keeping all your purchase infor-
mation up to date.

The program provides information on ven-
dors, discount and due dates, cash require-
ments, and other important factors to help
you analyze your cash position and deter-
mine which bills to pay and when.

What you get. The Accounts Payable
software package includes:
- Program Diskettes (2)
- Demonstration Data Diskette
- Users' Reference Manual
- *Getting Started on IBM
  Peachtree Accounting* Manual
- Users' Quick Reference Card

Accounts Receivable 1.10

Accounts Receivable 1.10 helps you gain
control over cash flow and receivables. Use
it to streamline your accounting procedures
and keep track of both current and aged
accounts. The program assists you in billing
accurately and making timely collections.

With Accounts Receivable, you can main-
tain up-to-date files; provide customers with
complete records; print invoices, statements
and aging reports; and save time over man-
ual accounting methods.

What you get. The Accounts Receivable
software package includes:
- Program Diskettes (3)
- Demonstration Data Diskette
- Users' Reference Manual
- *Getting Started on IBM
  Peachtree Accounting* Manual
- Users' Quick Reference Card

Payroll 1.10

Use Payroll 1.10 to computerize your company's payroll procedures for greater speed and accuracy. Payroll not only calculates your payroll and prints checks but even creates management reports.

Payroll's full range of functions offers you the opportunity to streamline your payroll operation for greater cost control.

What you get. The Payroll software package includes:
- Program Diskettes (3)
- Tax File Diskette
- Demonstration Data Diskette
- Users' Reference Manual
- *Getting Started on IBM Peachtree Accounting* Manual
- Users' Quick Reference Card

Inventory Control 1.10

Inventory Control 1.10 is a fast and efficient method for managing inventory. The program was designed to help a small business increase merchandise control and reduce inventory investment. It is an easy way to keep accurate, consistent records and reduce the errors and redundancies associated with manual record keeping.

By offering fast access to inventory information, Inventory Control can help you maintain high standards of customer service and response.

What you get. The Inventory Control software package includes:
- Program Diskettes (2)
- Demonstration Data Diskette
- Users' Reference Manual
- *Getting Started on IBM Peachtree Accounting* Manual
- Users' Quick Reference Card

```
MENU  1.00            PEACHTREE SOFTWARE          (c) 1981
05/26/84       GENERAL LEDGER PROGRAM SELECTOR      9:25 AM
                      STAR CORPORATION

              1.  MAINTAIN CHART OF ACCOUNTS
              2.  LIST CHART OF ACCOUNTS
              3.  TRANSFER SUMMARY JOURNALS
              4.  PROCESS END OF PERIOD
              5.  MAINTAIN SYSTEM FILE
              6.  RECOVER DATA FILES

             99.  GENERAL LEDGER MENU # 1



     ENTER SELECTION:[ 0]        'ESC' KEY TO END
                                 GENERAL LEDGER
```
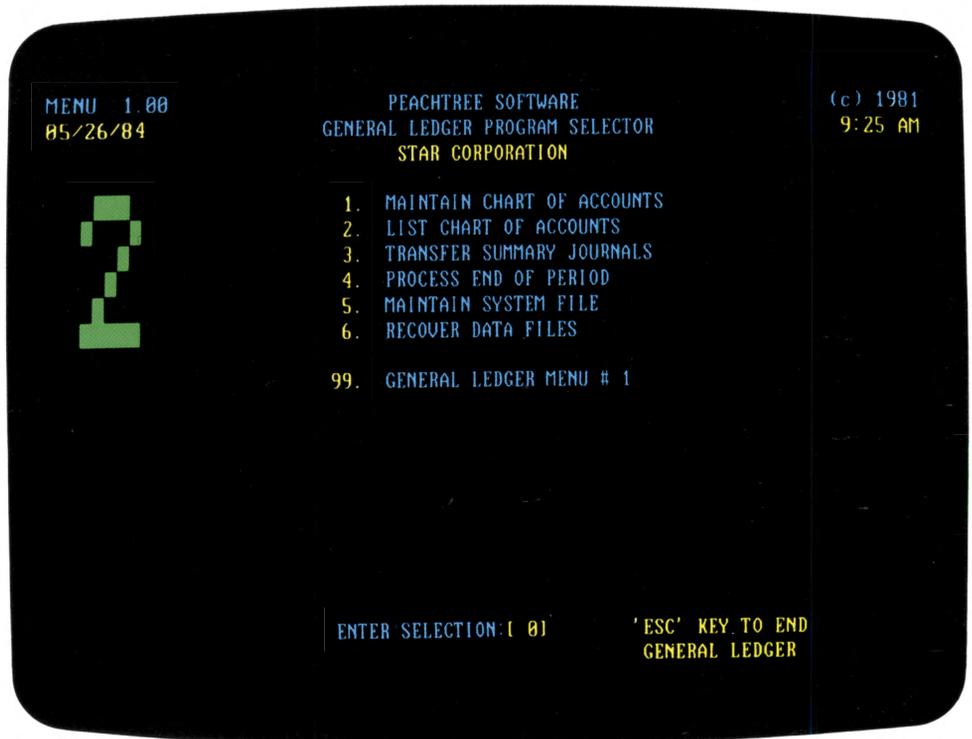
System requirements: Each program in Peachtree's Accounting System requires a minimum of 64KB of user memory and two diskette drives, an 80-column display, a printer, and the IBM Disk Operating System (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. When these programs and their data files are stored on a fixed disk, one diskette drive and DOS 2.00 or higher are required.

Getting Started on IBM Peachtree Accounting

Getting Started on IBM Peachtree Accounting is an illustrated "how-to" book that is included with each IBM Peachtree Accounting application. It is designed to help you set up

▲
General Ledger enables you to set up and maintain your own Chart of Accounts; accounts can be added, reviewed, changed or deleted as you wish.

and take full advantage of IBM Peachtree Accounting System programs.

The first chapter gives the information you need to know *before* you get started. Following chapters take you through the installation of each application: General Ledger, Accounts Payable, Accounts Receivable, Payroll and Inventory Control.

Also covered in the manual are backup methods, daily operating procedures, and tips that can help you better utilize the IBM Peachtree Accounting applications.

BPI Accounting System

*Perform business accounting functions
with computer speed and accuracy*

BPI's Accounting System offers comput-
erized accounting capabilities to small
businesses and to individual departments
within a large company or corporation. It is
especially easy to install and operate; what's
more, it does not require that users have as
much formal accounting knowledge as re-
quired by most other systems.

General Accounting

General Accounting brings computerized
accounting within easy reach of the small
business operation.

Even without prior computer experience,
you can quickly learn to use this versatile
program to perform day-to-day accounting
tasks—journalizing, posting and maintain-
ing records. In addition, you can prepare
timely reports to help you monitor your
business as a by-product of your daily ac-
counting transactions.

What you get. The General Accounting
software package includes:
• Program Diskettes (3)
• Demonstration Data Diskette
• Users' Reference Manual
• Users' Quick Reference Card

Accounts Receivable

Accounts Receivable is an automated cash
management tool that can help you control
current and past-due receivables more closely.
It also can help you improve your cash flow,
budget more effectively, reduce bad-debt
losses, detect poor credit risks, and maintain
customer goodwill.
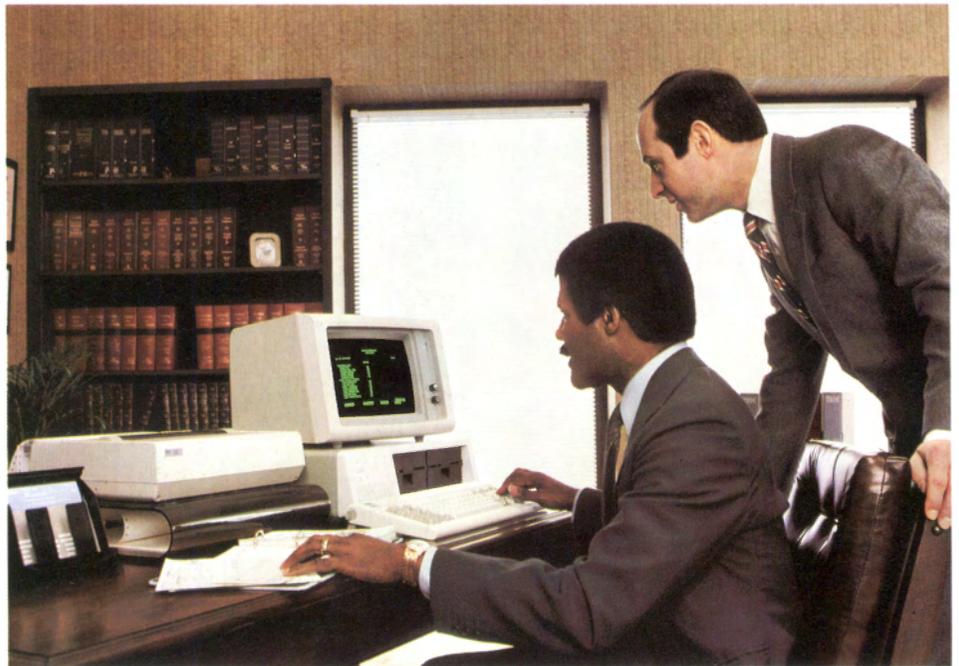
The program offers efficient ways to post in-
voices and payments, print statements and
perform many other functions more quickly
and accurately than if done by hand.

What you get. The Accounts Receivable
software package includes:
• Program Diskettes (3)
• Demonstration Data Diskette
• Users' Reference Manual
• Users' Quick Reference Card

Inventory Control

Inventory Control can help you manage your
business more efficiently. This automated
system of record keeping enables you to
bypass much of the tedious paperwork and
often imprecise filing inherent in manual
bookkeeping methods.

With Inventory Control, small businesses
and departments can enjoy the benefits and
increased productivity that once were avail-
able only from larger, more expensive
computer systems.

What you get. The Inventory Control
software package includes:
• Program Diskettes (4)
• Demonstration Data Diskette
• Users' Reference Manual
• Users' Quick Reference Card

Payroll

Payroll is a comprehensive program that can help you meet your payroll cost objectives. The program automates your company's payroll process to reduce the costly errors often associated with manual entry.

The versatility of BPI's Payroll enables you to pay your employees weekly, biweekly, semimonthly or monthly—and to vary this schedule by individual or class of employee.

You also have the option of paying by salary, by the hour, or by commission. If some other technique is used, you can calculate and enter commissions manually.

Payroll can turn your payroll operation into a valuable source of timely data that can be analyzed, controlled and printed in reports.

What you get. The Payroll software package includes:
• Start-up Diskette
• Program Diskettes (3)
• Demonstration Data Diskette
• Users' Reference Manual
• Users' Quick Reference Card
• Tax Table Diskette

Job Cost

Job Cost was designed to help speed and simplify bid preparation, track job costs, and provide several useful management reports that help to control costs and maintain planned profit margins.


```
                    BPI  SYSTEMS, INC.
              GENERAL  ACCOUNTING - VERSION 1.00
                    MENU 1 - DATA  ENTRY

      1 RUN QUEUE                    2 ERASE QUEUE
      3 ADVANCE PRINTER              4 COMPANY CODE AND DATE
      5 CHANGE PROGRAM DISKETTE      6 LIST TO PRINTER/SCREEN

     11 ENTER CASH DISBURSEMENTS    21 LIST CASH DISBURSEMENTS
     12 ENTER CASH RECEIPTS         22 LIST CASH RECEIPTS
     13 ENTER INVOICE REGISTER      23 LIST INVOICE REGISTER
     14 ENTER MERCHANDISE PURCHASED 24 LIST MERCHANDISE PURCHASED
     15 ENTER CASH SALES            25 LIST CASH SALES
     16 ENTER GENERAL JOURNAL       26 LIST GENERAL JOURNAL
     17 ENTER STANDARD ENTRIES      27 LIST MDSE.PURCHASED (DUE DATE)

     91 FORMAT/BACKUP DISKETTE       92 CHECK DISKETTE SPACE

        COMPANY CODE: FUTURE
        'AS-OF' DATE: 05/26/84
            LIST TO: SCREEN
      COMMAND QUEUE: 12,13

      ENTER COMMAND NUMBER ==> 16■
```

The Data Entry Menu contains all commands for entering data in your journals.

The program enables you to make entries in a number of journals to keep track of both labor and non-labor costs. Entries are sorted chronologically and by account number and are posted to the appropriate accounts.

Job Cost helps reduce the volume of information that must be entered manually. For example, when you enter a transaction in a journal, appropriate control reports are automatically updated and made available to you with a few quick keystrokes.

This versatile program is especially valuable to such job-costing businesses as contracting, subcontracting and multiple rental properties.

What you get. The Job Cost software package includes:
• Program Diskettes (4)
• Demonstration Data Diskette
• Users' Reference Manual
• Users' Quick Reference Card

System requirements: Each program in BPI's Accounting System requires a minimum of 64KB of user memory and two diskette drives, a display, a printer, and the IBM Disk Operating System (DOS) 1.10 . Neither the programs nor their data files can be stored on a fixed disk.

Data Encoder

A data security tool

Protection for confidential data. Data Encoder[1] is an effective data-protection program that addresses the security needs of IBM Personal Computer users. It helps assure that sensitive data will be kept confidential for as long as you wish.

Encode/decode capability. Data Encoder uses the Data Encryption Algorithm, a security technique developed by IBM and adopted as a U.S. government standard. This technique enables you to encode or "scramble" sensitive file, program or text data to make it illegible, then decode the data back to its original form when you need to use it.

Data Encoder provides two encoding/decoding versions. The quick-command version, for IBM PC systems with at least 128KB of user memory, has short, DOS-like commands for encoding and decoding files. The full-screen interface version, for IBM PC systems with 192KB of user memory or more, includes function selection through menus as well as additional features.

```
Date: 10-08-1984          Data Encoder              V1.00


                        Encode File

        Clear file name : B:\SECURITY


        Coded file name :


        Backup file name:

          Help          |   Use ↓ or ↑ to scroll text

        A clear file contains readable information. Type the
        clear filename and press Enter.

        If the clear file is not on the same drive and
        directory as the Data Encoder program, press F2
        to search for the file you want.  Or enter the

  Esc-Undo              F2-Search
```

Confidential file data can be protected by using Data Encoder's encode/decode capabilities.

How it works

Secure data with a special "key." With knowledge of the basic DOS commands—and the Users' Reference Manual—even a computer novice can learn to encode and decode confidential data. All you do is designate the key that will control encoding and decoding. This special key can include up to 80 characters... and will be known only to you.

As an added security measure, you also have the option to erase source files after encoding by writing over the data with null characters.

Protect DOS files. Data Encoder lets you encode and decode one—or several—DOS files at one time. Any DOS file can be protected. You can encode and decode data quickly—a 60,000-byte file processes in less than a minute on IBM PCs with a fixed disk drive.

All of these encryption features are common to both the full-screen interface and quick-command versions of Data Encoder.

Select options from menus. The full-screen interface version of Data Encoder offers added functions via menu selections. It enables you to:
- Locate files on any system drive or directory
- Make backup copies of important files prior to encoding
- "Hide" a file by erasing its filename from all directory listings
- Send files through IBM Personal Communications Manager (by using its "electronic mail" feature) or through any other communications program that supports text transparency
- Receive assistance from the on-line Help text

What you get. The Data Encoder software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory for the quick-command version or a minimum of 192KB of user memory for full-screen interface, one double-sided diskette drive, an 80-column display, and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PCjr. This program can be stored on a fixed disk.

[1] *Data Encoder and its associated documentation are under the U.S. Department of State Munitions list, Category XIII(b) and, as such, must be licensed by the U.S. Department of State prior to export from the United States.*

Doctor's Office Manager

The remedy for medical practice management problems

AT	XT
PC	PPC

Improve your office practice. Doctor's Office Manager can help doctors run their practices more efficiently. It can replace tedious, manual record-keeping procedures with a simplified, automated system for billing, filing insurance claims, scheduling appointments, handling correspondence and controlling accounts receivable.

How it works

Simplify patient record keeping. Doctor's Office Manager can produce patient profiles that include such vital information as name, address, birthdate, sex and insurance coverage. The information can be updated as necessary. Patient statements, providing a record of medical treatment and charges, can also be produced. And the program has a cross-referencing capability that allows doctors to track patients with similar medical histories.

Schedule appointments more efficiently. Doctor's Office Manager can automatically search for available time slots, then schedule patient appointments instantly. In addition, the program can print a daily appointment schedule or monthly summary of appointments for reference.

Improve cash flow. The program can help doctors gain greater control over accounts receivable by enabling them to:
• Produce statements that itemize current transactions and show balances due
• Bill once a month or in cycles to even the workload and cash flow
• Automatically print insurance claims using standard AMA or Medicare formats; design and print up to 97 other insurance forms
• Audit patients' past due or overdue balances with the Collection Information capability
• Evaluate receivables by insurance company and by doctor

Analyze productivity. Program-generated reports enable doctors to review financial transactions daily, monthly or yearly. In addition, reports on collection rates and revenues from referrals can give doctors a complete financial picture of their practice.

Program support service. Doctors can subscribe to the Doctor's Office Manager support service, offered by Annson Toll-Free Support Services, Inc., to get answers to installation and operational questions.

What you get. The Doctor's Office Manager software package includes:
• Program Diskettes (7)
• Tutorial Diskette
• Tutorial Manual
• Users' Manual
• Insurance Claims Form Template

System requirements: A minimum of 256KB of user memory, one double-sided diskette drive and a fixed disk drive,[1] an 80-column display (color recommended), a printer capable of processing multipart forms (printer must have compressed print feature or 132 print positions), and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively.

[1] *A 10MB fixed disk drive (minimum requirement) can be included in the IBM Portable PC and PC systems by adding an IBM Expansion Unit.*

Insurance Agency System

*An economical tool for making an
independent agent more competitive*

**Streamline administration, boost pro-
ductivity.** The Insurance Agency System
enables independent insurance agents to im-
prove their efficiency by automating many
administrative tasks. It also provides a valu-
able overview of operations to help agents
find ways to increase sales and cash flow
as well as control expenses and automate
marketing functions.

How it works

Designed for the small to intermediate in-
dependent insurance agent, the Insurance
Agency System offers a wide range of options
for expediting many tasks that are normally
performed manually. Among the tasks the
program can perform:
- *Record maintenance.* Enables basic informa-
tion—as well as coverage, prospect code and
status code—to be included in client or
prospect records. Also retains a salutation to
be used in computer-generated letters. You
enter data once, and it's usable throughout
the system.
- *Letter writing.* Stores letters, so you can
produce personalized mass mailings based
on selected client profiles or ages of accounts
receivable.
- *Profiling.* Generates lists, letters or labels
based on your choice of criteria.
- *Invoicing.* Automatically enters client infor-
mation on an invoice, prepares an invoice
register, and enters the invoice on an expira-
tion list.
- *Accounts Receivable.* Records cash receipts
against invoices, sends statements and,
whenever you want, shows you any individ-
ual's account.
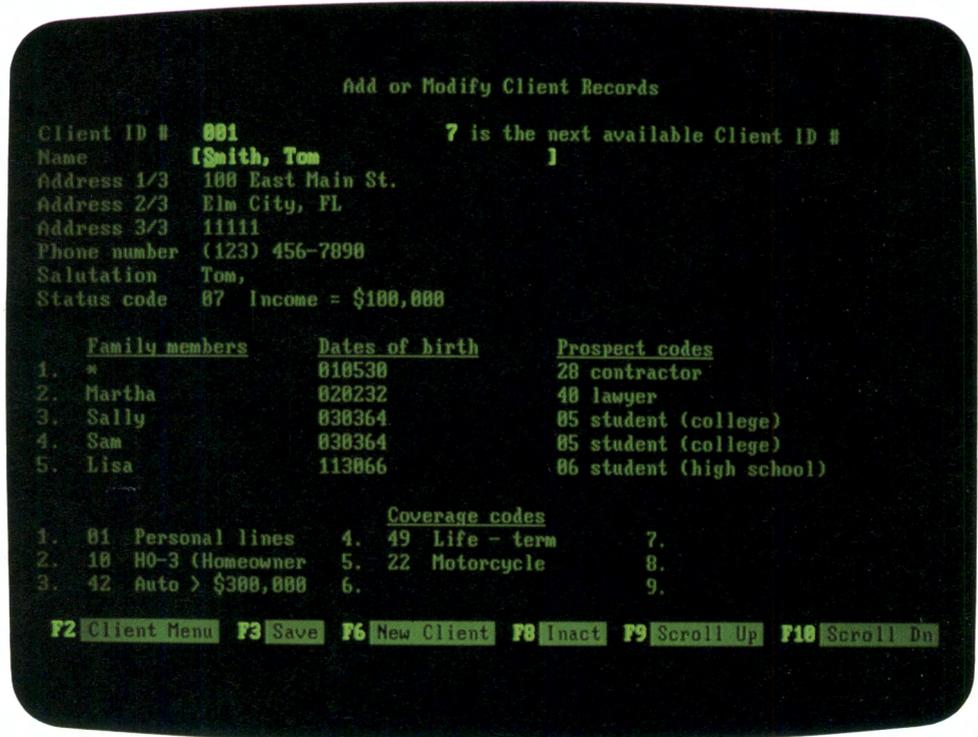
- *Accounts Payable/Current.* Keeps track of
payments to individuals and insurance
companies. Tracks sales statistics on the
insurance companies you represent.
- *General Ledger.* Tracks cash, receivables,
payables, commissions and up to 146 other
asset, liability, income and expense accounts.
Maintains general ledger accounts, prints
copies of the ledger at any time, records
separate journal entries.

Learn the system step by step. The Insur-
ance Agency System is packaged in two
loose-leaf binders. Volume I contains eight
tutorial booklets that take you step by step
through various features of the system as you
use your IBM PC and sample agency data.
Volume II includes a reference booklet con-
taining Insurance Agency System messages,
a glossary of terms, and an index for both
volumes.

*Insurance agents can view precise, up-to-date client
profiles with Insurance Agency System.*

What you get. The Insurance Agency
System software package includes:
- Program Diskettes (2)
- Users' Reference Manual
- Tutorial Booklets (8)
- Reference Booklet

System requirements: A minimum of 128KB
of user memory and two double-sided disk-
ette drives, an 80-column monochrome
display, a printer, and the IBM Disk Operat-
ing System (DOS) 1.10.

Lifestyle Family

Andrew Tobias Managing Your Money™ With the IBM PC*jr*

An integrated financial planning package

Andrew Tobias Managing Your Money™ With the IBM PC*jr* is an integrated program that lets you enlist the aid of Andrew Tobias, financial columnist and best-selling author, to help you evaluate your personal finances and map out a long-term financial plan.

Developed specifically for use on the IBM PC*jr*, this program is really seven integrated applications in one:
• Reminder Pad
• Budget and Checkbook
• Income Tax Estimator
• Insurance Planning
• Financial Calculator
• Portfolio Manager
• Your Net Worth

Share information. Each of the applications is integrated with the others, so information in one application can be transferred to any of the others—without having to be reentered.

If you wish, you can print out data in graphic format—pie charts, bar graphs and "X-Y" graphs. Among the charts you can create: income/expense distribution, monthly budgeted figures versus actual amounts expended for each account, and retirement planning estimates.

Managing Your Money With the IBM PC*jr* at a glance...

Produce a reminder list.	Get a list of things to do and their due dates; revise and print your list.
Manage income and expenses effectively.	Create and follow a monthly budget with the Budget and Checkbook application.
Simplify preparation of tax returns.	Gather tax data and estimate amounts for income tax returns.
Calculate your insurance needs.	Use the Insurance Planning application to organize your policies and identify inadequately covered items.
Plan your financial future.	Analyze finances, evaluate investment options, keep track of loans, and plan retirement income.
Track investments.	Keep track of stocks, bonds and other securities; create hypothetical portfolios.
Calculate your net worth.	The Net Worth application gathers asset and liability data to tell you how well off you are.

How it works

Start with a reminder. The Reminder Pad is your starting point. Each time you turn on the Managing Your Money program, it shows you a list of "things to do", with the completion date of each activity and the days remaining to complete the task.

You can revise and update this list whenever you want and, if your IBM PC*jr* includes a printer, print out the list and have a handy reminder with you at all times.

Help improve cash flow. Budget and Checkbook is your personal cash flow analyst. It collects your initial estimates of monthly income and expenses and uses that data to help you balance your checkbook and project your cash position for the next 11 months.

It also contains added convenience features. For example, when you create an income or expense account, you can give it a name—rather than a code number—and classify it as either an income or expense category.

In addition, you can tell the application whether an account is a "tax category" that should be flagged for income tax purposes. Special tax pointers transfer actual or estimated figures in these accounts directly to Managing Your Money's Income Tax Estimator application.

Gather tax information. Income Tax Estimator accumulates information from the other applications to estimate IRS Form 1040 and supporting Schedule A, B, C, D and other returns.

Help with insurance requirements.
Insurance Planning helps you calculate your life insurance needs by computing your expected life span, by giving examples of estimated costs, and by organizing your insurance policies.

Plan for your future...and your retirement. The Financial Calculator is the future-planning portion of the Managing Your Money package. It helps you: organize your current finances, including loans, income from rental properties and other investments; evaluate financial alternatives; and arrive at a comprehensive money plan for your retirement.

A built-in calculator is included to help you quickly and easily calculate bond yields, present and future value of payments, and various loan rates.

Track investments. The Portfolio Manager application keeps records of all your investment securities and analyzes each of your investments. It also totals your gains and losses during the current year and helps you estimate how potential changes in your portfolio might affect your tax burden.

You can enter the securities in as many portfolios as suit your needs; the portfolios are automatically classified as "IRA/Keogh," "hypothetical" or "taxable."

You start a portfolio with an initial cash balance. Then, as you buy and sell securities, Portfolio Manager helps you monitor portfolio performance...separately from your other financial transactions.

The program also allows you to set up a hypothetical portfolio section so you can "play" the market without cash...and without risk.
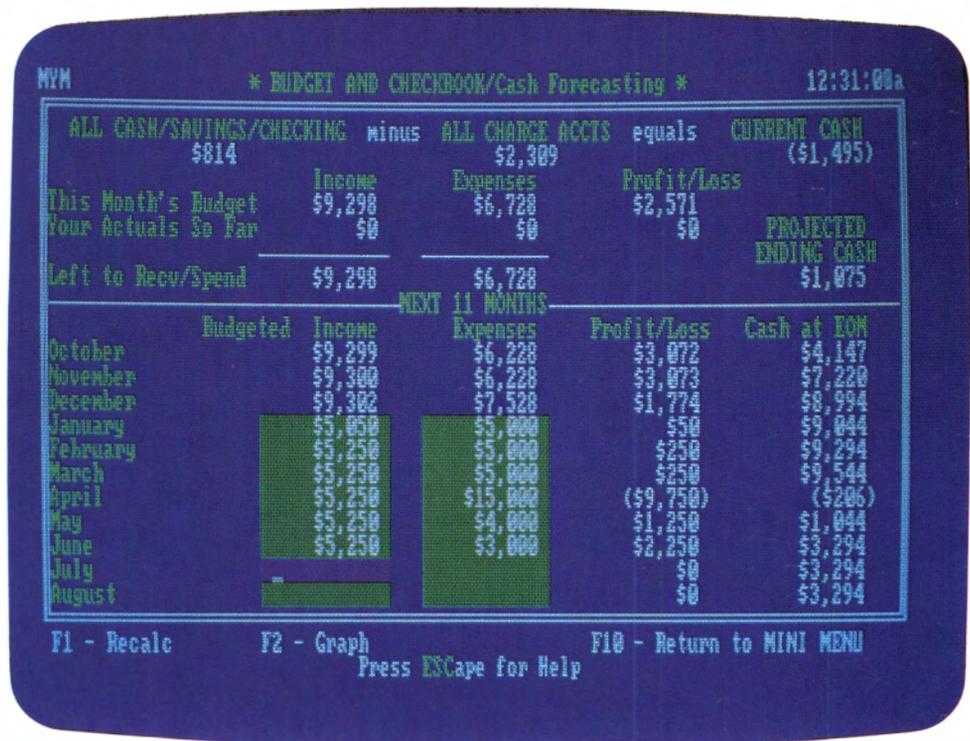
Managing Your Money's Budget and Checkbook application lets you look into your financial future.

Take stock of yourself. Net Worth answers the question, "How much am I worth?" It gathers information on your assets and liabilities from other applications in the Managing Your Money program, asks you to fill in additional information, then gives you a statement of your net worth. An especially valuable feature of the application: It automatically cautions you if you owe more than you own.

Help when you need it. To tie these seven applications together, Managing Your Money With the IBM PC*jr* includes an on-line index. The index gives brief definitions of key terms and also tells what keys to press to call up any of 35 screens for additional information on those terms.

What you get. The Andrew Tobias Managing Your Money With the IBM PC*jr* software package includes:
- Program Diskettes (2)
- Program Cartridge
- Users' Reference Guide
- Product Registration Card
- Extended Customer Support Plan Information

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, an 80-column display, a printer (optional), and the IBM Disk Operating System (DOS) 2.10 or higher.

™ *Managing Your Money is a trademark of MECA.*™

IBM PC*jr* ColorPaint

*Video artistry with PC*jr

Create pictures on your display screen. IBM PC*jr* ColorPaint[1] is a versatile color graphics program that lets you create video art with your PC*jr.* This cartridge program gives aspiring and professional artists a choice of colors, patterns and brush styles to add realism and depth to artwork.

IBM PC*jr* ColorPaint combines high function with simplicity of use. All of its functions and features are on the program cartridge; a diskette drive is required only to save and recall files. And all drawings are created with a mouse pointing device,[2] so the only time you touch the PC*jr* Keyboard is to write text.

How it works

Design flexibility. A key feature of IBM PC*jr* ColorPaint is its flexibility. The program provides a choice of 16 colors, various brush styles, 30 patterns and the capability of filling in patterns automatically. Other design functions enable you to:
• Move or copy pictures on another part of the screen; combine parts of separate pictures
• Draw lines, circles, squares and rectangles, and bend shapes to fit your design
• Invert pictures (produce a negative effect by reversing colors)
• Shift parts of your picture to a horizontal or vertical position
• Use an airbrush technique to give drawings a soft, "sprayed-on" look

Selective erasure. With IBM PC*jr* ColorPaint, you have the option to erase all or parts of your artwork. For example, you can erase the "freshly painted" portions of your drawing while retaining the original picture underneath.
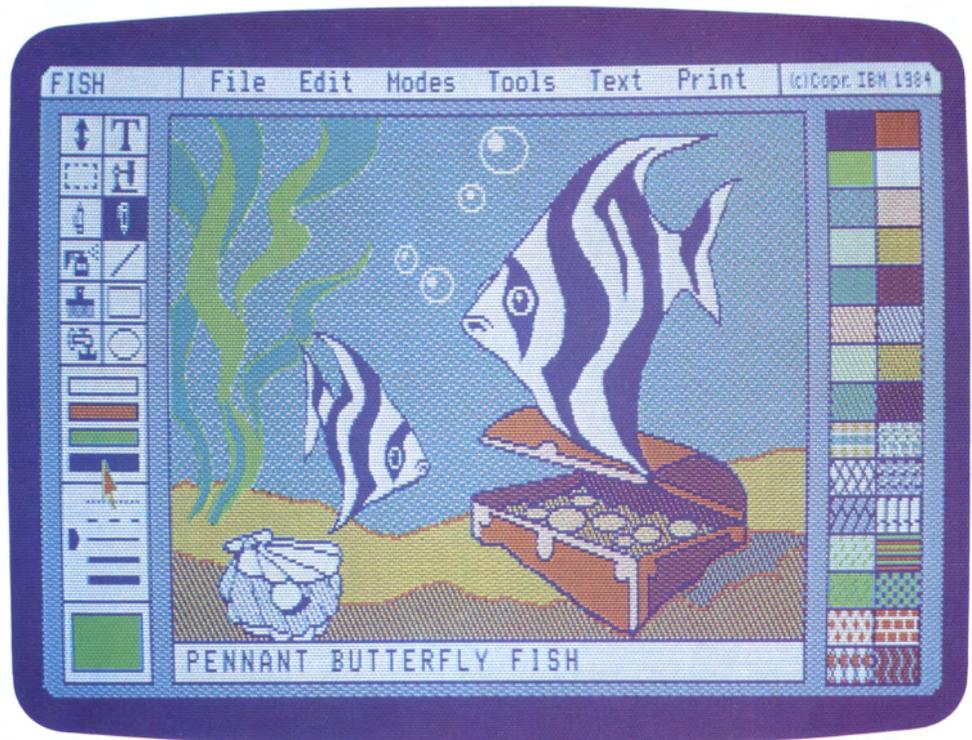
*IBM PC*jr* ColorPaint's vivid colors and flexible design capabilities add depth and realism to video artwork.*

Expand pictures. The program has a "zoom" option that lets you magnify and focus on any part of your drawing. This helps you see details more clearly when refining, changing or updating your artwork.

Add text to drawings. IBM PC*jr* ColorPaint lets you produce different text styles with your PC*jr* Keyboard to complement your artwork. You can choose from four text fonts—each in a variety of styles and sizes.

Save and retrieve pictures. When you use IBM PC*jr* ColorPaint with PC*jr*s that have a diskette drive, you can: save, restore or delete picture files; merge parts of saved pictures into new ones; save stock drawings to be used another time.

What you get. The IBM PC*jr* ColorPaint software package includes:
• Program Cartridge
• Users' Reference Guide
• Product Booklet

System requirements: A minimum of 128KB of user memory, a color display or TV, a mouse pointing device, and a PC*jr* Adapter Cable for Serial Devices (where applicable). The IBM Disk Operating System (DOS) 2.10 or higher is required for a PC*jr* equipped with a diskette drive.

[1]*ColorPaint by Marek and Rafal Krepec Inc.*
[2]*Mouse pointing devices are not part of the IBM Personal Computer offering and must be purchased separately. Microsoft Corp. or Mouse Systems mouse pointing devices are supported; mouse pointing devices that operate differently from these will need appropriate device driver software to start the program.*

Home Budget and Home Budget, *jr*

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

Home Budget

`AT` `XT` `PC` `PPC`

Balance your budget with computer ease. Home Budget provides you with a simplified, systematic way to make budgeting decisions.

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 can 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 can 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.

Home Budget at a glance...

You don't have to be a CPA.	Even without bookkeeping or accounting experience, you should be able to use Home Budget quickly and effectively.
Take advantage of many functions.	Use keyboard functions to record refunds, payments, expenses, account transfers, and more.
Create your own accounts for income and expenses.	Then enter, view and change your accounts as needed.
Balance your budget.	Determine exactly how much you've spent in each account and what you have left; Home Budget does all the math for you.
Keep tabs on your spending.	Rely on Home Budget to tell you on a monthly or yearly basis when you've gone over budget.
Maintain a complete expense history.	Check budget status information and make month-to-date and year-to-date comparisons.
Revise the expense accounts you create.	Adjust them monthly or yearly and print new status reports with revised totals.

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 to symbols on your IBM Personal Computer AT, IBM PC XT, IBM PC or IBM *Portable* PC Keyboard. For example, the 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.

Home Budget and
Home Budget, *jr*

```
--------------BUDGET STATUS---------
              AS OF 10/18

      M  O  N  T  H    T  O    D  A  T  E

ACCOUNT        BUDGET      ACTUAL     ACCOUNT
NAME           AMOUNT      SPENT      BALANCE
----------------------------------------------
FOOD           300.00       92.95     207.05
AUTO           125.00      201.75      76.75-
MISC           300.00      107.13     192.87
MORTGAGE       300.00      300.00       0.00
UTILITY        200.00       98.46     101.54
INSURE          75.00        0.00      75.00
MEDICAL         50.00        0.00      50.00
SAVINGS        100.00        0.00     100.00
CLOTHES         50.00        0.00      50.00



TOTALS ...Press any key (Esc to quit)
```

With Home Budget, jr, *you can create up to 47 separate accounts to track your monthly income and expenses.*

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 8,000 entries may be recorded on a double-sided 360KB-capacity[1] diskette, which provides the average household with the capability to maintain 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 budget changes as needed. 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 such expenses as baby-sitting, travel, entertainment, cleaning, housekeeping services or golf fees exceed what you might normally include in miscellaneous, you can enter them in separate accounts. By doing so, you may be able to gain greater control over such expenses in the future.

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, an 80-column display, and the IBM Disk Operating System (DOS). A minimum of 128KB is required for DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. Neither the program nor its data files can be stored on a fixed disk. To make the most effective use of Home Budget, you may want to add an IBM Graphics Printer with a printer interface, and a second diskette drive.

Home Budget, *jr* AT XT PC PPC PCjr

This version of Home Budget was created for use on the IBM PC*jr* but can be used on other IBM Personal Computers as well. All operations are custom-tailored to the IBM PC*jr* Keyboard. What's more, you can create up to 47 new accounts, enter data, and more while using only one diskette drive.

What you get. The Home Budget, *jr* software package includes:
• Program Diskette
• Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one diskette drive, a display or TV, and the IBM Disk Operating System (DOS) 2.10 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; IBM PC*jr* BASIC is required for operation on the IBM PC*jr*. This program and its data files can be stored on a fixed disk.

[1] *The IBM Disk Operating System (DOS) 2.00 or higher increases the formatted capacity of 320KB diskettes to 360KB.*

Education Family
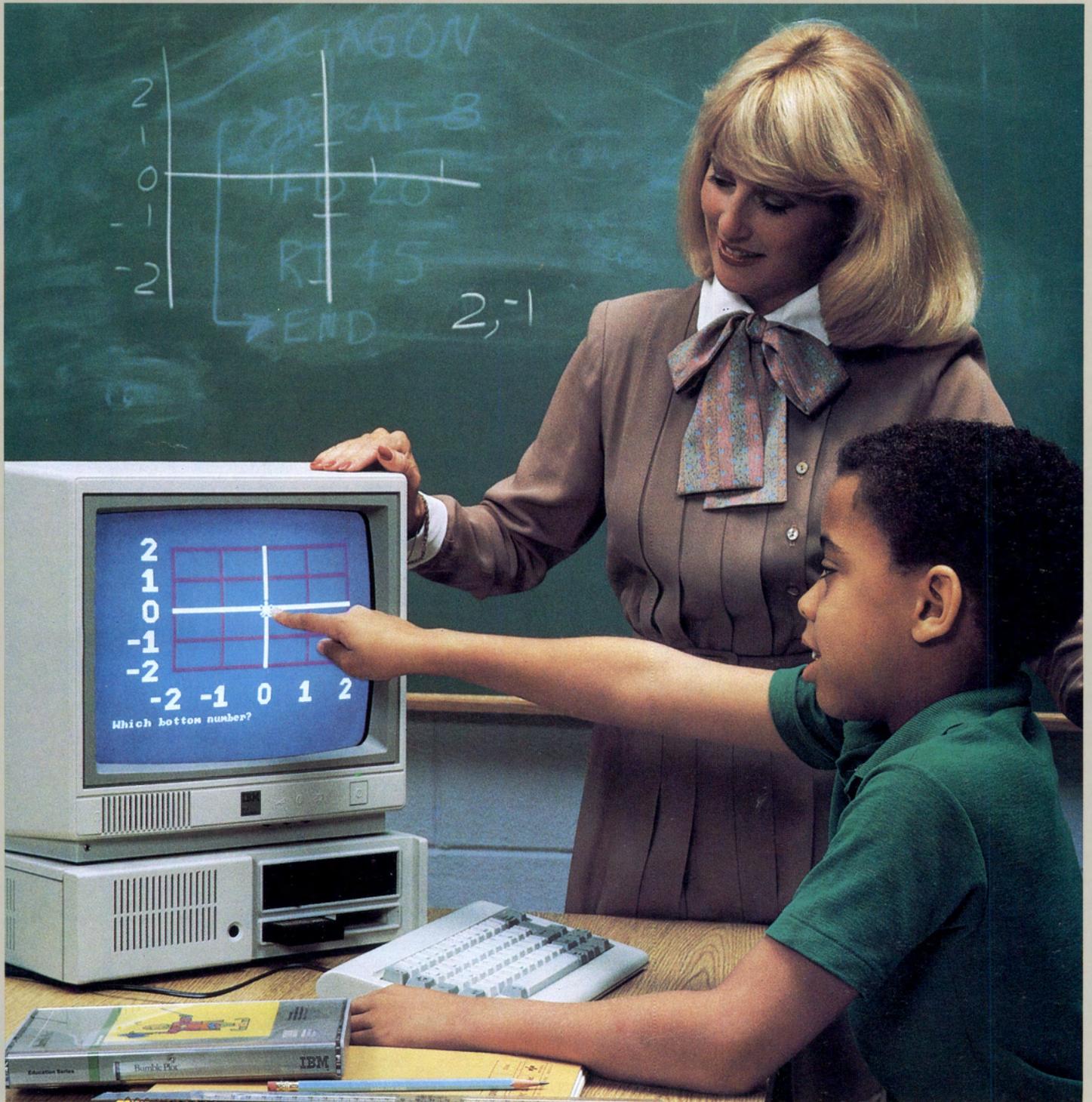
Logo
by Logo Computer Systems, Incorporated

A powerful programming language that's simple enough for children

AT XT PC

PPC PCjr

Logo[1] is flexible, interactive and easy to use. Logo is a unique educational language simple enough for computer novices to master yet powerful enough to help programmers solve complex problems.

With the Logo Language Interpreter, you can develop learning tools such as tutorials and demonstrations and develop applications using graphics, mathematics, text handling, file manipulation and assembly subroutines.

Logo simplifies program development. Logo's innovative turtle graphics, interactive instructions and easy-to-follow directions make it simple to use Logo to develop programs . . . regardless of your age or previous computer experience.

Although it can simplify programming, Logo also offers the power needed to handle more complex procedures and programs.

This special IBM version of the Logo language offers a number of features that help you take advantage of the power and versatility of your personal computer from IBM. Among them:
- *Graphic editing.* You can change the colors of characters used in text or graphics.
- *Defining math accuracy.* The floating-point decimal arithmetic allows you to select an appropriate degree of accuracy for all mathematical calculations.
- *Switching screens.* Function keys make it easy to pass among screens.
- *File handling.* Advanced capabilities allow reading from and writing to data files as well as program files.
- *Full-screen editing.* Edit both Logo and ASCII files. An automatic backup file facility is also provided.
- *Assembly-language subroutines.* Logo's power enables it to handle subroutine calls.
- *"Dribble files".* Record every character displayed on the screen to help you analyze students'—and your own—progress.
- *Automatic loading.* STARTUP files help you begin immediately, without performing lengthy loading procedures.

- *Support for two displays.* Display text on a monochrome display,[2] graphics on a color display.
- *Support for joysticks and game paddles.[3]* Logo supports these game/graphics controls when you have an IBM Game Control Adapter attached to your personal computer.

How it works

Logo is procedural. As a procedural language, Logo teaches you programming with a series of small, logical steps. Each step can then be incorporated into a larger procedure, and these procedures can be combined to solve even more complex problems.

As each procedure is written, it becomes part of the program's overall knowledge, just as if it were a simple command. Whenever the problem reappears, it can be solved in seconds with just a few quick keystrokes.

Follow the friendly turtle. Logo uses a friendly graphic device, a "turtle", to introduce children to procedural thinking. The turtle is a triangular pointer that tracks its way across the screen in response to your directions. The turtle can be directed to draw squares, rectangles and other shapes. Once a shape is completed, it becomes part of the program and can be repeated as often as desired—and with only a single keystroke.

In this way, you learn how to create and link procedural "building blocks" to solve more complex problems.

Logo offers advanced file- and list-handling capabilities. Once you establish a procedure, you can store it in Logo's files for use whenever you need it. You can also create and modify data files.

Logo's list-handling capabilities are equally beneficial. Unlike other simple programming languages, Logo can perceive two types of information: *words* (strings of characters) and *lists* (data structures or segments). This versatility can help speed complex operations by

permitting you to work on larger modular segments instead of individual characters.

What's more, Logo doesn't restrict variables to one type of data. They can represent numeric values in one procedure or a list of words in another, depending on your programming needs.

Logo works with you at every step. Logo is interactive; it responds directly to you. Via the display screen, it can carry on a step-by-step exchange to answer commands or prompt you to the next step. And, if you make an error, Logo's error messages are helpful in describing what went wrong.

The easy-to-follow Users' Reference Manual, a Users' Quick Reference Card, and the step-by-step introduction to turtle graphics help you get going and keep going. And a set of function key decals helps you identify and locate Logo's special command keys.

What you get. The Logo software package includes:
- Program Diskette (includes DOS 2.00)
- Users' Reference Manual
- Users' Quick Reference Card
- Turtle Graphics Manual
- Set of Function Key Decals

System requirements: A minimum of 128KB of user memory and one diskette drive, and a display.[4] The IBM Disk Operating System (DOS) 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

[1] *Logo is a product of Logo Computer Systems, Incorporated.*
[2] *The IBM PCjr does not support the IBM Monochrome Display.*
[3] *Game paddles are not part of the IBM Personal Computer offering and must be purchased separately.*
[4] *A color display—with an appropriate adapter—is required to support turtle graphics, since the IBM Monochrome Display, a TV set, or a composite color monitor may not produce true color images.*

Programs that make learning an entertaining experience

Ideal for use in school or at home

Turtle Power   `XT` `PC` `PPC` `PCjr`

Here's an affordable learning program to help children become computer literate. The program has a "computer drawing board" that allows children to create video art and music by using simple commands. They even learn to use the program's full-screen editor to write, review and change programs to store their artwork.

The program's Logo turtle graphics, color and sound effects help stimulate young imaginations and speed learning.

What you get. The Turtle Power software package includes:
• Program Diskette
• Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, and a color display or TV. This program cannot be stored on a fixed disk.

Karel the Robot and Karel the Robot Textbook   `XT` `PC` `PPC` `PCjr`

Karel the Robot charms children into learning simple computer programming concepts. Students master the concepts as they maneuver the friendly robot through a grid of avenues and streets and react to obstacles that block Karel's path. A different programming concept is emphasized in each of the program's five basic segments. Students control the robot's movements by giving simple commands in a structured language similar to Pascal (examples: MOVE, TURNLEFT, PICKBEEPER). They then watch what happens as Karel follows the commands.

Included with Karel the Robot is an easy-to-understand textbook. It is also available separately for individual study both inside and outside the classroom. This primer for programming contains definitions, concepts and sample problems that can help speed students' learning.

With Karel the Robot and the accompanying textbook, students can learn how to break a task down into its simplest elements—the essence of programming.

What you get. The Karel the Robot and Textbook software package includes:
• Program Diskettes (3)
• Users' Reference Guide
• Users' Quick Reference Card
• Textbook: *Karel the Robot: A Gentle Introduction to the Art of Programming* by Richard E. Pattis (New York: John Wiley and Sons, 1981)

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive (two are recommended), a display, a printer (optional), and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 2.10 or higher is required for operation on the IBM *Portable* PC and IBM PC*jr*.

Rocky's Boots™   `AT` `XT` `PC` `PPC` `PCjr`

Rocky's Boots™ is a challenging program that teaches computer logic and circuitry.

Players learn to build logic machines using simulated computer circuits—the basic building blocks of computers.

The program features 39 games designed to stimulate thinking in children and adults. Players can also create their own games.

What you get. The Rocky's Boots software package includes:
• Program Diskette
• Users' Reference Manual
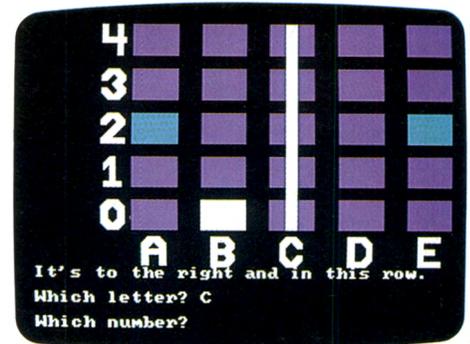
With Bumble Games, four- to ten-year-olds can improve their math skills while searching for a butterfly hidden in the grid.

System requirements: A minimum of 128KB of user memory and one diskette drive, and a color display or TV. DOS 3.00 is required for operation on the IBM Personal Computer AT. This program cannot be stored on a fixed disk.

Bumble Games™   `AT` `XT` `PC` `PPC` `PCjr`

Bumble Games™ is a fun-packed educational software package designed to help children aged 4 to 10 improve their math skills.

It includes six programs that use a game format—complete with color graphics, sound effects and music—to teach students how to plot a graph and to understand such math concepts as "greater than" and "less than." Bumble Games even helps children learn how to design color graphics.

Programs for learning

What you get. The Bumble Games
software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 64KB of
user memory and one diskette drive, and a
color display or TV. A minimum of 128KB
of user memory and DOS 3.00 are required
for operation on the IBM Personal Computer
AT; a minimum of 128KB of user memory
and IBM PC*jr* BASIC are required for opera-
tion on the IBM PC*jr.* This program cannot
be stored on a fixed disk.

Bumble Plot™   AT XT PC PPC PC*jr*

Bumble Plot™ is a set of five entertaining
programs designed to help children aged 8
to 13 learn mathematics and computer skills.

Among the skills covered: how to use posi-
tive and negative numbers to name grid
points, how to plot numbers to understand
and build computer charts and graphs and
to locate places on a map, and how to design
computer graphics.

Music and sound effects enhance the learn-
ing experience; so do color graphics.

What you get. The Bumble Plot software
package includes:
• Program Diskette
• Users' Instruction Booklet
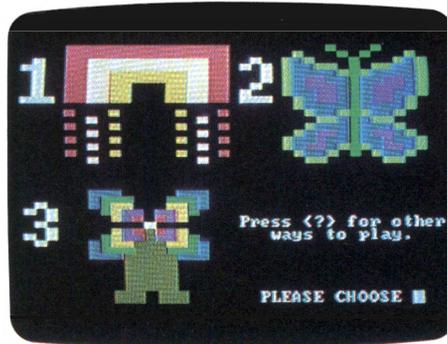
*Juggles' Butterfly challenges—and entertains—young chil-
dren with a variety of colors, shapes and game choices.*

System requirements: A minimum of 64KB
of user memory and one diskette drive, and
a color display or TV. A minimum of 128KB
of user memory and DOS 3.00 are required
for operation on the IBM Personal Computer
AT; a minimum of 128KB of user memory
and IBM PC*jr* BASIC are required for opera-
tion on the IBM PC*jr.* This program cannot
be stored on a fixed disk.

Juggles'   AT XT PC PPC PC*jr*
Butterfly™

Juggles' Butterfly™ is a set of three educa-
tional programs designed to help 3- to 6-
year-olds begin to develop reading and
math skills. The programs concentrate on
teaching spatial concepts with the help of
Juggles, a colorful clown. Music and sound
effects help maintain the children's interest.

What you get. The Juggles' Butterfly
software package includes:
• Program Diskette
• Keyboard Template (for IBM PC*jr*)
• Users' Instruction Booklet

System requirements: A minimum of 64KB of
user memory and one diskette drive, and a
color display or TV. A minimum of 128KB
of user memory and DOS 3.00 are required
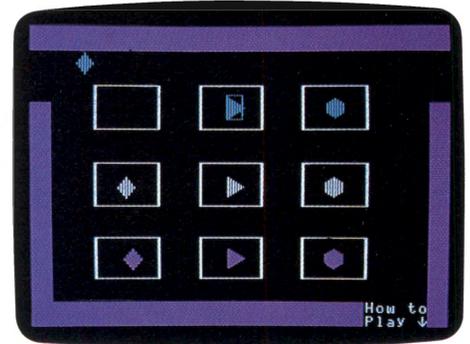
*Solving puzzles is a colorful sight-and-sound experience
for children who play Gertrude's Puzzles.*

for operation on the IBM Personal Computer
AT; a minimum of 128KB of user memory
and IBM PC*jr* BASIC are required for opera-
tion on the IBM PC*jr.* This program cannot
be stored on a fixed disk.

Gertrude's   AT XT PC PPC PC*jr*
Puzzles™

Gertrude's Puzzles™ helps children exercise
their powers of reasoning as they attempt to
solve a variety of puzzles.

Gertrude teaches logic skills by asking chil-
dren to build color and shape patterns with
puzzle pieces of different shapes, sizes and
colors. To do it correctly, the children must
follow a given rule—or learn Gertrude's
"secret" rule.

Eight- to thirteen-year-olds will be fasci-
nated with the challenges awaiting them in
six different puzzle rooms featured in the
game. The accompanying music and sound
effects will add to their fun.

What you get. The Gertrude's Puzzles software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one diskette drive, and a color display or TV. DOS 3.00 is required for operation on the IBM Personal Computer AT.

Gertrude's Secrets™   `AT` `XT` `PC` `PPC` `PCjr`

Gertrude's Secrets™ uses a gentle, animated goose character to teach young children how to organize and plan ahead.

Gertrude the goose is a "go-getter" who fetches game pieces of assorted colors and shapes. Children solve puzzles by arranging these pieces by a given rule—or by guessing Gertrude's "secret" rule.

Four- to ten-year-olds will delight in sending Gertrude flying off for a new set of shapes each time they begin to play. And they can learn to create their own special shapes, too.

What you get. The Gertrude's Secrets software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one diskette drive, and a color display or TV. DOS 3.00 is required for operation on the IBM Personal Computer AT.

Adventures in Math   `XT` `PC` `PPC` `PCjr`

Learning math can be lots of fun for children who find themselves lost in a castle loaded with hidden treasure. To find the way out—and to uncover as many treasures as possible along the way—children have to solve basic math problems.

This unique program package incorporates math drills into an action-packed adventure game with vivid color graphics of a castle, its passageways and treasures. The program's difficulty level increases as children solve math problems.

What you get. The Adventures in Math software package includes:
- Program Diskette
- Users' Instruction Card

System requirements: A minimum of 64KB of user memory and one diskette drive, and a color display or TV. A minimum of 128KB of user memory and IBM PC*jr* BASIC are required for operation on the IBM PC*jr.* When this program is stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required.

Monster Math   `XT` `PC` `PPC` `PCjr`

Monster Math turns math drills into challenging games. The program features colorful graphics and electronic sound effects to help make learning math enjoyable.

Programs for learning

Monster Math offers six different levels and five different kinds of drills—addition, subtraction, multiplication, division or a random mixture of all four.

By solving problems, students make a menacing monster disappear from the screen.

After each 60-second round, each student receives a score. The time clock becomes a scoreboard that displays both that round's score and the student's best score in the current session.

What you get. The Monster Math software package includes:
• Program Diskette
• Users' Instruction Card

System requirements: A minimum of 64KB of user memory and one diskette drive, and a color display or TV. A minimum of 128KB of user memory and IBM PC*jr* BASIC are required for operation on the IBM PC*jr*.

Typing Tutor   XT PC PPC

Typing Tutor is a fast and easy way to improve typing speed and accuracy. The program constantly monitors your progress, then creates drills specifically tailored to your skill level.
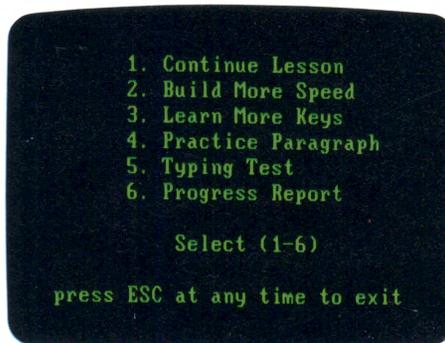
Typing Tutor enables users to select the drills they want to concentrate on.

Typing Tutor can teach touch-typing to a beginner, sharpen the skills of an out-of-practice typist, and even improve the speed and accuracy of a good typist.

What you get. The Typing Tutor software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 48KB of user memory and one diskette drive, a display, and the IBM Disk Operating System (DOS). A minimum of 64KB of user memory is required for DOS 2.00 or higher. DOS 2.10 or higher is required for operation on the IBM *Portable* PC. Neither the program nor its data files can be stored on a fixed disk.

BASIC Primer   XT PC PCjr
Version 2.00

BASIC Primer is a helpful software package that teaches the popular BASIC programming language to beginners. It shows the user how to write and edit BASIC programs on IBM Personal Computers.

The program provides the user with an "electronic workbook" filled with lessons that combine keyboard practice with easy-to-follow BASIC programming exercises.

What you get. The BASIC Primer software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 2.10 or higher is required for operation on the IBM PC*jr*.

BASIC Made Easy   PCjr

BASIC Made Easy is a manual developed for IBM PC*jr* users who are new to the BASIC language.

Simple examples and colorful pictures take you inside PC*jr*—to its built-in Cassette BASIC language—where you'll find commonly used commands, statements and functions. Even if you're a first-timer, you can learn to write programs in BASIC during the very first lesson... then proceed at your own pace.

What you get. *BASIC Made Easy* is a stand-alone product.

System requirements: A color display or TV. For a few advanced topics, the IBM PC*jr* BASIC cartridge and DOS 2.10 are required.

Learning to Use DOS 2.00   `XT` `PC` `PPC`

Learning to Use DOS 2.00, an instructional manual for the IBM Disk Operating System (DOS) 2.00, takes you step by step through the most common DOS 2.00 commands.

The manual starts with the fundamentals of DOS, then moves on to more sophisticated subjects, such as how to use DOS 2.00 with a fixed disk and how to tell the difference between DOS 2.00 and DOS 1.10.

What you get. *Learning to Use DOS 2.00* is a stand-alone product.

System requirements: A minimum of 64KB of user memory and one diskette drive, an 80-column display, and the IBM Disk Operating System (DOS) 2.00 or higher. A minimum of 128KB of user memory is required for operation on the IBM PC XT. A minimum of 128KB of user memory and DOS 2.10 or higher are required for operation on the IBM *Portable* PC. A fixed disk drive is required for the lessons in the fixed disk drive chapter.

Private Tutor Version 2.00   `AT` `XT` `PC` `PPC` `PCjr`

Private Tutor Version 2.00 can make instruction more dynamic and learning more fun. This program turns your IBM Personal Computer into an instructor that gives lessons, drills and quizzes. It also features a record-keeping system for tracking students' progress.

The Private Tutor package includes a double-sided diskette with programs for running Private Tutor courseware and for creating your own courses.

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, and the IBM Disk Operating System (DOS) 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

Here are four Private Tutor Courses:

Learning DOS 2.00   `AT` `XT` `PC` `PPC` `PCjr`

Learning DOS 2.00 introduces students to the IBM Disk Operating System (DOS) 2.00. It explains how to set up and manage files on diskettes and fixed disks as well as how to use DOS commands effectively.

In addition, the program demonstrates the setting up of directories and frequently used files of DOS commands or programs.

Learning DOS 2.00 illustrates DOS operations clearly through simple graphics and on-screen directions.

What you get. The Learning DOS 2.00 software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, a Private Tutor diskette, and the IBM Disk Operating System (DOS). DOS 3.00 is required for operation
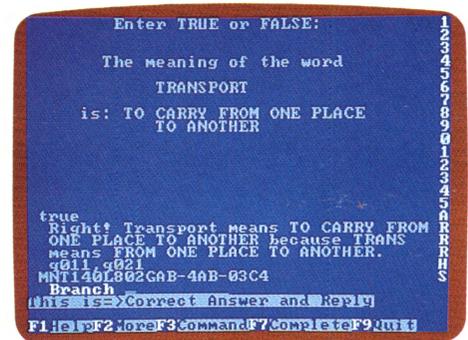
Words take on new meaning for students who improve their vocabulary with Private Tutor's true/false quizzes.

on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

Learning to Program in BASIC   `AT` `XT` `PC` `PPC` `PCjr`

This Private Tutor course teaches BASIC programming skills in a systematic way. Clear graphics and on-screen directions lead the user step by step through the course.

In the process, the user learns how to use special features of IBM PC BASIC to program more efficiently.

Programs for learning

What you get. The Learning to Program in BASIC software package includes:
- Program Diskettes (2)
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, a Private Tutor diskette, and the IBM Disk Operating System (DOS). DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

Multiplication Tables   AT XT PC PPC PCjr

This Private Tutor course relies heavily on on-screen practice and quizzes to teach children the multiplication tables.

Multiplication Tables incorporates colorful graphics, geometric shapes and musical tunes to make the learning experience interesting and challenging.

Since no previous computer experience is required for this course, even relatively young children can develop computer literacy while learning their multiplication tables.

What you get. The Multiplication Tables software package includes:
- Program Diskettes (4)
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, a Private Tutor diskette, and the IBM Disk Operating System (DOS). DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

Computers and Communications   AT XT PC PPC PCjr

Computers and Communications was designed to teach users how to use their IBM Personal Computers as part of a dynamic communications system.

This Private Tutor course provides lessons on the following subjects:
- *Networks*—shows the networks to which you can connect your IBM PC.
- *Hardware*—discusses the equipment you'll need to use your IBM PC as a communications device.

- *Software*—teaches you about the software programs required to communicate.
- *Controls*—explains three levels of computer communications and how to control each.

Although the Computers and Communications course is easy to follow and learn, it is sophisticated enough to be included in upper-level computer education curricula.

What you get. The Computers and Communications software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display or TV, a Private Tutor diskette, and the IBM Disk Operating System (DOS). DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 is required for operation on the IBM *Portable* PC and the IBM PC*jr.* This program and its data files can be stored on a fixed disk.

Entertainment Family

Programs for fun and relaxation

*Many feature animation
and sound effects*

*In King's Quest, you must face treacherous villians
and numerous obstacles in your quest for three magical
rewards.*

King's Quest   PCjr

Go on an exciting, fun-filled adventure in
the days when knights were bold and brave—
and add a new dimension to game playing
on your IBM PC*jr*.

With King's Quest, an animated 3-D game,
you control the action as you are sent forth
on a mission by the king—in a land where
dragons and witches abound. In the guise of
that valiant knight, Sir Grahame, you must
plot a path in quest of three magical rewards,
facing dastardly villains and cantankerous
creatures with every step you take.

What you get. The King's Quest software
package includes:
• Program Diskette
• Keyboard Template
• Users' Instruction Booklet

System requirements: A minimum of 128KB
of user memory and one double-sided disk-
ette drive, and a color display or TV. This
program cannot be stored on a fixed disk.

Animation   AT XT PC PPC PCjr
Creation

Draw your own pictures and watch them
come to life with Animation Creation, a
stimulating entertainment package.

To "draw" the pictures, you select from 254
computer characters, then position them on
your display screen. Add color by choosing
any of 16 foreground and 8 background
colors. Then, by slightly repositioning the
images, you can create animation.

You can play back the animation sequence at
different speeds. You can even save each
sequence on diskette to enjoy your anima-
tion creation over and over again.

What you get. The Animation Creation
software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 64KB of
user memory and one diskette drive, and a
color display or TV. A minimum of 128KB
of user memory and DOS 3.00 are required
for operation on the IBM Personal Computer
AT. When this program and its data files are
stored on a fixed disk, a minimum of 128KB
of user memory and DOS 2.00 or higher are
required.

ScubaVenture   PCjr

Go on a fun-filled, deep-sea treasure hunt
with your IBM PC*jr*. In ScubaVenture, a fast-
paced game package, you dive in search of
untold riches nestled in the fathoms below.

Dive by yourself or with another...and
watch out! Dangerous creatures concealed in
the murky deep thrive on daredevil divers.
Strong currents and jagged coral reefs make
your search even more treacherous.

Your score increases with each treasure you
find and each rare fish collected.

**What you get.** The ScubaVenture software
package includes:
• Program Cartridge
• Users' Instruction Booklet

System requirements: A minimum of 64KB of
user memory and a color display or TV. This
program cannot be stored on a fixed disk.

Adventure   AT XT PC PPC PCjr

Adventure will lead you into the deepest
part of the forest in search of a mysterious
cave filled with hidden treasures.

True adventurers cannot resist its challenge,
though they know that the cave also harbors
terrifying monsters and hazards.

This fantasy/logic game offers you the
chance to explore uncharted territory—with
all its enticement and danger—without
having to leave your living room.

What you get. The Adventure software
package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 32KB
of user memory and one diskette drive, and
a color display or TV. A minimum of 128KB
of user memory is required for operation on
the IBM Personal Computer AT; a minimum
of 64KB of user memory is required for
operation on the IBM PC*jr*. This program
cannot be stored on a fixed disk.

Mouser   PCjr

De-mouse a farmhouse by playing Mouser,
a fast-paced game featuring vivid graphics.

Create traps with the house's movable walls.
The more mice you catch in the allotted
time, the higher your score. But be careful!
The mice can multiply, hide in the dark,
and even bite.

You can share the fun with another player and, as your skills and speed improve, you can move on to a more difficult level and become a master mouser.

What you get. The Mouser software package includes:
• Program Cartridge
• Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and a color display or TV. This program cannot be stored on a fixed disk.

One-Hundred-and-One Monochrome Mazes `XT` `PC`

You'll embark on an a-maze-ing journey when you play One-Hundred-and-One Monochrome Mazes. This game of logic challenges you to find the way through your choice of 101 labyrinths. It allows you to start with an easy maze and keep progressing to harder ones to test your skills.

There's more to getting through these mazes than just choosing the correct routes. You've got to be ready to jump over black pools, react to pop-up walls, and avoid the trap doors that obstruct your path.

What you get. The One-Hundred-and-One Monochrome Mazes software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, and an IBM Monochrome Display and IBM Monochrome Display and Printer Adapter card. When this program is stored on a fixed disk, 96KB of user memory and the IBM Disk Operating System (DOS) 2.00 or higher are required.

▲
In Mine Shaft, crazed robot miners stand between you and a fortune in precious diamonds.

Mine Shaft `PCjr`

You're so close to the diamonds you can almost see them glitter. So close yet so far away. Ever since you drilled into that underground stream, you've run into nothing but trouble. The resulting flood short-circuited your dependable team of robot miners, and now they're running amok.

You survived the flood, but will you survive against the runaway robots to enjoy all those diamonds? Find out by playing Mine Shaft, a fast-paced game for the whole family.

What you get. The Mine Shaft software package includes:
• Program Cartridge
• Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and a color display or TV. This program cannot be stored on a fixed disk.

Adventure in Serenia `AT` `XT` `PC` `PPC` `PCjr`

Mystery and danger abound as you seek to rescue the beautiful Princess Priscilla, who has been kidnapped from Serenia by the wicked Wizard Harlin. She has been locked away in his remote castle hidden behind the
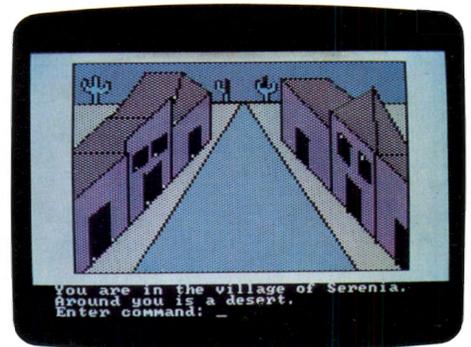
▲
Your adventure begins in peaceful Serenia—but untold dangers await you just north of the village.

mountains to the north. Of course, you must travel to this enchanted land to rescue her.

It won't be easy. To reach the castle, you must cross deserts, swim oceans, climb mountains, learn magic, dig for treasure, and fend off deadly snakes and scorpions. They're all part of your Adventure in Serenia.

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, and a color display or TV. A minimum of 128KB of user memory is required for operation on the IBM Personal Computer AT; a minimum of 64KB of user memory is required for operation on the IBM PCjr. This program cannot be stored on a fixed disk.

Casino Games 1.05 `AT` `XT` `PC` `PPC` `PCjr`

Beat the odds in the alluring world of chance. Pit your skill against the house. Go for a showdown against the dealer. Cup your hands for a payoff from a one-armed bandit. Casino Games creates a fast-paced, competitive casino atmosphere in which you can test your skill against the odds.

Programs for fun
and relaxation

Take your chances at three of the most popular casino games—Blackjack, Poker and Slot Machine. The only thing missing is the financial risk.

What you get. The Casino Games software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, and a color display or TV. A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. DOS 2.10 or higher and the IBM PC*jr* BASIC cartridge are required for operation on the IBM PC*jr*. When this program is stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required.

Strategy Games 1.05   `AT` `XT` `PC` `PPC` `PCjr`

Add Strategy Games to your IBM software library to challenge your reasoning powers. Choose from four exciting games to test your ability to devise the strategies and counter-strategies necessary to emerge victorious over a friend or the computer.

The Strategy Games package contains four challenging games—a beginner's version of Checkers; Elusion, a capture-the-squares adaptation of Checkers; Battleship, the search-and-destroy war at sea; and Reversi, a cousin of Chinese Checkers.

What you get. The Strategy Games software package includes:
• Program Diskette
• Users' Instruction Booklet
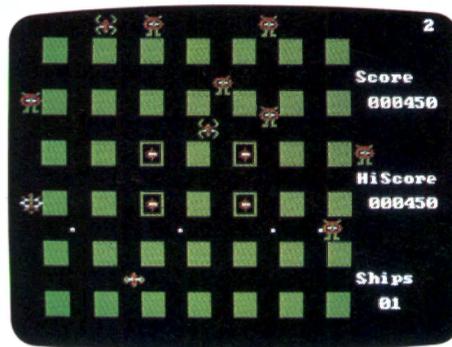
In Crossfire, insects are attacking your city; it takes quick reflexes to repel them.

System requirements: A minimum of 64KB of user memory and one diskette drive, and a color display or TV. A minimum of 128KB of user memory and DOS 3.00 are required for operation on the IBM Personal Computer AT. A minimum of 128KB of user memory and the IBM PC*jr* BASIC cartridge are required for operation on the IBM PC*jr*. When this program is stored on a fixed disk, a minimum of 96KB of user memory and DOS 2.00 or higher are required.

Crossfire   `PCjr`

A swarm of insects is attacking the city from all directions. Your mission: to protect the city with only three spaceships and a limited supply of insecticide missiles.

Your reward for annihilating the insects? Hero status for saving the city.

Quick reflexes and good hand-eye coordination are your greatest assets as you play Crossfire, an exciting game for the IBM PC*jr*.

What you get. The Crossfire software package includes:
• Program Cartridge
• Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and a color display or TV. This program cannot be stored on a fixed disk.
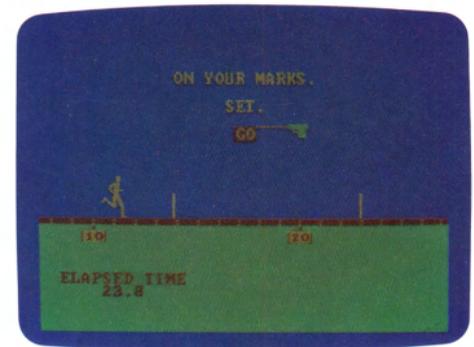
Part of the fun and challenge of Decathlon is controlling the movement of animated figures.

Decathlon   `XT` `PC` `PPC`

Find out if you are a world-class champion. Go for the gold, silver or bronze medals in this simulation of the famous track-and-field competition that has been called the truest test of an athlete: the decathlon.

In Decathlon, you'll run the 100-meter dash, leap the broad jump, put the shot, attempt the high jump, and race 400 meters. But that's only the half of it. You'll also compete in the 110-meter hurdles, the discus throw, the pole vault, the javelin throw, and the 1500-meter run. Let the games begin!

What you get. The Decathlon software package includes:
• Program Diskette
• Users' Instruction Booklet

System requirements: A minimum of 64KB of user memory and one diskette drive, and a color display. This program cannot be stored on a fixed disk.

Programming Family

IBM Personal Computer XENIX™

*An advanced operating system with
software for growth and development*

More power for the IBM Personal Computer AT. The IBM Personal Computer XENIX[1] System is an advanced operating system designed to maximize the power of the Personal Computer AT. An adaptation of the Bell Laboratories UNIX[1] System III, the XENIX System includes enhancements from both Microsoft and the University of California at Berkeley.

Because of its power and versatility, the system can benefit a number of disciplines, including engineering, science, programming, publishing, and more.

Three versatile packages. The IBM Personal Computer XENIX System consists of three packages:
• IBM PC XENIX Operating System
• IBM PC XENIX Software Development System
• IBM PC XENIX Text Formatting System

A multi-user, multi-tasking system. XENIX was designed to handle both single- and multi-user configurations on the IBM Personal Computer AT. It lets you run several programs at a time: You can compile a program in the background, for example, while editing another in the foreground. In addition, one or more users may use the system at the same time. Each user and the operating system have protected memory that provides system stability and integrity.

Co-resident with DOS. XENIX and the IBM Disk Operating System (DOS) can co-reside on a fixed disk. This enables you to choose the operating system best suited for specific projects.

The XENIX Operating System's root directory, shown above, provides a flexible working environment.

IBM PC XENIX Operating System

The IBM PC XENIX Operating System is a comprehensive program that can recognize more than 150 commands. In addition, it includes many standard features not found in other systems, such as: communications support, a full-screen editor, DOS file compatibility, two command interfaces (Bourne and Visual shells), file sharing protection, and access control.

Software support. The IBM PC XENIX Operating System offers a number of high-function features for running applications developed under the IBM PC XENIX Software Development System, including:
• Ease of installation
• Support of the maximum memory (up to 3MB) of the IBM Personal Computer AT
• File sharing protection to prevent unauthorized access to confidential files
• Support of the IBM 80287 Math Co-processor
• Berkeley extensions, including the Visual Screen Editor (vi)

What you get. The IBM PC XENIX Operating System software package includes:
- Program Diskettes (four 1.2MB)
- Basic Operations Guide
- Installation Guide
- System Administration
- Visual Shell
- Command Reference
- C Shell Command Interface[2]

System requirements: An IBM Personal Computer AT with a minimum of 512KB of user memory and a 1.2MB diskette drive, a 20MB fixed disk drive, and an IBM Monochrome Display, IBM Color Display, or equivalent (with an appropriate adapter.)

IBM PC XENIX Software Development System

The IBM PC XENIX Software Development System consists of a number of special tools to help you develop applications software. Among them:
- C Compiler optimized for 80286 CPU
- Source code management tools
- Language translators
- Assembler
- Program debug tool facility
- Linker for combining object code modules

C Compiler. A major feature of the Software Development System is the 286-optimized C Compiler, which supports three memory models. The largest of these models supports programs and data that require more than 64KB of memory.

In addition, the Software Development System contains a C Cross Development compiler facility to let you compile programs to run in either—or both—XENIX and DOS environments.

What you get. The IBM PC XENIX Software Development System software package includes:
- Program Diskettes (three 1.2MB)
- Software Development Guide
- C Compiler Reference
- Programmer's Guide to Library Functions
- Software Command Reference
- Assembler Reference

System requirements: An IBM Personal Computer AT with a minimum of 512KB of user memory and a 1.2MB diskette drive, a 20MB fixed disk drive, an IBM Monochrome Display, IBM Color Display, or equivalent (with an appropriate adapter), and the IBM PC XENIX Operating System.

IBM PC XENIX Text Formatting System

The IBM PC XENIX Text Formatting System is a highly sophisticated program that far exceeds the capabilities of standard personal computer word-processing programs. It enables you to create almost any custom document format by specifying the font type and point size, vertical spacing, line and page length, indentation, text centering and justification, margins and multicolumn output.

Special aids. The Text Formatting System checks documents for readability, word length, sentence complexity, spelling, and more. It can also assign a grade reading level to the text. In addition, the program helps you find better word choices; it even tells you why the word you've used is incorrect and suggests an alternative.

Advanced document preparation. The Text Formatting System contains a number of tools that aid in the development of reports, formal papers, documentation and memos. Among them:
- Simplified macro formatting packages (mm, mmt)
- Document format processors (nroff/troff)
- Mathematical symbol and equation formatting (eqn)
- Table formatting (tbl)
- Spelling verification (spell)
- Text entry via (ed) and (vi)

The Text Formatting System has two document format processors that accept text files with imbedded formatting commands as input, then output a formatted document to a line printer, a letter-quality printer, or a typesetter.

What you get. The IBM PC XENIX Text Formatting System software package includes:
- Program Diskette (one 1.2MB)
- Text Formatting Guide

System requirements: An IBM Personal Computer AT with a minimum of 512KB of user memory and a 1.2MB diskette drive, a 20MB fixed disk drive, an IBM Monochrome Display, IBM Color Display, or equivalent (with an appropriate adapter), and the IBM PC XENIX Operating System.

[1]*XENIX is a trademark of Microsoft Corporation. UNIX is a trademark of AT&T Bell Laboratories.*
[2]*A command interface between the user and the operating system that supports aliases and history mechanisms.*

Disk Operating System (DOS)
Version 3.00

The hardware/software link for IBM PCs

The IBM Disk Operating System (DOS) Version 3.00 is a master program that provides the required support between hardware for personal computers from IBM and a wide range of application programs.

DOS 3.00, an updated version of DOS 2.10, was developed to support the IBM Personal Computer AT and other IBM PCs that have 128KB or more of user memory.

DOS 3.00 highlights. DOS 3.00 provides all the functions contained in DOS 2.10 plus enhanced features, including:
- *VDISK*—a RAM disk that allows IBM Personal Computers to use part of memory for a virtual disk; supports extended memory (above 1MB) on the IBM Personal Computer AT.
- *Large Linker*—supports up to 1MB
- *BASIC Interpreter*—updated to support IBM Personal Computer hardware; provides additional access to device drivers and DOS from BASIC.
- *Screen Dump Utility Support*—for additional display interfaces and printers, including the IBM Personal Computer Color Printer.
- *Enhanced Error Recovery*—provides additional error-reporting facilities.
- *Block Locking*—helps restrict access to all or part of a file when the file is opened in a shared mode.
- *New Interrupt 21H Functions*—provide enhanced file management.
- *Background Print* (modified version of DOS 2.10 Print)—supports path specifications and an internal programming interface.

In addition, new DOS 3.00 commands include:
- SELECT and COUNTRY—to provide international keyboard support.
- ATTRIB—to allow you to set file attributes to read only or view the attribute.
- LABEL—to allow you to add, change or delete a disk volume label.

Other DOS versions and their functions. DOS 2.10, an updated version of DOS 2.00, was developed to provide support for the IBM *Portable* Personal Computer and the IBM PC*jr* as well as the IBM PC XT and IBM PC. DOS 2.00 maintains one or two fixed disk drives on the IBM PC XT and IBM PC. DOS versions 1.10 and 1.00 support one or more diskette drives on the IBM PC.

All DOS versions provide the capability to manage files on diskettes. DOS supports one or more 5¼-inch, 320KB double-sided diskettes; DOS 2.00 and higher increase their formatted capacity to 360KB, thus allowing more information to be stored on each data diskette. In addition, DOS 3.00 supports 1.2MB diskette drives on the IBM Personal Computer AT.

DOS offers you fast input/output performance so that most diskette operations can 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 3.00 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 or the FORTRAN, COBOL, BASIC or Pascal Compiler.

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 can then be loaded and run on personal computers from

IBM. 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 can also designate a single program or a series of programs to begin automatically whenever the system is turned on or restarted.

Disk and Advanced BASIC. By providing a high-level interface for the IBM Personal Computer AT, IBM PC XT, IBM PC and IBM *Portable* PC, DOS brings you numerous programming-language capabilities.

Disk and Advanced BASIC are extensions of the BASIC language that comes with every personal computer from IBM. (IBM PC*jr* BASIC—a separate, optional cartridge—provides this support for the PC*jr.*) These extensions contain 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 and paint tiling—plus music and other capabilities. Both extensions also offer tree-structured directories (that also support DOS tree-structured directories) and double-precision transcendental functions.

A higher memory requirement. DOS 3.00, 2.10 and 2.00 offer functions not available in earlier DOS versions and, therefore, have a higher user memory requirement (DOS 3.00 is approximately 24KB larger and DOS 2.10 and 2.00 approximately 12KB larger than DOS 1.10). Most DOS 1.00 and 1.10 programs, however, should run under DOS 3.00, 2.10 or 2.00 without change.

Since higher levels of DOS use more memory, some programs may no longer be able to fit in the same size machines. These programs still will require the same amount of user memory but, with DOS 3.00 or 2.10 taking more memory, the amount remaining

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
DATE$—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
MID$—substring substitution statement
MKDIR—make directory
NEXT—end FOR loop
ON COM/KEY/PEN/STRIG...GOSUB—interrupt by given event to BASIC subroutine
ON ERROR GOTO—enable error-trapping routine
ON...GOSUB—standard computer GOSUB statement
ON...GOTO—standard computer GOTO statement
OPEN—open a disk or communication file
OPTION BASE—allow array subscripts to start at 0 or 1
OUT—output a byte to a port
PAINT—fill an area of the graphics screen with color
PEN ON/OFF/STOP—enable/disable activation of ON PEN GOSUB
PMAP—map physical and world coordinates
POKE—put a specified value into a byte
PRINT—print to video display or file
PRESET—plot a graphics point in the background color
PSET—plot a graphics point in a given color
PUT (disk I/O)—write a record to a random-access file
PUT (graphics)—draw a stored image onto the graphics screen
RANDOMIZE—start a new pseudo-random number sequence
READ—read information from DATA statements
REM—standard remark statement
RESTORE—reset pointer to DATA statements
RESUME—return from an error routine
RETURN—return from a subroutine
RMDIR—remove directory
RSET—right-justify a string within a field
SCREEN—choose text or graphics screen for video display
SOUND—generate sound from the speaker
STOP—stop program execution
STRIG ON/OFF—enable/disable joystick button
STRIG...ON/OFF—enable/disable activation of ON STRIG...GOSUB
SWAP—exchange the values of two variables
TIME$—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
DOS 3.00 BASIC functions

ERDEV and ERDEV$—device error variables that allow reading of INT24 error codes
ENVIRON and ENVIRON$—to modify/retrieve parameters from BASIC's environment table
IOCTL and IOCTL$—allow BASIC to send/read control data to a device driver
SHELL—to execute DOS commands and run child processes from BASIC

for the programs will be less. In these cases, a program may have to be divided into segments, or more memory may have to be added to the system.

What you get. The IBM Disk Operating System Version 3.00 includes:
• DOS Diskettes (2)
• Users' Reference Manual
• Users' Guide
• Application Setup Guide

System requirements: A minimum of 96KB of user memory and one diskette drive, and a display. A minimum of 128KB of user memory is required for operation on the IBM *Portable* PC, the IBM PC*jr*, and systems with a fixed disk drive.

DOS-supported languages

A selection of programming tools

BASIC Compiler `AT` `XT` `PC` `PPC` `PCjr`

The BASIC Compiler permits you to run BASIC programs—written and tested with the BASIC Interpreter—on your personal computer from IBM. 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. The BASIC Compiler software package includes:
• 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. A minimum of 128KB of user memory is required for DOS 2.10 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*. A minimum of 128KB of user memory and DOS 2.00 or higher are required for fixed disk storage.

Macro Assembler `AT` `XT` `PC` `PPC` `PCjr`
Version 2.00

The IBM Personal Computer Macro Assembler is an optional software product that offers you the capability to develop and assemble programs. Assembler-produced programs can 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 can 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. The Macro Assembler 2.00 software package includes:
• Macro Assembler Diskette
• Macro Assembler Manual

System requirements: A minimum of 96KB of user memory and one diskette drive, and DOS 1.10 or higher. A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*. DOS 2.00 or higher is required for fixed disk storage.

FORTRAN `AT` `XT` `PC` `PPC`
Compiler
Version 2.00

As a FORTRAN user, you can take advantage of the power of DOS to develop and run FORTRAN programs. The FORTRAN Compiler[1] for personal computers from IBM is an optional software product that enables you to develop programs in a subset 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. The FORTRAN Compiler 2.00 software package includes:
• FORTRAN Compiler Diskettes (3)
• FORTRAN Compiler Manual

System requirements: A minimum of 160KB of user memory and two diskette drives, or one diskette drive and one fixed disk drive, a display, and DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation

on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. A minimum of 192KB of user memory is required for fixed disk storage. An 80-column display and a printer are recommended.

COBOL Compiler `AT` `XT` `PC` `PPC`

The COBOL Compiler[1] permits you to develop your own programs in COBOL, a language designed for business applications. This COBOL is a subset of the popular ANSI 1974-level standard, with extensions that support color and screen formatting.

What you get. The COBOL Compiler software package includes:
• COBOL Compiler Diskettes (2)
• COBOL Compiler Manual

System requirements: A minimum of 64KB of user memory and two diskette drives, and DOS 2.00 or higher. A minimum of 128KB of user memory is required for DOS 2.10 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. A minimum of 128KB of user memory, one diskette drive, and DOS 2.00 or higher are required for fixed disk storage.

Pascal Compiler `AT` `XT` `PC` `PPC`
Version 2.00

The Pascal Compiler[1] 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 application programs.

What you get. The Pascal Compiler 2.00 software package includes:
• Pascal Compiler Diskettes (3)
• Pascal Compiler Manual

System requirements: A minimum of 160KB of user memory and two diskette drives, or one diskette drive and one fixed disk drive, a display, and DOS 2.00 or higher. DOS 3.00 and 2.10 or higher are required for operation on the IBM Personal Computer AT and the IBM *Portable* PC, respectively. A minimum of 192KB of user memory is required for fixed disk storage. An 80-column display and a printer are recommended.

BASIC Programming Development System 1.05

`AT` `XT` `PC` `PPC` `PCjr`

BASIC Programming Development System 1.05 consists of two programs, with a total of four utilities, that can simplify the writing and editing of sophisticated BASIC programs. The first program includes a Text File Editor and a Structured BASIC Preprocessor; the second includes 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 a full range of line-editing commands plus formatting commands for text processing. The Text File Editor also 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. What's more, the utility combines lines automatically and removes remarks to save storage space.
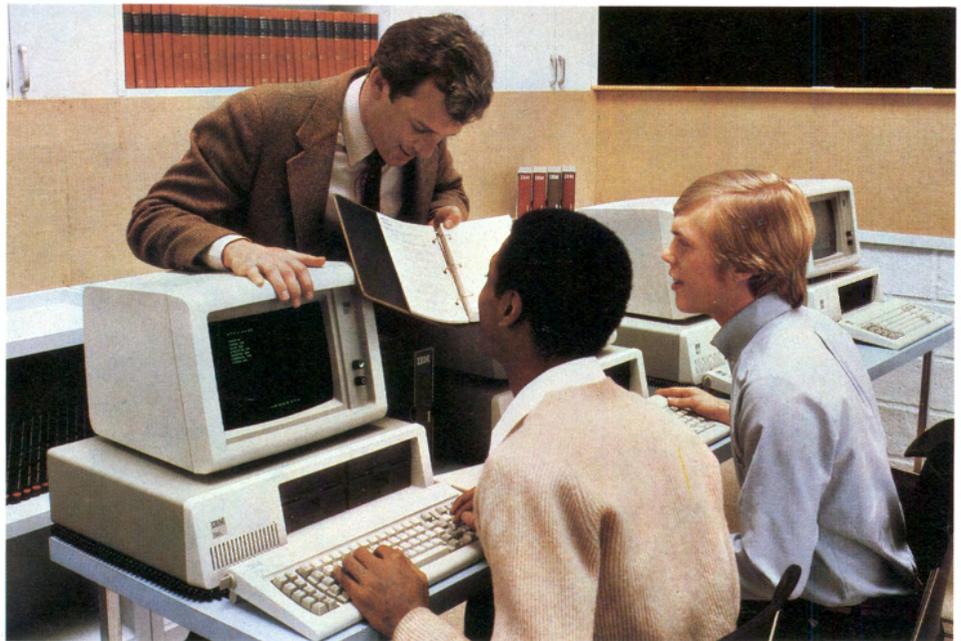
BASIC Formatter and Cross-Reference. These two utilities work together on ASCII files to produce formatted and cross-referenced listings of unstructured BASIC source programs. Although they are options on the same menus, they can be used separately.

In short, this system can help enhance the development of complex programs written in the BASIC language.

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 (DOS). A minimum of 128KB of user memory is required for DOS 2.00 or higher. DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr*.

When this program and its data files are stored on a fixed disk, a minimum of 128KB of user memory and DOS 2.00 or higher are required. Access to data files must be within the current subdirectory.

APL Interpreter

`XT` `PC` `PPC`

The APL Interpreter enables you to write and edit your own programs in APL–a highly-structured programming language–and apply them in commercial data processing, teaching, system design, scientific computing, and other fields. APL also can be used to help you exchange data files and work space between your IBM PC and many mainframe computers.

DOS-supported languages

What you get. The APL Interpreter software program includes:
- Program Diskette
- Users' Reference Manual
- APL Keyboard Decals

System requirements: A minimum of 128KB of user memory and one diskette drive, the IBM 8087 Math Co-processor, an 80-column display (a color display is required to generate APL characters), and the IBM Disk Operating System (DOS). DOS 2.10 or higher is required for operation on the IBM *Portable* PC. This program and its data files can be stored on a fixed disk.

8087 Math Co-processor   `XT` `PC` `PPC`

The IBM 8087 Math Co-processor option for APL significantly speeds up floating-point arithmetic, logarithmic and trigonometric functions. It can multiply 32-bit and 64-bit decimal numbers up to 80 times faster than the 8088 processor, for example. The 8087 Math Co-processor also has 80-bit registers that offer five times the precision of the 8088's 16-bit registers.

What you get. The IBM 8087 Math Co-processor option includes:
- 8087 and 8088 processors
- Thermal Protector (for the 8087 processor)
- Removal Tool (for the existing 8088 processor)
- Installation Instructions
- Diagnostic Diskette
- Problem Determination Procedure Update Package

¹*The FORTRAN, COBOL and Pascal Compilers cannot operate on the IBM PCjr; however, most of their outputs will operate on the PCjr if there is sufficient storage.*
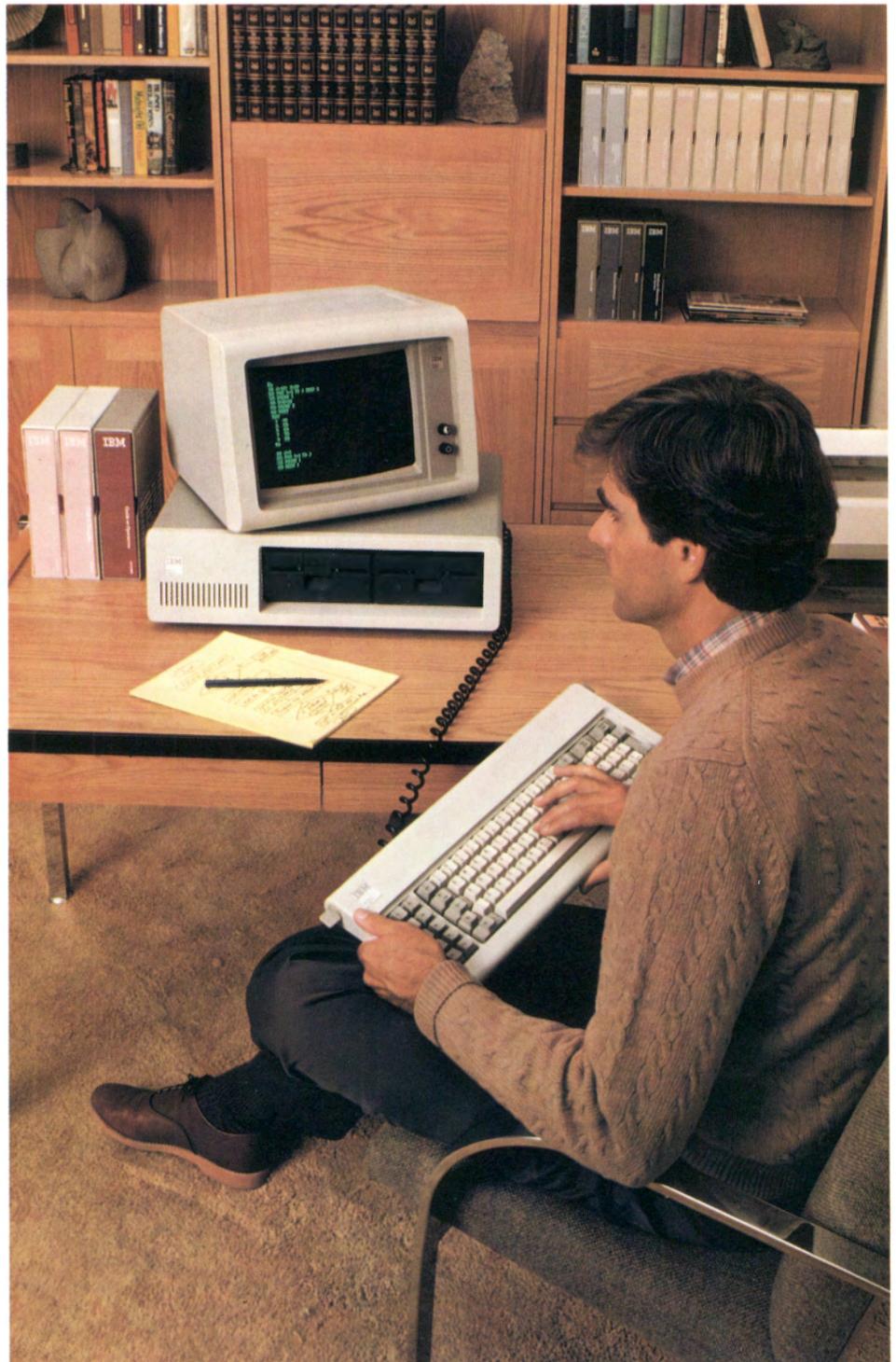
UCSD p-System

*A professional software
development system*

The UCSD p-System[1] is a widely accepted software system that can help everyone from the sophisticated programmer to the student use a personal computer from IBM as a versatile software development tool. Or it can be used by nonprogrammers 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.[1] The major segments are the filer, editor, compilers, assemblers, linker and debugger. These programs perform the various housekeeping 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 promptline 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.

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 screen-oriented editor that runs in both programming and text-editing modes
- A very powerful file handler to manipulate diskettes and diskette files
- A Macro Assembler for IBM Personal Computers 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, which enables one copy of the object code for a library module to be shared by many programs
- An efficient, compact interpreter for executing p-code
- A library of program modules and other useful utilities
- A native-code generator to convert p-code to native machine code; this results in improved performance
- Advanced turtle graphics offering extended capabilities and graphics displays

- A print spooler that queues printed output
- A symbolic debug tool 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 that can 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 that 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 quite large and can 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.

UCSD p-System

Easy-to-use UCSD p-System command structure

```
                              "Welcome to the        H(alt
                               UCSD p-System"
```

```
   Q(uit    E(dit    C(ompile   L(ink   R(un   X(ecute   A(ssemble   F(iler    Q(uit
```

```
   I(nsert   D(elete   F(ind   R(eplace   Z(ap          G(et   S(ave   N(ew   R(emove   L(ist directory
         A(djust   J(ump   X(change   C(opy        T(ransfer   C(hange   W(hat   D(ate
```

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

FORTRAN…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 UCSD p-System software package 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: A minimum of 64KB of user memory, two diskette drives, and a display. Neither the program nor its 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. 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,[2] 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.

[1] *UCSD p-System and UCSD Pascal are trademarks of the Regents of the University of California.*
[2] *The UCSD p-System Runtime Support package does not support IBM Personal Computer BASIC or Displaywriter 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[1] is a 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 common operating systems in the microcomputing field. Because of hardware differences, all CP/M systems are not the same; therefore, conversion is required if programs that run on non-IBM versions of CP/M are to run on IBM Personal Computers.

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 can 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, CP/M-86 allows you to run application programs developed or converted for use with CP/M-86 and your personal computer from IBM.

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 assembler-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 application programs. The operating system manages up to a full megabyte (1,048,576 bytes) of main memory, so it can allow application 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 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 quick check that the system is working properly.

CP/M-86

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 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 debugging programs.

ED, a line-oriented and context editor. The ED utility included with CP/M-86 enables you to create and edit a diskette file. You can create and change character files line by line or by referencing individual characters within a line. You can 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 8080-, 8085- and Z-80[1]-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, CP/M-86 does not automatically provide support for existing CP/M-80 application programs for 8-bit computers. 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 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.

[1]*CP/M is a registered trademark and CP/M-86 is a trademark of Digital Research, Incorporated. Z-80 is a registered trademark of Zilog.*

Application Display Management System

A software development tool that helps build productivity

AT XT PC

PPC PCjr

Ideal for application programmers.
Application Display Management System is a programming tool that speeds and streamlines the creation of an application program's user interface. The system uses its own high-level language to help you create and modify screens for your programs quickly and easily.

What's more, the screens you build with the system remain independent of your programs, making it easy to revise and update software. You can change the text, color, messages, format, field types, and more—all without rewriting a single line of code.

How it works

Two main parts. The Application Display Management System has two parts:
- *Application Display Designer* lets you create and edit screens. The screens you create can be used by programs written in any IBM PC DOS-based language, including BASIC (compiled or interpretive), COBOL, FORTRAN, Pascal and Macro Assembler.
- *Application Display Manager* contains the control routines your program needs to manage screens. It also provides predefined editing keys to simplify the editing of application programs.

To run the Designer or the Manager, you must first load the IBM Disk Operating System (DOS) into your personal computer.

Build screens to order. The Designer contains a number of on-line editors—along with on-screen Help menus—that make it easy to build screens for your application programs. For example, you can:
- Edit, revise and move text until the screen is designed to your satisfaction
- Choose the wording and screen positions for prompts, warnings and other messages you want your program to display
- Control color, underlining, blinking, reverse video and sound
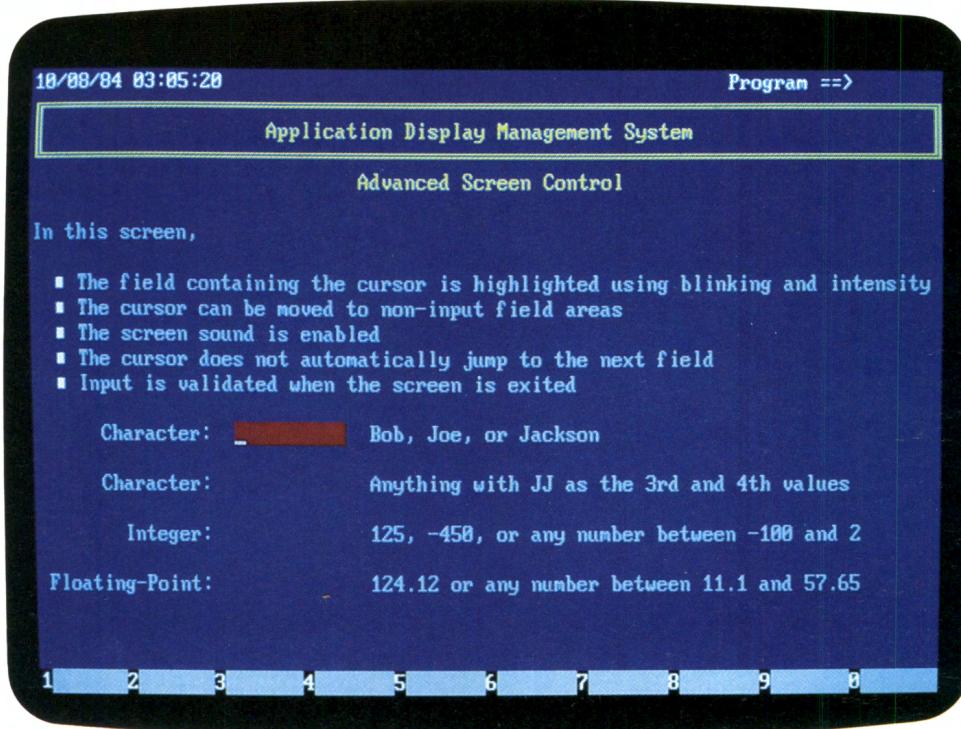
Forty function keys per screen. The Application Display Management System allows you to assign up to 40 function keys and 20 interrupt keys to be used for any or all screens in your program. Built-in assignments automatically take care of assigning cursor-control and text-editing keys.

Flexible field definition. In user-friendly software, the program displays instructions that tell the user what information to enter into the various fields on the screen. The Application Display Designer lets you customize these fields to fit your program. You can set the length of each field, specify the data to be entered, and decide what kind of information goes in each field.

What you get. The Application Display Management System software package includes:
- Program Diskette
- Users' Reference Manual
- Users' Quick Reference Card

With the Application Display Management System, you can customize the various fields on the screen to fit your program.

System requirements: The Designer portion of the system requires a minimum of 192KB of user memory and one double-sided diskette drive, an 80-column display, and the IBM Disk Operating System (DOS) 1.10 or higher. The Manager portion requires a minimum of 128KB of user memory and one single- or double-sided diskette drive, a properly configured program diskette, a display or TV, and the IBM Disk Operating System (DOS). DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.*

Professional Debug Facility

*A powerful debugging tool for
assembler-language programmers*

AT XT

PC PPC

**Produce high-quality, high-performance
code.** Professional Debug Facility is a state-
of-the-art debugging package designed to
provide assembler-language programmers
with tools to significantly reduce debug time
while producing high-quality code with
high-performance characteristics.

Two-part program. The Professional
Debug Facility consists of two powerful
utilities: the Resident Debug Tool and the
Disk Repair Utility. It also includes a
Non-Maskable Interrupt Card.

How it works

Interactive debug facility. The Resident
Debug Tool provides sophisticated tech-
niques for tracing through or disassembling
code. It is loaded and made a resident
extension of the IBM Disk Operating System
(DOS) via the keyboard or a batch file.

Your application can invoke the debug tool
by using machine interrupts. The tool
provides you with a formatted display of
registers and memory and with single-step
tracing. Other features include:
• Stop/start program execution
• Address stops (breakpoints)
• Search feature

The Resident Debug Tool supports two
displays, so you can monitor the Debug
Tool's output on one display and the pro-
gram to be debugged on the other.

Windows on your program. One of Resi-
dent Debug Tool's most powerful features is
its extensive windowing capability. You can
use the window area of the screen to display
and alter memory or disassembled instruc-
tions, display trace buffers, or display
the status of the IBM 8087 or 80287 Math
Co-processor.

*With the Resident Debug Tool, programmers use a mini-
mum of keystrokes to trace through or disassemble code.*

Disk storage. The Disk Repair Utility lets
the user look at all areas of DOS-formatted
disks or diskettes and examine data in hex,
EBCDIC or ASCII modes. A single keystroke
provides full-screen access to data at either
the file or sector level.

Program error control. The Non-
Maskable Interrupt Card enables you to exit
the user program and invoke the Resident
Debug Tool. The card is easily installed in
one of your computer's system expansion
slots; it is activated by the touch of a button
on the card.

Simple, quick commands. The Resident
Debug Tool is easy to use because its com-
pact command syntax eliminates unneces-
sary keystrokes. Most functions are activated
with a single- or double-key command.

What you get. The Professional Debug
Facility software package includes:
• Program Diskette
• Non-Maskable Interrupt Card
• Users' Guide
• Users' Quick Reference Card

System requirements: A minimum of 128KB
of user memory and one single- or double-
sided diskette drive, an 80-column display,
and the IBM Disk Operating System (DOS).
Also supported: a fixed disk drive, an IBM
Personal Computer Color Printer or IBM
Graphics Printer, an IBM 8087 or 80287
Math Co-processor, and both monochrome
and color displays (simultaneously). DOS
3.00 and 2.10 or higher are required for op-
eration on the IBM Personal Computer AT
and the IBM *Portable* PC, respectively.
DOS 2.00 or higher is required for fixed
disk storage.

IBM Personal Computer
Print Screen Utility Program

Print your on-screen graphics
and text—quickly and in color

The IBM Print Screen Utility Program enables you to quickly and easily print displayed graphics and text in color on your IBM Personal Computer Color Printer. It is designed for use with versions 2.00 and 2.10 of the IBM Disk Operating System (DOS).[1]

By simply pressing two keys simultaneously, you can transfer to paper whatever is on your screen (except background colors)—including artwork, complex graphics and text. And you can do it quickly: The program lets you take advantage of the IBM Personal Computer Color Printer's high speed; in one mode it operates at up to 200 characters per second.

Automatic color correlation. With the Print Screen Utility Program, you get high-quality, dot-matrix color printing without having to enter detailed color commands. Through "fixed mapping", the program automatically translates any of the display's 16 colors into the closest match among the printer's eight colors, as shown here:
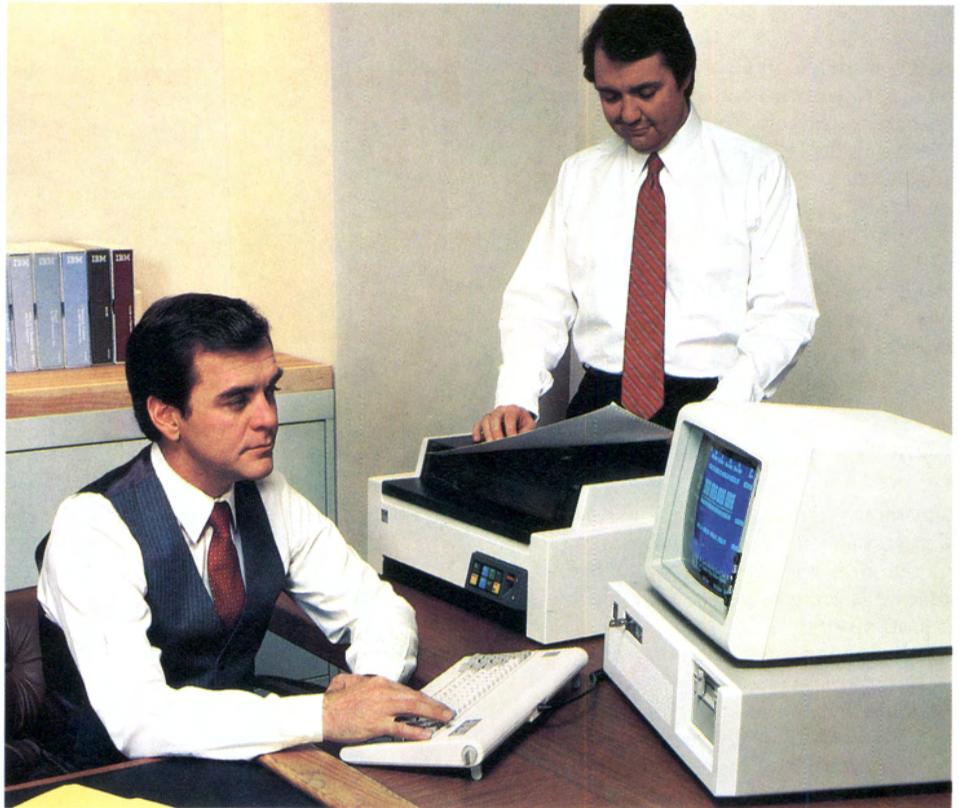
Display Colors	Printer Colors
Black White Gray Hi White	Black
Blue Light Blue	Violet
Green Light Green	Green
Cyan Light Cyan	Cyan
Red Light Red	Orange
Magenta Light Magenta	Magenta
Brown	Brown
Yellow	Yellow

The graphics printed with your IBM Personal Computer Color Printer will be equal in quality to those shown on your display screen. You can also use the program with an IBM Graphics Printer; colors appear as shades of gray— similar to the way they look on a black-and-white TV set.

Installation is easy. All you do is load the Print Screen Utility Program from its diskette to the working copy of your IBM Disk Operating System (DOS) disk/diskette.

When you intend to use the utility, simply enter the GRAPHICS command and then load your application program. After that, whenever you wish to print the contents of the screen, you just press the "Shift" and "PrtSc" keys simultaneously.

What you get. The Print Screen Utility Program software package includes:
• Program Diskette
• Users' Reference Manual

System requirements: A minimum of 3.8KB of user memory and one diskette drive, an IBM Personal Computer Color Printer or Graphics Printer, a display, and the IBM Disk Operating System (DOS) 2.00 or 2.10.

[1]*This program is not necessary for IBM PCs that use DOS 3.00 since the print screen capability already exists in the DOS 3.00 program diskette.*

SORT

*Speed and simplify multiple
sorting operations*

IBM Personal Computer SORT helps programmers sort records from data files and perform other sophisticated sorting operations that increase productivity.

The SORT program is a valuable tool for accounting, professional data base management, and other applications that require powerful data-sorting capabilities.

A flexible, general-purpose sorting program. SORT enables programmers to sort records from data files, merge multiple input files, or selectively include or exclude records. It also can be used to create an output file containing the records or addresses from input files.

SORT can work with most data types and file organizations used by languages supported by the IBM Disk Operating System (DOS): BASIC, COBOL, FORTRAN and Pascal.

A sophisticated sorting program.
SORT's powerful capabilities include:
- Multiple sort fields
- Logical (IF-THEN-ELSE) operations
- Fixed- or variable-length records
- Alternate collating sequence

Also, SORT's capabilities can be enhanced by expanding system storage to increase file size, record length and number of records, keys and input files.

```
A>pcsort example
IBM Personal Computer Sort
Version 1.00 1388947184
(C)Copyright IBM Corp. 1983, 1984
(C)Copyright Microsoft Corp. 1983, 1984

Files on drive A:
  WORK0000
  DATA.IN
  SORT.OUT

A>type sort.out
Arvidson, Mike        101 Writer Drive
Bohannon, Tony        201 Author Street
Culton, Marilyn       345 Rodeo Place
Edwards, Tom          919 Newell St.
Hope, Audrey          720 W. 29th St.
Kaufman, Michael      999 Programmer Road
Smith, Linda          502 First Avenue W.
Todd, Ann             817 Longwood Drive

A>_
```

▲
You can use SORT to sort records from data files, merge multiple input files, or selectively include or exclude records.

A versatile sorting program. SORT provides these program modules: Compare Record, Select Record, Read Input Records (Sort and Merge), and Write Output Records. In addition, the program has a modular exit capability to allow programmers to replace program modules with their own specially written modules.

SORT also can be used as a stand-alone utility, integrated into a batch job stream, or invoked directly from a COBOL program. COBOL support also includes an Index File Rebuild utility.

What you get. The SORT software package includes:
- Program Diskette
- Users' Reference Manual

System requirements: A minimum of 128KB of user memory and one double-sided diskette drive, a display, and the IBM Disk Operating System (DOS). DOS 3.00 is required for operation on the IBM Personal Computer AT; DOS 2.10 or higher is required for operation on the IBM *Portable* PC and the IBM PC*jr.* DOS 2.00 or higher is required for fixed disk storage.

Sales and Service Support

Sales and service support for personal computers from IBM

IBM and your Authorized IBM Personal Computer Dealer stand for quality

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 service provided by your Authorized IBM Personal Computer Dealer.

Quality control

IBM is dedicated to providing you with a personal computer system that is in proper working condition. Toward this end, many quality control steps are taken to help ensure that your IBM PC performs correctly and provides you with the high level of quality service you expect from IBM.

For instance, components and assemblies are carefully tested at numerous points throughout the manufacturing process. Prior to shipping, units are randomly selected, set up and thoroughly retested. These are just two of the many steps taken in IBM's conscientious quality control program.

IBM is committed to achieving the highest level of quality in its personal computer product line. We constantly strive to maintain the standards of excellence that IBM customers expect . . . and deserve.

Dealer Service Options

Each IBM PC is engineered to provide years of dependable service. However, there is always a possibility that some repairs may be required over the system's life.

IBM offers reasonably-priced Dealer Service Options to help you avoid unanticipated cost and help protect your investment.

Dealer Service Options extend the original warranty coverage period included with your system purchase. (The IBM PC and IBM PC XT are sold with a 90-Day Limited Warranty; the IBM PC*jr*, IBM *Portable* PC, and IBM Personal Computer AT are sold with a 12-Month Limited Warranty.)

Dealer Service Options also extend the warranty and/or coverage period. They may be renewed annually, and cover most IBM-manufactured hardware.

Service is provided by the Authorized IBM Personal Computer Dealer from whom you purchase the coverage. Should you move to another location, your present dealer may be able to help you make service arrangements in your new locale.

And, should you sell your personal computer, your Dealer Service Option may be transferred to the new owner.

Prompt, expert service

Each Authorized IBM Personal Computer Dealer is ready to provide you with prompt, expert service. Dealers also have direct access to IBM for updates on improved service procedures.

Whether you require service during your warranty period or during any Dealer Service Option period, you can count on high-caliber service.

IBM PC Customer Support System

To help you determine the right IBM PC products for you, many Authorized Dealers now offer the chance to operate the IBM PC Customer Support System.

The Customer Support System is your window to in-depth information directly from IBM. This innovative, interactive system utilizes an IBM PC XT for establishing a communications link with IBM to help you learn about a wealth of IBM PC products and services.

Use the system to receive:
- Current information on IBM PC hardware, software and peripherals
- Product demonstrations
- Assistance in configuring systems that meet your specific needs

The IBM PC Customer Support System represents still another way in which IBM and your Authorized Dealer strive to provide you with superior support.

Make a quality buying decision today

Visit your Authorized IBM Personal Computer Dealer. Ask for a hands-on demonstration to see how easy it is to operate an IBM PC. Your dealer is ready to listen, analyze your needs and budget, and recommend the system configuration that best fits your requirements.

For information about an Authorized IBM Personal Computer Dealer near you (or information from IBM about quantity purchases), call toll-free:

1-800-447-4700

In Illinois, call: 1-800-322-4400. In Alaska or Hawaii, call: 1-800-447-0890.

Alphabetical Index
of Software Products

IBM