IBM Asynchronous Communications Support
Data Communications Support

■ PROFILE

Function ● provides program support for the connection of a PC to information services, timesharing systems, and certain IBM or other host computers, including file transfer capability.

Computers/Operating Systems Supported ● IBM PC or PC/XT with PC-DOS; compatibility with MS-DOS systems provided by other vendors is not indicated.

Configuration ● 64K bytes of RAM and a single diskette drive, which may be single-sided; IBM asynchronous communication adapter or equivalent is required.

Current Version/Version Reviewed ● 2.0/2.0.

First Delivery ● October 1981.

Number of Installations ● information not available.

Comparable Products ● Microstuf Crosstalk XVI, Southeastern Software Data Capture/pc, Headlands Press PC-Talk III, Perfect Software Perfect Link.

Optional Associated Software ● none.

Price ● $60 retail price.

Vendor ● IBM Corporation; P.O. Box 1328-C, Boca Raton, FL 33432 ● phone number not provided except to volume license users.
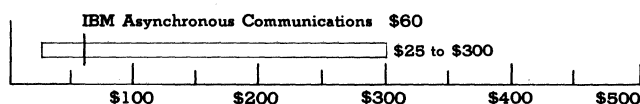
■ ANALYSIS

One reason for the interest in data communication programs for the IBM PC is the desire for corporate users to provide a means of communicating between their PCs and the corporate data center IBM mainframes. For such users, flexible communication packages with multiple sets of options and complex features are not only not necessary, they are often not wanted. What is wanted is a product that specializes in IBM mainframe links, and the Asynchronous Communication Support program does just that.

There are no frills in this package. The menus are not in reverse video, you cannot select screen colors for display, no quotes of famous philosophers grace the manual or the boot-up screen, and menu features like automatic dialing are pretty much the user's responsibility. But the manuals, menus, and product in general are designed to make linking to a mainframe running VM/370 or TSO just as easy as possible. Very few communication product manuals have entire chapters on mainframe

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10
ENVIRONMENT										
DOCUMENTATION										
FUNCTIONALITY										
EASE OF USE										
SUPPORT										
SYSTEM INTERFACE										
EXPERIENCE OF VENDOR										

*For an explanation of rating criteria, please refer to the page behind the Packages By Vendor (800) tab.

communication, and this one does—right down to the operating system specific data. As the introduction suggests, if you have asynchronous terminals connecting to your IBM VM or TSO host now, you can connect a PC with this program.

The orientation of the product toward the IBM world does not prohibit its application elsewhere. Communication Support is a teletype emulator program and as such will connect with most asynchronous host computers, including DEC. Nor should the lack of frills be taken as an indication of serious functional omissions. The program provides for the saving and loading of communication parameter files for setup, and is as easy to operate as many more sophisticated (and expensive) programs.

Corporate users with no communication requirements other than IBM mainframe exchanges or PC-to-PC communication should seriously consider the purchase of this program. Even those with mixed communication requirements may find it simple, but entirely satisfactory.

□ Strengths

The product and its documentation have a strong application orientation. Menus ask what kind of communication you desire and set the basic parameters accordingly—users need not know what TSO expects from a terminal, for example.

Specific instructions are given for the use of the PC as a terminal on both VM/370 and TSO. These include interaction and operating descriptions, making the manual a very valuable reference.

File transfer support is specialized to the host environment, and file conversion between ASCII and binary formats is supported through a utility program so that PC-to-PC data exchanges can cover all file types.

Communication parameters can be stored to disk in files with user-selected names. This permits a configuration for a particular destination to be recorded under a

PURCHASE PRICE RANGE   Software Price Range [   ]

IBM Asynchronous Communications $60

$25 to $300

$100	$200	$300	$400	$500

IBM ASYNCHRONOUS COMMUNICATIONS SUPPORT PRICING ● open bar shows typical range of prices for COMMUNICATIONS software used in a corporate environment ● the vertical line within the bar graph indicates the price of ASYNCHRONOUS COMMUNICATIONS SUPPORT, the evaluated product, relative to the price range of similar products.

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meaningful file name and loaded by the user to establish proper parameterization.

☐ Limitations

No specific CRT display protocol is supported by the Asynchronous Communication Support Program. This limits its usefulness in environments where a CRT is required.

Only the IBM VM/370 and TSO operating systems are supported for PC attachment via this product. Users running DOS/VSE, OS/VS, SSX/VSE, or other IBM operating systems should explore other products for communication support.

Some aspects of the menu structure can be confusing. During the time host communication is established, for example, a function key on the HELP menu will initiate saving of information to a file. The function, however, is described as "file writing," something most users associated with SENDING a file. The actual send function is not even on the HELP menu but on the Function selection menu, a menu which must be selected from HELP. On the HELP menu, functions are selected by FUNCTION KEY. On the function selection menu, an ordinary numeric character, followed by a carriage return, is used.

■ HANDS-ON EVALUATION
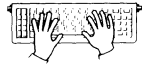
Users who have seen other data communication programs for the IBM PC view the Asynchronous Communication Support Program (ACSP) as a rather spartan product. The menus are not pretty, there is no use of special display attributes, and there doesn't seem to be many features. We took the package to the data center communication specialist to get the required host communication parameter settings, and remarked on the lack of gloss and glitter. He looked at us in disgust and said "You want something to communicate with our host? This communicates with our host."

Smarting from the retort, we took the package back to the PC to install it, a task which consists of copying the operating system, command interpreter, and BASIC programs from the system disk to a backup copy of the distribution diskette. Like most (in fact all) the IBM software we've seen, the program is not copy protected. The setup of the communication parameters for the host connection proved very easy, and we saved it under the OURTSO file. There is a standard TSO setup file which can be used as the basis for all such setups.

The documentation on TSO links goes through the setup in great detail, but the majority of the information was of primary interest to our data center—we just filled in the options they told us to select. Sample TSO setup commands are provided for some common features, such as setting the delete character to equal the backspace.

All the file exchange and terminal functions we required were supported with no difficulty. While some additional support for automatic dialing of the TSO port would have been useful, the auto-dial feature of the modem could be operated through ACSP, so there were no misdialings.

☐ User Interface

ACSP provides a menu structure for command entry and essentially no formatting or screen display; however, error conditions are displayed while transmitting data. Commands are generally issued through function keys while in communication with another system, or by a numeric selection while in a "command" mode.

Menus: a hierarchical menu structure provides basic commands at start-up, followed by optional menus to adjust communication parameters if changes are desired. A HELP function key causes a menu of communication functions to appear during the actual communication session. The menus are clear and well-designed.

Control characters: not used by the product.

Function/special keys: the F10 function key causes a HELP menu to be displayed at any time in the actual communication session. Other function keys select special operating modes from that HELP menu. ALT keys are not used. No templates are provided with the program.

Command language: none available.

Positive feedback: command selections made at a menu will cause the menu to disappear and the next level menu or prompt to appear. Communication status messages are displayed when the status changes.

Status display: connect/disconnect state of the communication line is displayed on the 25th line of the screen.

Help facilities: the F10 function key may be pressed at any time in the communication session to request a function menu. From this HELP menu most functions associated with the communication exchange may be selected. Further menu selection permits access to all product functions.

☐ Environment

If you have a PC and a disk drive, you can run ACSP. The program needs only 64K bytes of RAM and one floppy disk, which can be either single- or double-sided. If a single-sided diskette is used, file transfers will be limited by the space on the diskette. Two drives is a much better configuration.

ACSP loads an assembler routine into memory, then runs a BASIC program which calls the assembler program. When you exit ACSP into BASIC, the assembler routine remains loaded and the limit of two files, which the loading of ACSP enforces, remains in effect. This can cause failures of subsequent BASIC jobs due to memory restrictions or file limitations.

We were able to copy ACSP to double-sided diskettes, install DOS 2.0 without difficulty, and copy the program to hard disk for execution. ACSP is not copy protected.

☐ Documentation

IBM's manuals are generally good, and the one for ACSP is particularly useful. Rather than spend inordinate time and space discussing the individual communication options in hope that the user can properly select those

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suitable for the communication environment, ACSP's manual starts with the target environment and defines how to modify the normal parameters for that environment if necessary. This means that, for example, the discussions on TSO setup are handled in the context of what is normal for TSO. References to additional information and possible exceptions are made from that framework.

An introduction section provides a list of what ACSP can do and what is needed to run it, including a pragmatic view of the modem requirements. This is one of the few products which stress the need for full-duplex modems in communicating with host computer systems.

The actual reference portion opens with the obligatory discussion of how to move the files needed to run ACSP from the system disk to a backup copy of the distribution disk. Just about every option is covered, including how to copy the distribution disk on a single-drive system.

Loading and running the ACSP program starts with a selection of a "terminal." This means identifying the system with which the PC is expected to communicate. We felt that the terminology here was a little weak—most communication users and articles would call the process "selecting the target host." Users are then taken through starting up the communication process, establishing a connection, operating, and disconnecting.

Following the basic sections of the manual are detailed descriptions of the operation of the product as a terminal for the Source or Dow Jones, to a VM/370 system, to an MVS/TSO system, or for PC-to-PC communication. These sections of the manual are very specific to the individual application and therefore helpful to the user far beyond the ordinary generalities found in communication documentation. Each section contains detailed instructions on the setting of communication parameters, operation with the target system, and hints on commands which might be issued to facilitate communication.

The last chapter of the document deals with problem solving. This is probably one of the best user-level data communication troubleshooting guides available. Like the rest of the manual, it is "This is what I want to happen" oriented. We found that nearly any professional member of the staff could use it, making the operation of our communication links less dependent on technical support from the data center.

☐ Functionality

ACSP provides asynchronous ASCII teletype emulation, with communication parameters fully selectable or set automatically for the type of host system to be accessed. File transfer is supported to and from the host system, and direct transfers from PC to PC are also supported. Binary transfers are available for the latter mode.

We had two principal reasons to use ACSP: for the transfer of text files between the PC and a TSO application, and for a general data exchange with a PC located in a branch office across town. Both connections were to be supported through a telephone line and modem. The local modem was a Racal-Vadic VA212, a smart modem with auto-dial capability. Communication parameters for both the PC and TSO links were defined by a conference with the data center communication specialist and entered by our department technical specialist.

The set-up of the applications with ACSP was very easy. A main menu was displayed on entry to the program, requesting the type of "terminal" to be selected. We found this term a little confusing since the program expects a response stating the type of application to be supported. The selection examples, however, leave little room for doubt as to the actions expected. We selected the TSO TERMINAL option. The next menu asks for the communication parameters, including line speed, parity, and line turnaround character. We used the defaults for all but the data rate. We then saved the terminal specification to a file called "OURTSO." This file could then be requested at the initial menu to establish the communication environment. A similar procedure set up the PC link.

Operating the product is very easy. When the "Start up selected terminal" option is selected, ACSP attempts to use the link, and finding no TSO host, indicates "Computer connection NOT established." This is the point where phone dialing is required. There is no facility for automatic dialing in ACSP, so we had to use the ACSP program keyboard to send the dial command to the modem for connection. This process cannot be done once and saved to a file for later execution, so the operators must learn the modem dial procedure. In our case, the modem had memory dialing features, so we just defined the mainframe as number "1" and the other PC as "2."

When the host connection is made, the program indicates "line connected" and generates an audio beep. The TSO log-on normally follows this, but a carriage return may be needed. Once logged on, TSO commands may be used to set the "Backspace Character to be the Character Delete," and to set the terminal line size.

At any time when the PC is connected to another system, the function keys are used to invoke special commands. The F1 function key is used under TSO to return to the prior operation level, for example. The F10 key is a HELP key which displays the functions. Using the F2 key gets you into the function selection menu, which supports sending a file to the host, etc. The file transfer process defined as "uploading" or "downloading" initiates both the PC and the TSO functions needed to support the exchange, so the process of receiving and sending text files is very simple. We even taught it to an operator who did not know and had never used TSO.

PC-to-PC exchanges are likewise easily handled. A PC can be set up to automatically answer and receive a file, and if this mode is used in conjunction with a transmission schedule, no voice coordination of the process is necessary. For the transfer of binary files, a FILECONV program is provided to change the files to display ASCII before transmission, then back to binary after reception. The transmission of data in this form takes considerably longer, however.

An appendix to the documentation provides a description of the simple protocol used by the PC-to-PC transfer. We implemented it on a PDP-11 system and were able to exchange files with our PC as though the DEC were

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another IBM PC system.

□ Ease of Use

On some levels, ACSP is extremely easy to use. The use of function keys to invoke specific host computer file transfer dialogs in synchronization with the local PC operation makes the requesting of host files through VM or TSO very easy even for inexperienced operators. The manual's consistent treatment of communication features in the context of the user's application makes it easy to follow and increases user confidence.

Stepping outside the basic TSO or VM/370 environment leaves you a long way outside. The automatic features provided by the program for IBM users cannot be tailored to the new environment. Also, there are no shortcuts to save log-on procedures, etc, for the new system. While there is no question that an operator capable of accessing a DEC system via a DEC teleprinter will be able to do the same thing via ACSP, it would be nice if it were at least a little easier!

We had a few problems with menu structures and terms. The generalized file-receive feature, usually called a "capture to disk" option in PC jargon, is called "turn ON/OFF file writing." Our users had a mental block about that—they kept thinking of file writing as writing a file from the PC to the host. The actual file send function, to make matters worse, is not accessible from the same menu as the receive function. To access the send function, the operator must select the function key F2 (Access Function Selection Menu) and then select the Send File To Host command.

The fact that the program is largely written in BASIC makes the loading, initialization, and other internal processes run more slowly than expected. Although speed is not necessarily an essential characteristic of a program initialization process, we found that the long delay was interpreted by inexperienced operators as an indication of communication failure.

Lack of special support for auto-dial modems causes some problems with establishing a connection. Instead of providing a programmatic level of support for dialing popular modems, ACSP requires that the user and modem interact directly in order to dial. This in turn requires the user to become familiar with the modem-to-terminal dialog menus for dialing, etc. We found that our users tended to confuse the source of the menus, which after all look pretty much the same whatever the source. If ACSP had a more elegant menu, with reverse video, etc, it would have been easier to tell whether the current menu was an ACSP menu or a terminal menu.

□ Support

IBM relies on the local dealer for product support, providing no support number with the program and publishing no number in outside reference material. Since IBM makes an effort to qualify dealers, you might expect that the support level available would be somewhat better than average for technical products. In a sampling of dealers called, we found none who had ever used it with an IBM mainframe.

Fortunately, there is not a strong likelihood that detailed technical support will be required. The documentation is excellent, and data center personnel familiar with the host system will have no difficulty in helping users resolve any communication problems.

□ System Interface

The package supports the attachment of the IBM PC to VM/370 hosts, MVS/TSO hosts, or to other timesharing or information service systems which can support an asynchronous teletype emulator. The facilities provided for IBM attachment are superior to those of most other products because they include automatic generation of the commands necessary to initiate the host side of the interactions.

The product's basic support facilities are adaptable to nearly any asynchronous teletype application, including most minicomputer system connections, but such applications are not supported by the automatic function generation features which characterize the IBM host connection segment of the program.

□ Vendor Experience

IBM, needless to say, has the most extensive experience possible in PC-to-IBM-host communication, and the experience shows in their consistent ability to deal with the entire communication problem and not just the PC side of it. ACSP was released with the original PC announcement in 1981, and has been used ever since.

■ PRODUCT OVERVIEW

□ Terms & Support

Terms ● IBM Asynchronous Communication Support Program is offered on a purchase license basis from IBM Corporation, through authorized PC dealers, through IBM Product Centers, or via the IBM DIRECT mail or phone order system.

Support ● provided by local dealers ● no IBM telephone support number is provided.

□ Component Summary

Software elements consist of the following programs and files.

RS-232INT is the assembler-language communication service routine, called from BASIC. TERMINAL and TERMINIT are BASIC programs to initialize the communication adapter and support communication. Terminal specification files are the files provided for sample setting of communication parameters for TSO, VM, PC, and information service connections. Batch files are used to run the program and to update the distribution diskette with copies of the necessary DOS programs:

$60 lcns

□ Computers & Operating Systems Supported

The Asynchronous Communication Support package runs on the IBM PC or PC/XT with PC-DOS operating system. IBM does not indicate extent of compatibility with MS-DOS systems provided by other vendors.

□ Minimum Operating Requirements

A minimum of 64K bytes of memory and 1 diskette drive are required. The IBM asynchronous communications adapter or its equivalent is also necessary for operation.

LCNS: license fee.

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☐ Features

Type of Product • Teletype-style asynchronous terminal emulator with extensions for the automatic invocation of host file transfer functions.

Target Host Computers • IBM mainframes running TSO or VM/370; may also be used with information services and timesharing systems, and with other computers capable of supporting an asynchronous, ASCII teleprinter device.

Protocol • asynchronous, ASCII code set.

Data Rates Supported • to 9600 bps.

Format Conversion Features • utility program supplied with the package supports conversion of binary files to a display ASCII form for transmission, then reverse conversion to restore the original file configuration.

Automatic Setup Features • communication parameters can be stored to disk in files named by the user; no facility for storage of command sequences to disk exists, but program extensions provide automatic file transfer dialogs with host systems.

• END

IBM Personal Editor
Text Editor Package

■ PROFILE

Function ● text editor.

Computers/Operating Systems Supported ● IBM PC or PC/XT with PC-DOS; compatibility with MS-DOS systems provided by other vendors is not indicated.

Configuration ● one diskette drive (single or double sided); 64K bytes of memory; IBM or compatible monochrome/color graphics monitor, or television with RF modulator, and appropriate board; IBM or any compatible printer.

Current Version/Version Reviewed ● Version 1.0/Version 1.0.

Number of Installations ● information not available.

Comparable Products ● Morgan Computing Co TED, IBM EDLIN.

Optional Associated Software ● none.

Price ● $60 retail price.

Vendor ● IBM Corporation; P.O. Box 1328-C, Boca Raton, FL 33432 ● 305-998-6007.

Canada ● IBM Canada Ltd; 3500 Steeles Avenue East, Markham, ON L3R 2Z1 ● 416-474-2111.
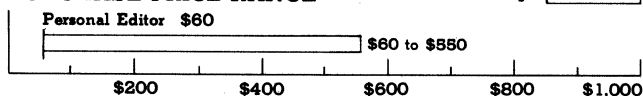
■ ANALYSIS

Personal Editor is a very nice, basic and simple-minded text editor and limited word processor. It is fast, easy to learn, and functional. Those familiar with and expecting a true word processor program, however, will be severely disappointed if they attempt to apply Personal Editor to their memos and documents.

Installation is literally a load-and-go procedure. The product automatically determines the type of IBM or compatible monitor that is attached. Since no print enhancements are provided, any IBM or compatible printer is acceptable.

Beginners, especially those who have attempted to use products such as EDLIN, will appreciate the consistency and clarity of the commands and documentation, and the excellent tutorial. The product works well wherever ease of use is of paramount importance. Little if any hand-holding should be necessary beyond that which the computer system itself necessitates.
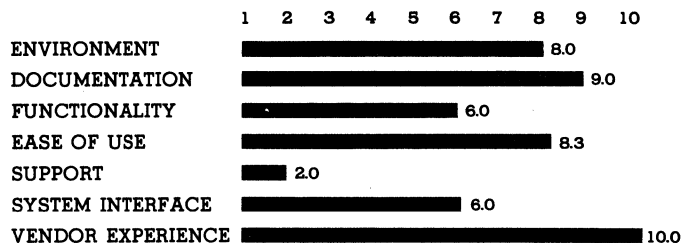
If all of the advantages of word processing are needed, this product is not for you. To utilize full word processing capabilities would require that an additional program with different commands be learned. File incompatibility would

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10	
ENVIRONMENT											8.0
DOCUMENTATION											9.0
FUNCTIONALITY											6.0
EASE OF USE											8.3
SUPPORT											2.0
SYSTEM INTERFACE											6.0
VENDOR EXPERIENCE											10.0

*For an explanation of rating criteria, please refer to the Word Processor Features section in the Software Evaluations (805) report. The Overall Package Average is 7.0.

further complicate matters. Thus, professionals with both word processing and text/program edit requirements might do well to look for an all-purpose product.

☐ Strengths

Probably the biggest advantage of Personal Editor is its ability to support editing of up to 20 concurrent documents. While it is unlikely that even the most dedicated professional would attempt to change 20 pieces of text at once, it is very possible that sections of 20 sources might be combined. With programming languages such as COBOL, which are rather verbose, this can be a real time-saver.

The traditional line editor supplied with DOS, called EDLIN, has a distinctly non-visual orientation which makes its use by non-programmers difficult. Personal Editor enables someone who has never used a computer before to be comfortable and productive almost immediately, with only the manual to learn from.

For the creative problem-solver, the ability to redefine the keyboard to most any set of commands is a valuable and powerful tool. It opens the door to quick and easy ways to streamline many routine operations. There are up to 99 different function key definitions supported, each generating a string of text on command. This can help with consistent entry of "constant" data and can even be used to generate programming verbs with a single keystroke.

☐ Limitations

This is not word processing. There are no print enhancements or any of the other things that are expected when on discusses word processing. With the appropriate printer and an understanding of ASCII, it is conceivable that one could manage to get by, but doubtful that anyone would try.

The help menu is weak in that it does not cover much more than the very basic commands. The card designed to

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PURCHASE PRICE RANGE — Software Price Range ☐

Personal Editor $60

$60 to $850

$200	$400	$600	$800	$1,000

IBM PERSONAL EDITOR PRICING ● open bar shows the typical range of prices for **WORD PROCESSOR** software used in a corporate environment ● the vertical line within the bar graph indicates the price of **Personal Editor**, the evaluated product, relative to the price range of similar products.

IBM Personal Editor
Text Editor Package

be placed directly on the keyboard for fast and easy reference is potentially more harmful than helpful in that SHIFT and ALT are coded in shades of grey that are far too much alike. One must therefore refer to the reference card or the manual, the latter of which is the more explicit and comprehensible.

■ HANDS-ON EVALUATION

Staff members new to the PC did not feel intimidated by the product. Those with some level of experience at first glance were ready to dismiss the product as being trivial, but quickly grew interested once they discovered their ability to create a custom-tailored system.

We have novice and experienced users who have requirements for programs that can be learned very quickly but are fully functional. Some of our applications require entry of programs and data for minicomputer and mainframe processing. The data must be entered in "pure text" form, without the word processor control sequences which most such products produce. EDLIN, IBM's standard text editor, proved unsatisfactory for these applications because it failed to give the user a full view of the text, thus creating situations where keying or structure errors went undetected.

The product requires no installation procedure for either display or printer type, enabling everyone to quickly begin to produce documents. The documentation is very well done and easy to use in the tutorial and reference sections.

We found the product to be well-suited for applications where full word processing features are not required and/or someone must very quickly be able to become productive.

☐ User Interface

Personal Editor is a friendly introduction to text editing and limited word processing. It is forgiving of operator errors and gentle in its error messages which are clear, using commonly understood terminology. The screen displays what will appear on the printed page, and allows one to move quickly through a document or from one document to another, allowing one to maintain a train of thought rather easily.

Menus: None.

Control Characters: Used to control "expedited" cursor movement, which is to say, movement by more than one character position at a time.

Function/Special Keys: Function keys, alone or with the ALT, SHIFT, or CTRL key depressed, are used to select major system functions. A keyboard guide of marginal quality is provided. Keys may be redefined by the user. A listing of suggested changes, as well as the standard configuration, is provided.

Command Language: Entered on the command line. The Escape key acts as a toggle between the text area and the command line. Except for SAVE, ERASE, RENAME, DIR, and FILE, all commands can be abbreviated by their first letter and may be typed in uppercase or lowercase, or in a

mixture of cases. Except for the LOCATE and CHANGE commands, all commands must be separated from the next part of the command by one or more blanks. Example: dir (device:) (file name(.ext)).

Positive Feedback: Commands which cannot be interpreted result in no change and a descriptive error message immediately appears below the command line. On a color monitor these messages appear in red. The original command remains displayed, providing the opportunity to more easily determine what caused the error. Potentially destructive commands produce a message requiring confirmation of the command, otherwise no action is taken.

Status Display: Three pieces of information can appear on the status line (line 24): the name of the current file, the line and column numbers showing the placement of the cursor, and either Replace or Insert.

Help Facilities: F1, which may be pressed at any time, displays the first page of the Help menu, which covers the very basic functions. In many cases, someone in need of help will have to refer to one of the reference guides or the manual. Upon exiting from the Help menu, the previous page is redisplayed.

☐ Environment

The product will operate on a minimally configured system; only a single disk drive (single or double sided) and 64K bytes of RAM are required. Additional memory is mandatory for files in excess of 8K bytes in order to avoid frequent disk access. A color monitor is supported, although color is used to a very limited extent.

Memory overflow is transferred to disk, but is limited to a maximum of 128K bytes. Therefore, one must put forth some effort to determine in advance the anticipated combination of file sizes and numbers, and manipulations of those files which consume memory, to avoid the unpleasant situation of being out of both memory and disk storage.

The master disk may be backed up and copied with no operational restrictions. Instructions are included as well as the recommendation and encouragement to do so. This means that the program can be copied to hard disk. It may also use hard disk data files.

☐ Documentation

As with other IBM products, the standard binder in slipcase is provided.

The documentation consists of a single manual, organized such that an experienced user may easily jump to the point at which the new material begins. For the beginner, the very tactful "Getting Started" makes one's first impression a pleasant one.

A substantial portion of the manual is devoted to the tutorial section. Specific examples are suggested, accompanied by clear depictions of how the screen should look at each and every step. The sequence of topics is arranged logically, and one may stop at the point where the appropriate commands for the task at hand have been mastered.

IBM Personal Editor
Text Editor Package

The reference sections contain separate listings of commands and functions, each in alphabetical order. The appropriate purpose, format, remarks, examples, defaults, and cross-references are listed wherever appropriate. Messages, both error and normal, are listed alphabetically and are clearly explained in plain English. Where appropriate, the explanation also contains the response expected or the action to be taken to remedy the situation. The index uses common terminology, making it easy to find information, even if you are not sure exactly what you are looking for is called.

The fold-out reference card lists the commands and functions plus Do's and Don'ts regarding diskette care. The keyboard card guide lists the commands produced when either the CTRL, SHIFT, or ALT key is used with various other keys. In an obvious effort to economize, only one extra color is printed on the card in addition to black and white. The result is that the effects of using the ALT key are shown as only a slightly darker shade of grey than for the SHIFT key. The CTRL and its effects are clearly indicated in green. Fortunately, this is more of an inconvenience than a hazard.

☐ Functionality

The normal application of a text editor is the entry of data which is to be processed through some other program expecting ASCII characters without special word processing symbols. Programs which are to be sent through language processors, or input to mainframe text manipulation programs, are examples. Users with some exposure to word processors yearn for the ability to use full-screen editing in text mode, something which most word processors cannot offer.

Personal Editor provides full-screen editing, with on-screen labels for top and bottom of file to prevent the user from accidentally placing text at the wrong location. The Escape key toggles between the 20-line text area and line 23, the command line. Line 24 is the status line indicating the name of the current file, the line and column numbers showing the placement of the cursor, and either Replace or Insert. The current cursor position in the text area is always indicated, even when the cursor is on the command line. Line 25 is reserved for special messages. This consistent structure makes it easy to teach the product to a typist or occasional user, since the use and location of everything is unambiguous.

Many standard word processor features are available such as paragraph, line and sentence move, copy, erase, and overlay, plus tab and margin settings, and word wrapping. Reformatting of text occurs automatically as the cursor moves past each line. For simple applications, like writing interoffice notes, Personal Editor makes an adequate word processor.

A five-page Help menu, plus the ability to redefine 99 keys, makes for easy use in a short period of time. Directory and available memory status can also be checked. We found the key definition to be very useful in entering "alphabet soup," that is, data sequences which controlled the operation of our mainframe text package, but which were hardly recognizable English and thus tended to be keyed incorrectly. By assigning a function key sequence to a code value, the entire code could be produced accurately with a single keystroke.

A special internal file holds the last five changes made to active files. All five changes can be in one file, one change in each of five different files, or any combination. If a sixth change is made, it is stored in place of the first of the five changes. This theoretically lets a user recover information if an error is recognized too late to catch it with the "undo" feature, which is limited in operation to the correction of errors recognized while still positioned to the error line. We found that most operators either recognized the problem immediately or too late, and we downplayed the five-change rollback idea since it encouraged operators to be sloppy in document changing.

Moving text from one document to another is probably the most valuable feature of the product. A maximum of 20 old and/or new files may be in memory at one time, and text may be moved back and forth freely. This, of course, is limited by the amount of system memory, file size, and functions that are being utilized. With 64K bytes of system memory there are only 8K bytes available for files. What cannot fit into memory is "spilled" back out to the default diskette, up to a maximum of 128K bytes. For large files or to maximize the multiple file editing feature, something in excess of minimum system memory is necessary.

To conserve disk space, files are normally compressed (blanks are eliminated) during the save operation. Program files are also compressed, except for characters after the first quotation marks in each line, to avoid moving literal string constants. Mention is made in the documentation that this is not necessarily sufficient for all situations. To ensure proper program files and to manipulate your files outside of Personal Editor, a special command allows you to override the compression feature.

There is no installation program since one is not required. Our technical staff did however take advantage of the ability to redefine keys, and reconfigured the keyboard based on the word processor profile provided in the documentation and the habits of our other staff members.

The macro command allows for the automatic execution of any program commands, providing the ability to further simplify the accomplishment of a given set of tasks.

Provisions are also made for the restoring of erased or changed text. While there is no practical way to protect against all methods of disrupting a file, at least a reasonable attempt has been made which is adequate for the specific, although limited, situations which it covers.

☐ Ease of Use

For basic text entry and manipulation of up to 20 files in memory, with little time needed to become familiar with the system, Personal Editor is an excellent choice. The ability to customize the system by simply typing the list of system commands desired for each key, enables users to create one or more systems tailored specifically to individual tasks and personalities, or even to simulate another text editing program that a user is more accustomed to, without the need of a technician or technical manual.

IBM Personal Editor
Text Editor Package

The Help menus are concise and readily available. Most frequently used commands are on the function keys, and easy to understand error messages help make one feel less threatened than on many similar systems we have seen.

Printing is straightforward (perhaps even trivial), supporting whatever compatible printer is connected to the system. The ability to enter ASCII characters on the screen can help to overcome the lack of special print functions (provided your printer has them available).

In cases where a project required a certain series of tasks to be accomplished by an individual unfamiliar with both the PC and the project, we were able to get the individual producing work within an hour or two by utilizing the excellent tutorial, redefining the keyboard, and creating special macro command files. This was done with minimal time and effort by our technical staff and, in some cases, by our more advanced clerical staff themselves.

Nothing is perfect, even something as basic and essentially useful as Personal Editor. The product was enough like a word processor that the places it fell short "crept up" on the staff, sometimes causing wasted effort while someone tried to make the product go the extra distance which would have produced the desired result. The similarity also caused some problems when word processor features were accidently applied at inappropriate times. We had a tendency to word-wrap program input, for example, and most of our language processors objected to the extra formatting.

An "undo" function key restores what you had on a line before you began to change it, if the cursor does not leave the current line. Once the cursor leaves the line or joins two lines, that line cannot be restored. We found this to be essentially useless since any single-line error could be more easily corrected by conventional deletion/rekeying, and other errors were not addressed via "undo." The five-deep "last change" buffer was another less than useful feature for clerical workers, since they tended to rely too heavily on it and then found that the change they wanted was really the sixth, and thus lost.

□ Support

Since IBM does not directly support its software, one is left to the ability, or lack thereof, of the dealer. Being an inexpensive, minimal profit item, many dealers do not stock it, and therefore have no experience with it at all. In fact, a salesman for one major chain indicated that he had several requests for the product but was not permitted to even order it for his customers.

Fortunately, from the simplicity of the product and the documentation, one would expect a minimum, if any, amount of support to be required. Anyone at all familiar with computers would be qualified to aid the totally inexperienced user.

□ System Interface

The product creates standard ASCII files and stores them

LCNS: license fee.

in a compressed format, eliminating blanks to conserve disk space. The compression process avoids moving literal string constants that would change the performance of a program by not compressing characters beyond the first quote in a line.

Errors can still occur, however, when using Hollerith constants in FORTRAN FORMAT statements. To prevent the errors or to produce a file which is to be used outside of Personal Editor, the file must be saved using a command which does not compress. We set this as a requirement, since disk space on our XT was not a premium, because several users forgot and sent compressed files to the mainframe.

□ Vendor Experience

The vendor for Personal Editor is IBM. Need we say more?

■ PRODUCT OVERVIEW

□ Terms & Support

Terms ● Personal Editor is available on a purchase license basis from IBM Corporation, through authorized PC dealers, through IBM Product Centers, or via the IBM direct mail or phone order system.

Support ● support must be obtained from the dealer.

□ Component Summary

One program diskette entitled "Personal Editor" is provided. The following files are included: PE.EXE—the word processor; PE.PRO—the key definitions; and PE.HLP—the help files.

Personal Editor: $60 lcns

□ Computers & Operating Systems Supported

The Personal Editor runs on the IBM PC 1 or PC/XT with PC-DOS. Compatibility with MS-DOS systems provided by other vendors is not indicated.

□ Minimum Operating Requirements

A minimum of 64K bytes of memory is required together with 1 single- or double-sided diskette drive. An IBM or compatible monochrome/color graphics monitor, or television with RF modulator with appropriate card, and an IBM or any compatible printer are also required.

□ Features

Display Type ● full screen; display of help files does not affect text display.

Command Structure ● easy-to-use menu and extensive use of function and special keys, plus added ability to redefine 99 keys and customize help menus.

Error Recovery ● "Undo" key and special internal file which saves the last 5 changes; of little or no help if massive changes have been made.

Block Operations ● move, copy, erase, and overlay on paragraph, line, and sentence basis; function keys are well utilized.

Merge/Print Functions ● documents, or parts thereof, may be combined during editing prior to printing, but no form letter/list merge facilities are supplied.

Spelling Check/Aid ● none available.

Multiple Window/Multiple Document Support ● up to 20 documents can be loaded into memory at one time; one keystroke moves sequentially through the list of documents, one at a time; an individual document may be accessed directly, eliminating the need to page through the whole list.

● END

IBM Time Manager
Information Management Package

■ PROFILE

Function ● daily scheduling, appointment and activity management, personal accounting.

Computers/Operating Systems Supported ● IBM PC and PC/XT using PC DOS Version 1.0 and later; PC-compatible systems using MS DOS ● runs on PCjr also.

Configuration ● minimum configuration is 64K bytes of RAM, a single-sided diskette drive, and monochrome display; printer is optional, as is a second diskette drive, although 2 drives are recommended ● package supports both 40- and 80-column displays.

Current Version/Version Reviewed ● Version 1.05/Version 1.05.

First Delivery ● November 1983.

Number of Installations ● information not available.

Comparable Products ● SofTrend Time Scheduler/Organizer/ The 25th Hour, VisiCorp VisiSchedule.

Optional Associated Software ● none.

Price ● $100 retail price.

Vendor ● IBM Corporation; P.O. Box 1328-W, Boca Raton, FL 33432 ● 800-447-4700.

**Canada** ● IBM Canada Ltd; Markham, 3500 Steeles Avenue East, Markham, ON L3R 2Z1 ● 416-474-2111.

■ ANALYSIS

Time Manager is a personal information management and organization package, and a computerized datebook. It provides the ability to create prioritized and categorized text entries, which are arranged by date in a structure resembling a calendar. The package also provides a limited accounting capability useful for recording such items as expenses and time. Numerous functions for the entry and management of calendar entries are provided, and the accounting capabilities include the ability to generate totals in several user-definable categories.

Although it provides quite a number of functions for the management of the daily entries, the package is capable of managing this information for only one person at a time. No provision exists for the creation of multiple independent entries, nor is there any capacity for schedule correlation. Given this restriction, the package is probably only appli-

PURCHASE PRICE RANGE

Software Price Range ☐────☐

IBM Time Manager $100

☐────────────☐ $50 to $250

$100	$200	$300	$400	$500
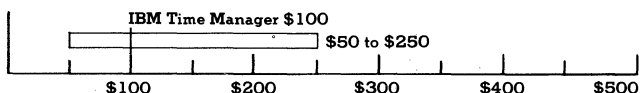
IBM TIME MANAGER PRICING ● open bar shows the typical range of prices for TIME MANAGEMENT software used in a corporate environment ● the vertical line within the bar graph indicates the price of TIME MANAGER, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10
ENVIRONMENT										
DOCUMENTATION										
FUNCTIONALITY										
EASE OF USE										
SUPPORT										
SYSTEM INTERFACE										
EXPERIENCE OF VENDOR										

*For an explanation of rating criteria, please refer to the Spreadsheet Features section in the Software Evaluations (805) report.

cable for use by the executive officer of a small company, or perhaps an independent consultant or a minor celebrity. The consensus of opinion was that the range of features provided was insufficient for use in the corporate environment.

☐ Strengths

The text entry management features provided with Time Manager leave almost nothing to be desired. Functions exists for moving, copying, and repeating text entries throughout the entire calendar.

Entries may be prioritized and categorized, and functions exist to scan the calendar for entries of a specific category or priority, or entries containing specified keywords. The accounting features provide for nine categories of numeric entries, with separate totals.

All of the information managed and created by the Time Manager may be selectively printed. This gives users the ability to use the package to produce hard copy records of activity for submission to management, an activity that may justify the expenditure of time needed to keep computer records of activities.

☐ Limitations

The limitation on the number of personnel that can be scheduled is the Achilles' heel of this package. Few users will justify a computer on the activity recording for a single individual, and the use of the product for multiple personnel requires creation of individual and noncorrelated schedules.

There are some minor operational difficulties that tend to make program operation by the uninitiated something of a chore. If the system on which Time Manager is to be used is primarily intended for word processing or electronic spreadsheet operation, the amount of time consumed by these applications would tend to limit the utility of the Time

IBM Time Manager
Information Management Package

Manager package. Some of the functions provided by Time Manager would almost require a dedicated system to be useful.
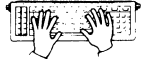
■ HANDS-ON EVALUATION

This package was created by a company called Image Producers, is produced by Microsoft, and is distributed by IBM. This mixed parentage lends an air of unreality to a first investigation of the manual, an air that is not dispelled by closer examination. Time Manager is an unusual package, performing a function that, quite honestly, many of our testers saw no need for. We were expecting a lot from the package, given its endorsement from IBM. From the outset the reality was somewhat less than the expectations. The IBM documentation, which seemed so good two years ago, didn't impress the majority of our testers—the general feeling was that the manual doesn't measure up to the documentation offered by many of today's software vendors.

Many staffers also complained of difficulty in operation, with command prompting that was sometimes obscure, and some strange effects resulting from errors in keying. Most of these problems tended to disappear with familiarity, but one problem that won't go away is a lack of capability. We also felt that the ability to schedule multiple personnel is a critical factor in utilizing a package such as this one. Without that capability, the utility of the package is seriously compromised.

☐ User Interface

Time Manager employs a modified prompt/menu structure which is attractive and generally easy to use, but which sometimes offers options whose command names do not accurately reflect the functions. The interface is also relatively fragile, and beginners will often experience unusual and even startling responses to errors. This makes introduction of the product in an office with little computer experience more difficult than usual.

Menus: A menu is used for the Package personalization feature of Time Manager. No other commands or functions are menu-driven. Prompts and screen entry are employed throughout the body of the product.

Control Characters: Control characters are used in text entry editing, and to initiate printing. Control characters are also used to select an entry when operating at the month level, and to initiate the repeat keystroke function.

Function/Special Keys: Function Keys are used in some parts of the program to generate specific displays. Function keys are also used to initiate and terminate the entry edit procedure, and to terminate entry without saving the entered data. No template or menu is provided, but the help display, which is selected by function key, provides a list of function keys used. Function keys are used in conjunction with other keys when operating the accounting functions. The cursor control keys are used for cursor movement at both day and month level, while the home key is used to select entries, and also to move the cursor in certain displays.

Command Language: None.

Positive Feedback: Erroneous key entries are accompanied by an audible tone and an error message; additional information in the form of a help display may be requested. The operator is prompted for field entries. Disk operations require operator verification before the operation is performed.

Status Display: "prompt line" is provided which provides information about command options available at the current level of operation.

Help Facilities: The function key F1 selects the help display. This is usable at any level and provides information specific to the current level. Used in conjunction with other keys, information about certain specific functions may be obtained as well.

☐ Environment

The minimum system requirements for Time Manager operation are 64K bytes of RAM and single-sided diskette drive. A second diskette drive is optional, as is a printer. Two diskette drives are recommended. Time Manager supports operation with either a 40-column or 80-column monochrome display, and will operate with a color graphics adaptor, although no color selection feature is available. Memory beyond 64K bytes is not utilized.

Although no explicit hard disk support is provided, operation from hard disk is possible. While the distribution diskette is copy protected, the installation procedure allows the creation of a single backup copy. This feature can be used to copy the program files to hard disk.

The data storage disks contain display-specific files that must be copied to all disks used for schedule storage. These files are not copy protected, and the distribution diskette containing them may be copied using the DISKCOPY utility. The file COPY utility does not work, however, as the files appear to be "hidden."

☐ Documentation

The documentation supplied with Time Manager consists of a combination tutorial and reference manual, and a pocket guide or "quick reference card." The latter provides a complete command listing, as well as illustrations of the three main screen displays used by Time Manager. The quick reference guide does not provide sufficient information to allow first-time users to dispense with the reference manual, and saw little use in our testing. It does provide sufficient information to support occasional users.

The tutorial/reference manual was something of a disappointment. The tutorial function is performed reasonably well, with every feature described in step-by-step instructions. There are few illustrations, but the data diskette provided includes sample entries that are used as a part of the tutorial. Most of the staff felt that the tutorial was well done, although the more experienced personnel found it to be a little tedious.

As a reference manual the document falls somewhat short. The manual is equipped with a good table of contents and a

IBM Time Manager
Information Management Package

passable index. The manual itself is overly verbose for its reference function: this is a direct result of combining the tutorial and reference into one document. This was less of a problem with inexperienced personnel, who seemed to appreciate the more detailed key-by-key format. The appendix includes an alphabetic error message listing which includes explanations. The types of errors encountered with Time Manager are generally simple and self-explanatory, making explanations a bit redundant. In cases where the error recovery procedure is not immediately obvious, the recovery procedure has been given along with the explanation of the error. We encountered few of the problems covered by the error message listing and consequently had no chance to verify the recovery procedures.

We wondered if the number of companies involved in the product might be an explanation of the documentation style. One of our users felt that the manual had the typical "committee" structure—everything anybody wanted to see went into it.

☐ Functionality

Our original plan for testing the Time Manager package consisted of using one system under the control of a department secretary to schedule all of the personnel on a software development project. We were unable to implement this plan due to the nature of the package, and were forced to pass the package around among various departments and obtain feedback from the personnel that used it. One innovative staff member with an IBM PC at home even used the package to schedule both business and personal information. The amount of transportation that the diskettes were subjected to in this application was somewhat excessive, though, particularly as only a single backup copy may be created.

Time Manager provides nice-looking and readable displays for both month and day entries, as well as special displays for the notepad and accounting functions. A help feature is provided in addition to command and field-level prompting. Cursor movement is fast and easily controlled by the cursor control keys on the right side of the keyboard. the package divides the calendar into two levels: month and day. Movement at the month level can be done on a day-to-day or month-to-month basis, and a "go to" command is available allowing movement directly to a specific month. Similar features are provided at the day level, with the ability to go from day-to-day, or to a specific day within the month, as well as providing a function to proceed directly to the first or last day of the month.

The organization of calendar entries is well done in this package. Entries are arranged in a priority structure, with six levels of prioritization. The highest priority type is a "dynamic do list" entry, which appears at the top of each day's entry list until it is deleted or marked as completed. The second level is the appointment level; these are sorted chronologically by appointment time when displayed. Three other levels of entries are provided; these are arranged in decreasing order of importance on the daily display. Entries may be marked as permanent, in which case they are retained in the daily entry when a new calendar is created.

The calendar entries created under Time Manager may be placed in one of 26 categories. These categories may be user defined, although default values are provided. Only one character is used to indicate the category, and one or two of the users complained about the fact.

Entry selection for display purposes may be done on the basis of priority or category, providing quite a bit of display flexibility. Adding even more capability in this area is Time Manager's ability to select entries on a keyboard basis. It is possible to scan through the entries at day level, displaying only the entries that match the selection criteria: either priority, category, or with a word matching the keyword.

Another area where Time Manager provides some nice features is in the area of totaling and accounting. Time Manager provides the ability to total numeric entries, but the functions provided go beyond mere summing of numbers. Totals may be accumulated in nine separate categories, such as hours, expenses, accounts receivable, and so on. These totals may be accumulated over a range of days, months, or as running totals over selected days. Keyword, category, and priority selection may also be used to select entries to be included in the total. The Time Manager also includes a limited capability for projecting totals over period of time. Totals such as expenses may be projected through the use of a multiplication factor that is applied against a daily or monthly total. In this way the expenses for the month of January could be projected over the entire year simply by applying a multiplier of 12.

Both day and month level displays may be printed with Time Manager. Both may be printed over a range of dates, with from one to 31 days printed, or from one to 12 months. The entry selection capabilities of Time Manager may be used in conjunction with the print function. One enterprising tester used this capability to produce time sheet information, providing automatic project accountability by job number. It is also possible to print any Time Manager display, providing hard copies of the notepads and account totals created with the package.

One additional feature provided by Time Manager is the ability to set an alarm. This function presupposes that users of the package will spend a significant amount of time operating the package, since the alarm setting is not saved as a part of the calendar entry. None of our testers used the alarm function as a part of their testing; many commented that it seemed an unnecessary accessory, usable only if the computer was dedicated to Time Manager operation.

A repeat entry feature allows periodic entries to be made with only one text entry. Entries may be repeated daily, weekly, or monthly, and any number of days, weeks, or months may exist between repetitions of the entry. This function provides a convenient way of entering regular entries such as weekly staff meetings or due dates for monthly reports. The time interval calculation is a function that is useful primarily in an interactive mode; we found it most useful while scheduling appointments on the telephone. This is another function that seems to presuppose to dedicated usage of the computer.

IBM Time Manager
Information Management Package

☐ **Ease of Use**

Time Manager is equipped with easy-to-read displays, command and command field prompting, and a help function. The documentation supplied with the package is also sufficient, although not overwhelming. Some of the package's functions, such as the conveniences, many of our testers had some difficulty operating this package. The command prompts were one area of frequent complaint, with the relationship between prompt and action often unclear. Function key usage was another area that received criticism. Although only half the function keys are used, this use is not well documented; inexperienced users tended to forget that the keys were used at all. A keyboard overlay would help to alleviate these difficulties.

Another difficulty experienced by many members of the staff was a tendency for the program to "run away." Keying errors tended to cause unpredictable and sometimes spectacular effects. While these never resulted in the loss of any data, a sequence of incorrect keystrokes often resulted in 10 to 15 seconds of spontaneously changing displays. One manager thought the program had run amok and removed the data disk to protect it.

With the exception of these difficulties, with familiarity will tend to minimize, the package is generally easy to use. The displays and menus are easily understood, and the functions they describe are easily invoked and simple to operate. The help function provides enough information so that a first-time operator with technical experience can operate the package successfully, and less-experienced operators can use the help screens to overcome minor difficulties. The help feature also includes an "explain the last error" capacity, which elicited praise from everyone who used it.

☐ **Support**

Support for IBM software is provided entirely by the dealer. No telephone numbers are provided for customer support, nor is any customer support group mentioned in the documentation. Included in the back of the manual is a product comment form, whereby the user can send comments and suggestions directly to IBM.

A quick visit to the local dealer provided little helpful information on the Time Manager package. The only functional information that they were able to supply consisted of a computerized sales pitch that looked as if more effort had been spent on it than on Time Manager itself. None of the sales people were familiar with the package, nor could anyone offer any recommendations as to its suitability for a particular application. They were able to provide a rough estimate of the price.

☐ **System Interface**

The functions provided by the Time Manager package make interfacing with other systems somewhat less important than in other packages, such as word processors or database management programs. Some interfacing ability would be helpful though, particularly in view of Time Manager's inability to correlate the schedules of multiple individuals. No file structure information is provided in the

documentation included in this package. There are no utilities provided to transfer files from one system to another, nor is there any provision for using standard text files for input to notepad or day level entries, or to output accounting information for use by spreadsheet packages. Packages able to accept text files as input might be able to use output created by the Time Manager print function as input; no mention is made of this in the documentation included in the package.

☐ **Vendor Experience**

The name IBM is synonomous with business computers. Microsoft is one of the most experienced microcomputer software producers, with experience dating back many years and including development of the system software for the IBM PC. Time Manager has been available for about one year.

■ **PRODUCT OVERVIEW**

☐ **Terms & Support**

Terms ● Time Manager is available for purchase only from IBM PC dealers in the U.S. and internationally.

Support ● all support is provided by the dealer.

☐ **Component Summary**

Time Manager is composed of 8 modules. AUTOEXEC.BAT automatically starts the Time Manager program after the system is booted. SETUP1.BAT and SETUP2.BAT are batch stream files used to put the system files into the Time Manager program diskette. DISPLAY.BAT is a batch stream file that, when executed, alters the file AUTOEXEC.BAT so AUTOEXEC.BAT can invoke either the 40-column version or the 80-column version of the Time Manager program. AUTO40.BAT is a batch stream file that invokes the 40-column display version of the program. It is used by DISPLAY.BAT to create the AUTOEXEC.BAT file. AUTO80.BAT is a batch stream file which invokes the 80-column display version of the program. It is used by DISPLAY.BAT to create the AUTOEXEC.BAT file. TM40.COM and TM80.COM are versions of the Time Manager program that support 40- and 80-column displays, respectively. TMCOPY.COM is a utility program supplied with the Time Manager program that creates a single backup copy of the program.

Time Manager:

	$100 lcns

☐ **Computers & Operating Systems Supported**

Time Manager runs on IBM PC and PC/XT under PC-DOS version 1.0 and above; it also runs on PC-compatible systems under MS-DOS.

☐ **Minimum Operating Requirements**

Time Manager requires at least 64K bytes of RAM, a single-sided diskette drive and monochrome display. Two drives are recommended, although a second drive and printer are optional.

☐ **Features**

Entry Organization Methods ● entries are organized by priority and category, or in the case of appointment category entries, by time ● a special category, "notes," is also available ● entries may be marked as permanent.

Display Selection ● entries may all be displayed (for a particular day), or may be selectively displayed by priority, category, or keyword.

LCNS: license fee.

IBM Time Manager
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Accounting Functions ●7 different categories of numeric entries are provided; totals and running totals may be generated separately for each category.

Multipersonnel Capability ● none.

Printing Selection ● all displays may be printed as shown; in addition, entries may be selected on the basis of priority, category, or keyword.

● **END**

Information Unlimited Software EasyWriter II
Word Processor Package

■ PROFILE

Function ● the production of reports and development of documents, including the generation of form letters, labels, and mailing lists.

Computers/Operating Systems Supported ● IBM PC and PC-compatible systems using PC-DOS Version 1.1 or 2.0 or the equivalent version of MS-DOS.

Configuration ● a minimum of 64K bytes of RAM and 2 disk drives are required; also supplied is a version supporting operation on systems configured with 96K bytes of RAM; hard disk operation is supported.

Current Version/Version Reviewed ● original version/original version; number not specified.

Number of Installations ● information not available.

Comparable Products ● MicroPro WordStar, MailMerge, SpellStar; Peachtree Software PeachText.

Price ● $395 retail price.

Vendor ● Information Unlimited Software, Inc; 2401 Marinship Way, Sausalito, CA 94965 ● 415-331-6700.

Canada ● Basic Software Group; 1645 West 7th Avenue, Vancouver, BC V6J 1S4 ● 604-733-2343.

■ ANALYSIS

EasyWriter II is an updated version of the earlier EasyWriter word processing package. It is designed to be an easy-to-use, menu-driven program suitable for both experienced personnel and the relative novice. In its full-featured form, which includes a spelling check utility and a form letter utility, it offers good functionality.

In some respects, the package falls short of its intended goal. Many users found the command structure to be difficult to learn and difficult to use. The style of the documentation is a little unusual also, and some personnel had difficulty learning the package because of this. A disk-based tutorial document helps to alleviate some of the learning curve difficulties created by the tutorial sections of the manual.

Other relatively trivial difficulties with the package in operation tend to make it seem less friendly than it could be, such as an unusual field terminator in the menus and fields that must be manually cleared. Those considering the purchase of a word processor package may find the

PURCHASE PRICE RANGE   Software Price Range ▭

```
                    EasyWriter II  $395
        ▭▭▭▭▭▭▭▭▭▭▭ $75 to $550
   |_____|_____|_____|_____|_____|
      $200     $400     $600     $800    $1,000
```

INFORMATION UNLIMITED SOFTWARE EASYWRITER II PRICING ● open bar shows the typical range of prices for **WORD PROCESSOR** software used in a corporate environment ● the vertical line within the bar graph indicates the price of **EasyWriter II**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10
ENVIRONMENT							7.0			
DOCUMENTATION					5.0					
FUNCTIONALITY							7.0			
EASE OF USE						6.5				
SUPPORT					5.0					
SYSTEM INTERFACE					5.0					
VENDOR EXPERIENCE							7.0			

*For an explanation of rating criteria, please refer to the Word Processor Features section in the Software Evaluations (805) report. The Overall Package Average is 6.1.

EasyWriter II full-featured package suitable for their needs, if those needs extend mainly to generation of smaller documents by personnel with moderate levels of experience.

□ Strengths

EasyWriter II provides strengths in three main areas: error correction, block text operations, and (in the full-featured version) the inclusion of utilities for spelling verification and form letter generation. Error correction is made simple by the inclusion of the "cancel" function: this allows the fumble-fingered operator to get out of almost anything. It does have the drawback that all changes to a page are cancelled, but in many cases this can be more of a blessing than a hindrance.

Block text operations are made very flexible by the fact that they can be used to manipulate 7 different units of text, from individual character to full pages. This flexibility is limited somewhat by EasyWriter II's failure to utilize system memory, but is still impressive.

The spelling check utility provides the ability to verify spelling online while a document is being edited. This is a very nice feature that met with a lot of enthusiasm. Unfortunately, there is no mechanism for the creation of user-defined dictionaries, which makes the feature less helpful for technical subjects. There are two optional dictionaries available, one for medical terms and one for legal terms.

□ Limitations

EasyWriter II's first apparent shortcoming is in the documentation. The manual is unusual in that the hands-on tutorial follows a technical reference section explaining the commands and functions covered in that section. This format was popular with experienced personnel, who tend to skip over hands-on sections anyway, but met with resistance from the novices on the staff.
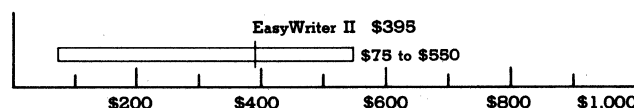
Information Unlimited Software EasyWriter II
Word Processor Package

Another immediately apparent weakness is in the area of memory utilization. EasyWriter II only uses up to 96K bytes of system memory. This results in two things: first, the package spends inordinate amounts of time thrashing the disk, and second, block operations are limited in size. The EasyWriter program also suffers in this regard since the amount of data that may be sorted by the program is limited.

The command structure of EasyWriter II makes good use of the function keys and special keys that are available on the IBM PC keyboard; unfortunately, these keys are not always placed well for use by human fingers. Operation of the package was hampered by the necessary contortions to simultaneously depress the ALT and function keys, or shift and function keys.

The last and probably least important difficulties lie in the area of data entry, both into menus and during the editing of documents. When entering data into a menu, the field must be terminated with a tab character rather than a carriage return. The natural action of terminating the field with the latter key often produces amusing results as the program attempts to perform a function without sufficient parameters. The problems encountered in entering data into a document were more annoying. The erroneous entry of a carriage return in the midst of a paragraph requires the "nuke and retype" method of correction.

■ HANDS-ON EVALUATION

We had a little difficulty with EasyWriter II before we had even installed it. The documentation refers to both 64K-byte and 96K-byte versions of the program, and indicates that both sets of disks are included in the package. We were able to find 4 disks, but 2 of them contained EasySpeller and Easy Mailer. Then we discovered an addition to the documentation, buried at the back, indicating that the 64K-byte version is not included in the "fully configured" EasyWriter II package.

Once we had sorted this out, installation of the package proceeded without a hitch. The installation instructions are very thorough, and cover every possible combination of disk drive and program options. EasyWriter II allows the creation of backup copies and provides instructions for their creation, which we dutifully followed. Information Unlimited Software recommends operating the package from a backup copy, as do most software suppliers. This is particularly important with a high-use package such as a word processor, especially in view of the number of disk-manglers that roam our offices. Our technical specialist beams beneficently when handing over a package with backup copies, as he has always hidden the master disks where we can't find them.

This package is somewhat unusual in operation. The program is operated almost entirely by the function keys; some commands require simultaneous use of the shift or ALT key as well. There are 7 editing modes; each mode corresponds to a unit of text. Commands such as advance or delete work on a single character when in character mode, a word when in word mode, a page when in page mode, and so on. Some users had difficulty adapting to this style of operation, but most improved with practice.

There are other aspects of program operation that are difficult at first. When entering file names or parameters on a menu, the end of the field is indicated by typing the tab key instead of a carriage return. This caused lots of grumbling at first because a carriage return entered at the wrong time sends the program off on a task without sufficient information, though it usually returns promptly with a beep and an error message. When specifying file names or entering the date, it is necessary to overtype old data with the space key. Surely this is a task that could be performed by computers!

☐ User Interface

Menus: All non-editing tasks in EasyWriter II are menu driven. This includes utilities, configuration routines, and pre-editing file selection operations.

Control Characters: Control characters are used to operate the EasySpeller II and EasyMailer II programs. Functions accessed through control characters include EasyMailer II's sort function and EasySpeller II's online verify functions.

Function/Special Keys: All EasyWriter II functions are accessed by function keys, or a combination of shift, ALT, and function or alphabetic keys. Editing tasks are primarily controlled through a combination of the ALT key and a function key. Modes are selected for the most part using unshifted function keys. The ALT key is used in conjunction with an alphabetic key representing the font to select special printer effects such as boldface (B) or overstrike (O). The cursor control keys may be used to move the cursor on the current edit page.

Command Language: None.

Positive Feedback: All potentially destructive operations require operator verification before they are performed. This usually takes the form of a message that prompts: "RETURN TO DELETE XXXX, ESCAPE TO SAVE."

Status Display: The upper portion of the screen contains a status line. This line contains information about the current edit mode, cursor position, date, percentage of the disk used, and any error messages or prompts. Also provided is a ruler showing current margins and tabs.

Help Facilities: A full online help facility available and accessed through a dedicated (unshifted) function key. Also provided is a peel-and-stick label detailing function key usage.

☐ Environment

EasyWriter II elicited mixed comments on its environmental requirements. Memory requirements are limited. The version that we tested requires only 96K bytes of RAM, while a version exists that requires only 64K bytes of RAM (although this version does not support EasySpeller or EasyMailer). Unfortunately, the package does not utilize any additional memory that may be available. This results in a lot of disk thrashing that would otherwise be unnecessary.

Two disk drives are required. While the package supports

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operation with single-sided drives, double-sided drives are preferred. The spelling check utility that is included in the package will operate from single-sided drives, but the medical terms version of the same program will not. Hard disk operation is possible; in fact, detailed hard disk installation instructions are included in an appendix to the documentation. However, these instructions state that Information Unlimited Software will only support the package when installed on systems equipped with floppy disk drives.

Printer support is good with this package, with support for serial and parallel printers provided. All the necessary parameters may be set from a printer configuration menu, including communications protocols, setup strings, and the like.

Installation of the package is straightforward in most cases. The second chapter in the manual is devoted to this topic and provides comprehensive instructions for all possible combinations of package options and floppy drive configurations.

☐ **Documentation**

The documentation included with this package consists of the Tutorial/Reference manuals for EasyWriter II, EasySpeller II, and EasyMailer II. Also included is an additional section describing this combined package and a peel-and-stick label detailing the function key usage of each program. A card describing the disk-based, self-teaching document, and pamphlets describing the warranty and the PhoneSupport plan are also included.

The manual provided with EasyWriter II is somewhat unusual in format. There is no separate tutorial section to the manual, nor is the reference function of the manual compromised by an attempt to combine the tutorial and reference functions. Information Unlimited Software (IUS) has taken the approach of presenting the information in reference form, then following this with a series of exercises to familiarize the user with his newly acquired knowledge.

The structure met with some resistance at first, but as people became more accustomed to it they became less critical. Technical personnel in particular found this style of documentation accommodating; many admitted later that they often skipped the exercises, or only skimmed them without performing the tasks indicated. Less experienced personnel had more difficulty with the manual; a few stated that they sometimes failed to reach the tutorial part after becoming bogged down in the reference. One of our clerical staff refused to attempt learning the package entirely and only relented when presented with the disk-based tutorial.

There are 5 sections of the manual devoted to presenting the EasyWriter II package from a functional viewpoint. The remaining 2 sections are somewhat different. One section deals with EasyWriter's system functions, such as copy document, edit system parameter, and import and export document. This section consists of a short summary of the purpose of the function, followed by a step-by-step procedure for using it. The last section of the manual is an alphabetic list of functions. This section provides a concise

description of each function, additional references in the manual, and the tutorial section where the function was treated. Unfortunately, functions are not given dedicated pages and some leafing through the document is often required to find the desired description.

The appendices include an alphabetic error message listing, 2 sections on printer configuration, a glossary, and a section on installation of the package on a hard disk system. An index is also provided. The error message listing provides simple explanations of the error condition, hardly more than the message itself. No corrective actions are suggested. The 2 appendices dealing with printer configuration are more helpful, and go a long way towards rectifying the one limitation of the otherwise excellent installation instructions.

One other area in which the documentation lacks is in illustration. There is a very minimum of illustrations in the manual, and none of them are full-screen representations. This is particularly true in the tutorial sections, where illustrations should be exceptionally rich. Instead, there are almost none. This is an annoying shortcoming, especially in view of the unusual nature of the tutorial.

The disk tutorial is a self-teaching document viewed by "editing" it with the EasyWriter II package. The tutorial is very simple, aimed at first-time users of word processing systems. Some of the more experienced personnel complained that the document was patronizing, but most people were satisfied with it. Many of these people didn't actually perform the exercises, but still found the lesson helpful. Because the document is reviewed with EasyWriter, it becomes an interactive teaching aid. Included in the lessons are instructions on editing that are immediately applied to the teaching aid itself. IUS recommends that a backup copy of the document be used for teaching purposes. While the potential for disaster is reduced by use of EasyWriter's cancel feature, a ham-fisted operator can still create havoc with the document.

☐ **Functionality**

The 96K-byte version of EasyWriter II packs a lot of punch, especially when packaged together with EasySpeller and EasyMailer. There are 1 or 2 major areas of weakness, such as the lack of multiple text windows, but on the whole the package provides almost everything required of a word processing package.

The display is full screen, and the image is closer to the printed page than many that claim to be "print image." EasyWriter II takes advantage of the IBM PC's display capabilities to show enhanced printing in reverse video, high intensity, or underline, depending on the printing effect represented.

Status information is tucked away at the top of the screen, and also along the right margin. This includes the cursor position, represented as character, line, and page, and also tab stops, margins, and paragraph breaks. Other status information includes the edit mode (character, word, line, etc) and the amount of disk space remaining, represented as a percentage of full.

The usual block text operations are available, which is to

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say that blocks of data can be copied, moved, or deleted. This is done in a slightly unusual manner; the editor is placed into "block mode" using a function key, then the block is delineated and the operation performed. Sentences, paragraphs, and entire pages may be manipulated in like fashion, by entering the appropriate editor mode.

Cursor movement is done with a combination of function keys and cursor control keys. Within a page, the cursor can be moved vertically one line at a time, or horizontally one character at a time using the cursor control arrows on the right side of the keyboard. The HOME, PG UP, and PG DN keys may be used to move up and down within the page, and the HOME key may be used in conjunction with the arrow keys to move to the end of the page in each direction.

Cursor movement is also controlled using the function keys. Editor operation is divided into 7 modes, each mode determining the size of the text unit that will be affected by an operation. The 7 modes are: character, word, sentence, line, paragraph, block, and page. When the appropriate mode is selected, use of one of the 2 function keys dedicated to cursor movement will move the cursor one unit forward or backward in the text. One of 2 ways to move between pages in a document is to select page mode and enter the function key for "next." The other method provided is a "go to specified page" command. This can be particularly useful for revising a document, although some users complained that they needed a hard copy to know what page to go to.

EasyWriter II offers a very nice heading/footing feature. In addition to allowing the definition of headers and footers containing page numbers, this package provides the ability to define "right hand" and "left hand" headers and footers. This capacity allows the creation of very professional looking documentation. Our official office wag took advantage of this feature to produce right hand and left hand memos, but the fact remains that this feature can improve the appearance of a large document.

Margin control is done through the definition of page rulers. Nine separate page rulers may be defined, one default ruler and up to 8 named rulers. These may be accessed by name at any time during editing, simplifying the generation of documents requiring special formats (such as blocks of quoted text). A decimal alignment feature is also provided as a part of the ruler mechanism, as are user-selectable tab stops. Page length is set on a separate system parameters menu and is not selectable during editing. This does not preclude the creation of a short page through the use of a forced page break. Another unusual aspect of this package is related to paragraph formatting; the point at which a word will be moved to the next line is user selectable. This allows the user to determine how ragged the right margin of a document will appear when the document is generated without text justification.

Most of the expected printing features are supplied in EasyWriter II as well. Special printing effects include bold face characters, underline and double underline, overstrike, subscript, superscript, and shadowed

characters. These are selected using the ALT key in conjunction with one other key; the second key is representative of the command, for example "B" for bold face type.

Printer support includes the ability to use both single-sheet and continuous-feed paper. To simplify operation, the parameter controlling paper feed is selected when the print function is entered. Individual pages may be printed while they are being edited by entering a single-shifted function key. A list of the documents on the disk may be printed, and multiple documents may be printed. Print spooling is supported. Rulers, tags, and headers may be included in the printed document where they are inserted in the file, a nice feature for first draft editing. Line numbers may be appended to the document as well. One printing feature conspicuously absent is the ability to "print" a file to disk. This caused a small amount of consternation in the office until the "print a list of files" feature was discovered.

The file management capabilities in EasyWriter II provide the usual copy file and delete file functions. Also provided is a file index capability; this index of document files may be printed to disk, as well as displayed on the screen. Files are maintained in an unusual fashion with this package. Document files are organized into file folders, logical groupings of the document files into one master. Most of the staff was impressed by this approach to file organization until someone pointed out that the same effect can be created with much less complexity simply by maintaining related files on the same diskette. This system would be handy on systems equipped with a hard disk, however.

Other file-related functions provided by EasyWriter II provide the ability to import files created by other programs, export DOS text files, and perform a data integrity check on document files. The import function even allowed us to edit a WordStar document file with EasyWriter II, although the ability to import document files from other word processing packages is not mentioned in the documentation. This function is supposedly limited to the importation of standard DOS text files. The data integrity check did not produce any errors when run against the imported WordStar file.

Two additional functions were provided in the full-featured EasyWriter II package that we tested. These were a mailing list utility, EasyMailer II, and a spelling check utility, EasySpeller II. Both of these utility programs are operated from the main EasyWriter II menu.

The spelling check routine is interesting in that it provides the ability to check words on the fly while editing a document. Quite a few of the staff members commented on that aspect of the package; one technical type went so far as to proclaim it a "lifesaver." The package also provides the ability to check the entire document during a spelling correction pass; incorrect spellings are flagged and the document is then re-edited. The standard dictionary is 88,000 words in length; unfortunately no provision is made for a user-defined dictionary.

The mailing list utility, EasyMailer, may be used to generate form letters, standardized forms, and mailing

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labels. Data records are created using Easywriter II. Some nice features are provided for data field insertion; fields may be manipulated in various ways when they are placed in the "template letter." For example, a name that is maintained in the data file as "Doe, John" can be flipped around and the comma deleted to produce "John Doe" in the document. EasyMailer also allows inserted data to be printed using special printer effects such as boldface or underline. The text of a document is automatically reformatted after data has been inserted into it.

EasyMailer also provides the ability to create multiple copies of a document, which is nice for printing labels and forms. There is no provision for "ganging" labels, that is, printing more than one on a line. However, this lack can be overcome by defining a special template document and is made possible by EasyMailer's option of printing the entire length of a field. Use of this option would provide constant formatting from one line of labels to the next, so that some labels aren't printed on the spaces in between the paper.

EasyMailer does have some limitations. Data records are limited to a maximum of 255 characters. The data file is created as a document under EasyWriter II, thus the file is divided into pages. All data to be sorted must be contained on the same page. This means that even a small names and addresses file should be multipage lest it become impossible to insert a new record. It also means that a portion of the data can become too large to sort. For example, too many names beginning with "A" to fit on one page necessitates dividing the page in two. The operator would then have to determine which "A" page a new entry went into. It is a shame that a program with so many nice features is handicapped in this fashion.

One or 2 of the reviewers mentioned a few additional features that would be nice to have. A multiple-window capability is always a helpful addition, particularly in the development of large documents. Automatic upward-building footnotes would also be handy in some specialized applications, though this feature is of less use in the usual corporate environment. The ability to move columns of data and to total columns of numbers is particularly handy in the generation of reports; several of our testers noted the lack of this facility. While any or all of these features would make a nice addition to the package, their lack is not in any way a critical shortcoming.

☐ Ease of Use

The installation of this package was quick and painless. No one had any difficulty with the procedure once the appropriate disks were found. This presented a minor problem as the documentation referred to 2 sets of disks, one set containing the 64K-byte version of the package, and the other set containing the 96K-byte version. When we took a closer look at the manual, we found that the 64K-byte version of the program is not included in the package containing the EasySpeller II and EasyMailer II utilities, since they will not run with that version of the program anyway.

The documentation provided with the package is unusual and elicited mixed comments. Some personnel, particularly technical people, were very favorable. Other,

less experienced personnel had some difficulty with the manual and commensurate difficulty learning the package. This difficulty was somewhat alleviated by the disk tutorial, which was quite popular with the people that had complained about the manual. One woman in particular was completely put off by the manual, but bravely tackled the disk tutorial and later became very proficient with the package.

Operation of the package is done through menus and function keys. Non-editing tasks are performed from full-screen menus. All editing tasks are done using function keys, with the cursor control keys also used to maneuver the cursor on the page. A label is provided that describes function key usage. This received some negative comments since it is command rather than function oriented. Many commands require the simultaneous use of the shift or ALT key as well as a function key, which also elicited negative remarks. Entry of many of the commands is very difficult without a lot of practice due to the unusual hand placement and the contortions required of the fingers.

Another aspect of the package that met with mixed enthusiasm is the way in which text is divided for purposes of editing. The program has 7 operating modes, each mode corresponding to the unit of text that is operated on by the editor. Thus, in character mode, a "delete" removes one character from the document, and a "next" advances the cursor one character. In page mode, a delete removes an entire page, while a next advances the cursor to the next page. Herein lies the problem—in order to advance to the next page of the document you must be in page mode. This requires an extra keystroke, which doesn't sound like much but was enough to draw fire from those familiar with other word processing systems that do not operate in this fashion.

There were some problems at line and paragraph boundaries that drew universal criticism. When a word is wrapped to the next line and the operator then decides to hyphenate it, in most systems it is a simple matter to delete any intervening spaces to bring the word up one line and then insert the hyphen. Not so with EasyWriter II. We finally had to delete the offending line of text to hyphenate the word. Another similar problem occurred when a carriage return was inadvertently entered in the middle of a paragraph; our technical specialist spent five minutes trying to delete the errant characters before giving up in disgust. The delete and retype method had to be applied here also.

Some minor annoyances that cropped up include the fact that the date must be entered into the program manually, despite the fact that many other packages can obtain the date from the operating system. In many of the menus, extra characters in a field must be overtyped to remove old values. It does not seem unreasonable for the program to clear the field. Field entry is terminated with a tab character rather than a carriage return. This caused quite a few problems at first since most people naturally terminated the field with the carriage return. This usually resulted in the program exiting the menu and attempting to perform a function with insufficient parameters; we tried out quite a few error paths that way.

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Operation of the spelling check utility, EasySpeller II, is relatively straightforward. The online check function is easy to use and met with a lot of praise. The utility does not provide suggested spellings and was less popular when used to check an entire document. No capability for user-defined dictionaries exists, which can be something of a problem when a document deals with a technical subject. A ponderous procedure to circumvent this problem is described in the manual, but provides only a halfhearted solution that met with near-total disdain from the staff.

The EasyMailer utility has a lot of nice operating features that allow manipulation of the data as it is inserted in the template document. The package is handicapped by severe limitations on the number of data entries that may be sorted though, and also by size limitations on the length of each record. The maintenance of a large name and address file could become very tedious with EasyMailer II.

The general consensus seemed to be that the package has some very nice features, and offered some different and innovative approaches to the problem of word processing on a small computer. Many staff members felt that the package was more difficult to operate than was necessary, and some felt that the unusual documentation was a definite minus. The minor glitches encountered were rarely serious, but hindered operation by a beginner enough to leave a bad feeling about the package.

□ Support

Included in the package is a brochure describing the Information Unlimited Software PhoneSupport plan. For an annual fee, support for EasyWriter, EasySpeller, and EasyMailer is provided via a toll-free 800 number. This includes free replacement of defective disks and periodic notification of problems and programming techniques. This service is provided during normal business hours, Pacific Standard time, and an answering machine records off-hours calls.

□ System Interface

No information on document file structure is provided in the EasyWriter II documentation. What is provided is a file import-export utility to convert files from standard DOS text file format to EasyWriter document format and vice versa. This utility is invoked from the housekeeping menu. Also provided is a utility to check the integrity of a data file. While this is not strictly an interface utility, the routine provides some measure of assurance that a conversion was done properly.

We used the import-export routines with no difficulty. Feeling adventurous, our technical specialist then attempted to import a document file that had been created by the WordStar word processing package. Much to his surprise, he was able to import the document. A run with the data integrity check utility produced no errors, and he was able to open the document and edit it under EasyWriter II.

□ Vendor Experience

EasyWriter was the first word processing package available for the IBM PC. EasyWriter II is an upgraded

version of that package and has been available for about two years. Information Unlimited Software offers other products for the IBM, EasyFiler and EasyPlanner.

■ PRODUCT OVERVIEW

□ Terms & Support

Terms ● EasyWriter II is available from IBM PC dealers and some software dealers.

Support ● telephone support, called PhoneSupport, via a toll-free 800 telephone number, is provided for a fee.

□ Component Summary

Software elements consist of the following programs: DT96.LOD is the EasyWriter II startup program used to access both system and housekeeping programs. It is invoked through the file AUTOEXEC.BAT, which is also supplied. ESCHN00 is the EasyWriter II word processing program. ESCHN01 is the EasyWriter II utilities program, which provides such functions as import-export and data integrity check. ESCHN02 is the EasySpeller spelling check utility, and ESFNC03 and ESEM000 contain the EasyMailer utility.

EasyWriter:
$395 lcns

□ Computers & Operating Systems Supported

EasyWriter II runs on the IBM PC and PC-compatible systems using PC-DOS Version 1.1 or 2.0 or the equivalent version of MS-DOS.

□ Minimum Operating Requirements

Minimum memory of 64K bytes is required. If EasySpeller and EasyMailer are to be run, a minimum of 96K bytes is required. Two disk drives are required, and double-sided drives are preferred. Hard disk operation is supported. However, Information Unlimited Software will only support the package when installed on systems with 2 diskette drives.

□ Features

Display Type ● EasyWriter II's display is as close to full print image as is possible; this includes boldface (bright intensity) and underline.

Display Feature Utilization ● EasyWriter II makes very good use of special display features on the IBM PC; reverse video is used in menus, while high and low intensity are used in the document itself; blinking text is not used.

Command Structure ● command input is via function keys or shifted function keys during editing; all other information (such as file names) is input from a menu; a peel-and-stick function key list is provided.

Error Recovery ● generally good in EasyWriter II; a cancel function is available to restore text that is inadvertently deleted; all delete operations require verification before they will be performed.

Block Operations ● move, copy, and delete operations are available in all modes of operation; this allows manipulation of text in word, sentence, line, paragraph, and block form.

Merge/Print Functions ● in addition to the ability to print multiple documents, EasyWriter II, when equipped with EasyMailer II, offers the ability to merge data files created by EasyWriter II with standard document files; no provision for inserting one document into another is available.

Spelling Check/Aid ● the full-featured EasyWriter II package provides EasySpeller II, a spelling check utility; this provides the

LCNS: license fee.

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capability to verify spelling in the document on the fly, as well as checking the entire document; no suggestions are made to correct spelling, nor is spelling corrected by the package; no user-definable dictionary is possible.

Multiple Window/Multiple Document Support ● none.

● END

Innovative Software Fast Facts
Filing System

■ PROFILE

Function ● computerized filing system.

Computers/Operating Systems Supported ● IBM Personal Computer, IBM PC/XT, Compaq, or IBM Compatibles, using PC DOS (1.1 or higher).

Configuration ● 2 diskette drives or 1 hard disk and 1 diskette drive; 128K-byte RAM.

Current Version/Version Reviewed ● 1.00/Release 1.00.

First Delivery ● July 1983.

Number of Installations ● approximately 2,000.

Comparable Products ● TexaSoft PC File.

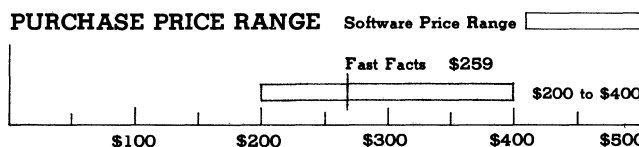**Optional Associated Software** ● none.

Price ● $259 retail.

Vendor ● Innovative Software, Inc; 9300 West 110th Street, Suite 380, Overland Park, KS 66210 ● 913-383-1089.

■ ANALYSIS

Fast Facts is introduced as ". . . a flexible filing system adaptable to both the office and home." This statement appears to us to be quite correct, and, although there are a couple of sour notes to be exposed, we feel Innovative Software Inc has produced a system that will truly simplify the filing requirements of many offices.

Simplicity is an excellent term to describe Fast Facts. There is a bit of confusion in system start-up, and in the DIF file conversion portion of the software, but the actual workings are quite simple. Innovative Software advertises that "even those with little or no computer experience can input information", which we found to be quite true. The actual designing of the screen data entry formats and the reporting formats are easy enough for the novice computer filer.

Fast Facts also provides two different reporting formats for the user to choose from—an extremely versatile mailing list format, and a report form format that prints long items in paragraph form if desired along with the typical column set-ups. Along with the versatility in formatting the files, Fast Facts includes a Utilities menu which allows you to convert your files into ASCII files or even DIF files, giving the user the ability to take information out of his files and

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10
ENVIRONMENT										
DOCUMENTATION										
FUNCTIONALITY										
EASE OF USE										
SUPPORT										
SYSTEM INTERFACE										
EXPERIENCE OF VENDOR										

*For an explanation of rating criteria, please refer to the page behind the Packages By Vendor (800) tab.

use them with other programs, thereby increasing the effectiveness of his/her computerized filing system.

Although Fast Facts is quite simple to use, it's simplicity and versatility make it a valuable part of any information management system for the personal computer, especially in the business environment.

□ Strengths

The strength of Fast Facts lies in its ease of use. From the designing of the screen forms, which can be as many as 50 user-defined screens to one form, and up to 1,500 forms to one file, through the entering of data, to the creation of printable forms, the user is provided with full cursor editing and definition throughout the design stages. The user is even given the opportunity to use such graphics as boxes, lines, and rectangles to enhance the screen form so as to closely match a real form, thus giving it "eye appeal" as well as making it easier to use. Simplicity is even demonstrated in the beginning of the manual where the whole concept of a file is defined and the comparison of a manual file and computer file is made.

The inexperienced user, as well as a computer whiz, is given the ability to design a screen (the form), enter the data, manipulate the data, design a print form, and actually print out results with tremendous ease. In doing so, one is able to keep a large amount of files in a small space (5.25-inch diskette) and be able to access all the data in those files in a short amount of time with little difficulty.

□ Limitations

One serious limitation to Fast Facts is the absence of entry-field definition. Without the ability to specify the contents of the field, the probability of entering incorrect information is high, especially if the entering is being done by a novice. Incorrect information can hamper the search function of that particular field, whereby certain information may be overlooked.

PURCHASE PRICE RANGE Software Price Range [   ]

```
                      Fast Facts   $259
                  ┌──────────┬────────┐  $200 to $400
                  │          │        │
    └───┴────┴────┴────┴─────┴────┴───┴────┴───┘
        $100     $200     $300     $400     $500
```

INNOVATIVE SOFTWARE FAST FACTS PRICING ● open bar shows the typical range of prices for FILING SYSTEM software used in corporate environment ● the vertical line within the bar graph indicates the price of Fast Facts, the evaluated product, relative to the price range of similar products.

Innovative Software Fast Facts
Filing System

The Utilities portion of Fast Facts includes a DIF file conversion which sounds quite impressive, especially if the user has use of Lotus 1-2-3 or VisiCalc, or is interested in creating graphic print-outs with Innovative Software's Fast Graphs. However, one can become discouraged after only a short time attempting to use the conversion. The documentation covering the DIF file conversion is vague and extremely difficult to follow.

The calculation mode is convenient, but its lack of flexibility makes it more a gimmick than a useful tool. To get into the calculation mode the user must hold down the shift key and then hold down the PrtSc* key at the same time while depressing the letter "C" key, some ordeal just to add or subtract, multiply, and/or divide a few numbers together. It lacks the flexibility that the use of variables (i.e., fields) would give, and as such, it lacks the ability to automatically recalculate should the data in those fields be changed. While attempting to use this mode on the Columbia Portable (an IBM Compatible) it was discovered that the user was unable to access the calculation mode. This was made known to Innovative's Customer Support, who were honest enough to admit that they had never tested their product on the Columbia, though it is an IBM compatible, and could not explain this idiosyncrasy. However, the calculation feature was also tested on an IBM PC with no problem.

■ HANDS-ON EVALUATION

The introduction given in the Fast Facts manual gives the staff an excellent summary of the benefits of the computerized filing system, and a reassurance that the system would not be too difficult to learn. However, upon reading the chapter on "Starting," the professional staff became somewhat bewildered. The technical staff was called in to make working copies of the programs and installed the package with few problems. The frequency of disk swapping even made the technical staff scratch their heads for a moment or two, but eventually the task was completed. Our technicians went one step further and included the DOS on the program disk so that we could boot without having to put the systems disk in first. This made a great deal of sense, and we were surprised that it had not been covered in the user's manual.

Our staff had a little difficulty with the tutorial program that accompanied the package. It appears that the sample program referenced in the sort example given was not present in the file, so that the search could never locate the mysterious form. Again, documentation appeared quite misleading, so we had to compensate with our own search.

The designing of forms was entertaining to our professional staff. The ease in its creation and the added feature of graphics made it simple to master. We were delighted in the reporting capabilities of the program, and found the designing of these forms just as simple. The use of the function and cursor keys added to the ease of use.

An additional observation made while evaluating the system was the slowness during the organization of the tutorial file, which only contained 22 forms. Our technical staff advised us that this slowness would increase in proportion to the increase in forms per file, though our

professional staff still believed that it would still be faster than the manual approach.

□ User Interface

Fast Facts utilizes a very basic user interface designed to make the features accessible to the inexperienced user. The menu structure of command entry guides users in detail through the file and form design process. The defaults for report design make basic selections for mailing or review very easy to specify.

Menus: commands for application development are entered on menus provided by the system, with extensive prompting and easy structures. Menu selections are generally the first character of the name of the function to be selected. User data is entered on forms designed by the user in a full-screen mode. No provisions for menu bypass are made.

Control Characters: not used.

Function/Special Keys: used for editing and control functions such as moving from screen to screen. A help menu displays the special keys which can be used.

Command Language: not used.

Positive Feedback: menu changes or additional prompts will display when valid data is accepted.

Status Display: status information is displayed during user data entry on the bottom line of the display. Information includes file name, form number, page number within form, current utilization of data disk, status of record, and use of numeric keypad.

Help Facilities: a short help menu relating to the operation of the function keys is displayed on the screen when the use of the keys is appropriate. No other form of HELP is available.

□ Environment

Fast Facts was produced to run under IBM PC-DOS, and will accept DOS on its program disk, even though this procedure is not specified in the manual. We found that the exit procedure was highly unsatisfactory. Exiting from the package will display on the screen "Put DOS disk in and press Enter-". If DOS is already on the disk, and Enter is pressed, the computer will do one of two things, reboot to where it has you entering the date, or it may just sit in limbo, in which case you manually have to reboot. The exit sequence also happened when a DOS diskette was exchanged with the program diskette and the instructions were followed. We would have liked it better if the exit would have given us the disk letter prompt, especially when we were using a hard disk system, thus enabling us to continue with another program.

Fast Facts was tested on an IBM PC with a hard drive expansion, as well as on an IBM-compatible computer, the Columbia portable. The PC configuration included a 10M-byte hard drive, 2 diskette drives (both 320K bytes), a monochrome display, and 256K-byte RAM. The Columbia configuration included 2 diskette drives (both 320K bytes), a monochrome display, and 128K-byte RAM. The test applications were able to run on both systems with only

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one difficulty, the inability to access the calculation mode while running on the Columbia. Also, the item titles are not displayed in reverse video on the Columbia, yet it does perform on the IBM PC.

Fast Facts itself is packaged similarly to the other PC software packages, and contains two diskettes—Disk 1, which is the program diskette, and the Example Files diskette.

☐ Documentation

Documentation for Fast Facts comes in a single User's Manual. All the sections are separated by plastic index tabs, with the reference sections being the first ten sections, and the tutorial the last. The layout of the manual takes you from an introduction explaining the concept of files through the actual startup of the system and the various sections of the main menu. The main menu (and thus the sections of the manual) include the design of a new form; logging on a new file; entering, searching and displaying; copying a file; mailing list; report; the utilities; and finally exit. Other sections in the manual include a short one on the calculation mode, and Appendix A, which provides a listing of error messages that might "pop-up" and their solutions. The tutorial section is labeled "Examples".

The manual is presented in a user-friendly format in an order that coincides with the main menu. The major drawbacks of the manual are the following: 1) it does not give the user adequate information concerning the placement of DOS on the program disk which would simplify the start-up of the system; 2) it gives vague instructions on the operation of the DIF file conversion; and 3) it gives examples in the tutorial that are not included in the example files on the practice disk. There are **no** reference cards or templates, although the system does contain numerous help screens whereby the extra paraphernalia is not missed.

☐ Functionality

The user is greeted with a Main Menu as soon as he/she enters Fast Facts. The menu contains all the procedures that are available to the user. From the main menu, a single keyed letter will transport you to the section you want, where another menu waits for you.

The generation of a specialized screen or form, as it is called in Fast Facts, is done under "Design a new form". At this point, the user will be asked to enter a file name for the new form. From there, with the use of an on-screen help menu and status line, the user creates the form. Four main parts of the form can be generated at this point. Text can be placed on the screen in order to provide descriptive headings, instructions, or labels. Text differs from the item title in that the F1 key is not depressed prior to entering the information on the screen. By depressing the F1 key, you can enter an item title. The end of an item title marks the beginning of the space reserved for the item, which may be as long as several lines (up to a page), or just a few characters. However, it is only the information CONTAINED in the item that will be stored. Text will not be stored, except in the screen layout file. By using graphic boxes and lines, a form can be customized and

simplified. After finishing the first form, the user is given the ability to design another page of the form, up to fifty if the need arises.

The new file must be logged on before the user can begin entering information. This procedure is also conducted in the main menu. From there, the user can execute the enter, search, and display mode. A help menu is provided at the bottom of the form screen, and the user is placed at the first form of the file.

The information on the forms is organized by the first item on the form (the key), and can be organized numerically or alphanumerically. The search function is also a part of this mode, in addition to entering and editing of forms. The search can be alphanumeric or numeric, and can include up to five search criteria at one time. The user can request a printout of a displayed form, with or without the text and titles, if need be. An outdated form can be inactivated if the user does not want it to appear in searches and on reports, and can be removed completely by the use of the Copy A File command.

The Copy command also rewrites the files so that searching can be done faster. The user is also able to copy the entire file, or just the format alone, should the user wish blank forms identical to the completed ones he has on file now. This command also tries to correct any damage done to a file should be disk be damaged, a feature we were fortunately unable to test.

The mailing list gives full flexibility in its design to the user, as long as the main constraints of 10 lines by 60 columns are met. The user is also given the option to print from one to four lists across the page, and can print duplicate lists if desired. Text can even be added to the list to be printed out. The individual mailing lists are kept in a library file, and are termed "library members" by Fast Facts. The user is allowed up to 10 library members in the mailing list format.

The report format supports the same number of members, so a user is given up to 20 different print formats to use at one time. Twenty items can be printed on a report. The benefits of a report over a mailing list is the elimination of the label-format restrictions, and the special operations which support the most common features of a report. These include the ability to group similar items and include more than one grouping on a report, and the ability to perform averaging, row calculations, and summations. The report menu even provides a quick print option that allows the user to print a report without any definition process. Long text fields (too long to show conveniently on a single line) can also be included on reports, which we found to be a definite plus when explanations are needed on a print-out. Long text will be printed two lines below the rest of the information on the report line.

In the Utilities menu, the user is given the opportunity to change the hardware and firmware parameters that were given during the initialization procedure; to erase files; to rename files; to display a directory of all files on a disk; to organize any Fast Fact file; and to redesign an existing form without having to reenter all the information already

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stored in the files. We found the ability to redesign a real time saver, especially when we wanted to change the first item in order to change the manner in which the forms were organized. The two file conversion procedures, the ASCII conversion and the DIF conversion are also present in the utilities menu, for the advanced user to use when he/she wishes to interface with other programs. The DIF conversion is only able to write files for other programs, and can only provide summations of data. The ASCII conversion can read and write, and will convert the whole file that the user references.

☐ **Ease of Use**

Overall, we found Fast Facts to be an extremely simple and user-friendly tool for transferring our files to our personal computer. We were pleased with the ease in which we could design our forms, and enjoyed the use of the graphics in the design. Entry was just as easy, though we found problems with our secretarial staff, if they tried to "beat the clock," keying erroneous data without program detection.

Our professional staff definitely needed edit specifications on data type such as alphanumeric, numeric, date, and even yes or no criteria to prevent such misentries from occurring. Their lack also proved to be an obstacle when trying to perform a search, since it was easy to lose items in a search when information was incorrectly entered. We could not find any means of solving this problem, except greater user care and good operator training.

Another disappointment came when we tried to use the DIF conversion to interface with Lotus 1-2-3. The instructions were vague, and our professional staff was unable to get it to work properly. Even the technical staff could not follow the instructions. It was only when we contacted customer support that we found out that the DIF interface was not all that promising a tool and that we were better off using the ASCII interface. The lack of a good DIF interface defeats the purpose of the support for DIF file formats; exchange of data with popular spreadsheet programs.

☐ **Support**

Innovative Software's pyramid of support begins with consulting the user's manual. If the answer is not there (which it probably is, but not in an expected place or form), the next step is your dealer. The final step is an experienced support department that can be contacted between 8:30 to 5:30 central time. Our questions involved the problems with the calculation mode and the Columbia. We found the dealer unhelpful, and headed right for the top.

We were a bit concerned when we were put on hold for a short time, and then told that all the support personnel were tied up on other lines. They took our number and told us they would return our call, which increased our skepticism. To our surprise, Innovative returned our call on the same day. The customer support person was extremely courteous and tried to be as helpful as possible. However, she admitted ignorance as to the workings of the Columbia, and could not give a solution to the problem of the calculation mode. Concerning the DIF file conversion

instructions in the manual, she was very attentive to our admitted confusion concerning the instructions, and gave us information as to how to use the ASCII conversion instead. She was even honest in admitting that the DIF conversion was not a particularly powerful tool.

ISI (Innovative Software Inc) provides for a product upgrade plan and gives the user the option to upgrade an older version at a special upgrade price.

Fast Facts is only designed for a single user, and in fact, ISI does not permit using ". . . the software in a network, timesharing, multiple CPU, multiple site, or any situation where more than one user may use the product at any one time."

☐ **System Interface**

Through the use of the Utilities section, Fast Facts is designed to work with Lotus 1-2-3, VisiCalc, WordStar, and Innovative's Fast Graphs. The ASCII file interface is useful in communicating with other packages, but the DIF file feature is not particularly useful in its current form, nor is it documented well enough to support even reasonably qualified personnel to use it. This makes the interface between Fast Facts and the spreadsheet programs essentially non-existent.

☐ **Vendor Experience**

Innovative Software, Inc was founded in 1978, and has served the microcomputer and graphics markets since 1981. The company has two other products, TIM III (another database system), and Fast Graphs, a graphics package, both of which are popular in the marketplace.

■ **PRODUCT OVERVIEW**

☐ **Terms & Support**

Terms ● Innovative Software Inc's Fast Facts is available for purchase through computer dealers such as Computerland, Computer Mart, and Entre Computer Centers. However, when we tried our local Computerland and Entre Computer Center, they could not offer us any assistance in securing the Fast Facts package.

Support ● primary support is to be obtained from the documentation; the second tier is through the dealer; Innovative software also provides telephone consulting Monday through Friday, 8:30 to 5:30 central time.

☐ **Component Summary**

Software elements consist of 2 groups . One group is a set of files and programming to run Fast Facts. The other group is a set of files to support the Tutorial. Group One includes the following:

FF.BAT, a batch start-up program; CALC, a calculation activation program; FFRES.EXE, a version and copyright message program; FF1.EXE, a title page program and main menu program; FFADD.EXE, a file addition program; FFSORT.EXE, a file sort program; FFLIST.EXE, a file list program; FFLPRNT.EXE, a file print program; FFSLCT.EXE, a file search program; FFREST1.EXE and FFREST2.EXE, new file name entry programs; BASRUN, basic run command; FFINSTAL.EXE, a floppy disk installation program; HARD.EXE, a hard disk installation program; FFPARAM.DAT, a hardware and firmware configuration data, FILE.DAT, a directory of user created files; FFASC.EXE, an ASCII conversion program, and FFDIF.EXE, a DIF conversion program.

Group 2 comprises additional files provided for support of the tutorial. This group includes:

WIDGETS.SCR, sample screen file; WIDGETS.DAT, sample data file; WIDGETS.IDX, sample file index; REPORT1.RPL, sample

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report file; MAILING1.LSL, sample mailing list file.

Fast Facts:

$254 lcns

□ **Computers & Operating Systems Supported**

The Fast Facts package runs on the IBM PC and PC/XT or on IBM PC compatibles using PC-DOS 1.1 or higher.

□ **Minimum Operating Requirements**

Minimum memory requirements are 128K bytes of RAM. The system also requires 2 floppy disk drives, or one hard disk and 1 floppy disk drive.

□ **Features**

Screen Format Generation ● accomplished through main menu, with full cursor editing, option of graphics, and help menu. User is allowed up to 1500 forms per file, 50 user-defined screens per form, and up to 100 items per screen.

Data Entry & Editing ● through use of custom-designed form, full use of function keys, full-screen display.

Data Search & Select ● alphanumeric or numeric, selection of up to 5 different criteria at one time.

Calculations ● a numeric equation up to 255 characters (including parentheses and the basic operands: +, -, *, /).

Reports ● prints up to 20 columns, prints long text in paragraph form, can include subtotals, percents, groupings of related items, and can perform cross calculations between columns, plus is able to use a quick print option instead of using a defined format.

Mailing List ● creates labels up to 10 lines, up to 4 labels across a page, and in duplicate with blank lines eliminated.

Utilities ● file conversions into ASCII of DIF formats for use with other programs, redesign of pre-existing forms without reentering data, ability to rename, erase, organize, and display files, and change default parameters on hardware and firmware.

● **END**

LCNS: license fee.

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Data Management

■ PROFILE

Function ● database management.

Computers/Operating Systems Supported ● IBM Personal Computer, Compaq, Chameleon, Hyperion/PC-DOS, MS-DOS, or CP/M.

Configuration ● 128K-byte RAM, 2 double-sided, double-density diskette drives or hard disk ● monochrome display or color-graphics board and corresponding monitor ● printer with appropriate interface recommended.

Current Versions/Versions Reviewed ● 4.02/Version 4.02.

First Delivery ● August 1980.

Number of Installations ● approximately 17,000.

Comparable Products ● Ashton-Tate dBase II, Software Publishing pfs:File.

Optional Associated Software ● none.

Price ● $495 retail.

Vendor ● Innovative Software, Inc; 9300 West 110th Street, Suite 380, Overland Park, KS 66210 ● 913-383-1089.

■ ANALYSIS

T.I.M. is a menu-driven database management system which provides for most of the traditional requirements of such a system, especially in the areas of creation, maintenance, and retrieval of data for an application. Its commands are easy to learn as the product generally displays a prompt of the available commands on the screen and highlights the character or characters within each command that invoke it. The commands are in English and the invocation character is generally the first letter of the word.

It also provides a feature to limit access to files by providing a 4-character password, which can be nullified by not specifying one when the file specification is created or by creating a second specification with which to view the data.

It does possess several features which allow for the interaction of multiple files both within the confines of T.I.M. and in communication with other applications, specifically selected word processors and spreadsheet programs, but it does not have a facility which supports the sophisticated data relationships such as bill-of-materials

PURCHASE PRICE RANGE

Software Price Range [   ]

T.I.M. IV $495

$100 to $700

| $200 | $400 | $600 | $800 | $1K |
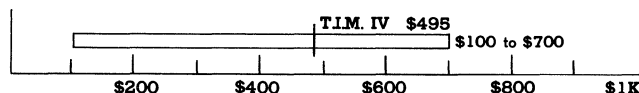
INNOVATIVE SOFTWARE T.I.M. IV PRICING ● open bar shows the typical range of prices for DATA MANAGEMENT software used in a corporate environment ● the vertical line within the bar graph indicates the price of T.I.M. IV, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10
ENVIRONMENT										
DOCUMENTATION										
FUNCTIONALITY										
EASE OF USE										
SUPPORT										
SYSTEM INTERFACE										
EXPERIENCE OF VENDOR										

*For an explanation of rating criteria, please refer to the page behind the Packages By Vendor (800) tab.

structures, which are an integral part of modern database management. It would be more appropriate to call T.I.M. a **file** management rather than a **database** management system.

While using this product, the user can create files; add, update, and delete records; add, modify, and erase data within the fields of records; and produce a variety of standard and custom reports. Special extensions included within the product allow it to create DIF and SYLK files for interfacing with popular spreadsheet programs, and formats compatible with several word processing programs, in addition to being able to create ASCII files, which can be accessed by other products.

□ Strengths

Largely because of its strict adherence to its menu structure, this program is relatively easy to use even by non-data processing professionals. This frees the user from the technological problems which usually develop when a department acquires a database management system (DBMS).

The lack of a "programming" language, into which the user can escape if the design of the application does not suit the functionality of the system, prevents users from developing a "shadow programming staff" and likewise prevents major errors by controlling the functional environment very closely. This is clearly the intent of the authors of this package, who took the time to provide a comprehensive menu structure to support the commands and options available.

Another strength of this product is the quality of preparation, presentation, and content of its documentation. The authors have taken a chapter from IBM's book and supplied the product with ample documentation to assist both the novice and the professional in the successful design and implementation of any application.

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T.I.M. provides the ability to create data files in a manner readable by several other products. ASCII, DIF, SYLK, and various word processing interfaces are already provided. It also provides a pre-keyed member on the Example Files diskette which contains source code for a group of subroutines used to access T.I.M. files. Throughout, the vendor has provided samples and specifications which should allow one's technical staff to create interfaces to other products with similarly helpful documentation.

☐ **Limitations**

The most obvious drawback with this product is its speed of execution. Even when installed on a hard disk system, an appreciable amount of time is consumed in loading the numerous processing modules. And, although the product is very polite and asks the user to wait, it is aggravating. One possible solution would be to place the most heavily used modules on a RAM disk which should reduce some of the program-load time to a more acceptable level.

T.I.M. is not a relational database system, and lacks support for the definition of complex relationships between various data elements. There is no provision for any automatic inclusion in sets or other relational conditions. Instead, the user must employ the search/selection criteria found within T.I.M. in the very rigid format provided in order to create subfiles of data which contain the data wanted. This effectively defeats the purpose of having a single repository for data by duplicating the data and causing a synchronization nightmare.

There are some seemingly arbitrary restrictions in expressing conditional statements which may detract from the usefulness of the product. For example, relational statements which use subfields must use the "equal" condition. According to the authors, "it would not make sense to say a subfield is greater than or less than some value." Some users might disagree, and certainly should have an opportunity to make that judgement themselves.

■ **HANDS-ON EVALUATION**

Our technical staff had few complaints concerning the installation of the package. The instructions included in the documentation were quite specific, but tended to ignore the possibility that other programs might also be residing on the system. The authors do provide a "batch" file which will install the program on hard disk, but it does not take into account the power and capabilities of the disk operating system. Our technicians ended up installing it themselves, after creating a unique subdirectory especially for it which insulates it from other applications, and them from it.

Our professional staff found the general operation of the product very user-friendly, although slow. They experienced little difficulty in following through the tutorials and producing a sample file complete with sample reports, custom data entry and inquiry screens, and interfaces to both spreadsheet and word processing programs.

We decided to use the product to create a database of

programs for personal computers, indexed alphabetically by product name within overall category (i.e., Database management, T.I.M.). Alternate indices were produced for all other major considerations such as language, rating, operating system, and storage requirements. No unexpected difficulties were encountered.

Our office staff found the product easy to use. They accomplished the actual data entry for the bulk of our program database with a minimum of difficulty. The menu structure made it very easy to find the proper commands and they did not notice the speed problem alluded to before because they were processing a given file specification with a limted set of modules rather than creating a new definition which employs many modules.

☐ **User Interface**

T.I.M. is a menu-driven database management system which provides an exceptionally easy user interface through the use of an extensive system of menu selections and prompts for detailed information. No command language or free-form specification is needed to create or access a database.

Menus: All commands and data entry are handled through a series of hierarchical menus which are attractively formatted and easily used. Experienced users can bypass intermediate menu levels in most cases.

Control characters: Not used.

Function/special keys: In the entry of specifications or data, the function keypad and special PC function keys are used for editing function support; most used without shift or ALT.

Command language: All commands are entered from a menu; there is no free-form command language.

Positive feedback: Incorrect or inappropriate keystrokes cause an audible alarm signal; correct actions cause cursor to advance to next field or cause a change in menu structure.

Status display: The top line of the screen is a status line; indicates name of the current file, the access mode, direction of reading, screen number, insert status, record number, and record state (deleted or not).

Help facilities: At any command point in the menu structure, HELP can be requested by entering an "H" followed by command identification letter from menu.

☐ **Environment**

Earlier versions of this product support single-sided drives and 64K-byte RAM. Version 4 of this product requires two double-sided, double-density diskette drives and at least 128K bytes of RAM. Our technical staff found that hard references to particular program modules on specific drives made creating a version which would function on single-sided drives unfeasible because of excessive diskette exchange. Consequently, we tested using an IBM XT with 256K bytes of RAM, a color/graphics board and monitor, and an Okidata Microline 92 printer.

The program is not copy protected, but special procedures are needed to install it to hard disk because of fixed disk

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Data Management

drive assignments within the modules. A program called HARD is supplied to accomplish that task.

☐ Documentation

The quality of the documentation for this product is generally high; that is, the quality of the packaging, paper, and the slip-case binding is high. The binder is rather overstuffed; we would have liked to have seen either a single binder capable of holding all of the pages stuffed into it or the documentation broken into multiple volumes—reference and tutorial manuals, for instance. Each time that the product was transported, when the binder was removed from the slipcase, it was found that the binder's rings had sprung open. A careful person would have to check the binder each time to insure that the contents would not be spilled across the floor. Removing the four sections labeled EXAMPLE 1 through EXAMPLE 4 and the plastic diskette holder page was sufficient to remove the stress from the rings and did not interfere with the reference value of the book.

The documentation is organized in the same manner as the main menu. Each major chapter in the manual corresponds to an option selectable from the main menu. These chapters are indexed by tabs for easy access. Within them, each choice on the corresponding screen is explained; thus, under the major chapter heading of "Add/Inspect/Update A Record," one finds a detailed explanation of the steps required to add, change, and delete records and also instructions on various means available for navigating the database such as "go to first record" and "go to record number" and so forth. The text is presented in a manner which should be readily understandable to both professional and technical personnel.

☐ Functionality

Our professional staff enjoyed developing the PC Program inventory application with this product. They found that the documentation included some very reasonable suggestions such as planning an application **prior** to beginning it. We did, and found that the criteria for our reports and inquiries would easily fit within the size constraints of the product. The system supports files which can contain up to 32,767 records. Each record can contain up to 40 fields; each field up to 60 characters. There are 8 field types: alphanumeric, calculated, date, dollar, inverted, numeric, sequential, and total. No more than 20 calculated or 3 total fields can be defined for a single record. Numeric fields have up to 4 decimal places. Any of the first 36 fields can be designated as a "key" field. Each key field can have up to 16 "minor" keys subdefined for it, providing that the total length of major and minor keys does not exceed 80 characters. Individuals with long description fields may find the limit 60 characters per field too confining—we did not.

We also designated each field on which we ever expected to search as a key field because key fields are found using a binary search while non-key fields are looked up sequentially. While our application contained only a few hundred records, the time necessary to find a non-key field was appreciably longer than that used to find the same field as a key field. We later performed a lookup on a non-key field in a file of over three thousand records—it isn't very practical.

One feature which aided our technical staff in recovering a record which another of our staff had inadvertently deleted was the fact that deleted records are only **marked** as deleted. The records remain on the file unaccessible except to an "ADD" command. Using the "ADD" command will reinstate the record. Compressing the file will eliminate all deleted records. This compress-to-delete can cause problems in a highly volatile file if the compression step is neglected.

Our professional staff found appropriate uses for the two means of providing printed reports. The first, entitled List Generation, was used to provide a galley proof of the data within the database. The second, Report Generation, was used to provide analytical reports such as "control break department, total by cost," etc. Report Generation also supports the use of data files to decode such fields as department number into a name. Formats for reports and list may be saved on the appropriate library for later use.

Our technical personnel were able to add a few utilities to our application which provided an appreciable amount of additional integrity to the system. Using the "File Transaction" function, they were able to provide searches for duplicate information and multiple file updates.

☐ Ease of Use

Normally, database programs are either so simplistic as to be useless in real business applications, or rather difficult for the non-data processing professional to master because they possess a syntax similar to that of a programming language. With T.I.M., the user is relieved of most of the programming considerations because a menu structure with prompts for each command leads the user through an operation. This implementation makes it possible for even the novice to successfully implement a database management system. Indeed, our entire staff was able to use this product without any significant procedural problems. This was a special triumph for our secretarial staff who generally do not get a chance to design **and** implement a database application.

Another facet which assisted our staff in the operation of this product was the fact that most of the commands are derived from the English word for them. For example, the command, "A", when entered on the ADD/INSPECT/UPDATE screen, stands for "Add record." Similarly, "C" stands for "Change current file" and "D" for "Delete current records." The abbreviations for the currently accepted commands are displayed across the top of most screens.

Our secretarial staff developed our Article Inventory Subsystem, which we use to track magazine and newspaper articles on personal computers, with no technical assistance. They attributed their success to the easy command and menu structure of the system.

The other major feature which contributed significantly to the ease of use which we experienced with this product is the manner in which the "help" feature is implemented. Our staff was able to bypass the time-consuming task of researching each unfamiliar command in the reference

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Data Management

manual because of the logical, English-like arrangement of the commands through use of HELP.

Finally, T.I.M. includes a facility for shortcutting the normal menu processing for those individuals who are aware of the particular subcommand they want to execute. This feature is not available from all areas within the product, but it is of great assistance where implemented.

☐ Support

We did not find any major problems with the product; however, we did contact the vendor to discover their support policy. Basically, the dealer is the primary support point. In the past, we have found that we are generally unable to gain a satisfactory solution to the problem if our technical staff has been baffled. The vendor does not have a customer support staff, but only provides an 800 number to dealers. Our technical staff rated their technical staff as knowledgeable and helpful.

☐ System Interface

Special interface commands are available with this product to provide communication between it and Fast Graphs, WordStar, Select, WordPlus PC, WordPerfect, Magic Wand, VisiCalc, SuperCalc2, 1-2-3, and MultiPlan. Additionally, files in standard ASCII format can be read and written. We used T.I.M. to feed a WordPerfect file and experienced no difficulty.

Extensive information and examples on program interfaces to T.I.M. files is provided in the documentation, making it extremely easy to gain access to the database from custom applications.

☐ Vendor Experience

Innovative Software, Inc has been in business since 1979. T.I.M. is their flagship product and is now in its fourth major revision.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms ● T.I.M. is available on a license for purchase only from Innovative Software, Inc, through computer dealers, software dealers, or mail order houses throughout the United States, Canada, and Europe.

Support ● primary means of support is through dealers; 800-telephone number is given to dealers.

LCNS: license fee.

☐ Component Summary

T.I.M. comes packaged on three diskettes. The first 2, labeled Disk 1 and Disk 2, contain the Basic run-time execution module, 28 separate execution modules which accomplish all of the T.I.M. functions, and the text file for the help messages.

The third diskette, entitled Example Files, contains the 3 library files; List, Report, and Select; the data and index files for each of the 4 examples; and the T.I.M. directory file.

T.I.M. IV:
$495 lcns

☐ Computers & Operating Systems Supported

T.I.M. IV runs on the IBM PC, and on the Compaq, Seequa Chameleon, Bytec-Comterm Hyperion supporting PC-DOS, MS-DOS, and CP/M operating systems.

☐ Minimum Operating Requirements

A minimum of 128K bytes of RAM are required. Also necessary are 2 double-sided, double-density diskette drives or a hard drive, a monochrome display or color graphics board with corresponding monitor. A printer is recommended.

☐ Features

File Size Limitations ● files can contain 32,767 records, but cannot span diskettes.

Record Size Limitations ● records are limited to 40 fields.

Field Size Limitations ● individual fields are limited to 60 characters.

Key Field Limitations ● any of the first 36 fields within a record can be designated key fields.

Screen Format Definition ● users can custom-design screens based on menu entry of parameters or use default screens provided by the program.

Entry Edit Capabilities ● fields can be defined as 1 of 6 data types and are edited to conform to the type defined at entry.

Report Format Description ● users can custom-design forms for reporting or use system default forms; column headings, page headings, and control breaks are supported; totals and subtotals can be generated.

Sort/Merge Capabilities ● records can be retrieved in any order, so explicit sorting, while provided, may not be necessary; merging of files and records is supported.

Query/Selection Capabilities ● logic operators may be applied to define relationships between fields or between fields and constants for selection of information. Menu structured input of relationals is provided. Files may be selected from the main database.

Programming & Batch Processing Capabilities ● no programming language is supported—all selections and specifications are entered from a menu. The operator is implicitly involved in any selection or process function, so batch processes are not meaningful.

● END

Innovative Software Fast Graphs
Graphics Package

■ PROFILE

Function • to create bar graphs, pie charts, or point/line graphs from data entered by the operator, or from applications producing DIF files such as VisiCalc, T.I.M., and Fast Facts.

Computers/Operating Systems Supported • IBM PC.

Configuration • 128K bytes of RAM and 2 double-sided floppy disk drives or one floppy drive with a hard disk; Fast Graphs is designed to be run with systems with a color monitor, black and white or color printer, and/or plotter, but these are not necessary.

Current Version/Version Reviewed • Version 2.02/Version 2.01 for the IBM PC.

First Delivery • November 1982.

Number of Installations • 30,000.

Comparable Products • Business and Professional Software BPS Graphics, Peachtree Business Graphics System.

Optional Associated Software • none.

Price • $350.

Vendor • Innovative Software; 9300 West 110th Street, Suite 380, Overland Park, KS 66210 • 913-383-1089.
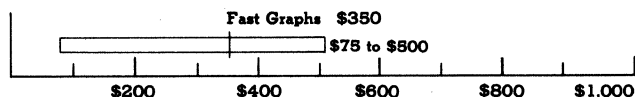
Canada • Citation Software; 1901 Logan Avenue, Winnipeg, MB R2R 0H6 • 204-632-0559.

■ ANALYSIS

Fast Graphs is a diskette system which is designed to accept information in the form of tables and convert this data into visual charts and graphs. Information may be entered in tabular form by the operator, from a diskette file of previously stored data, or from DIF files from other applications such as VisiCalc, T.I.M., or Fast Facts. Fast Graphs will generate its own bar graphs, pie charts, or point/line graphs from this data based on parameters entered by the operator. These parameters or charts may be edited by the operator, merged with other charts or background graphic screens, and then printed, plotted, or saved on a diskette for future use. Fast Graphs can also be used to design Time-Line activity reports similar to Gantt charts. Slide shows may also be generated where Fast Graphs will display up to 18 charts or graphic screens in a programmed fashion.

The user must first enter the Edit mode of operation and enter the data in tabular fashion. This is done by loading data from an already existing diskette file or by entering the data manually. Once the data is loaded, the user may

PURCHASE PRICE RANGE   Software Price Range [   ]

```
                    Fast Graphs  $350
      [========================|==========] $75 to $500
      |_____|_____|_____|_____|_____|_____|
        $200     $400     $600     $800    $1,000
```

INNOVATIVE SOFTWARE FAST GRAPHS PRICING • open bar shows the typical range of prices for **GRAPHICS** software used in a corporate environment • the vertical line within the bar graph indicates the price of **Fast Graphs**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*

```
                    1   2   3   4   5   6   7   8   9   10
ENVIRONMENT         ████████████████████████ 8.1
DOCUMENTATION       ████████ 3.2
FUNCTIONALITY       ████████████████████████ 8.2
EASE OF USE         ██████████████████████ 7.4
SUPPORT             ██████████████████████ 7.5
SYSTEM INTERFACE    █████████████████████████ 8.5
VENDOR EXPERIENCE   ███████████████████ 6.5
```

*For an explanation of rating criteria, please refer to the Graphics Features section in the Software Evaluations (805) report. The Overall Package Average is 7.1.

select from a menu to generate one of the three types of graphs, or to enter the slide show function, the edit graphic screen function, or to print any of the charts. The system is based on parameters and is quite flexible as to type of monitors, printers, and plotters that may be used. Each of the functions is also based on parameters entered by the operator and allows for quite a bit of flexibility in the designing of the graphs.

While Fast Graphs could be a great graphics package and time saver for the person who needs to generate charts and graphs, it would be much better if all of the options were working and the documentation were up to the same level as the programming.

☐ Strengths

The biggest strength of Fast Graphs is the speed and ease with which graphs may be generated from the stored data. Response time is very quick for such a package, and the ease of entering the parameters for the graphs makes it very easy for a non-DP person to generate these graphics. The greatest expertise required is in the area of graphs where the operator needs to be able to decide the type of graph which would be most appropriate and the style and manner of presentation. Although knowledge of operating the PC is required, knowledge of data processing in general is not.

The Fast Graphs package is extremely flexible with regard to hardware support and interfacing. It is set up to handle many types of monitors, printers, and plotters. Its flexibility is also experienced by the fact that it can use files which are generated by other applications.

☐ Limitations

The worst part of the Fast Graphs system is the documentation; it is so lacking that often the user is left to perform functions on a trial-and-error basis. For a color system, it seems that documentation must be in color. To

Innovative Software Fast Graphs
Graphics Package

have the documentation in only black, blue, and white while describing the various color combinations possible does not work. A color manual would have made the diagrams a lot clearer to understand. Furthermore, the documentation and the product were often in conflict as to the features and options of the product, particularly in defining default option values.

The product, for some reason, limits the color options which apply to the color monitor compared to the color features for the printers and plotters. Although printers can change the color schemes of the graphs, they cannot be changed on the color monitor. Also, printers and plotters can have footnotes appended to the graphs, but they do not appear on the monitor. Character size is also an option for printers and plotters but not for the monitor.

One other limitation that should be addressed is that although the system will generate a least squares line on the graph based on the points entered, it will not provide the user with the equation that was used to generate this line. Usually, whenever a user desires such a graph, it is just as important to obtain the actual equation as it is to visually see the line. We believe some adjustment should be made whereby the user can obtain that information.

■ HANDS-ON EVALUATION

The first impression we experienced when using Fast Graphs was that it was relatively easy to use, quite flexible, easy to parameterize, and all in all a good time-saving product for graphic application. Our biggest complaint was that we often had to fend for ourselves in learning how to use it since the documentation was too often no help at all. The Help commands, although available, were not very helpful, and with all of the menus we had to go through, it was not a generally user-friendly system.

Once we had gotten the hang of the various functions, it was no problem to change parameters and modify the graphs to our liking. Entering the data manually seemed rather cumbersome and could have been made a little easier. Although there were minimal editing functions available when entering data, we found ourselves bewildered when we wanted to change some of the entered data.

Our experience was very favorable with the Edit Screen function. In this mode, we could design our own screens by drawing and labeling. This function had special features allowing us to draw arcs, boxes, circles, lines, shadows, and also to paint enclosed figures. We were able to operate on the pixel level rather than the character level and so we had a lot of fun designing screens that could never have been generated by regular graph representations. The flexibility and ease of these functions were very favorably received by our programmers.

In all, the product performed well but the learning experience was rendered unnecessarily difficult by the documentation. This flaw created an initial resistance to the product which could only be overcome through sympathetic hand-holding by a more experienced user or technical specialist.

□ User Interface

Fast Graphs makes extensive use of the entire keyboard. Not only are the regular alphanumeric keys used, but all 10 function keys and also the keys on the right side of the keyboard using the cursor positioning. Control keys are used extensively in some of the functions. Sounds are programmable and may be set up to sound on errors only, on errors and prompts, or on errors, prompts, and responses.

Menus: Used extensively throughout the application. They require the user to sometimes respond with numeric entries or function keys.

Command language: None.

Positive feedback: User responses are acted upon if correct and beeped if incorrect. There is not the user friendliness that should be expected for errors.

Function/special keys: The PgUp and PgDn as well as the Home and PrtSc keys are used in the Edit Graphic Screen mode. Function keys are used throughout the application, and the Control key is used for some additional special function in some of the applications.

Status display: None.

Help facilities: Some screens and applications have a Help function. However, these are usually of minimal value.

□ Environment

The documentation does not address the operating environment of the system so it is impossible to say exactly what is necessary and what the minimum requirements are for operations. There is no mention of how many bytes of storage is required for operations or how much disk space is required for storage of the various screens. We tested the package on an IBM PC with 2 disk drives and 256K bytes of RAM. Advertising material indicates that the product will operate on a 128K-byte system.

The system comes with 3 diskettes—2 for programs and one for test files. To configure the system is rather awkward; the operator is required to load the configuration program from disk #2 and then immediately change to disk #1 for loading the parameters. Aside from that, the programs on disk #1 and #2 are segregated so that swapping back and forth is kept to a minimum.

The fact that Fast Graphs is capable of accepting data files from other applications is a big plus for expanding the working environment of the system. Since entering data in the Edit mode in Fast Graphs is rather cumbersome, it is especially helpful to be able to enter the data elsewhere, like VisiCalc, and then have Fast Graphs perform its graphing functions.

□ Documentation

As mentioned earlier, the documentation for Fast Graphs needs a lot of work. Although the vendor tried to set up each chapter to include Features, Procedures, and then Points to Remember, they were not always consistent. The Procedures portion was not clear in describing the functions available in the various menus, and in fact often did not even cover options presented to the user. Often

Innovative Software Fast Graphs
Graphics Package

functions were mentioned without telling the user how to get into a mode of using that function and/or without saying how to exit the function.

Since there are so many charts and graphs in the documentation (there needs to be because of the nature of the package) it would have been more pleasing if the manual had been in color. Although the documentation described that the user had a choice of 8 colors (for printers only—not for monitors), nowhere does it detail what those 8 colors are, nor show them. The pattern choices are displayed in black and white, and because the colors and patterns are not configurable for displays, our programmers had to print out the various options just to see what they were.

The documentation was filled with errors and omissions, and descriptions for features such as Special Data Sets were not that helpful. In all, we found that reading the material was an impediment to learning the package; we ended up having expert users teach beginners directly.

☐ Functionality

Fast Graphs is designed for business people or others who want to convert tabular data into charts and graphs. It is a good tool for the user who does not know programming or data processing. The user is first given a menu to select which function to perform. The first function for any of the graphs is to enter the Edit Data mode. In this mode, data is either entered by the user or loaded from an already existing file.

Entering data manually is similar to data entry with VisiCalc. In Fast Graphs, the first row and first column is reserved for labels; the following rows and columns will be numbers. The only additional option the user may have is to let the system compute the total for a particular group of columns automatically. Other than that, all entries are manually performed by positioning the cursor and entering data. There was a problem encountered when one of our programmers entered a number in a column and then tried to blank out that particular number. It was impossible to blank out, and the only thing that could be done was to change it to a zero. We rapidly abandoned direct entry mode in favor of importing data files from a popular spreadsheet program. Files which are accepted by the Edit Data mode include ASCII, DIF (VisiCalc), Multiplan, PerfectCalc, or SuperCalc files.

Once data has been loaded into memory, the user is brought back to the master menu and may select to generate bar graphs, pie charts, point/line graphs, slide show, or edit graphic screen. For each of the graph choices, the user is presented with another menu and may choose to change the parameters, to display the graphic screen, or to print/plot the graph. The parameters vary and offer quite a few choices of presentations. Bar graphs may be single or double (for comparative purposes), vertical, horizontal, or stacked; they may be 2- or 3-dimensional, with no background, with a grid background, or with a loaded background. These backgrounds may be created by the user in the Edit Graphic Screen mode and stored on disk for purposes of creating logos or other background graphics to be included with the graph.

Graphics options vary according to the graph type. The Pie Chart option allows the user to choose which data elements are to be charted, colors and patterns (for printers and plotters only), and which slices should be "pulled out" from the rest of the pie. Point/Line graphs may plot up to 6 different symbols, connected or not; these graphs may be scaled manually or automatically. A least squares line can also be generated for Point/Line graphs which displays the line fitting the formula that the program generates automatically. (However, this formula is not available for the operator.)

The slide show displays graphs that have been saved on the diskette in either a continuous loop or one single time. They may be shown in an automatic mode (with timing from 1 to 999 seconds programmable for each slide); changes between slides can be made via a fade, a curtain, or instantaneously.

The Edit Graphic Screen feature was the one that our programmers had the most fun with. The user starts out with a blank screen and may draw whatever he or she wants to and label with alphabetic characters anything needing descriptions. The cursor may be moved by pixels or by complete character distances. Drawing aids accompanying this function include arcs, boxes, circles with a given diameter or radius, lines, and 3 colors which may be used to fill in enclosed figures. Character aids include printing in double size and shadow whereby the characters will be shadowed for bolder highlights. Color aids include changing the background colors (up to 16 colors) and a 3-color palette for drawing. Needless to say, in this mode some of our programmers went wild with their imaginations; some of the applications they came up with were intriguing, to say the least. Some of the more practical applications were to design logos for companies, to design standard labels or graphs, and to add variety and spice to the regular graphs. Since these graphs could be saved on the disk, they could be called up to be merged with the regular graphs for a composite picture (which could then be saved on the disk for slide show presentations if needed).

☐ Ease of Use

Once our staff became familiar with the various functions, they found the package easy to use. The problem was that it took quite a bit of experience before reaching that point of comfort due to the inadequacies of the documentation. But once that point was reached, the parameters for drawing the graphs were easy to change, and the Edit Graph Screen was fairly simple (although that was one of the worst documented portions). It was very easy to make changes and then to see the results on the screen, since drawing time was impressively fast. With fast turnaround, changes were easy to make, and we could make several trials until we had just what we wanted for storage. The biggest problem here was the lack of color and pattern options support for the monitor. Because these options could not be altered on the screen (we never did ascertain why they could not be changed), we did not know what the result was going to look like until printing/plotting was done. Because of this feature, the flexibility of making changes and seeing the results in color on the screen was lost.

Innovative Software Fast Graphs
Graphics Package

Since everything is performed through menus, the user does not need to be proficient in data processing and must only understand what the options mean. However, the system should have been more user-friendly in that when errors were typed, more than just a beep should have occurred. Although there was usually a Help function available, the narrative (if there was any at all) usually did not elucidate matters at all.

It would be helpful if documentation included some guidelines to indicate when the use of one particular graph may be better than another. Also helpful would be some explanations on the functions rather than just illustrations. It is fine to show differences, but the user, to become an educated user, must be shown what features are best used under what circumstances. The documentation should assume the responsibility of educating the user on applications as well as procedures.

☐ Support

Included in the documentation is a page detailing the company's Customer Assurance Plan which includes a Product Upgrade Plan, a Limited Warranty, and a Customer Support Program. Upgrades are provided at extra cost when they become available. The warranty states that disks function according to specification and that the programs operate according to the documentation. The customer support program gives a phone number which users may call during regular working hours. They do note, though, that only limited support can be given to users who have not registered their program with the vendor.

☐ System Interface

Fast Graphs is very flexible in interfacing with any other system that creates or generates ASCII files. Input may come from VisiCalc programs (using DIF files), SuperCalc (using PRN files), Multiplan, PerfectCalc, T.I.M. files, and files from Fast Facts (another product from Innovative Software). Output from Fast Graphs does not interface with other software, but there seems to be little need for it.

LCNS: license fee.

☐ Vendor Experience

Innovative Software has been in business since 1981. In addition to Fast Graphs, Innovative Software sells T.I.M. and Fast Facts, both database programs.

■ DETAILED PRODUCT DESCRIPTION

☐ Terms & Support

Terms ● Fast Graphs is available on a purchase license basis from Innovative Software, through personal computer or software dealers throughout the U.S.

Support ● telephone hot-line provided by vendor; upgrades provided at extra cost; warranty covering disk and program functions provided.

☐ Component Summary

The actual program which administers the tutorial is packaged as COMMAND.COM on the diskette.

Many other programs for each of the listed functions are contained in various files on 2 program diskettes:

$350 lcns

☐ Computers & Operating Systems Supported

The package runs on the IBM PC with MS-DOS. No indication is made that it runs on the PC compatibles. Our testing was done on the IBM PC.

☐ Minimum Operating Requirements

The vendor states that the package will run on a machine with 128K bytes of memory; we tested the package using a machine with 256K bytes. Two double-sided floppy disk drives or one floppy drive and a hard disk are also required. The package can run on systems with a color monitor, a black and white or color printer/plotter; however, they are not required.

☐ Features

Data Input ● allows data to be entered by the operator or from other sources.

Generating Graphs ● will generate bar graphs, pie charts, or Point/Line graphs.

Output ● will display graphs on monitor, printer, or plotter.

Target Audience ● business people or others with need to graphically represent tabular data.

Method of Application ● parameter driven through menu selections.

Average Time to Become Familiar with Product ● documentation requires about 2 hours; application, about 3 hours.

● END

ITSoftware CalcIT
Spreadsheet Package

■ PROFILE

Function ● the development of financial reports, budgets, balance sheets, and forecasts using an electronic image of a conventional accountant's spreadsheet.

Computers/Operating Systems Supported ● IBM PC or PC/XT using PC-DOS, other 8086/8088-based systems using MS-DOS.

Configuration ● requires a minimum of 192K bytes of memory, 2 disk drives, and a monochrome or color display device; can optionally support a hard disk drive and printer.

Current Version/Version Reviewed ● Version 2.0/Version 2.0 for the IBM PC.

First Delivery ● Autumn 1983.

Number of Installations ● information not available.

Comparable Products ● Microsoft Multiplan, VisiCorp VisiCalc, SORCIM Supercalc-2.

Optional Associated Software ● ITSoftware provides an entire line of integrated software packages, including KeepIT, SortIT, WriteIT, and StatIT.

Price ● $400 retail price.

Vendor ● ITSoftware, Inc; P.O. Box 2392, Princeton, NJ 08540 ● 609-799-2600.

Canada ● currently no distributors in Canada.

■ ANALYSIS

CalcIT is an electronic spreadsheet whose unique claim to fame is the support of 3-dimensional worksheets. The CalcIT model of a spreadsheet is one of a data cube. In addition to the traditional row versus column orientation, CalcIT supports a third axis that can be thought of as going into the video display. This allows the creation of spreadsheets with many pages, the most common use of the third axis being the representation of time. CalcIT also supports a powerful execution facility that allows the creation of complex applications with simple user interfaces.

CalcIT is the spreadsheet member of the IT software family. This series of products is a loosely coupled collection of programs for business applications. Data is typically passed from one program to the others through conversion programs and the KeepIT database. This loose coupling is necessary due to the fact that much of the IT software, including CalcIT, are programs licensed from

PRODUCT QUALITY RATINGS*

	1	2	3	4	5	6	7	8	9	10	
ENVIRONMENT											9.0
DOCUMENTATION									8.0		
FUNCTIONALITY								7.0			
EASE OF USE											9.0
SUPPORT				4.0							
SYSTEM INTERFACE						6.0					
VENDOR EXPERIENCE					5.0						

*For an explanation of rating criteria, please refer to the Spreadsheet Features section in the Software Evaluations (805) report. The Overall Package Average is 6.9.

other sources and brought under the IT umbrella. With most of these programs priced somewhat high, the entire family of products can cost more than the noncorporate user is willing to spend. As such, the products are definitely tailored for the corporate user. Purchasers of other IT software will find in CalcIT a highly capable spreadsheet product to complement their other programs. Users who can see how a 3-dimensional approach to spreadsheets could solve their complicated applications will also be pleased. The remainder may find that they can make more use of the graphics and database facilities of Lotus 1-2-3 or Supercalc-3 than CalcIT's third dimension.

□ Strengths

The most noticeable features of CalcIT are its 3-dimensional spreadsheet and its EXEC facility. The concept of a data cube with a third axis can do wonders to simplify certain spreadsheet problems. While the currently visible page might show the company balance sheet for the current year, other pages may contain past years' information, and future years' projections. The program supports the use of the third axis very naturally, allowing you to view the cube along any combination of two axes, while "paging" through along the third.

The EXEC facility provides not only the ability to execute any CalcIT command from a control file, but also includes a set of special commands that make EXEC a mini-programming language. Even if you have no desire to ever program a computer, many complex applications can be implemented without these special commands, and even they will become easy after some familiarity with the product. Through the use of its ability to solicit entries from the keyboard, a sophisticated user can create a simple "black-box" user interface for a complicated application that prompts for the specific information that it needs and then proceeds to build an entire worksheet. The capabilities are similar to Lotus 1-2-3's Macro facility, though more traditional in the sense that you execute a

PURCHASE PRICE RANGE

Software Price Range ▭

CalcIT $400

$75 to $700

| $200 | $400 | $600 | $800 | $1,000 |

ITSOFTWARE CALCIT PRICING ● open bar shows the typical range of prices for **SPREADSHEET** software used in a corporate environment ● the vertical line within the bar graph indicates the price of **CalcIT**, the evaluated product, relative to the price range of similar products.

ITSoftware CalcIT
Spreadsheet Package

data file, rather than activate instructions stored in other spreadsheet cells via an ALT-key combination. Lotus' macros are much more flexible for many of the simple things for which EXEC files would not be considered, however. A wide range of financial and statistical functions implemented with EXEC files are provided with CalcIT, and demonstrate the power of the facility.

☐ Limitations

As has been obvious from the success of all of the existing spreadsheet programs from VisiCalc to Lotus 1-2-3, the 2-dimensional spreadsheet can go a long way to solving one's application needs. Aside from some very particular types of applications that beg for the data cube concept, many people will not particularly need this feature that makes CalcIT unique. CalcIT does not provide many of the current mainstream features appearing in the other expensive spreadsheets, such as database facilities, sorting operations, and complex graphics capabilities. If these would be more useful to you in general than another dimension, the CalcIT may not be for you. If these capabilities were added to CalcIT, and the price did not go through the roof, it would be an attractive package indeed.

Though the manual in general is a very extensive piece of work, the command reference portion is somewhat lacking. The reference section of a manual should be an abbreviated summation of all information available about a particular command. This is where you look if you are already comfortable using the program, but need to quickly locate a particular piece of information you have forgotten or have not yet encountered. The description should be more informative and less tutorial in nature. The CalcIT manual seems to have gone in the opposite direction, with much of the useful information being embedded in the tutorial sections, and the reference section containing little but the step-by-step instructions on how to invoke a particular command. It makes each trip to the manual a little more time consuming than it should be.

■ HANDS-ON EVALUATION

CalcIT is provided on 3 single-sided floppy disks; a Program disk, a KeepIT interface disk, and a Demos disk. The program is ready to go for the IBM PC, with no configuration steps necessary. All that is necessary is to backup the disks using standard copy procedures before proceeding. Two executable files appeared on the system disk that were not documented anywhere in the manual, but their names, COLORON and COLOROFF, clued us in to their usage. The program was easy to install on a hard disk, except for the fact that it always defaults to drive B: as the data drive instead of the current DOS default drive unless another drive is explicitly used in a file name reference. After the first such usage, the program will proceed to default to the desired drive.

The program documentation claims that 2 drives are required, but the program files themselves fit on a single-sided diskette. When copied to a double-sided disk, there was plenty of room remaining for storing data files, and the program did not complain about saving data on

the program disk. For any real serious application however, 2 disks would probably soon be needed. The program disk must remain in the system, and cannot be removed like VisiCalc, because of the Help text files and the occasional overlay file that must be loaded in particular situations.

The program operates much the same as VisiCalc and Lotus 1-2-3. A slash is used as a signal to initiate command mode. Most commands are familiar to VisiCalc users, with the exception of the use of the "@" symbol as the "GOTO a particular cell" command instead of VisiCalc's "greater than." CalcIT solves the problem of being able to scroll the screen rapidly enough to keep up with the keyboard repeat rate by only displaying the changing row and column numbers when it begins to fall behind. Once you stop scrolling, it updates the entire display. While this does indeed allow it to keep up, some of our testers did not like the fact that they could not really see whether they had reached the data area desired unless they paused momentarily.

The large number of sample data files provided did a lot to help demonstrate some of CalcIT's particular capabilities. The use of the page up and page down keys to move through the third axis of the spreadsheet, or leaf through the pages, was very convenient for this purpose, but left us without an easy means of rapid movement within a single page. Those who automatically reached for these keys frequently found themselves momentarily lost in another page. We had planned to convert some typical spreadsheets from other products into CalcIT format, both to test the conversion process, and to have a good complex applications to work with. The program to convert DIF files to EXEC file format was missing from our evaluation copy, however, so we were unable to evaluate the conversion effort.

☐ User Interface

CalcIT provides the rapidly becoming standard, Lotus-like user interface. The commands and command options are chosen from a displayed list of allowable values. Each choice is displayed as a complete word, but can be chosen via its initial letter. With each choice that is made, the display is updated to show the new options now available. The Help text available at the press of the Help key (F1) is very useful due to the fact that it is always specific to your place in the program.

Menus: The 2-line lists of possible command and option choices that appear near the bottom of the screen constitute the only real menus provided by the system. Most of the activity in a spreadsheet program goes on right on the worksheet itself. As mentioned, each list contains full-word command and option names that are selected by typing their first letter. Commands that require file names allow the use of the arrow keys to display file names from the current directory one at a time.

Control characters: Few control characters are used by CalcIT. Control-P is used to print the currently displayed page on the printer. For some unknown reason, Control-Q is used to exit the program, instead of having a QUIT command available from the command line. Not only is

ITSoftware CalcIT
Spreadsheet Package

this inconsistent, but Control-Q does not prompt you for verification on exiting. If you have not written your worksheet to disk, all is irretrievably lost.

Function/special keys: CalcIT makes good use of the function and cursor control keypads on the IBM PC. The lower status line displays the control key assignments for the 4 most important control keys. The PGUP (page up) and PGDN (page down) keys on the cursor control keypad are used to move through the third dimension of the spreadsheet. HOME and END can be used to position at the beginning or end of the currently displayed page.

Command language: In addition to supporting all of the normal CalcIT commands from within an EXEC file, special control commands are available that extend the capabilities of EXEC files to that of a mini-programming language. These commands include assignment statements, labels and GOTO statements, cursor movement operations, subroutine invocation and return, and conditional IFTHEN statements. The commands are patterned after BASIC, and there should be little difficulty understanding their usage, with the possible exception of how labels and GOTO statements actually operate.

Positive feedback: The prompting line of CalcIT displays the command in process, in addition to the list of possible options. Most destructive operations, such as blanking, request confirmation from the user before completion. Exiting the program, however, which can be the most serious destructive operation of all if you have forgotten to save your worksheet data to disk. It happens immediately without pause. This is a serious flaw in the user interface.

Status display: The program provides a typical spreadsheet status line indicating the current column, row, and page of the cursor, its formula, and any particular formatting characteristics. It also indicates the percentage of memory still available to the program.

Help facilities: At each step in the program, the Help key (F1) may be pressed for help information that is specific to your current state. One full screen of help information is displayed whenever F1 is depressed, and you are always returned to your original place in the program.

☐ Environment

For a program that does not provide any of the database, sorting, or graphics facilities available in many of the current product offerings, its 192K-byte memory requirement is a little steep. Other than that, its resource requirements are normal. It provides the ability to send particular printer control codes when printing a worksheet, allowing some flexibility in the printer device used. The ability of the program to support very large worksheets and complex EXEC files makes its usage in conjunction with a hard disk a natural desire, and no problems were experienced here. It supports the use of color on graphics monitor, and supports a limited bar graphing capability on both the color and monochrome displays.

☐ Documentation

The CalcIT documentation consists of a large, well-illustrated manual of over 250 pages. It contains 14 functionally organized chapters written in a tutorial nature, a command reference section, and 4 appendices describing error messages, precision, printer translation tables, and DIF file conversions. It has an 8-page index, and a fold-out command chart in lieu of a reference card. It is accompanied by almost 30 example data files that are referenced throughout the manual to demonstrate the functioning of various features. Overall, it is a good piece of work, with only a few weak points.

The version of the product that we received was a demonstration-only copy, and apparently an early version of the program. As such, some installation details were not covered in the manual, including whether the program could be installed on a hard disk, and how to enable or disable the use of color on a graphics monitor. The many full-screen pictures in the manual differed slightly from the actual program display, mostly in the status line, where the actual display was easier to understand than the one in the manual. Though the tutorial sections comprising most of the manual were quite good, the reference section left much to be desired. The 2-line description of the Storage Transfer command did little to tell us what it was supposed to do or what the various options controlled. More information on how the storage functions worked could be found in the tutorial section than in the reference portion of the manual.

☐ Functionality

CalcIT supports most of the commonly occurring spreadsheet features, including some of the more recent niceties. Cell reference can be by absolute coordinates, by relative location to the current cell, or by a user-defined name. It provides a character bar graphing capability that, while limited, can be used to produce attractive displays. Other features include the ability to display cell formulae on the screen, and to easily create titles that are centered within the current window and span cells either horizontally or vertically. Files may be saved and loaded in either binary or EXEC format, with the EXEC format providing more options and flexibility.

The 3-dimensional spreadsheet model supported by the program is best represented as a data cube. The cube may be rotated or separated along any axis so as to display the exact section of data desired. Unlike Rubik's cube, this rotating will not scramble your data, only present you with a view from a different angle. The most common view of the cube is the Page view, where the columns display vertically, the rows display left to right across the screen, and the pages themselves are stacked one behind the other. The screen displays the top page, and you may "leaf" through the pages one at a time. Different viewpoints may be appropriate however. If one axis of a worksheet describes expense categories, the second defines the different regions of a company, and the third is used to show month-to-month values, then one view will show you comparative expenses from region to region for a given month, the second would show a given region's total expenses across time, while the third would show the region by region trend across time for a particular expense category.

The program provides a large set of built-in mathematical

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and statistical functions that can be used in any cell formula. In addition to the common functions such as summation, average, minimum, and maximum, CalcIT supports random number generation, time calculations, square root, sum of squares, standard deviation, normal and inverse trigonometric functions, and natural and base 10 logarithms. While there are no complex financial functions that are built-in, a large number of sophisticated functions are provided as EXEC files that prompt for the input information and calculate the results. These EXEC files could be easily tailored to operate from pre-defined cells within a worksheet instead of interactively. While this is not as convenient as having the function built-in, it is a much more powerful and flexible capability. Most spreadsheets offer few of these financial functions in any form. The functions provided as EXEC files include effective interest rate, future value, present value, and net present value, amortization schedule, linear regression operations, and trend analysis.

EXEC files are the DIF of CalcIT, with extras. When a file is saved in EXEC format, what is produced is the series of CalcIT commands necessary to reproduce the worksheet from scratch. Most spreadsheet programs provide some sort of ASCII representation such as this, usually for the purpose of allowing the worksheet information to be shared with other products. EXEC files provide other capabilities similar to Lotus 1-2-3's macro operations. Besides allowing all normal CalcIT commands to appear in an EXEC file, programming statements similar to some found in BASIC may be used to create very complex applications. These include IF-THEN conditional statements, assignment statements, subroutine calling and return capability, label creation and usage, and the ability to prompt for information from the keyboard. This allows for complicated function development like the many financial functions provided with the program, and for the creation of "black-box" applications that prompt for input and then create a complete worksheet automatically. In order to make the creation of EXEC files simpler, CalcIT includes the ability to record a series of keystrokes as they are entered, and create an EXEC file automatically from the results.

The windowing features of the program support the splitting of the screen display, either horizontally, vertically or both, allowing 1, 2, or 4 different windows to be viewed simultaneously. Through the use of the formula display capability, it is possible to view the worksheet data in one window while viewing the formula for each cell in another. The windows may be scrolled individually or synchronously.

The capability to share information between CalcIT and other members of the IT software family is provided via an interface to the KeepIT database manager. A rather brief chapter on its usage appears in the manual, and a separate disk containing the KeepIT interface is provided. A separate conversion utility is also provided to create EXEC files from DIF input, the Data-Interchange Format file type popularized by VisiCalc and others.

☐ Ease of Use

CalcIT is very straightforward to use. Experienced

VisiCalc users will not have many problems being productive almost immediately, except for the GOTO cell symbol being the "@" instead of "greater than." The use of full-word, logically chosen command and option prompts together with detailed, specific help information (concepts popularized by Lotus 1-2-3 and Multiplan) make the package fairly easy to use regardless of experience level. The use of the page keys to move through the third dimension of the worksheet leaves you with only the GOTO command as a means of rapid movement within a single page, but you eventually adjust. The pleasing use of color on a graphics monitor also aids the program's overall friendliness.

☐ Support

Purchasers who return their Software License form are entitled to up to one hour of free telephone support from ITSoftware at 609-799-2600. No toll-free number is available. Telephone support in excess of the first hour is charged at a rate of $40 an hour. The company agrees to correct any software errors discovered within the first 90 days, if notified in writing. Corrections will be available in the next released version of the program, available to registered purchasers for a modest charge.

☐ System Interface

CalcIT is loosely coupled with other IT Software products through the KeepIT data manager. This interface allows movement of data currently managed by KeepIT into a CalcIT spreadsheet, but no method of going the other direction is explicitly provided. An appendix in the manual also describes a utility that can convert DIF format files produced by VisiCalc, dBase II or other products, into EXEC files; unfortunately the program did not appear on our evaluation disks. As is popular with many other programs, CalcIT can handle DIF files in order to attract VisiCalc users; however it cannot create them, which subverts the purpose for having a Data-Interchange Format in the first place. EXEC files are sorted in ASCII format, allowing other programs to read and process them once their command structure is understood.

☐ Vendor Experience

ITSoftware is a relatively new entry into the microcomputer software field, though its parent company, Martin Marietta Data Systems, is a much older hand. Many of the IT products are actually private-label versions of existing products licensed to ITSoftware, with some conversion mechanisms provided to link the products together.

■ DETAILED PRODUCT DESCRIPTION

☐ Terms & Support

Terms ● CalcIT is available for purchase only from ITSoftware, Inc, through computer dealers, software dealers and mail-order firms throughout the U.S. and internationally; quantity discounts are available to volume corporate purchasers.

Support ● upon registration, one free hour of telephone support is provided at 609-799-2600; problems found in the first 90 days will be fixed in a subsequent release; upgrades are available to registered purchasers for a modest charge.

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☐ Component Summary

CalcIT is provided on 3 single-sided floppy disks; a Program disk, a KeepIT Interface disk, and a Demo disk. The disks include the following files.

The Program Disk contains: CI.COM is the main CalcIT executable program file, CIOVLA*.CIM are the overlay files used by the main CalcIT program CIHELP.CIM is the help text file; COLOROFF.COM is the executable file for configuring color usage, and COLDRON.COM is the executable file for disabling color usage. ITERATE, IRR, AMORT, LR, NPV, and FRONT are EXEC files for performing complex financial functions.

The KeepIT Interface Disk contains the following 7 files: KIMM.EXE, BASRUN.EXE, SAVEPARM.EXE, KI.BAT, KICI.EXE, KICI1.EXE, and KICI2.EXE.

The Demo Disk provides 29 miscellaneous demonstration files:

$400 lcns

☐ Computers & Operating Systems Supported

CalcIT runs on the IBM Personal Computer or PC/XT using PC-DOS, and for other 8086/8088-based systems using MS-DOS.

☐ Minimum Operating Requirements

CalcIT requires a minimum of 192K bytes of memory, 2 disk drives, and a monochrome or color display device. It can optionally support a hard disk drive and printer, if available.

☐ Features

CalcIT is a 3-dimensional electronic spreadsheet package for the development of financial reports, budgets, balance sheets, and forecasts. Some of the capabilities included are:

LCNS: license fee.

Spreadsheet Size ● supports a "data cube" of up to 255 rows by 255 columns by 255 pages, dependent on system memory; any combination of 2 axes can be displayed on the screen.

Command Type ● single-character commands entered from a list of complete command names; complete names given for each level of option selection within a command.

Functions Supported ● built-in functions include average, maximum, minimum, mode, random, square root, sum-of-squares, standard deviation, trigonometric functions, base 10 and natural logarithms; numerous financial functions supported via predefined EXEC files include effective interest rate, future value, loan payment, number of payments, present value, amortization, linear regression, trend analysis, and net present value.

Cell Reference ● cells can be referenced by absolute cell coordinates, relative location, or via user-assigned cell names of up to 8 characters; no reference by cursor pointing is supported.

Window Capabilities ● screen can be split in 2 horizontally and/or vertically, for a maximum of 4 simultaneous windows; individual window scrolling may be synchronous or independent.

Range Facilities ● a row or column range of cells may be specified for any command where a group of cells could be logically specified.

Load/Save Facilities ● worksheets may be saved and loaded in either binary format or EXEC format; only complete worksheet operations are supported with binary files, though complete worksheets may be merged; EXEC files support entire and partial worksheet saving and loading.

Execution Facilities ● a mini-programming language is provided for creating complex applications; the EXEC facility supports all interactive commands and a number of separate programming facilities; various loading, merging, and executing options are supported for EXEC files.

● END