Jupiter Island Corp Colortext
Printer Utility

■ PROFILE

Function • utility print program.

Computers/Operating Systems Supported • IBM PC, IBM PC/XT, Compaq, Columbia, Corona, or IBM PC-compatible/PC-DOS, MS-DOS, or CP/M.

Configuration • 64K-byte RAM, one single-sided, double-density floppy disk drive; monochrome display or color/graphics board and the appropriate monitor; an IDS Prism printer with the Process color ribbon required for full functionality.

Current Version/Version Reviewed • Version 3.00/Version 3.00B.

Number of Installations • approximately 400.

Comparable Products • no known directly competitive products; however, Application Techniques' Rainbow Writer is similar.

Price • $68 retail price.

Vendor • Jupiter Island Corporation; 1900 Powell Street, Suite 1135, Emeryville, CA 94608 • 415-655-0840.

Canada • currently no Canadian distributor.

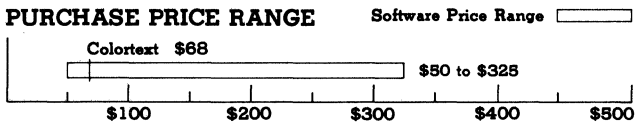
■ ANALYSIS

Colortext is a print utility designed to supply the user with the capability of exercising all of the special features of the Integral Data Systems (IDS) Prism printer without the burden of having to know the appropriate control character sequences to invoke them. The commands are English-like and, consequently, easy to use and remember.

The product is a print utility; it requires that the user have a text editor or word processing program in order to input the commands and data. Formatting functions, such as bold text or underline, should not be entered using the word processor's functions as all formatting is handled via the Colortext commands. The scope of the product, at this point, is limited to text formatting. There are not any known plans to expand it to encompass graphic control of the printer.

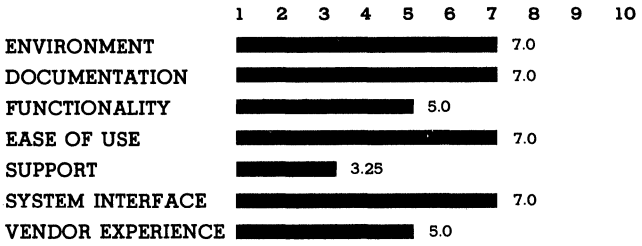
The interfacing with the IDS Prism printer is at the hardware level. This means that some of the printers which emulate the IDS Prism do not function in the manner expected. Consequently, if one is using a printer other than the IDS Prism, one should see a demonstration of the program on that printer prior to purchasing Colortext in order to avoid disappointment.

PURCHASE PRICE RANGE



JUPITER ISLAND COLORTEXT PRICING • open bar shows the typical range of prices for **UTILITIES** software used in a corporate environment • the vertical line within the bar graph indicates the price of **Colortext**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



*For an explanation of rating criteria, please refer to the Software Evaluations (805) report. The Overall Package Average is 5.9.

This is not a generalized product, one which all businesses will find immediate use for. Companies who own an IDS printer and who desire to use its advanced color text features for slides, etc, will find Colortext well worth the price.

☐ Strengths

The product provides a low-cost means of utilizing all of the character-oriented functions, such as color, font, and spacing, of the IDS Prism printer with the Process color ribbon and a way to even out ribbon wear automatically with the black ribbon. Incidentally, the product is compatible with the IDS microPrism and other non-color Prism printers, but it really shows its worth with the color version.

The 53 commands are either the English words preceded by a percent sign, such as %red or %GERMAN; or they are mnemonic codes, such as %smg for "set margin." This makes them easy to remember and use. In addition, a command summary is provided which lists each command by function. The functions are: color, character set, type size/spacing, and other (miscellaneous). Each command is illustrated with actual output from the printer.

☐ Limitations

The product is a utility for printing alone. It does not contain a word processor or a text editor for data entry. Further, it requires the user to insure that all control character sequences from the word processor are removed since they interfere with the proper execution of the program. For instance, the manual states that when WordStar (a word processing program) is used to create the Colortext input file (.CIF), non-document mode should be used. This is because some word processors imbed invisible control characters which would cause problems in Colortext.

The command processing function is limited. It will accept commands in lowercase or in uppercase, but mixed case

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will generate an error. Thus, %violet and %SWEDISH are valid while %French is not. Furthermore, commands must be entered on a separate line, generally by themselves, in order to be recognized and processed.

■ HANDS-ON EVALUATION

Few steps are needed to install this product. First, the switch settings on the IDS Prism printer must be set to the configuration described in the manual. Second, a working copy of the program must be created using either the COPY or the DISKCOPY DOS commands, the master copy then being filed for safe-keeping. (This step, while not essential, is strongly recommended.) Third, ensure that the data in the file, CTX.SET, from which Colortext learns whetHer the printer is attached in a serial or a parallel manner, its model number, and an indication of either 132 or 80 print positions, is present and correct.

Creating files for the program is a bit tedious, but not difficult. The user must ensure that all formatting commands in existing word processing documents are converted to their Colortext counterparts if the functions are to be retained. The commands are entered, each on a line by itself. After a few errors, we discovered that some word processors are unable to create documents for Colortext—the product must have a line editor or text editor mode.

The operation of the commands on the printer is smooth. No unanticipated difficulties were encountered.

☐ User Interface

Colortext provides the user with a means of intimately controlling the printing features of the IDS Prism or microPrism printers without programming. It decodes the English-like commands which the user has placed in the document to be printed via an editor, word processor, or by another program into the appropriate control character sequences for the printer as the document is being printed.

Menus: None.

Control Characters: None.

Function/Special Keys: The percent key (%) is used to signify the beginning of a command if it is the first character in a line.

Command Language: Colortext makes use of 53 separate commands which provide the user with control over the printer. Commands are English-like or mnemonic which enhances their ease of use. Major groupings of commands control color, character set, spacing, and miscellaneous functions.

Positive Feedback: Nine error messages are generated by the product. Detailed explanations of the messages and their meanings are included in the User's Manual Supplement.

Status Display: None.

Help Facilities: None.

☐ Environment

The system requirements for Colortext are minimal. It will run on a minimum-configuration IBM PC or XT with PC-DOS; however, in order to have a reasonable means of generating and maintaining text files (.CIF), a word processing or text editing program is recommended. No line editor, even IBM's EDLIN supplied with PC-DOS, can compare with a full-screen editor or word processor in the area of ease of use.

We tested using an IBM PC with 192K bytes of RAM, 2 double-sided, double-density disk drives, a color/graphics adapter and monitor, and an IDS Prism printer. We also used an IBM XT with 630K bytes of RAM, a monochrome monitor, and an IDS Prism printer.

We also tested using a printer which has an IDS Prism emulator mode; however, we found that not all functions performed as expected.

☐ Documentation

The documentation is supplied in a 3-ring binder which contains a 24-page User's Manual that includes 4 sample output pages, a User's Manual Supplement which supplies error messages, notes on how to avoid common errors, caveats for using WordStar as the input vehicle, and suggestions on how to better employ the product.

The documentation is written in a clear manner which leads the user through the nuances of each command. Each command is explained on a separate page, which adds to the uncluttered impression gathered from reading the document. In fact, the entire manual is written on only one side of the page. Helpful suggestions, such as "Print the yellow band first when mixing colors" to prolong the life of the ribbon, are included.

The manual is a copy of text created using the IDS printer, and at least parts of it were produced using Colortext, in the black-and-white mode.

☐ Functionality

Our technical specialist suggested that we try small samples of several of our word processors in the Colortext program before committing any significant keying effort to one. Fortunately, (and, he says, uncharacteristically) we listened. It turns out that many of the popular word processors cannot operate in text edit mode. Margins, word processing control characters, etc, are imbedded in the text, and these present entertaining, but generally useless, patterns and problems when taken through Colortext. We also found that printing to disk to get a clean copy of the text did not work because margins and page breaks generated by the word processor interfered with Colortext. Any of the personal editor or program editor products worked well, however, and some word processors with non-document modes of operation also served.

Colortext is based on imbedded text commands, similar in concept to those employed by some word processors (where they are often preceded by a "dot" and thus called "dot commands"). The commands are divided into 4 main categories: color, character sets, type size and spacing,

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and miscellaneous. The approach that we took in testing this product was to test each area separately, then combine areas until all aspects of the product were explored.

The Process color ribbon has 4 color bands on it: yellow, red, blue, and black. Colortext provides commands to use each of the 4 basic colors, the 4 basic colors double-struck, and the 4 combination colors: orange, green, violet, and brown. We also followed the suggested color combination commands presented in the Supplement, but found that more than 3 different colors on the same page of text was distracting. We also found that blue was the favorite color of the staff with fire-engine red a close second.

Members of our international division found the character set commands helpful. The capability for accurately printing foreign character sets was one of the major considerations in choosing the printer in the first place. Colortext supplies commands for 5 foreign language character sets: French, Spanish, German, Norwegian, and Swedish. In addition, 2 versions of British English are supported, one with the pound symbol replacing the number sign (#) and the other with it replacing the dollar sign ($). And, in order to return to our standard, a command for American English is provided. With this feature, our International Department was able to increase their correspondence productivity by utilizing word processing features where before letters had to be typed.

We found that the proportional spacing command was the preferred choice by our professional staff for the preparation of business correspondence. For reports, however, they preferred the Book-Text feature which provides a proportionally spaced, left and right justified appearance like that found in commercially printed documents. While our data processing staff was content with the standard 10-character-per-inch format common on most data processing reports, Colortext offers commands for 5, 6, 8.4, 10 (Pica), 12 (Elite), or 16.8 characters per inch in either fixed or proportional modes. In addition, commands are available to switch from 6 lines per inch to 8 lines per inch and back.

Our clerical staff liked the centering function since it allowed a line of any length to be properly centered while in fixed mode. They noted that it would have been even more advantageous had it centered proportional lines as well. In order to center a proportional heading, they found that the set margin command, which allowed them to place the text within 1/120th of an inch tolerance, could be used to adjust its position. Unfortunately, it usually required several iterations to adjust the margin in order to center the line so that the most discriminating of our staff would declare it aligned.

After the headings were positioned properly, our clerical staff would use the standard margin command to reset the margin for the body of the document. The documentation recommends the use of the margin commands in preference to the tab commands for the control of columnar data. We found the tab commands were functional and eliminated extra keying, but we agree that there is a much finer control possible when the set margin command is employed. The tab commands supply adjustments to the nearest eighth or tenth of an inch, depending upon which command is used, while the set margin command provides spacing to the nearest 1/120th of an inch.

We were able to control the vertical spacing of the document in a very robust manner using Colortext. It provides commands to skip to top of page, half space down, micro (1/48 inch) space down, space up, and not to space at all. We found that, as Jupiter Island suggests in their manual, spacing up generally causes problems with the printing, not because the command malfunctioned, but because it causes the paper to move in a non-standard direction. Even when heavy paper is used, it has a tendency to bend rather than move back through the pin-feed tracks. This is especially true when a sheet is near the page perforation when the command is issued. We used this feature as little as possible.

The product also provides a vehicle for leaving the options set on the printer. This is very helpful providing that the next application to use the printer does not reset it. But, several of our pet word processors helpfully cleared the printer options with a form of reset prior to setup, so we could not always pre-select. Where we could, we found this helpful when a non-standard output was needed. The prime example of this occurred when the test machine had to be used for a day as a program development machine. Via Colortext, we were able to establish the environment required, 16.8 characters per inch and 6 lines per inch and have the development programs print.

Colortext supplies an automatic band shift command. With it, the ribbon will automatically shift to the next band at the end of each page. This promotes longer ribbon life and more even ribbon wear.

☐ Ease of Use

We found the product easy to use in the sense that all of the commands are mnemonic, either consisting of the actual English word as in the case of %red (with a leading "%") or easily remembered as in the case of %CEN for the center command. Because of the low number of commands (53) and their simple structure, the average user can pick up the manual and create a properly formatted document in a minimum of time. However, our clerical staff found that the implementation of some of the commands was tedious. The example that they cited was the center and the right justify commands. Each of them function solely on the next line of text, thus a 3-line heading requires 3 center commands and a right justified address.

The book-text formatting feature, which sets proportional spacing with left and right justification, requires a command to begin and end each paragraph. Also, only the 4 primary colors (red, yellow, blue, and black) are supported while in book-text mode. This was a disappointment because it limited the use of this mode, making more free-wheeling setup sessions necessary and wasting time in choosing the proper combination of options.

We also found that it took an appreciable amount of time to

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remove the hidden control characters supplied by our word processor. In fact, the task on ours was so tedious that we shifted to the editor version of it as soon as we were able. We were fortunate to have an editor version which did not imbed control sequences available. As previously mentioned, users of WordStar should specify the non-document mode of file production. If document mode is used, the end-of-line characters generated by WordStar must be replaced.

We found the process for imbedding words of different character sizes largely a trial-and-error exercise, especially when dealing with proportional text. The proper margins or number of spaces can be calculated, and indeed they should be when a document is addressed to upper management, but for inter-departmental notes, it is generally faster to eye-ball them first, then use successive approximations to adjust them, if necessary.

The intimate control of textual processing, which Colortext provides over the DOS commands and word processors without a specific device support program (driver) for the IDS Prism, makes the drawbacks of inputting the commands secondary. The purpose for which the printer was purchased clearly has a bearing on having the opportunity to exercise its features. This product does provide the means of creating colored and formatted documents from the IDS Prism printer. And, the operation of the product is simple enough that one could reasonably expect the desired output in a minimum of time.

☐ Support

We attempted to employ a different printer, with an IDS Prism emulation mode, which we had used for reports from other programs without experiencing any difficulties. The level of control which Colortext exercises over the printer requires that each facet of operation be identical. In our case, the simulation was imperfect. We called Jupiter Island Corporation in order to find out what we were doing wrong.

The return of our call caused a degree of consternation in the office ("You have a call from Jupiter!"). Their response was that they had not used the particular printer with the product and did not know of any installation which was using the combination. They also indicated that the level of emulation must be exact since the product sends intimate control codes which must be interpreted properly, and, that without using the product on the printer themselves, they could not offer a solution.

They further indicated the product had been tried on a third brand of printer, had experienced a few problems, and that the printer manufacturer was thought to be making hardware changes to adjust the compatibility, but that the time frame of the changes was unknown.

☐ System Interface

The text used by Colortext must be keyed on another product, and that product must produce plain text without special control symbols in order for the product to work. Warning instructions are provided specifically for users of the WordStar product, but apply to all word processing products. In general, the output from the word processing product should be in non-document form, that is, no imbedded control characters are to be placed in the text. When the Colortext program is run, it will implant the appropriate commands where necessary.

Our technical specialist was able to create a program to process a text image written to disk in print-page form from a non-conforming word processor and remove the margins and control characters so that it could be used. But the effort is unlikely to be worth the result unless a particular word processor must be employed and it cannot support non-document mode.

☐ Vendor Experience

Jupiter Island Corporation has been in business since 1981. Approximately 400 copies of Colortext have been distributed.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Colortext is available on a license for purchase from Jupiter Island Corporation, computer dealers, software dealers, and mail-order houses throughout the United States; volume discounts are available.

Support • telephone support provided by Jupiter Island.

☐ Component Summary

Software elements consist of the following 3 programs on files: CTX.EXE is a program to drive the IDS Prism printer; CTX.SET is a data file containing the configuration information on the printer; and SAMPLE.CIF is a sample Colortext input file to exercise the printer.

Colortext:

$68 lcns

☐ Computers & Operating Systems Supported

Colortext runs on the IBM PC 1 and IBM PC/XT with PC-DOS; it also runs on the Corona, Compaq, and Columbia with MS-DOS operating system.

☐ Minimum Operating Requirements

Colortext requires a minimum of 64K bytes of RAM, one single-sided, double-density diskette drive, and a monochrome display or color/graphics board and appropriate monitor. An Integral Data Systems Prism printer with a Process color ribbon is required for full functionality.

☐ Features

File & Record Limitations • files are stored via a separate line editor or word processor.

Display Type • unformatted; English-like commands are entered into the text on a separate line; the subsequent line (or lines) is acted upon by the commands and is translated into control character sequences for the printer.

Display Feature • a display preview function is not supported; the test is displayed via the chosen editor without internal formatting.

Command Structure • all commands are entered as text; function keys and control character sequences are not supported; commands are entered on a separate line and begin with a percent (%) sign.

Error Recovery • none.

Colors Supported • 4 primary: red, yellow, blue, and black in all modes; outside Book-Text mode, commands for 4 additional

LCNS: license fee.

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colors are supported: orange, green, violet, and brown • commands for double-striking the primary colors are provided; combinations of the 12 color commands yield many additional shades.

Type Sizes • 5, 6, 8.4, 10, 12, and 16.8 characters per inch are supported in both draft and correspondence quality.

Special Character Sets • American English, 2 versions of British English, French, Spanish, German, Norwegian, and Swedish character sets are supported.

• END

Kapstrom Inc Writing Is Thinking
Computer Assisted Education in Writing

■ PROFILE

Function • to provide practical instruction in the concepts involved in successful writing.

Computers/Operating Systems Supported • IBM PC and PC DOS version 1.1 or later.

Configuration • minimum system requirements are 64K bytes of RAM and a single-sided diskette drive; record diskette drive and printer are optional; no increase in performance results from additional memory.

Current Version/Version Reviewed • Version 1.0/version for the IBM PC; no version number specified.

First Delivery • December 1983.

Number of Installations • 200.

Comparable Products • Idea Ware Idea Processor.

Optional Associated Software • none.

Price • $165 retail price.

Vendor • Kapstrom Inc.; 5952 Royal Lane, Suite 124, Dallas, TX 75230 • (214)-369-1718.

Canada • currently no Canadian offices or distribution.

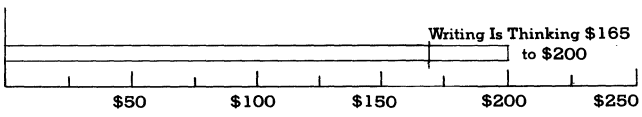
■ ANALYSIS

Writing is Thinking is intended to provide a foundation of writing concepts and skills. This is achieved through instruction in the writing of a short, 500 word paper. The package details the basics of topic selection and development, outlining, structure, and revision and editing.

While the material in the course seems to fulfill its intended purpose, the package falls short of perfection. There is no true interaction between user and software; the computer serves only to provide the student with hints on how to approach the task while recording his efforts. Personnel exposed to the package were initially intrigued by the use of the computer, but quickly tired of the simplistic approach, lack of flexibility, and lack of interaction offered by the program.

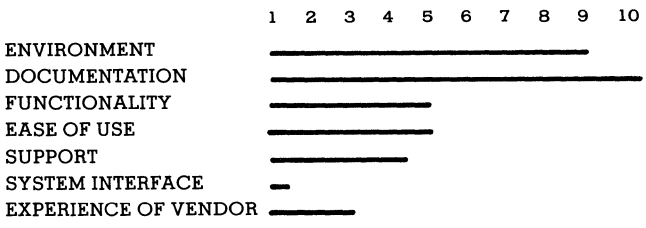
Individuals desirous of acquiring skills in writing might be better served by obtaining a book from the local bookstore, or attending a course at a local college or night school. Corporations faced with the task of increasing the skill level of a group of managers or an entire department might well hire a professional writing teacher as a consultant. Getting that kind of training from Writing is Thinking seems unlikely.

PURCHASE PRICE RANGE Software Price Range



KAPSTROM—WRITING IS THINKING PRICING • open bar shows the typical range of prices for **TRAINING** software used in corporate environment • the vertical line within the bar graph indicates the price of **WRITING IS THINKING**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

Writing is Thinking deals with its subject matter very thoroughly. Everyone that investigated the package had something good to say about the presentation; the manual in particular elicited praise. Use of the computer does tend to attract interest to the course; an attempt to present the same subject matter through books alone may be met with some resistance.

Environmental requirements are minimal for Writing is Thinking. Memory requirements are 64K bytes of RAM, while only one single-sided floppy disk drive is required. The package is simple to install and operate as well.

☐ Limitations

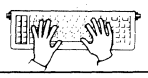
Some examiners of the package felt that computer-aided instruction was not applicable to a subject such as writing. Others felt that such an approach might be valid, but that more interaction between program and student was necessary. Everyone agreed that the Writing is Thinking software seemed insufficient in that regard.

A related difficulty is the level at which the course is aimed. This is not a problem with the manual, in which familiar material may be skipped, but it is a problem with the software. "This is too simplistic" was a common complaint.

Other difficulties are operational in nature. Text entered in response to questions and prompts is very difficult to read. This can be a problem in later lessons as the results of the earlier sessions are referenced. There are other minor difficulties with text entry and file storage as well. These problems can be overcome, but their presence is an annoyance, particularly in a package in this price range.

Kapstrom Inc Writing Is Thinking

Computer Assisted Education in Writing



■ HANDS-ON EVALUATION

First impressions of this package were that it was interesting, but limited in value and scope. These impressions seemed to be borne out by closer investigation. Comments received from nontechnical personnel that examined the package ranged from "cute and fun" to "no validity". Technical personnel seemed in general to feel that the package did not offer anything that couldn't be provided by a good book on creative writing. There is no real interaction with the program; it serves as little more than an electronic note pad that reminds the user how to think while recording his ideas. The package may also aim below the level of most potential corporate users, since some testers quickly became bored with the package and began entering nonsense phrases instead of the answers called for in the exercises.

From an operational point of view, there was no difficulty in configuring the package for operation on a dual disk system. The installation instructions are easily followed, consisting of instructions to boot the system and execute a batch file. Execution of this file results in the installation of the operating system and advanced basic interpreter on the program distribution diskette. Once configured, the program is operated by rebooting the system: i.e. simultaneously depressing the control, alt, and delete keys. In fact, this reboot procedure is the only way to return to the menu portion of the program, which caused some confusion with one or two of the less experienced staff members.

Once in operation, there are a few minor annoyances that, when combined, gave many of us a somewhat negative view of the package. Portions of the display, particularly the text entered by the operator in response to the program, were displayed in an unusual format that was very difficult to read. This complaint was universal among all who tried the package. Our technical specialist reported that the program assumed that a color graphics adapter would be used with a high-resolution RGB monitor rather than with an 80-column black-and-white monitor.

Another very minor complaint was voiced about file naming when operating with two disks. In dual disk operation, file names are limited to six characters in length. While not really a problem, this sort of thing can be very disturbing to inexperienced personnel, since it restricts the ability to use meaningful file names and is inconsistent with DOS conventions of 8 characters.

Operational quirks were also found to detract from the tutorial experience. The quotation mark symbol cannot be entered as a part of any text without causing unmentionable horrors, and an incorrect response in some parts of the program will result in the program going into a loop without exit. Minor glitches like these create a negative impression that is hard to dispell.

Our office supervisor summed up the test: "I saw the movie, now I wish I'd read the book!"

☐ User Interface

Menus: A single menu at startup time provides access to the 4 lessons that make up Writing is Thinking. The print utility is not available from this menu.

Control characters: The system boot command, or simultaneous use of the control, alternate, and delete keys, is used to return to the menu.

Function keys: Function keys are used to control the save and resume functions, and also to move backward in a lesson. Function keys are also used to provide access to certain information entered in the first lesson that is needed later.

Command language: None.

Positive feedback: The package provides the illusion of positive feedback throughout the lessons through the use of prompts and instructions. Little real positive feedback exists, however.

Status display: None.

Help function: The only help function available is a disk directory function used to supply the operator with the name of files created in previous lessons.

☐ Environment

Environmental requirements are minimal for Writing is Thinking. Memory requirements are 64K-byte RAM, while only one single-sided floppy diskette drive is required. A second diskette drive is optional, as is a printer. No support is provided for unusual display or printer options. The package is listed as requiring the use of PC DOS Version 1.1 or later; however we were able to operate the package successfully under PC DOS 1.0. The 6 programs that comprise Writing is Thinking are written in BASIC and run under the BASICA interpreter.

The distribution diskette for Writing is Thinking is copy protected; installation of the program on a hard disk is impossible. It is possible to store the temporary files created during the operation of the package on a hard disk. There is no utility provided for the creation of a backup copy of the program disk, nor is a backup copy provided with the package. A backup copy can be ordered from Kapstrom.

☐ Documentation

The documentation included in this package is primarily a "lab book" that is used in conjunction with the computer tutorial. Intersperced throughout the manual are operating instructions for the program itself, printed on blue card stock and usually doubling as section dividers in the manual. Also included in the package is a small slip of paper detailing changes in the manual. This is small enough to be easily lost, and if the package was to be used more than once the changes should be marked in the manual.

The installation and operating instructions are of the "depress key and wait for light to go out" variety, and can be followed by anyone. Some error correction procedures are also listed in these sections, although all possible error states are not covered by the instructions. Additional error recovery procedures are also listed in a section of the manual entitled "Quick Solutions". This section includes

Kapstrom Inc Writing Is Thinking
Computer Assisted Education in Writing

instructions on saving and printing the files created while working with Writing is Thinking. There is also a simple glossary and an index.

The lab book sections of the manual deal with the same topics covered by the tutorial programs, but in much more detail. The manner in which the subject is presented is quite good, befitting a package created by a writing teacher. One of our testers commented that the real value in the package was the manual; the program is just a gimmicky way to keep the student occupied.

☐ Functionality

Writing is Thinking is designed to teach a foundation of writing concepts and skills. To this end, the package teaches the writing of a short, 500-word paper. The package outlines two basic principles of writing, then builds from there to provide the user with the skills to write a well-structured and well-supported short paper.

The first lesson deals with the analysis phase: the determination of what is to be said. Once a topic has been specified, the program leads the student through a process of refinement, polishing the original thesis statement into a question that sets forth the argument the writer wishes to present. Along the way, some common pitfalls are outlined, and examples are provided to assist the student in developing the thesis question. This section was very popular with the test staff, primarily due to the creativity necessary at these initial stages.

The second section deals with the structure of the essay. The basic differences between narrative and expository writing are outlined, and the five basic structures for an essay are set forth. The student is then led into producing an outline that conforms to the structure selected for the paper. Once again, common pitfalls and misconceptions are detailed, and examples are provided at each phase of the development to further assist the student. The remainder of the chapter deals with reworking the outline to provide a stronger essay.

The next section of the course deals with the actual composition of the paper. The structure of the paragraph is broken down into four major points: unity, inclusion of vivid details, arrangement of ideas, and a smooth flow of ideas. Each part of the paper is then treated separately, and the specific rules of paragraph structure are modified to fit the special purposes of beginning and concluding paragraphs. Also discussed are the middle paragraphs in a narrative and topical paragraphs in expository writing.

The final section is entitled "Evaluate the Design." This chapter deals with the all important task of revision. The process of revising a paper is broken down into revising and editing, then these in turn are subdivided still further. Evaluating the strength of the main premise of the paper is the first step in revision. This is followed by an outline of the written paper to provide a comparison against the original outline. Finally, paragraph structure is reviewed with a particular eye towards the use of facts and details.

The editing process is likewise divided into several related tasks. These tend to be much more detail-oriented, with less emphasis on ideas and more in structure. Simple sentences leading to choppy, immature writing are discouraged in favor of complex and compound sentences. Parallelism is discussed next, and the importance of parallel construction is demonstrated with examples. The elimination of unnecessary words, and the replacement of weak and inexact verbs and nouns are both mentioned in this section as well. The need for good grammer is also pointed out. Finally, the overall effectiveness of the paper is assessed, and some simple tests are provided as an aid in determining this.

While the material in the course seems to fulfill the aim of teaching the basics of writing an essay, the package as a whole falls short of perfection. The program is not really interactive, and it accepts almost anything in response to questions and prompts. More than one reviewer felt that a complex subject such as writing may not lend itself to CAI.

☐ Ease of Use

The configuration and installation process for Writing is Thinking is very simple, and the instructions are provided in keystroke-by-keystroke form on a colored sheet in the front of the manual. In fact, operating instructions for each chapter are provided on a colored divider that marks the beginning of the chapter. There was some minor difficulty at first: some users didn't understand the procedure for returning to the main menu, which is a little unusual and consists of rebooting the system. Our technical specialist felt that the motivation behind this unusual procedure, which we find operationally unacceptable, since it breeds bad habits, was a desire to prevent the BASIC program from being read by the user.

Once in operation some of the first blush begins to fade. Text entered in response to questions and prompts was almost unreadable. While this was probably due to an unusual configuration, there was no indication with the material that our configuration was not supported. Instead if simply echoing the text in reverse video or low intensity, the writers of this package chose to display the characters in some sort of homemade alternate character set. These characters may be readable on a color monitor—we didn't try one to find out; like most users we had only one monitor.

There are a few additional annoyances that are (relatively) inconsequential: when using dual diskette drives, the filename used to save work at the end of a chapter can only be 6 characters due to the presence of the drive designator. It does not seem unreasonable for the input to the program to be formatted in such a way that the standard length file designator is accepted, but the fact that it is not is unimportant.

Entering a quotation mark as a part of text entered during the exercises falls into the same category. Entry of this character causes the text to become garbled, and later entries may become lost. The creators of the package take an "I told you so" attitude to this problem, since it is well documented throughout the manual. Since it is unlikely that anyone would use the package in the development of an article or report intended for publication, the loss of data is only an inconvenience. One can only speculate on the kind of writing that would never use the quotation mark,

Kapstrom Inc Writing Is Thinking
Computer Assisted Education in Writing

and the value of training material that cannot accept it.

More annoying is the fact that the program can be sent into endless confusion if the option of using a previous file is selected during start up and no previous file exists. Once the option is selected, the only act that seemed to capture the attention of the program was an application of the control-break keys.

Cursor control and positioning capability is minimal in Writing is Thinking. The function keys may be used to move forward and backward in the chapter. While an inadvertent carriage return at the wrong time can cause the program to skip a page, it may be recovered with a little difficulty. The cursor control keys on the right side of the keyboard are not used; this includes the delete key. Some testers familiar with word processing packages that utilized these keys had difficulty adapting. This is offset to some degree by the fact that the backspace key deletes the character to the left of the cursor when it is depressed.

The consensus among our testers was that the package was easy enough to operate, although not as friendly as it could have been. Some of the problems with the program seem to be the easily corrected type, and we would hope that the authors are moving to do so.

☐ Support

No mention is made in the documentation that accompanied this package of any customer support policy. A warranty registration card and a backup disk order card are both provided with the package, and the latter is addressed to the customer service department. No telephone number is provided in the manual or on the order form; however, a brochure included with the package did contain a phone number.

We called Kapstrom one morning only to be told that all the customer service personnel were attending a convention. We described our difficulty with the display, and they promised to check with their programming staff and either provide a fix, or possibly send out a new disk. They also promised to return our call as soon as possible, within a few days at most.

When they called back, we asked about two points—operation on hard disk systems and the monitor/display problem. We were told that the product did not support operation from hard disk, and that the problem with the display was due to our "unusual" monitor configuration. We pointed out that a standard NTSC color monitor will not provide sufficient resolution for 80-column display and that RGB moniters were considerably more expensive. Kapstrom offered to modify our version of the program to work with the color graphics adapter/black-and-white monitor combination.

☐ System Interface

No interface support is provided with this package. While some testers mentioned that the ability to create text files for input to a word processor might make the package a useful tool for developing writers, this possibility is not mentioned in the documentation, nor is it supported by the inclusion of any information on the files created by the Writing is Thinking program.

LCNS: license fee.

☐ Vendor Experience

Kapstrom is a new and relatively inexperienced software vendor. The company has been in business for about 2 years, and Writing is Thinking, which has been available for around 6 months, is its only product. During our phone conversation the people at Kapstrom indicated that they have additional products under development.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Writing is Thinking is available for purchase from software dealers throughout the U.S.

Support • customer service support personnel available; however, telephone number is difficult to locate.

☐ Component Summary

The package consists of 8 modules. Autoexec.Bat is a batch file used to start the Writing is Thinking Menu program when the system is booted from disk. Kapstrom.Bat is a batch file used to transfer Command.Com and Basica.Com to the Writing is Thinking distribution diskettes. Menu.Bas is 1 of 6 basic programs that make up the Writing is Thinking software package, used to provide entry to the other programs. Analyze.Bas, Structure.Bas, StructII.Bas, and Evaluate.Bas are basic programs called from the program Menu.Bas, which comprise the lessons that make up Writing is Thinking. Printit.Bas is a utility program provided to print the paragraphs developed during the Writing is Thinking course.

Writing is Thinking: $165 lcns

Writing is Thinking-School Package: 195

☐ Computers & Operating Systems Supported

Writing is Thinking runs on the IBM PC and PC-DOS version 1.1 or above.

☐ Minimum Operating Requirements

Writing is Thinking requires 64K bytes of RAM and a single-sided diskette drive; a second diskette drive and printer are optional.

☐ Features

Training Objective • to acquire skills in writing general informative or sales material.

Target Users • personnel with some requirement for creative writing and reasonable communication skills.

Subject Matter Coverage • Writing is Thinking covers the development of a short essay very well; the manual/lab book is particularly good in this regard.

Interaction • package is only superficially interactive; a truly interactive program dealing with this subject may be difficult or impossible to achieve.

• END

Knowware, Inc Knowware
IBM PC Training Aid

■ PROFILE

Function • to acquaint beginners with the basic features of the IBM Personal Computer and introduce them to the applications of spreadsheet programs, word processors, database programs, and the BASIC programming language.

Computers/Operating Systems Supported • IBM PC or PC/XT with PC-DOS Version 1.1 or 2.x.

Configuration • 128K bytes of RAM, one floppy disk drive, and IBM Color Graphics Adapter; a color monitor is required for this program.

Current Version/Version Reviewed • Version 1.0/not specified.

First Delivery • October 1983.

Number of Installations • information not available.

Comparable Products • PC-TUTOR, Digital Learning System's Exploring the IBM Personal Computer.

Optional Associated Software • none.

Price • $95 retail price.

Vendor • Knowware, Inc; 301 Vassar Street, Cambridge, MA 02139 • 617-576-3821.

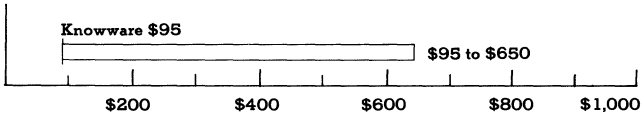
Canada • Citation Software; 1901 Logan Avenue, Winnipeg, MB R29 OM6.

■ ANALYSIS

Many experts in the field of automation feel that a considerable benefit can be derived from eliminating the initial resistance to computers that beginners often possess. A way to do this is to provide these first-time users with an interesting and non-threatening way to gain basic skills before more formal instruction is attempted. Computer-assisted instruction (CAI) is often used for this first indoctrination because the lack of a human tutor may actually remove pressure from the learning process.

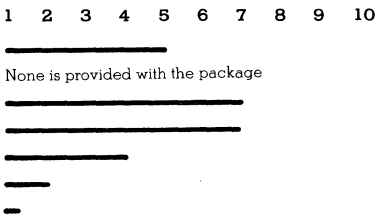
Knowware has structured its tutorial in the IBM PC and PC concepts around a "game" where the "player" must acquire both promotions and wealth based on the correct performance of computer-printed tasks. Each task is designed to teach a new skill, and performance of the tasks in a quick and correct manner results in a higher "score." While the concept may appear somewhat simplistic, it is effective as far as it goes.

PURCHASE PRICE RANGE Software Price Range



KNOWWARE INC KNOWWARE PRICING • open bar shows the typical range of prices for **TRAINING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **KNOWWARE**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

The problem with most CAI programs for personal computers is excessive simplicity. Knowware exhibits this characteristic, though to a lesser extent than some. The scope of the product, spreadsheet programs, word processors, database, graphics, decision support, and the BASIC language is such that some shortcuts in detail are almost mandatory.

Businesses will find that Knowware can provide beginners with a good first look at computers and their features, providing they are left with the system and given ample opportunity to "play." But for the acquisition of computer skills to a practical level, Knowware falls short of the mark.

☐ Strengths

The tutorial based on a computer game is not a new concept, but it is applied effectively in Knowware. The format, style, graphics, and lesson structure are woven into a form of light entertainment which, with proper management presentation, is unlikely to intimidate even the most uncertain novice user.

Little knowledge of computers is required to load and run the program. Detailed instructions, accompanied by photographs, guide a user through program loading, and there the on-screen tutorial material takes over. This material leads the user through the series of lessons, providing options and suggestions on the way.

The format of Knowware is highly interactive. Users are given extensive opportunities to enter information, the data entered is validated, and indications of correctness are given promptly.

The user is also given through the number of "promotions" earned and the amount of "assets" accumulated, an overall measure of the skill acquired.

Later lessons in the course apply some of the concepts learned in earlier lessons, acting as a means of reinforcing the initial learning experience. The course may also be

Knowware, Inc Knowware
IBM PC Training Aid

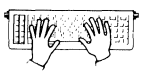
repeated, so that users can gain greater confidence and skill.

☐ Limitations

The problems that are posed by the tutorial require that the user remember some basic instructions on how to use the programs, which are intended to supply the solutions. These often include both definitions of what the user is expected to accomplish and details on the operation of the program itself. Since there is no written documentation, a user must remember the instructions or ask for help. This memory test seems a needless complexity, and dissipates some of the confidence of novice users.

The exposures given to the various computer applications through Knowware's tutorial are very superficial. It is unlikely that any user, on the basis of the material, could perform a useful task on a computer system. The additional skills required for practical use could be acquired through a set of accompanying exercises, or through access to material selected by Knowware's developers as useful extensions of the basics, but no such exercises or references are provided.

In some examples, particularly those involving the financial and spreadsheet packages, the user was required to "invent" figures. While these numbers were not significant (they were required only to demonstrate the user's ability to enter something), the necessity of making values up detracts from the tutorial and confuses the users.



■ HANDS-ON EVALUATION

The initial impressions of Knowware are favorable, although the beginning graphics sequence is a little too fast-paced to be properly appreciated. Most of our staff, even those with some computer experience, wanted to try the product based on its "electronic game" style. We divided the staff into three groups based on computer experience; total novices, those with some experience, and those quite comfortable with computers. Each group then used Knowware, and reported their experiences.

The total novices were divided on their view. Some found that the game structure put pressure on them for learning, and felt that the pace of the material was too fast. One sales person refused to complete the course, saying that it was too "cute." No one in this group voluntarily repeated the material.

The slightly literate group had the best impressions of the package. They were not intimidated by the pace, enjoyed the game structure, and found the material educational and valuable. All the members of this group completed the course at least once, and about half found its repetition valuable.

The computer "experts" were generally those on the staff who worked with computers regularly. Most of them had some experience with several of the programs/applications covered, and these people found the material too basic. One-third did not finish the course, calling it a waste of their time, and only one repeated any part of it.

We found that by providing our middle group with additional material in the form of conventional workbook exercises on the key applications demonstrated by Knowware, we could encourage them to apply their basic understanding and gain a true working knowledge. The product provided no guidance in doing this, however.

☐ User Interface

Knowware uses a true CAI format in which material is first presented in business terms, amplified in computer problem-solving terms, then applied in an actual problem/solution exercise. The results of the exercise are critiqued by the package, both for accuracy and for speed of response.

Menus: Most operator input is based on prompts rather than menus. The exact form of interaction varies slightly with the type of program or package being taught, but most non-exercise input is based on free-form entry of a command or selection from a list of valid commands provided on-screen.

Control Characters: These are not used by the product.

Function/Special Keys: Used for various purposes in the various program/product demonstrations. All function or special key usage is explained in the tutorial material before use.

Command Language: None.

Positive Feedback: Entered data is validated and the operator is notified on incomplete or improper entries. Suggestions and hints are offered for correct responses. The accuracy and promptness of responses is rated, and a bonus score is awarded on the basis of the rating. The user is "praised" for good work and chided for errors.

Status Display: None.

Help Facilities: During the exercises, a user can request that the instructions for the exercise be repeated. The user may also select one of two sources of additional "help," one that provides general information and whose use does not penalize the "player"/user, and the other, which provides detailed assistance but which reduces overall score. Help is available only during the exercises.

☐ Environment

Knowware required an IBM PC or XT with a single floppy disk and 128K bytes of RAM. A color graphics adapter is required for the product, making its use by the average office less than satisfactory. We had only one computer system that supported the program, so getting everyone to use it was a challenge in scheduling. There are no plans for a monochrome version at this time, we were told.

The license agreement sternly warns against copying the product, even for backup for internal use. It also prohibits copying the program for use on several systems in the same room, or for use on a networked system. We would have been upset by these restrictions if our operation could have supported multiple systems, since training one person at a time is prohibitively slow.

Knowware, Inc Knowware
IBM PC Training Aid

☐ Documentation

Knowware doesn't need much documentation, and all that is provided is a very detailed set of instructions on how to turn on the computer system and load the Knowware program. This detailed explanation is accompanied by photographs each step of the way, so that even a total novice can follow it. We had serious doubts that we would ever let anyone who needed that level of instruction close to a computer system without supervision.

The pictures on the operating instructions were the source of our monochrome/color problem. The system depicted certainly appears to be operating with a monochrome display, and we found nothing on the package that indicated the restriction of the product to color graphics systems.

The material within Knowware is not text-oriented but rather, true computer-aided instruction. We estimated that the total instruction content of the material was equivalent to about a fifty-page manual.

The user is encouraged to try the word processor and database programs used in the examples for more practical experience, but there is no documentation on the features or use of either package.

☐ Functionality

Knowware is a training program designed to give the user a familiarity with several of the generalized application packages popular with personal computers. The format of the material is a computer game, in which the player is promoted and awarded cash bonuses on the basis of completing problems that teach an aspect of an application. Included are a word processor, a spreadsheet program, a database program, a graphics program, and a BASIC program, which must be modified by the user.

Each segment of the tutorial begins with a description of a problem, a suggested strategy in applying computer power toward a solution, and an exercise in which the user must follow the procedures suggested to complete the task. The user is awarded a bonus based on completion of the task in as short a period as possible and with as few mistakes as possible. The user who gets totally confused may request that the instructions be repeated, or may get more detailed assistance from two mythical advisors, one of whom will mouth platitudes mixed with general information at no charge and the other who will be specific for a share of the player's loot.

In the game, the user begins as a clerk and rises (hopefully) to board chairman and millionaire. Each promotional step brings a new assignment. The user who feels that the current level was about all that could be handled can stay there awhile to develop the skill before proceeding. The problems associated with the level get more complex if the user selects to remain there. You can only repeat once for a new assignment; any further repetition of the same job just repeats the material.

The first problem is an example of the use of the BASIC DRAW command to introduce a line in a room where mail is being stolen. The user is given several examples of DRAW and then asked to use the command to create a line which interdicts the path of the thief. The thief continues to steal mail until a correct line is drawn, and scoring is made based on how much mail is taken. Errors in the format of the command are detected and displayed during the test, and a line that does not interfere with the "theft" is shown on the screen as a mute testimony to failure.

The next level task uses a BASIC program to determine the best investment to make. This demonstrated the concept of the program, but was very weak in explaining what was happening within it and was probably the least useful part of the package. The user is given a chance to invest salary and bonus money in any or all of the target companies at the end of this segment, and at the completion of each lesson thereafter.

A better segment is the next "manager of DP" assignment, which requires that you modify the financial analysis program to allow for brokerage fees on the investment. This time the program is stepped through using data that the user provides. The only flaw was that the program accepted an investment less than the brokerage fee and proceeded to calculate a negative yield, which became increasingly negative. Since the user's own investment of an amount that would not permit brokerage fees is prevented, the program as shown is inconsistent with its functioning.

The next segment shows database capabilities by asking the user to locate his own name on a file, correct it if it's wrong or add it if it's missing, scan for others born in the same month, and add one or more friends to the database. This segment was a useful demonstration of database basics, and the one which most users found applicable to their needs.

A word processing lesson required the user to access a letter informing employees of a bonus, changing the date, the amount, and the author's name (to the user's own). This was a rather simplistic example, made only slightly better by the fact that there were a few spelling and format errors to correct.

In the next segment, a spreadsheet program is used to determine whether, as VP of marketing, you have enough money to buy a boat (the authors had obviously done extensive and accurate research into VP of Marketing tastes). The lesson required the entry of new data, the correction of old data, and the entry of formulas.

The "president" segment required the user to employ all of the skills; retrieve a memo, use the database, calculate interest and IRA accounts, etc. This was an effective review of the previous concepts, and by far the best part of the course.

At the end of the game, the player is encouraged to use the applications independent of the game in order to sharpen skills, but no documentation is provided on the features or use of the packages, and most of our staff did not take the time to try the programs.

☐ Ease of Use

The material in the course is well designed, and generally presents new information in a structured and effective way.

Knowware, Inc Knowware
IBM PC Training Aid

Each segment starts with a statement of the problem in "human" terms, suggests a computer approach, administers an attempt to apply that approach, and rates the degree of success in the application by offering performance rewards.

A user with a problem has access to three forms of help. During the exercise the instruction can be repeated to clarify an action or prompt the user on the sequence of tasks expected to be completed. Another option is to consult an "advisor"—one of two imaginary PhDs. One will dispense general information in a form only marginally applicable to the current situation but at a reasonable cost (free), while the other will give very specific hints but charges a large fee which will be deducted from player assets. Once of the three forms is virtually sure to pull a confused user back to the right action, but we found that the use of help detracted from the educational value of the material.

The ongoing accounting of assets for scoring is handled at the end of each segment, and the player may sell or purchase securities. This aspect of the game does not seem to add to the tutorial aspects—a correct selection of a company for investment and a little luck can gain a high score for a mediocre performer. In fact, you can be interrupted during your exercise by calls from your broker. Is this an attempt to be "real world?" If so, it detracts from the learning experience. Our staff had enough real interruptions to deal with to find artificial ones unnecessary.

☐ Support

The retail outlet where we acquired Knowware did not know that it ran only with a color graphics adapter and color monitor—in fact, they showed us the picture of a monochrome display in the instructions. There is no indication of the restriction on the package, and when we called Knowware, Inc on the problem, they suggested that the dealer should have made us aware of the restriction. Armed with that comment, we contacted the dealer. They suggested that Knowware, Inc should have marked the package conspicuously with the restriction and commented that no dealer could possibly test run all the software for the IBM PC.

The package, fortunately, requires little support if it is purchased for the correct system. Knowware, Inc will talk users through the start-up procedure if that becomes necessary, and their staff was courteous and helpful in all discussions.

☐ System Interface

Knowware uses artificial database and word processor programs for their examples; at least we were unable to identify a real counterpart of either product. The spreadsheet program used is close enough to VisiCalc or Lotus 1-2-3 in operation to make the transfer of skills practical, but neither the word processor nor the database related well to the real world.

☐ Vendor Experience

Knowware, Inc is a relatively new company. It is not listed in any of the popular directories of computer software vendors, and the product is not listed in a current directory of software products.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Knowware is available on a purchase license basis from Knowware, Inc through computer retailers or software dealers.

Support • support is available from Knowware, Inc; however, little help is required to execute the program.

☐ Component Summary

The software presented with Knowware can only be executed from the end of the game, making its use outside the game impractical. The software elements include the following:

Knowware—the tutorial game material, supplied on three floppy disks; BIO—a biorhythm program; Calendar—a program to produce calendars for any month after 1750; Charts—a program for converting between English and metric measurements; IRA—a program to determine the benefits of IRA investment; Knowdata—a basic database manager; Knowword—a basic word processor; Knowcalc—a basic spreadsheet program, similar in some features to VisiCalc; Money—an introductory financial decision support package; and Mouse—a game of racing mice.

Knowware:

$95 lcns

☐ Computers & Operating Systems Supported

The package runs on and is designed for the IBM PC or PC/XT with PC-DOS version 1.1 or 2.x.

☐ Minimum Operating Requirements

A minimum memory of 128K bytes, one floppy disk drive, and an IBM Color Graphics adapter and color monitor are required for operation.

☐ Features

Training Area • general familiarization with typical applications and programs on the IBM Personal Computer.

Target Audience • people with some basic knowledge of computers; beginners may find the material difficult to follow, and those with real exposure to computer systems will find it too trivial.

Method of Instruction • sequentially executed exercises designed around a game format; each exercise uses CAI concepts of introduction, exercise, and evaluation of performance • highly user interactive; sounds and graphics are used to augment the process where appropriate.

Degree of User Interactions • the program is highly interactive, with operator input verified for correctness and evaluated for promptness as well.

Average Time to Complete Course • 3 to 4 hours.

Course Value as a Reference • some reference value initially, but not generally useful for users once actual experience in the covered products is acquired.

• END

LCNS: license fee.

Lexisoft Inc SpellBinder
Word Processing Package

■ PROFILE

Function • word processing, report production, document development, and editing, spelling, and grammatical verification.

Computers/Operating Systems Supported • more than 15 computer terminals are known to be supported, including: Apple II, DEC Rainbow, Exidy Sorcerer, Heath Computers, IBM PC and PC/XT, North Star Advantage, Olivetti, Superbrain, Televideo, Toshiba, TRS-80/Model II, Visual 200, Volker Craig, Wyse/Altos, Zentec, and Zenith • SpellBinder supports the unique requirements of TURBODOS, CP/M. CP/M-86, MP/M, MS-DOS, PC-DOS, and OASIS operating systems; other special versions are available for other terminals and computer systems.

Configuration • minimum 48K bytes of RAM; maximum 64 bytes of RAM for 8-bit computers and 128K bytes for 16-bit computers.

Current Version/Version Reviewed • Version 5.3/Version 5.30 is reviewed; the IBM PC and PC/XT version number is the same, the documentation manual will be available soon.

First Delivery • January 1978; January 1984 for the IBM PC.

Number of Installations • approximately 15,000.

Comparable Products • MicroPro WordStar, Microsoft Word, Metasoft The Benchmark, and IBM Easy Writer.

Optional Associated Software • SpellBinder for the Attorney, SpellBinder/Scientific, SpellBinder/Arabic, and SpellBinder/French.

Price • $495 retail price.

Vendor • Lexisoft, Inc; Box 1378, Davis, CA 95617 • 916-758-3630.

Canada • distributed in large cities throughout Canada.

■ ANALYSIS

SpellBinder is a "full-featured" word processing system with many office management capabilities. Its special design features offer it as an "easy-to-use," although not-so-easy-to-learn system. There is nothing particularly difficult about learning any specific feature or function of the system, it is rather that is is capable of doing so much that the user will find it time consuming to play catch-up to the power it offers.

Its flexible dynamic print formatting capabilities, and a powerful macro-interpreter, "M-Speak", which allows user-defined features to be added to the system for the unique requirements of their hardware and operating system configuration, work style, and output requirements, are very utilitarian, but take time to learn. If one does not believe all of these features are necessary for his present or projected work load and style, SpellBinder can still be used for simpler tasks. The question would remain—is the price consistent with user needs. This depends entirely upon those user requirements. For those with the need for a high-powered word processor, SpellBinder is certainly worth the price. It meets its competition quite well in all respects, and while it does not support a mouse or color, and while it does contain five different multiple "fonts," the complete mix of these features is not to be found on any other system on the market today in any event.

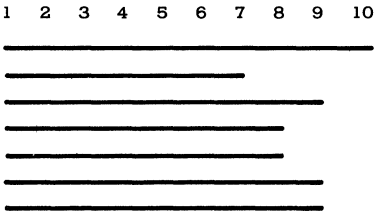
SpellBinder uses a full-screen display to window a portion of the text in a file to accommodate editing, re-formatting, insertions, and deletions. It supports the control of letter quality and graphics printers allowing the use of proportional spacing, left, center, and right justification, and micro-space justification on the dot-matrix printers, and up to five fonts. Prompts and messages ease the user through the initial stages of use, during which options and prompts are most needed. If the user should decide to disable these prompts and messages it is possible, but given the vast array of choices available, it is not likely to be a useful method of operation to select.

In addition to its standard features and the ease of use in operating them, SpellBinder can also be programmed to perform user-designed tasks. Help screens are also supported with Version 5.3 for Edit mode commands, Command mode commands, Disk mode commands, Print commands, print table commands, and dynamic printer commands. These are accessed simply by typing the number of the help command selection required; upon completion, hitting the enter key returns one to the command or edit line from which help was requested.

☐ Strengths

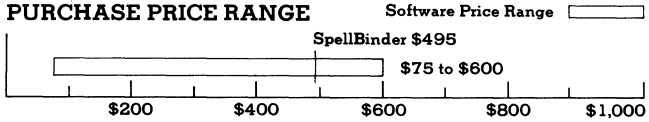
One of SpellBinder's greatest strengths is the speed with

PRODUCT QUALITY RATINGS*



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

PURCHASE PRICE RANGE



LEXISOFT SPELLBINDER PRICING • open bar shows the typical range of prices for **WORD PROCESSING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **SPELLBINDER**, the evaluated product, relative to the price range of similar products.

Lexisoft Inc SpellBinder
Word Processing Package

which it operates. This is user-determined in configuration settings, but cannot exceed the internal clock rate of the microcomputer itself. It becomes obvious that a user with a 16-bit operating system has all the usual advantages in speed over the user of an 8-bit microcomputer. But Lexisoft has worked hard over the last four versions of SpellBinder to increase the efficiency of the macros for both environments. The maximum time it takes on either an 8-bit or a 16-bit micro to perform a complete spelling check on a 100-page document, for example, is 6 minutes. Making corrections is really a function of how fast the user can read the suggested corrections and make both a decision as to the proper answer and hit a single key to implement a change.

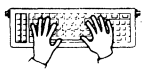
What used to be a severe limitation of the package, back in version 1.0, was the speed of the sorting routines in the mail-merge macros. This too has been significantly improved; the documentation received does not comment on this, but a quick check on a file of 50 names and addresses proved very fast—results of less than one minute. A better test would be on a list of perhaps 500 to 1,000 names and addresses.

The formatting capabilities of SpellBinder are impressive, especially considering the large number of printers that are supported, as well as the diverse file formats that can be inputted to the program.

☐ Limitations

Formatting options are represented on screen by SpellBinder as inverse video (black on white reversed from white on black). While this makes it clear to the user that enhancement is being implemented on given portions of text, it does not make it clear what the enhancements are. SpellBinder does have the ability to display "on-screen" what is to be printed once the user has decided that the text file is ready. While this does indicate single versus double (or more) spacing, indents, and so on, the enhancements are still incomprehensible. It is left for the user to remember what they are, and then hope for the best when printout is implemented. For this reason, it is a good practice to either check out what enhancements are in the order used, (a tedious and unlikely practice) or to use draft-paper for the first printout.

SpellBinder still uses "Y- tables" and "YT tables" for the establishment of format options. Enhancements are made via a function key (or control character), and as such can easily be changed if found to be incorrect or not desired.



■ HANDS-ON EVALUATION

After removing the wrapping from SpellBinder, the user must first make backup copies of the disks. The backup copies are then used to set the system configuration; the program includes support for a large number of microcomputers and operating systems in its pre-release form. It is likely that the commercial release of SpellBinder will take care of this task for the user. The next step (for users without a hard disk) is to install configuration settings on the work disk. This includes items such as designation of terminal type, enable (disable) function keys, indication of printer type, enable (disable) user guides (these are screen representations of the function key labels), enable (disable) row and column numbers, indication of number of disk drives and the clock rate of the user system (usually enter # 4 for 40 MHz), and save configuration. To change the configuration at some future point, the user must erase the "SB.DAT" configuration file and enter a new configuration.

Many users with a hard disk subsystem do not first make backup copies of the program disks, and instead, copy the originals into the hard disk and store the originals as backups. It is always a good practice to immediately make backup copies (even for temporary usage) and use these rather than the originals to copy disk contents into the hard disk; this gives one an added measure of protection at the outset. The procedure from then on is the same as described above. Note that an IBM PC/XT with a single floppy and a single hard disk drive still adds to three drives in the parlance of the SpellBinder configuration, since it is referring to "logical" drives, not physical drives.

Once the configuration settings are saved as desired, the user types "SB" to boot the program. This brings up the main menu, which offers the choice of "Command Mode", "Edit Mode," or "Enter". On the preliminary version of SpellBinder reviewed, the "Enter" selection is used for selection of the auto-initiated demonstration macro. This can later be used to access a user-written macro, which could also be accessed from the command line if one is already working with a text file.

There are over 100 commands, including "CTRL" and "Esc" sequences, "dot" commands, and so on, which can be accessed far easier if the user specifies the use of "function keys" in the configuration settings. Those who love pain may opt to use the control characters. For the rest, it makes a great deal of sense to take the recommendation of the documentation, and to go ahead and use the function keys. Doing so results in a very easy-to-use system, which is not menu-driven, but rather user-driven. The user selects the macros needed to complete a given function, such as entering new text, editing text, formatting, providing special treatment, block moves, insertions, deletions, and much more.

Accessing the Electric Webster is easily accomplished within a text file by switching to the command mode, and then typing "EW." It is very convenient that one can do this since it allows spelling and grammatic checks to be made prior to saving the text files, thus reducing or eliminating a duplication of effort. One of the first things it is recommended a new user do with SpellBinder is load a text of his own into the program and check it for spelling and grammar. This is a good idea because it easily demonstrates the power of the spelling and grammar checking macros on the user's own work, thus making it more likely that the utility of the macros is real.

One important fact about the grammar checker is that it can be re-configured by the user, but it is a good practice to first become familiar with how the macro works, and use it to refresh one's memory of grammatical rules.

Lexisoft Inc SpellBinder
Word Processing Package

☐ User Interface

SpellBinder contains a single main menu to choose edit versus command mode; user-written macros can be accessed via command mode entries, and may possibly be accessible via the other selection upon commercial release. At present, the demo programs provided to dealers can be accessed in either of these two manners.

Menus: This program is not menu driven, although there is a main menu for each major program component, including the word processor, the mail/merge subsystem, the Electric Webster, and the Grammar checker.

Control Characters: Control character key "escape" sequences can be used in lieu of the assignment of function keys. This is user-selectable as a part of the configuration specification, which should be performed prior to using the package. There are about 35 control character (ctrl and esc) sequences that can be utilized, and nearly 70 command mode commands, 10 "dot" commands, and 12 "Inline" commands that can be executed.

Function/Special Keys: The use of function keys is enabled as described above. The function performed is dependent upon the mode of operation the system is in at any given moment. Function key labels can be enabled for view or non-view across the bottom of the display screen. The usage of function keys replaces the need to use "CTRL" or "ESC" code sequences.

Command Language: SpellBinder can be programmed with its integral interpretive language called M-Speak. In fact, the Office Management System contained within SpellBinder is a collection of M-Speak applications of macros. The nearly 70 command mode commands make up the "M-Speak" interpretive language, providing a great deal of flexibility and power for the user of SpellBinder.

Positive Feedback: One of the few programs that provides the user messages when something has been done correctly; messages such as system working, file found, loading, etc. Audible beep tones are also used in combination with error messages to indicate when incorrect actions are being attempted.

Status Display: The main menu uses the middle third of the screen to indicate selections available to the user. A small message appears across the bottom of the screen indicating how to make a specific choice, thus ending the menu. Function key labels, referred to in the documentation as "Soft Keys", are represented along the bottom of the screen when enabled by the user's choice in system configuration.

Help Facilities: None were provided in the review copy, but the space has been reserved for the actual release. The preliminary documentation also refers to the process of accessing the help function. Additionally, a soft key label is shown on the screen in most menus if enabled by the user.

☐ Environment

The power of SpellBinder is enhanced by the minimum memory requirement for program disks of 48K bytes. On a 16-bit micro such as the IBM PC, the maximum memory used is 128K bytes RAM, which is probably quite good for most users; it presents no problem whatsoever for PC/XT users. Hard disk support is also present even in the preliminary version for the IBM PC, and will be present with the commercial release of this new version of the package. As mentioned above, the file formats it can accept make it especially useful with a large array of other programs.

☐ Documentation

SpellBinder is in the process of developing a specific documentation manual for the IBM PC and PC/XT. The documentation supplied for this review is a conglomeration text that covers all of the information needed for the use of an 8-bit or 16-bit microcomputer operating under a variety of operating systems. As such, it is more cluttered than an end-user would prefer, but even in this preliminary condition, is quite useful.

The documentation reviewed, like the new IBM PC and PC/XT version that will be available in early 1984, comes in a three-ring binder similar in size to the IBM documentation. It also is placed in a "stand-up" jacket for shelf storage. The binder itself is placed in a "stand-up" jacket for shelf storage. The binder itself it rather unique, in that it has a perforation on the front and back covers to allow the covers to be bent backward to let the book stand up on its own, at a convenient reading angle. To protect against too much wear on the covers, a plastic strap prevents the cover from bending backward too far.

The documentation manual contains 11 chapters, which promote the learning of program functions in an order that is easy to follow. The introductory chapter outlines a good method to use the manual, suggesting that the new user learn only as much as is preferred at any one sitting. The first few chapters should be read by everyone expecting to use the package, since they contain information regarding minimum configuration requirements, and the methods available to configure SpellBinder to a specific microcomputer and its complement of peripherals. Chapter 3 begins the learning of the SpellBinder functions, and is easily mastered in a single sitting. Advanced techniques are presented in chapter 4; these can be left for a later date. It is important to review chapters 5 (on disk operations) and 6 (on printing text files) to properly use the package. Chapter 7 provides more advanced techniques for titles, margins, and pagination. Automating the features of SpellBinder can be accomplished by learning the contents of chapter 8 on Macro Features and M-Speak. Chapter 9 provides further detail on controlling printers, chapter 10 on document preparation (especially very long documents), and chapter 11 explains the use of Electric Webster, the spelling checker and grammar checker.

Three appendices are provided: (A) Quick Reference, a listing by function of all commands, and control character sequences; (B) Glossary, a very complete selection of word processing terms, and all those used within the documentation or the package itself; (C) Terminal Function Keys, which explains which computers' function keys are supported, and which key-caps or overlays are provided as an option. Finally, there is an excellent cross-reference index. If this preliminary document is an example of the work to be expected of the IBM PC and PC/XT documentation, it will

Lexisoft Inc SpellBinder
Word Processing Package

be at par with, or set a new standard in, microcomputer software documentation.

☐ Functionality

Generating memos, short letters, long letters, and reports presented no problem for either professionals or secretaries. Generating lengthy documents is also well handled by SpellBinder.

An earlier version of SpellBinder, designed for use on the "HP 125", is also used in our office. Those using that package, called Word/125, were constantly eyeing this new package with envy. The SpellBinder version 5.3 has features that are considerably more advanced than Word/125. While many of the features of SpellBinder are included in the earlier version, most have been enhanced to work more easily, and much more rapidly in this new package.

While a new version is also expected to be released for the HP 100 series within a few months, it is already possible to transmit text files over telecommunications lines from the 8-bit HP 125 to the IBM PC/XT used here. In this way, text can be entered into the HP and transferred to the IBM to take advantage of the Electric Webster, thus saving a good deal of time in correcting text files. It should also be pointed out that the speed advantage of the 16-bit machines over the 8-bit machines must be credited with some of the increased productivity.

SpellBinder contains all of the functions one may expect from a full-featured screen editor, including advanced cursor control; character, word, sentence, and paragraph modes; next page and previous page; and beginning or end of a text file. One exception is made to this for long files. Since it is necessary to segment very long files into different memory partitions, cursor movement is restricted to the particular partition it is resident in at any given moment. This has never presented any user a problem, even on the 8-bit older version of the package. The package also includes easy-to-use search and replace macros; and other macros (even user-defined) can be easily called upon to handle titles, margins, pagination, and format, including tabs, decimal tabs, indented paragraphs, etc.

In the printing functions area, it is possible to prespecify or modify output for proportional or micro-space justification, ragged-right, centered text, right-justified text, numbered rows (useful for editing program text), and to control page length, as well as to enable mail-merge, sort routines, and a host of other functions. The only lack in this program is the support of mouse hardware, but it has yet to be proven that such devices are not simply fads.

☐ Ease of Use

SpellBinder has been designed for ease of use. A user is told in the documentation to learn only as much as is needed to perform the needed functions of the day. To learn how to use SpellBinder is not so much a difficulty in itself as it is covering all the features and functions available. If the user has time to learn 20 new functions each day, and can remember them, it will take perhaps a week to master SpellBinder. It is unlikely that this would be the case, yet any user that can type, and even some that cannot, will be junior masters within that time frame.

Despite the boring usage of white and black background, SpellBinder is easily a leader in the word processing software market in terms of utility, ease of use, flexibility, and productivity. In the microcomputer arena, it competes well with the best of the best, and may in fact be considered at the top of the ladder. The usage of a mouse on the Microsoft Word package is giving that company an edge today in terms of notoriety, but the package is not superior to SpellBinder.

☐ Support

Technical and customer support are available to dealers and distributors. It has been Lexisoft's experience that the most useful support can be offered on the local level. While the company does have phone lines available, it is typical for users to receive more than adequate support from their point of purchase. Defective diskettes will be replaced for a nominal fee by the company; backup diskettes are available for the same price. It is necessary to prove ownership via a warranty registration number which shows on the original diskette; this number must be supplied along with both the returned registration card and upon request for new diskettes. Updates are provided at an unspecified discount to registered users.

☐ System Interface

SpellBinder interfaces with any ASCII file formats including dBASE II, DIF (Data Interchange Format), CBASIC, WordStar MailMerge, SuperSort, and PeachText files. Most file formats of database managers, mailing list programs, sort utilities, and spreadsheet and accounting applications can be merged or otherwise accessed.

☐ Vendor Experience

Lexisoft, Inc is in its fifth release of SpellBinder, having issued the first in the late 1970s. It has worked out arrangements with computer manufacturers to customize the package to the newest and best features made available in hardware.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • SpellBinder is available for purchase only from the publishers, and from computer dealers, distributors, software dealers, and discount houses in the U.S. and abroad.

Support • technical support and customer support is generally made available to those users through dealers and distributors, but the company maintains staff to offer suggestions via phone, and will answer any correspondence by mail that is received; backup and replacement diskettes are available from Lexisoft, Inc at a nominal fee.

☐ Component Summary

SpellBinder is provided on 2 double-sided diskettes, 1 with the main program (and installation program) plus subprograms, and the second with the Electric Webster (spelling checker and grammar checker); dealers and distributors receive a third diskette that is a point-of-sale demonstration disk that allows a continuous "Read Me" screen or one of several interactive demonstrations; this disk can be configured to run at a variety of speeds and can be

Lexisoft Inc SpellBinder
Word Processing Package

easily interrupted by a sales representative to provide a hands-on customer demonstration or introduction.

SpellBinder:

$495 lcns

☐ Computers & Operating Systems Supported

SpellBinder supports more than 15 computer and terminal manufacturers, and over 25 specific models; operating system support is offered for: TURBODOS, OASIS, CP/M, CP/M-86, MP/M, Concurrent CP/M, MS-DOS, and PC-DOS.

☐ Minimum Operating Requirements

As mentioned, SpellBinder requires a minimum of 48K bytes of RAM to operate, but its speed increases with up to 128K bytes on a 16-bit computer; at least 1 disk drive must be present, but 2 are preferable. Hard disk subsystems are supported.

☐ Features

SpellBinder is a word processor designed for the production and modification of a wide variety of documents, from the simplest memos to very long documents such as books and reports with either single or double column print output.

Full Screen Editing • SpellBinder is a complete system, which allows the user to "see on screen" what will be output, supporting full cursor movement features, including modes for character, word, sentence, paragraph, next and previous page, home, and end • special features, such as boldface, underscore, and subscript and superscript are also screen-supported.

Block Mode Operations • full support for character, word, sentence, paragraph, and more as explained above • full insert and deletion capabilities are also present, and deletion can be used in all block modes as can copy facilities • auto-indent can be used or eliminated at user command.

Complex Formatting Capabilities • the program can accommodate a significant range of page and program layouts, including headers and footers, pagination (automatic or manual), two-column display (more through the use of macros), proportional and micro-space justification, a variety of page lengths, type sizes, and horizontal type spacing.

Multiple Windows • support for multiple windows • is not a standard feature, but can be user-written in M-Speak.

Glossaries • Electric Webster and the documentation already contain glossaries of word processing terms • user-defined words can be added to the dictionary, and phrases as well as paragraphs can be stored in RAM via the package for more than occasional usage in the development or modification of a text file • sophisticated boiler-plate capabilities are present.

Complete Style Sheets • all formatting instructions for a given type of document can be stored in configuration settings for use in new text files.

☐ Other Facilities

Electric Webster is a dictionary and spelling checker that is an integral part of SpellBinder. To activate it, the user must first save the file, and then type "EW" on the command line or from DOS. The sub-program then requests the "filename", and once provided, scans the text file, reporting words it finds in error following a check of the dictionary. It offers suggestions for correction, allows the category to be forever bypassed, allows the entry to be left as-is, and has provisions for adding a new word to the dictionary. This process is repeated until all "considered errors" have been handled.

The Grammar checker works in a similar fashion, but is activated by Electronic Webster following the completion of spelling checks. The options available for editing are basically the same, and also user-controllable via a configuration program. Upon completion, grammar checker provides a statistical analysis of the file, including such items as average word length, average words per phrase, phrases per sentence, sentences per paragraph, and usage of long words.

LCNS: license fee.

• END

LJK Inc Letter Perfect
Word Processing Package

■ PROFILE

Function • word processing report production, document development.

Computers/Operating Systems Supported • Apple IIe, Apple II+, Apple II, Franklin or other Apple-compatible computers with a minimum of 48K bytes of RAM memory, using DOS 3.3.

Configuration • Apple II-compatible computer, display device, and diskette drive with optional printer, printer interface card, and second diskette drive; includes support for 13 different display modes, including most common 80-column cards • includes support for 3 different keyboard configurations: uppercase only (useful for unmodified Apple IIs, and Apple II+s), the "shift wire modification" (a common modification for Apple II and Apple II+s that is described in the manual), and the enhanced upper/lower case keyboards (such as contained in the Apple IIe).

Current Version/Version Reviewed • Version 6 for Apple pre-release version of Letter Perfect V.6.

First Delivery • February 1979.

Number of Installations • approximately 10,000.

Comparable Products • Applewriter IV, Word Juggler IIe, Easywriter, Piewriter, Write On!, and others.

Optional Associated Software • Data Perfect (a database system); Spell Perfect (a spell checking system).

Price • $105 retail price.

Vendor • LJK Inc; 7852 Big Bend Boulevard, St Louis, MO 63119 • 314-962-1855.

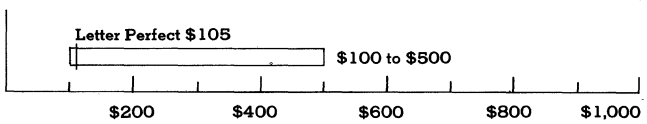
Canada • currently no Canadian offices or distributors.

■ ANALYSIS

Letter Perfect is a visual-oriented word processor designed for use in general document, letter, and memo production. Users will find Letter Perfect reasonably easy to use, yet it contains more powerful capabilities for the sophisticated or everyday user.

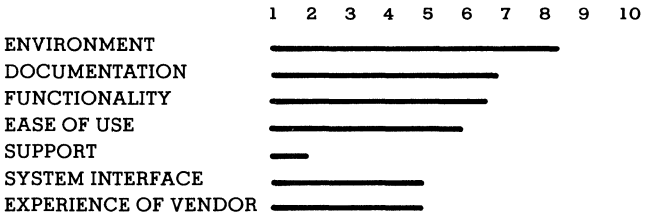
The document work area in Letter Perfect is the computer memory, RAM; disk storage is used for archival storage and for saving work in progress. This means that a given document is restricted in size to the available memory. For an Apple IIe with 64K bytes of RAM, available memory is 39K bytes, or somewhere between 20 and 40 pages of text. Larger documents are made by combining the files at print time using the file link command.

PURCHASE PRICE RANGE Software Price Range



LJK INC LETTER PERFECT PRICING • open bar shows the typical range of prices for **WORD PROCESSING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **LETTER PERFECT**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

Letter Perfect supports most 80-column boards, standard and uppercase-modified keyboards, and most printers. The printer support is extended to include proportional character printing and other special printer features.

Letter Perfect is very rich in editing and word processing functions. This richness includes "hooks" for incorporating database and spell-checking functions into the document.

☐ Limitations

Letter Perfect is more technically complicated than some other word processing packages. This complication is reflected in the large number of commands available to the user. The casual user, or a new user, may be slightly intimidated by the wealth of commands, whereas the everyday user may appreciate these capabilities. These features reflect the preparation required to fully integrate the Apple IIs, the printers, and the keyboards.

Letter Perfect lacks an online HELP menu. The user must therefore rely on the command summary reference card and the manual.

■ HANDS-ON EVALUATION

Professionals with experience in word processing will tend to like Letter Perfect's full set of editing commands, and rich set of formatting capabilities. The Apple IIe's cursor keys are used to move within the document. Most editing commands are simple, single-keystroke commands. Letter Perfect does not use the open-apple and closed-apple function keys, allowing a commonality of software across Apple IIs.

This pre-release version of Letter Perfect had a few flaws, which hopefully will be fixed before release. One annoyance is that the software lags behind the keystroke commands. Repeating key actions, such as a repeated delete,

LJK Inc Letter Perfect
Word Processing Package

can often make the display run seconds behind the user. Another annoyance is that the free memory indicator on the status line appears erratic. It does not track the amount of characters in memory count for count. That is, deleting or inserting a character in the text does not always seem to change the amount of free memory. Finally, the DOS file commands work without converting their filenames to uppercase. A document saved with filename in lowercase may be inaccessible from other programs running under DOS 3.3.

Letter Perfect does not incorporate a print spooler, but can print to disk, screen, modem, etc. The lack of a spooler prevents the user from editing a document while another document is printing out. Printers that contain print-buffers mitigate this minor problem.

☐ User Interface

Letter Perfect is a relatively easy-to-learn and efficient word processing package. It uses the Apple IIe's cursor keys, control/escape key sequences, and several menus to implement its functions.

Menus: Several menus are provided. The main menu provides the support operations related to storage and retrieval of data on the diskettes, and those necessary for going to other menus. The file menu provides disk copying, disk initialization, DOS 3.3 functions and the like, from within Letter Perfect. The print command menu provides output control for the document. There are also several system configuration menus which allow for the selection of display types, keyboard types, printer types, and printer command characters.

Control Characters: Most common editing commands are single keystroke operation combined with either the "control" or "escape" keys. This allows the skilled typist to operate the word processor without removing his hands from the keyboard. Most Letter Perfect commands are based on abbreviations, such as "Escape-B" for beginning, "Escape-E" for end, "Control-S" for search, etc. The other numerous and supporting commands are menu driven so that memorization is minimized.

Function/Special Keys: The Apple IIe's cursor keys allow for direct movement within the document.

Status Display: Displays how much memory remains for additional text.

Help Facilities: No online HELP menu is available. The user must rely on the command summary reference card and the manual.

☐ Environment

Letter Perfect provides a relatively safe environment for the user. It supports the Apple II family of computers using the 40 column display, and most 80-column cards including the Apple IIe 80-column card. It may be used with a single diskette drive. The data base and the spelling dictionary would imply that more drivers are desirable.

Users will be pleased to find that they may backup and protect their investment because Letter Perfect is copy protected. Furthermore, Letter Perfect may be interfaced with different types of drives including RAM disks and hard disks. For those very technically inclined, Letter Perfect includes details on interfacing disk drivers and printer drivers in the appendices.

☐ Documentation

The preliminary documentation provided includes the Letter Perfect manual and a command summary reference card. The reference card contains the commands indexed by function. The manual will contain both a table of contents and an index. The manual provides a tutorial, a detailed reference section, and technical appendices relating to Letter Perfect Screen images and examples of printed forms are also supplied in the manual.

☐ Functionality

Once installed, generating letters and reports presents no problem for either professionals or secretaries. Letter perfect has all of the standard word processor features such as full screen editing, cursor control, search and replace, fast movement through the document, headings, footings, page numbers, etc. However, it does not support the open-apple and closed-apple function keys.

☐ Ease of Use

The ease of use of Letter Perfect makes it a candidate for serious home use, for secretarial use, and for direct use by professional or technical personnel. As a text formatter, it lacks some of the features required to maintain formal reports or to make easy revisions to large reports. But most other available word processors also suffer in this area. Letter Perfect's primary appeal is as a word processor for the more advanced user, performing mailing list processing and small or medium-sized, polished reports. Letter Perfect is suitable for the small-business and office environment.

☐ Support

Because Letter Perfect is a non-protected program, LJK will offer assistance and support only to registered owners of the program.

☐ System Interface

Although Letter Perfect is oriented for the Apple IIe user, it supports most 80-column cards and uppercase keyboard modifications for Apple II and II+ users. This makes Letter Perfect very attractive for companies, users, and software vendors alike. Software vendors may stock the Letter Perfect word processing package and satisfy most clients. Users can find software that fits their common 80-column card. The package fits the 80-column card without the need for specialized "80-column preboot diskettes" or other afterthoughts. Office employees using several different kinds of Apple IIs benefit from the commonality of the software, so that the same editing commands may be used on each machine.

Users who own several different printers will appreciate their documents being printer independent. Formatting commands that control underlining, boldface, and the like

LJK Inc Letter Perfect
Word Processing Package

are printer independent. All printer dependencies are buried in a file describing printer characteristics. Users can make, edit, and select from several different printer setup files.

Files can be imported or exported as standard DOS 3.3 text files. This is useful for interfacing to other programs that take standard text as input, such as other word processors, spreadsheet files, assemblers, and compilers.

Compatible parallel and serial interface cards are supported.

☐ Vendor Experience

LJK, Inc is an established software vendor. It also offers an optional data base program and spelling checker for Letter Perfect.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Letter Perfect is available for purchase from LJK, Inc, through computer dealers, software dealers, and mail-order firms.

Support • support is provided by the vendor to registered owners.

☐ Component Summary

Letter Perfect is provided as a full diskette containing Letter Perfect, a tutorial document file, and various computer system configuration files. The program is not copy protected.

Letter Perfect:

$105 lcns

☐ Computers & Operating Systems Supported

Letter Perfect supports the Apple II, Apple II+, Apple IIe, Franklin, and other Apple II-compatible computers with 48K bytes of RAM running DOS 3.3.

LCNS: license fee.

☐ Minimum Operating Requirements

Apple II-compatible computer with a minimum of 48K bytes of RAM, a display device (a monitor or television), and a diskette drive are required for operation. Compatible parallel and serial card printer interfaces are supported; Letter Perfect version also supports most 80-column boards. Letter Perfect also supports communication via modem.

☐ Features

Display Type • format controls are simple commands embedded into the document's text • the formatted document may be displayed on the screen for convenient editing.

Display Feature Utilization • audible feedback, status line.

Command Structure • common editing commands performed by simple commands; menus are used for DOS and other miscellaneous commands; the open-apple and closed-apple function keys are not used.

Error Recovery • Letter Perfect handles DOS errors • dangerous commands are confirmed before invocation.

Block Structure • supports cut and paste; supports copies and moves.

Merge/Print Functions • allows sequential printing of files as one document.

☐ Other Facilities

Other facilities for use with Letter Perfect include an interface to the Data Perfect and Spell Perfect.

Data Perfect:

$130 lcns

Spell Perfect:

90

• END

Lotus Development Lotus 1-2-3
Spreadsheet, Graphics & Database Package

■ PROFILE

Function • financial reporting, decision support, information storage and retrieval.

Computers/Operating Systems Supported • IBM PC, PC/XT, or Compaq portable computer with PC-DOS, TI Professional, Bytex Hyperion, Zenith 100, Wang Professional computer • versions for DEC Rainbow, Compass portable, and Victor 9000 are in development • the Columbia personal computer with BIOS version 2.11 or greater is also supported • most systems require a custom version of the package due to the graphics interface.

Configuration • 196K bytes of RAM, 2 double-sided disk drives or 1 double-sided disk drive and 1 hard disk, monochrome display or color graphics adapter.

Current Version/Version Reviewed • 1A/Release 1A, for the IBM Personal Computer; commercially purchased without identifying purchaser or reason for purchase.

First Delivery • January 1983.

Number of Installations • approximately 100,000.

Comparable Products • Context Management MBA, Executec Series One—packages provide multifunctions capabilities.

Optional Associated Software • none available or required.

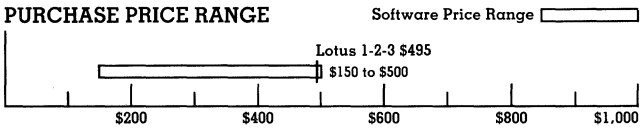
Price • $495 retail price.

Vendor • Lotus Development Corporation; 161 First Street, Cambridge, MA 02142 • 617-492-7870.

■ ANALYSIS

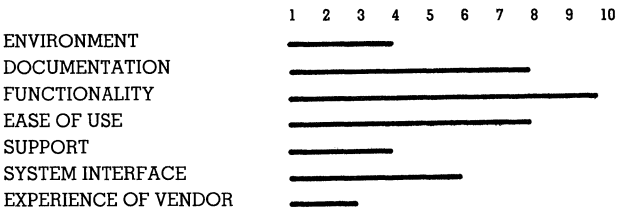
The increasing importance of personal computers to management and executive-level personnel within a corporation has influenced the design of software packages for computers targetted to this market. This new generation of software is designed for ease of use by professionals who are NOT computer specialists, and reflects some of the special needs of this group. In particular, there is a trend toward the integration of several of the popular computer functions—word processing, spreadsheet analysis, graphics, database manipulation—into a single package. This integration makes the software more adaptable to the professional who cannot necessarily anticipate computer requirements and have the proper package loaded, and who finds learning different operating procedures for each function annoying and unproductive.

PURCHASE PRICE RANGE



LOTUS DEVELOPMENT LOTUS 1-2-3 PRICING • open bar shows the typical range of prices for **SPREADSHEET-MULTIFUNCTION** software used in a corporate environment • the vertical line within the bar graph indicates the price of **LOTUS 1-2-3**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

Lotus 1-2-3 provides a basic structure similar to that of a traditional financial spreadsheet program, but refines this structure to include a highly interactive graphics capability and a simple database system. Both graphics and database functions are outgrowths of the spreadsheet operation, so special training to use either is minimal. 1-2-3 also provides an extremely friendly environment with extensive prompting, Help facilities, and tutorial features. These make 1-2-3 easy to learn and adaptable to environments where the user will not apply all (or even use any) of the features of the package every day. All these features favor the use of 1-2-3 by management or professional personnel for decision support or to improve productivity.

1-2-3 attempts to make computer entry and analysis of financial or other numeric information a natural process whose overall structure is based on accounting or statistical principles and whose individual steps are logical and predictable even to a novice user. This releases professional attention from grappling with programming concepts and allows it to focus on the definition of the problem and the analysis of the results, a focus vital in decision support. Full development of this concept can be expected to dramatically improve the usefulness of personal computers in management and professional support applications, and increase productivity in a key area of corporate operation.

☐ Strengths

1-2-3 sets a new standard in user-friendliness. An extensive tutorial program leads a novice through the features of the package, and well designed command formats and Help facilities makes further reference to the excellent documentation unnecessary. The spreadsheet portion of the program is more powerful than other popular spreadsheet packages in terms of number of functions supported and in terms of operating speeds. Finger-tip graphing capabilities allow a worksheet to be reduced to graphic form for quick analysis or to make an evaluation of visual impact for report or presentation purposes. This rapid and

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painless transition makes it possible to use graphic display of data without losing touch with the data entry or analysis process itself.

The database capabilities of 1-2-3, while primitive by the standards of dedicated database software, are nevertheless adequate for many decision support applications and operate entirely within the familiar framework of the spreadsheet. Spared the burden of retraining on a seldom-used feature, managers can utilize database features effectively to further enhance the usefulness of the software.

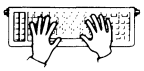
In documentation, structure, style, and features, 1-2-3 is a product designed for corporate decision support applications.

☐ Limitations

1-2-3 is a full-feature product, and this implies a fully configured computer system. The earlier release of 1-2-3 would execute on a system with 128K bytes of memory, but version 1A requires 196K bytes. The PC/XT is generally equipped with 256K bytes of memory and will thus run 1-2-3 with no difficulty, but owners of the older version may find it necessary to upgrade memory in order to run. The disk requirements are likewise stringent; 2 double-sided drives or a single double-sided floppy and a hard disk are required. Since the IBM PC was originally supplied with single-sided diskettes only, many users will find it necessary to upgrade their disk configurations as well.

Copy protection is not uncommon in these days of expensive software products, but it continues to be annoying to corporate users. In 1-2-3's case it is particularly so, because many users will want to run their 1-2-3 program on hard disk and use the system's single floppy disk for data. Since 1-2-3 cannot be copied, it cannot be transferred to hard disk for this purpose.

The Lotus package lacks any form of word processing capability, something which many users would find a natural tie-in with the fine graphic printing capabilities for producing ad hoc reports. Further, the otherwise excellent data exchange documentation provides no hints on merging or combining word processing files and graphics print files. Full page graphs can be interfiled by hand, but this will probably require creation of an intentionally blank page in order to preserve correct page numbers.



■ HANDS-ON EVALUATION

1-2-3 is one of those products that you just have to like. The documentation is well-presented and professional, the product does what you expect of it, and its concept is easily applied to the problems of the modern office.

But, you can't copy it. Lotus 1-2-3 comes with procedures for installation on hard disk systems, but you cannot make back-up copies to protect your investment. On the plus side, you can install DOS on the diskette to make it bootable.

Spreadsheet programs are probably the most easily applied of all software for office use, and we tried 1-2-3 on everything from dot charts of features for products to financial statements. The program was exceptionally easy to use, and the tutorial imparted enough skill to all our staff to support their development of simple applications on their own. Since 1-2-3 has such a strong visual orientation, people seem to relate to it more easily, and this translates into being able to speculate on applications of the program to other areas. Our product feature chart was an example. By defining a column per feature, only one character wide, and rows for each product, we were able to produce an attractive matrix chart which was also easy to enter data for. The graphics features of the product were likewise easily applied, in fact, they were almost transparent. The default selections for graph options were so good that anything a user felt intuitively could be graphed proved easy to graph.

Some of the advanced features of 1-2-3, such as the database feature, require some experimentation and support for use by novices, but even here we had a few surprisingly good applications developed by people who had never before exhibited any computer skills beyond manipulating the on/off switch.

Every level of the staff found Lotus 1-2-3 to be easily learned and applied, and every reasonable application which we attempted on the program was successfully completed.

☐ User Interface

Lotus 1-2-3 uses a spreadsheet display format with the top lines of the screen displaying a menu of appropriate commands when in command mode, or the value or formula being keyed for the current cell if in data mode. The command structure is menu/prompt oriented, and as the cursor is moved through command options, the line below shows a brief summary of the command function. There are many features in display and data entry to facilitate the use of the product by beginners, and the overall interface is among the very best microcomputer products.

Control characters: The control key is used only during entry editing. A ctrl- in conjunction with left or right arrow will cause the cursor to move five spaces in the direction shown. Ctrl-break will cause the entry to be erased.

Function/special keys: The special-purpose keys of the IBM PC keyboard are all used to control cursor movement and program function. Function keys are used for major system functions such as requesting help, changing from edit to command mode, listing a range of names, forcing a recalculation of the worksheet, or invoking the graph function. There is a function key template supplied with the product.

Command language: Macros may be created by "remembering" keystrokes in a file, and invoked by pressing the Alt- key and the name/letter of the macro. The macros may include commands and text entry.

Positive feedback: Commands which are accepted will change the prompt display or alter the worksheet value, so the user is nearly always directly aware of the command execution. Some commands imbedded in macros

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may execute so fast that this feedback is lost, so it is important to verify macro steps before creation of the macro.

Status display: The top right of the screen indicates the current operating mode of the system. Depending on this mode, the contents of the next two lines may be status information or menus. The current cell location and contents are shown in the upper left of the screen. Menus are given on the following line, with the explanation of the command which is currently indicated by the cursor displayed on the line below. In data mode, the formula or value being typed will appear in the status area.

Help facilities: The F1 key requests help in the current context of the program, and help text temporarily replaces the worksheet but leaves the status area intact. The user may select further help by moving the cursor to one of several indicated additional topics. The help text is informative and generally complete enough to make further reference to the manual unnecessary. There is also a reference card for commands and formula functions, sufficient for the experienced user in spreadsheet development on entry tasks.

☐ Environment

Release 1A of 1-2-3 requires 196K bytes of RAM for operation; additional memory will be used if available to permit larger worksheets. Either a dual, double-sided floppy disk configuration or a double-sided floppy and a hard disk are required for execution. The memory requirements are stated on the advertising outside the package but the documentation suggests that 128K bytes of memory will serve. It won't. This may shock users of version 1 of the software, which would execute on 128K-byte systems. The required configuration is robust by non-XT system standards; there is a high probability that any user of a Compaq or standard IBM PC will require an upgrade in order to run the 1-2-3 software.

Lotus supplies 1-2-3 on 5 double-sided disks which include the 1-2-3 system disk, a tutorial disk, a backup system disk, a utilities disk, and a disk to print graphs. The system disk is EXECUTE protected; it can be copied by standard utilities but the copy will not execute. This form of copy protection is often easier on the hardware than special schemes of disk access which may "churn" the disk and eventually cause surface wear, but the end result is just as annoying. Lotus sends a backup copy of the system disk and will provide another if the unreadable disk is returned, but you cannot copy 1-2-3 to a hard disk.

Display options on 1-2-3 include both the monochrome display and the color graphics board, and the word "both" is particularly appropriate with 1-2-3 in that it will support BOTH simultaneously. This can be a key capability if graphics use is to be interspersed with normal data entry and analysis.

Printer drivers are supplied for most popular printers, and graphics in black-and-white are available for a surprising number of them. Color graphic printing requires a color printer (the IDS Prism is supported) or a plotter such as the HP-7470.

Users with multiple system types may find that, although the 1-2-3 software is available for both their systems, the versions are not compatible. This is due to differences in the MS-DOS data formats, the internal computer structure, or the graphics structure of the systems and is NOT a deliberate policy on the part of Lotus. The IBM PC version of 1-2-3 will run properly on the PC, PC/XT, Compaq, and some Columbia models.

☐ Documentation

Lotus supplies its documentation in the familiar PC-sized cased-manual. The manual is large and a little unwieldy, and turning from the beginning to the end may require a few intermediate stops to get the pages to lay right. The content, however, justifies any problems with the structure.

There are 5 main sections to the manual, each defined by an index tab and each beginning with a color-bar index to the section. Sections are as follows:

Tutorial. This defines the Lotus tutorial program and provides recommendations on who should use it to learn the system (everyone should, as indicated later).

Lotus Access System. 1-2-3 has a "master program" structure which insulates the user from the fact that there are actually several programs which make it up. The Access System describes the user's interface to this program to select functions and request assistance. The functions selected include operating system actions such as preparing disks.

World of 1-2-3. This section describes the relationship of 1-2-3 to the computer environment, including its use of the screen and the keyboard. It also introduces the terminology of 1-2-3. This section gives a nice, if brief, overview of the main capabilities of 1-2-3.

Basic skills. Basic skills are NOT a subset of 1-2-3 functions for novice or basic users, but a definition of the features and functions of 1-2-3 in a functional way. These include the "HELP" facilities, skipping around within the worksheet, entering data, entering 1-2-3 commands, using ranges, and writing formulas.

Command skills. This section is a COMMAND-ORIENTED definition of 1-2-3 features for users who know what command they want to use but just don't know exactly how it works in their desired application.

The 1-2-3 document is as tutorial as can be expected for a package with all the features provided, but users who expect to pick up the operation of the system from a few minutes of browsing are likely to be disappointed. As a reference manual for someone who has completed the tutorial, the document is excellent. A pocket reference guide is also provided for those who know what command or function is needed, but not how to invoke it.

A series of appendices follows the main documentation and provides more specialized information on subjects such as a detailed reference on the mathematical/statistical/financial functions available, the use of the print graphics

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program, error messages, printer information, and file transfer from or to other programs and program language.

A final appendix is directed to the "experienced spreadsheet user"; the user of VisiCalc. It highlights some of the major differences in the packages, giving such a user a more comfortable start with 1-2-3.

Nothing is perfect, and there are a few annoying lapses in the documentation, primarily in the area of references to other areas of documentation. We are told, for example, to see an appendix showing the 1-2-3 command tree structure. The structure is actually found in the first pages of the "INDEX" section.

The documentation is well illustrated with examples which show screen formats and the structure of various menus and commands. Where a new concept is to be introduced ("menus" for example), a short tutorial with illustrations is provided. The style of the material may seem slightly patronizing to people with some familiarity with computer concepts, but it manages to educate most users without causing them to lose interest. A well-structured index and glossary are provided to complete a totally excellent document.

☐ Functionality

1-2-3 has a fairly traditional worksheet structure with a status area of 3 lines followed by the column header band and then the actual data. The rows are identified on the left edge of the screen. The maximum size of the worksheet is 256 columns by 2048 rows. The current position within the worksheet is identified by a "cell pointer" which is displayed as reverse video. The display can be divided into 2 windows to show different areas of the worksheet at the same time. The worksheet is filled and controlled by "COMMANDS" which begin with a "/" character.

Commands have a hierarchical structure (Worksheet, File, Range, Copy, Move, Graph, and Database). When the user operates in a particular command range, the menu of commands is displayed in the status area of the screen. This menu will often "anticipate" the next command by positioning itself according to the most likely action. Commands are normally entered in a 1-2-3 mode called "READY", at which point you may either enter a command or begin to enter data. Mode will change to indicate your progress in entry; VALUE indicates a number or formula is being entered, MENU indicates a selection from a list of commands is being made. There are 10 modes in 1-2-3.

1-2-3 is rich in commands, rich enough so that the HELP feature may be required to remember them all. The highlights are as follows:

Movement through the worksheet. A "cell pointer" defines your current position within the worksheet, and it can be moved relative to its current position through the normal cursor control keys. You can also shift a page (a screen—full of data) in any direction by using the "Ctrl" key in conjunction with the left or right arrow or the "Pg Up" and "Pg Dn" keys. Using "END" in conjunction with any key moves to the boundary of data and empty cells in the direction indicated. A "home" key takes the user to the upper-left cell in a single stroke, and the "GO TO" command permits moving the cell pointer to a specific cell. Cells can be changed in size. With the "visual" method the cell is highlighted and the right and left arrow keys are used to make the cell larger and smaller, respectively. The fact that the changes are immediately visible makes cell adjustment relatively easy.

Data Entry can be numeric (including formula) or text. A total of 11 different cell data formats are supported through global presets or by specific formatting of cell ranges. Decimal, currency, scientific, percent, date, and text are among the possibilities. Basic entry of data is assumed to be either numeric or text, with the format options controlling display. If the user begins an entry in READY mode with a number or calculation symbol, 1-2-3 assumes numeric entry. Text entry must be identified via command. Using any cell positioning command will move the cell pointer and terminate the entry in one step; it is not necessary to type a "return" for each cell being filled and then move the cell pointer. Formulas can be entered which reference other cells, either by cell coordinates or by moving the cell pointer to the referenced cell and typing a ".". Relative cell locations created by this "pointing" permit the copying of formulas from one area to another without change so long as the relative position of all of the cells involved are the same at both the source and destination locations. Functions can also be entered in a formula, and 1-2-3 has functions for date manipulation, table lookup, statistical analysis, and financial analysis in addition to the normal mathematical/trigonometric functions. The financial functions permit the analysis of internal rate of return, future value, present value, and payments in a single statement. Because 1-2-3 is written in 8088 assembly language, it is FAST. This speed advantage is particularly important where the corporate application of 1-2-3 for plotting and predicting involves the evaluation of large amounts of data and complex financial calculations.

Ranges of cells can be given a name and moved or manipulated as a group. Because a function exists which can determine the size of an area of a worksheet, the size of such a range can be variable according to the application and still be subject to totalling, calculations, or other actions performed by a generalized set of formulas. The ability to develop generalized formulas makes 1-2-3 a good vehicle for standardization of key logic. An auditor can develop a model for the calculation of the discounted cash flow analysis of a purchase and provide it to users for general application. If a range of cells is copied which includes actual cell references (not relative by pointing), 1-2-3 will assume that such references are treated as relative and recalculate them according to the new position unless told that they are absolute. Names can be used for ranges, and the ranges so named may be either absolute in cell location or relative. This permits a formula to contain a single reference to a constant value (given a range of 1 cell and a name such as "DISCOUNT") and a series of relative references so that it will apply the discount to a total of the column in which the formula appears.

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Graphing of information interactively is one of the most useful features of 1-2-3. Any worksheet can be graphed by entering the GRAPH command. Since the monochrome display will not permit on-screen graphing, users who have only that display system must rely on printed output. If both the color and monochrome display adapters are available, 1-2-3 will use both simultaneously and will permit on-screen graphics while preserving the high text quality of the monochrome display. With both displays available, the graphs will display only on the graphic display and the worksheet will remain visible on the monochrome display. Once a graph is defined (identifying the type of graph, the labels and legends, the data ranges, etc), the graph can be re-drawn from new data by means of the F-10 key (GRAPH). Some graphic options do not default, so that you MUST make initial selections of graph type (pie, bar, stacked bar, line X/Y). You must also specify the cell range(s) to be graphed. The graph is made in row versus column form.

Printing a graph is accomplished with a separate program called PrintGraph. The exporting of graph data to this program is transparent to the user. Unfortunately, the print program is on its own disk and must be loaded separately. Users are thus advised to display their graphs, adjust them, and save them on disk for later printing.

What If questions, the effects of the changes in the value of a cell on the formulas and display, are easily handled by 1-2-3 through what is called "sensitivity analysis". A user can request that a "data table" by built displaying the value of key cells in the worksheet depending on the value of a defined variable cell. You can, for example, show the effects of changes in discounted cash flow based on changes in the internal rate of return. The "window" display option lets the user put this information in another part of the worksheet so that the main worksheet is not disturbed. The contents of the data table are selected from the actual worksheet, so that the calculations defined in the worksheet need not be duplicated in the table.

Data Fill capability permits the user to request that a range (usually a row or column range) be filled with values in sequence. The starting value and increment/decrement can be specified. This is useful when defining a series of numeric values for later reference, such as item number or transaction number, a list of values, or a list of percentages.

Database operations are available within the context of the worksheet, and are simplistic by the standards of full data base packages. A 1-2-3 data base consists of RECORDS, which are a row in the worksheet. Fields in the data base are columns in the worksheet, and all the normal spreadsheet functions are available in the definition of data base fields, including formulas. The first row of any data base defines the column headings and thus the "field names" for the data base. Within this structure, data can be added to the data base, removed, or changed in the normal manner in which cell data is manipulated. In addition, data bases can be sorted by the value of any field, queried on the basis of the value of one or more fields, or analyzed via statistical functions which count, total, find the largest value, find the smallest value, determine average value, and calculate the variance and standard deviation. A distribution analysis is also available to provide a summary distribution of the fields in a large data base, eliminating the need to analyze it in detail.

Once a record or group of records has been selected by a QUERY option, the data can be printed, graphed, or manipulated by the standard worksheet commands. This makes it easy to integrate the storage of large amounts of information with the preparation of worksheets, graphs, calculations, etc. The worksheet data retrieved by a query can also be combined with fixed data from other sources.

User-Defined Functions can be implemented through a "macro" facility which allows the user to define a single key (the ALT key in conjunction with the letters A-Z) for a sequence of 1-2-3 actions. Special forms of macros can be invoked automatically when a worksheet is loaded (to set up a generalized form) or to interact with the operator to gather data and perform predefined steps in order to load a cell. Macros can be used even to define user menus of functions, making 1-2-3 almost a programming language. This also permits the introduction of programming errors, or "bugs", and the documentation warns users of the potential problems as well as the benefits.

☐ Ease of Use

Users of other spreadsheet programs which operate similarly to VisiCalc will have little difficulty adapting to 1-2-3; the format of the commands is very similar. In fact, experienced VisiCalc users will probably find the documentation is unnecessary.

First-time spreadsheet users are likely to be intimidated by the documentation, excellent though it is. For these users, Lotus has provided a tutorial program which leads the user through a series of lessons on the operation of 1-2-3. The lessons are well designed and skillfully implemented, and the hour or 2 required to go through the tutorial would be well spent by nearly any purchaser of the package.

Within 1-2-3, entry and command structures are designed to make use as easy as possible. The F-1 key of the keyboard is defined as the HELP key, and pushing it will give information on the decision which is currently being requested. All commands are entered in a menu structure with the option selected either by letter ("W" for worksheet) or by moving the cell pointer to the selection. If the user points to a value in a menu, the following line of the status display will give a brief explanation of the selection. Commands are preceeded by a "/" as in VisiCalc, and most of the commands are the same in both systems. There are differences, however, and users of VisiCalc would do well to refer to the appendix which describes them before using 1-2-3.

The keyboard function keys and cursor control pad are fully utilized by 1-2-3, and a sturdy template for function key meaning is provided with the software.

The "HELP" facilities of 1-2-3 are impressive. Use of "help" involves only depressing the F-1 key on the PC keyboard. Operation of the worksheet session is suspended and a

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hierarchical structure of HELP screens becomes available. The status area of the screen remains to aid in remembering the current context. The HELP screen displayed depends on the context, and additional help can be requested by selecting a more specific reference from a list at the bottom of most screens. The HELP structure does not limit you to the current problem, however. Any HELP topic can be requested at any point. Like "READY", HELP is a mode of 1-2-3 operation and is displayed in the status area. The backspace key will back up through up to 15 previous HELP screens, and using the HELP key a second time will always return to the first HELP screen for the current context. The ESC key will return the user to the point where HELP was first pressed.

☐ Support

Lotus product support for 1-2-3 is robust by microcomputer software standards, but like most such packages places a high reliance on the relationship between the user and the dealer who provided the software.

Training in 1-2-3 may be provided by local dealers, and some training aids are becoming available from third-party suppliers, but Lotus does not provide for training classes.

In the event of problems with 1-2-3, Lotus recommends that the user first check the reference manual, then call the local dealer for advice. Dealers are advised of any outstanding problems with a version of 1-2-3. If these steps do not resolve the problem, Lotus requests that the user contact their Customer Service department at a phone number attended from 8:30 am to 8:00 pm, EST, Monday through Friday.

Registration of a purchase of 1-2-3 makes the user eligible for 2 benefits, an upgrade plan and a replacement plan. The upgrade plan provides for the notification of ALL current users of new software versions. The user may then elect to purchase the new version at a special upgrade price. There is no set policy on the price of an upgrade. The replacement plan permits a user who has damaged a disk within 3 years of purchase to return it for replacement at a nominal charge.

☐ System Interface

Lotus has recognized that 1-2-3 is unlikely to be the only piece of software owned by a corporation, and has made an effort to make it compatible with other products considered likely partners. ASCII text files from many sources can be read from local floppy or hard disk through a FILE IMPORT command and created by a PRINT FILE command. While the program makes an honest effort to resolve some of the unique structures of such files, reading word processing text into a spreadsheet program is likely to result in occasional surprises. Importing files created by BASIC or other programming languages is generally easy providing that care is taken not to write non-text characters, but only as strings of text incorporated as long rows in the worksheet. Lotus does not provide definitions on creation of worksheet-compatible files from program languages, an omission which may impact some projects which require tight integration with custom programming.

Files for VisiCalc can be directly translated to 1-2-3 format by the TRANSLATE utility program, also useful for translation of other formats of data. Not all VisiCalc formulas will translate properly, but most worksheets will require very little manual effort. dBASE II files may also be translated, but only the .DBF data base files themselves.

Lotus provides no provisions within 1-2-3 for data exchange with other computer systems.

☐ Vendor Experience

Lotus Development Corporation has been in the microcomputer arena for about 2 years. Lotus 1-2-3 is its only product and it has been in the field for approximately 1 year. Lotus Development is rated number 1 in advertising for microcomputer software developers; the company has an experienced and highly regarded management group.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • purchase only; user manual, tutorial program, function key template, upgrade and replacement plans, included in purchase price.

Support • training may be provided by local dealer or through third-party suppliers; problems should be resolved through reference manual, local dealer, or call to Lotus Customer Service department from 8:30 am to 8:00 pm EST, Monday through Friday.

☐ Component Summary

Lotus 1-2-3 is composed of a financial spreadsheet capability, interactive graphics capability and a simple data base system. Slightly different versions are available for different PC systems due to differences in MS-DOS implementations, system architecture or system graphics structure. The IBM PC version of 1-2-3 will run properly on the PC, PC/XT, Compaq, and some Columbia models.

Lotus 1-2-3:

$495 lcns

☐ Computers & Operating Systems Supported

Lotus 1-2-3 is available for the IBM PC, PC/XT, Compaq portable with PC-DOS, TI Professional, Bytex Hyperion, Zenith 100, Wang Professional and Columbia PC with BIOS version 2.11 or later. Versions for DEC Rainbow, Compass portable and Victor 9000 are in development. Most systems require a custom version of the package due to the graphics interface.

☐ Minimum Operating Requirements

The package requires 196K bytes of RAM, 2 double-sided disk drives or 1 double-sided disk drive and 1 hard disk, a monochrome display or color graphics adapters for operation.

☐ Features

Spreadsheet Size • 2,048 rows × 256 columns maximum; the limit on filled cells is dependent on computer memory.

Command Type • commands are entered in "command mode" which is activated by the keying of a slash ("/") character; in command mode, a menu of command options is displayed, and selection can be made by moving a cursor to the desired command or entering its first letter.

LCNS: license fee.

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Financial Functions • internal rate of return, net present vale, future value, present value, and payment are all rpresented as a single function for formula/cell entry.

Statistical Functions • count, sum, average, minimum, maximum, standard deviation, and variance may be calculated on any list of values.

Cell Reference • relative or absolute by coordinates, by range, or by cell name, pointing to a cell via cursor movement may also be used in lieu of direct reference.

Window Capability • two windows may be defined, divided either vertically or horizontally on the display; the windows may be either synchronized in scrolling or independently moved.

Range Facilities • ranges can generally be specified in any place where a group of cells could logically apply; cells may also be "protected" by range.

Print Facilities • any range of cells can be printed, with or without column and row numbers; a printer string can be sent to the printer in advance of data to set up print format, font, density, etc; formulas for cells may also be printed; full support for page headers and footers is provided.

Load/Save Facilities • all or part of a worksheet can be loaded from disk or saved to disk; cell overlap between loaded data and existing data can be controlled through replacement or summation; blank cells on a loaded worksheet do not affect the value of existing cells.

• **END**

Mark of the Unicorn Inc FinalWord
Word Processing Package

■ PROFILE

Function • word processing.

Computers/Operating Systems Supported • IBM Personal Computer, IBM PC/XT, Compaq, Chameleon, Hyperion/PC-DOS, MS-DOS, CP/M-86, or CP/M-80.

Configuration • 64K-byte RAM (PC-DOS 1.1) or 128K-byte RAM (PC-DOS 2.0 and greater), single-sided diskette drives (although double-sided diskette drives or hard disk is preferred), monochrome display or color graphics board and the appropriate monitor, and printer with appropriate interface.

Current Version/Version Reviewed • Version 1.16/Version 1.15.

First Delivery • April 1982.

Number of Installations • 5,000.

Comparable Products • MicroPro WordStar.

Optional Associated Software • none.

Price • $300 retail.

Vendor • Mark of the Unicorn, Inc; 222 Third Street, Cambridge, MA 02142 • 617-576-2760.

Canada • Distributor: Sybis; 6490 Def Perdix, Ste Rose Laval, Quebec M7L 4E7.

■ ANALYSIS

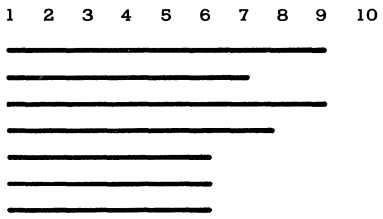
FinalWord is one of the more powerful word processors in the marketplace today, especially for the preparation of reports and other complex documents. Its features rival those of a commercial word processor, and in some cases are totally unique on personal computer products. Yet its complex structure can be largely avoided where it is not required, such as during letter or simple document production.

The command structure provided is rich with options that, while they enable the user to be very creative with the documents, add to the time necessary for the average person to master the product. The variety of commands give rise to questions as to which is the appropriate way to create a desired result (there are three ways to create an itemized list, for example), which cause some delay when typing non-standard documents. In general, the commands are extremely English-like (@FlushLeft causes each line to begin at the left margin) or mnemonic (Ctrl + S begins the "Search" command) such that the chronic user can produce documents without reference to the manual.

Also provided with this word processor is the ability to view two different segments of the display at one time, which allows the use of an outline so the user can refer to it directly while filling in the meat of the paragraph.

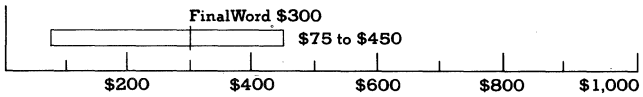
Mastering FinalWord is not to be taken lightly. It takes thought and care to prepare a complicated document, but the ability to create a letter, a report, or even a manual with table of contents, chapters, and footnotes is available with FinalWord, and the versatility makes the effort needed to use it worthwhile.

PRODUCT QUALITY RATINGS*



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

PURCHASE PRICE RANGE Software Price Range



MARK OF THE UNICORN FINALWORD PRICING • open bar shows the typical range of prices for **WORDPROCESSOR** software used in a corporate environment • the vertical line within the bar graph indicates the price of **FINALWORD**, the evaluated product, relative to the price range of similar products.

☐ Strengths

The most powerful aspect of this word processor is the wealth of features which it posesses. For example, it contains an "undelete" function that, should the operator suffer a momentary lapse, restores deleted text. There is also a "state save" feature which will recover text even after the editor has been turned off. This feature allows you to be able to recreate the text as it was, even after a power failure.

This word processor offers more convenience than the average good word processor on the market. The authors have provided a significant amount of human engineering by providing those little niceties which we wish were present in all programs. A case in point—transposed letters can be corrected by simply depressing the Ctrl key and typing "T".

FinalWord addresses more of the corporate needs in its word processing capabilities. It supports the creation of documents with indexes and tables of contents taken from the chapter headings imbedded in the text—very convenient for the production of medium range plans and other structured documents.

☐ Limitations

In spite of the great number of options which FinalWord

Mark of the Unicorn Inc FinalWord
Word Processing Package

offers the user, some features that have come to be expected as a part of a premium word processor are missing. The most obvious of these is the lack of a spelling checker.

The manual lacks a comprehensive, user-oriented index. The index that is present does contain all of the functions and their references, but from a command rather than a functional viewpoint. This means that if you already know how to perform a particular function, you can find the appropriate command in the reference manual to accomplish it. If you don't know what command to use, a long search is in order.

The large number of commands and options makes it inevitable that there will be some confusion in the commands. For example, "@begin(...)" is used to start a particular textual format such as flushright, or closing, etc, while "@b(...) causes the words within the delimeters to be printed in bold face. It is expected that such difficulties will be overcome by training on and experience with the product.

■ HANDS-ON-EVALUATION

Our technical staff followed the instructions provided on the "READ THIS FIRST" document, which accompanied the product. The instructions were clear and complete, although they seemed somewhat disjointed because they jump the reader from page to page. Instructions are provided for many different system configurations including ones with disks with less than 240K-bytes and ones with a hard disk attached. In addition, the document contains 3 pages of specific key assignments for the IBM PC/XT, which we found helpful later.

Our secretarial staff found lessons provided as a tutorial helpful but also somewhat verbose. They were also pleasantly surprised to find many features available that are not usually found in word processors for personal computers such as "save state," "undelete," and "transpose characters."

We quickly learned that this is not a word processor that one masters after a few light-hearted hours of tutorial typing. It became very clear that several days could be spent in attempting each of the nuances of each command and observing the results. The extensive use of Ctrl key functions, function keys, and @ command also meant that it was necessary to have the reference manual handy at all times. The sheer volume of commands and options disoriented some of the staff at first, and we had to spend a little time reviewing material to restore a level of comfort.

Our professional staff was impressed with the wealth of options provided by this product. They commented that it provides features normally found only on large-scale or dedicated word processing systems. In fact, they were so impressed that they decided to attempt to produce their Medium Range Plan document using it. (They had already produced the "Plan" on the mainframe.)

We found that a lot of time was required to familiarize ourselves with the functions, not because they are difficult, but because they are scattered through many different sections in the manual (402 pages, index included). The "installation guide" was most helpful in simplifying some of the commands, since it explains the special tailoring provided for the IBM PC/XT keyboard, which is not discussed in the tutorial.

☐ User Interface

FinalWord uses a combination of menus, function keys, control keys, and special character sequences to provide extensive word processing power. An attempt has been made to tailor the keyboard assignment to accommodate the most often used commands as function key variations; however, the sheer number of commands renders this product unwieldy to the uneducated user. Although lacking a spelling checker, this product possesses a high degree of functionality, which will allow the trained user to tackle any word processing requirement with confidence.

Menus: Command menus are provided for complex functions such as buffer and file control. All menus are entered via the extended command, Ctrl + X. Menus are hierarchical in structure with two levels being the standard, and are only displayed while in use.

Control Character: Basic commands are entered via the Ctrl key plus some letter. All 26 letters of the alphabet are used in conjunction with the Ctrl character to form commands which generally refer to the first letter of the command to be accomplished, e.g., Ctrl + Q—quote next character. There are so many functions that the connection is sometimes tenuous.

Function/Special Keys: All 40 possible function key combinations are defined for FinalWord. Some of these redefine Ctrl + letter sequences. The "@" character is used to begin an advanced formatting command. This character is usually followed by the English word for the command, e.g. @Enumerate. An 8.5x11 reference card is provided which lists all commands. The installation pamphlet contains a 3-page IBM PC/XT special key usage section.

Command Language: None.

Positive Feedback: Most operations are confirmed either by text change or changes in command/prompt structure. There is no special audible or visual change to signal a correctly entered command, but nearly any control or function key has some command significance, so invalid command entry would be difficult.

Status Display: A program line is displayed at the bottom of the screen which contains the name and version of the program, the name of the current file, the percent utilization, and the direction.

Help Facilities: Ctrl + X,H selects the help menu. Choices from there are "Explain key" and "Help about" which provide detailed instructions. It is generally invokable from any point within the product. No function key shortcut is provided.

☐ Environment

FinalWord is designed to run on microcomputer systems

Mark of the Unicorn Inc FinalWord
Word Processing Package

using MS-DOS, PC-DOS, CP/M-80, or CP/M-86. On the IBM PC, it is very forgiving requiring only 64K bytes of RAM for Release 1.1 or earlier of PC/DOS, or 128K bytes of RAM for Release 2.0 or greater. It also requires at least one double-sided diskette drive.

We tested using an IBM PC with 192K bytes of RAM, one single-sided diskette drive, one double-sided diskette drive, a color monitor, and an Okidata Microline 92 printer. We experienced no difficulties with either the installation or the operation of the product with the hardware. Our printer is one of the 16 basic printer types supported.

There are clear and extensive instructions in adapting FinalWord to almost any disk configuration, including a 3 page section on the IBM PC/XT.

☐ Documentation

FinalWord provides a comprehensive reference/tutorial manual on 8.5 x 11 stock in a three-ring binder. Also included is a 24-page "READ THIS FIRST" installation instruction pamphlet and a quick reference card printed on heavy stock that contains the command list and the advanced formatting commands.

The tutorial is well-written and, in nine lessons, provides a strong jumping-off point for a complete understanding of the product. We found that it did not cover many of the special features of the product, and that it should be taken in a way that encourages user experimentation at the end of each lesson.

Some special attention is due FinalWord in the early stages of training to realize its full potential.

The remainder of the manual is divided into chapters covering Editing Commands, Advanced Formatting Commands, and Installation. Appendices are provided that cover such topics as Crash Recovery and Error Messages. An index listing the commands in alphabetic order is provided.

The Advanced Formatting Commands are English words preceded by "@", such as "@chapter" or "@index", while the Editing commands are Ctrl character sequences, such as Ctrl + F (forward) or Ctrl + R (reverse). These commands are difficult for users to master, and the material in this part of the document could be richer in examples to help them along.

The installation section (of all places) provides a three-page cheat-sheet which lists the various keyboard assignments for the special keys on the IBM PC keyboard, particularly for the cursor movement and the use of the forty variations of the function keys. The material was useful, but the placement of it in a technical part of the document discouraged some of our users from looking at it, or even locating it.

☐ Functionality

We found it very interesting to work with FinalWord. After we finished browsing through the lessons in the tutorial, we proceeded to try as many options as possible to familiarize ourselves with the system. We were immediately drawn to read more and more since some of the functions are quite unusual.

We deleted text and "undeleted" it just for the fun of it. We also turned the system off, simulating a power failure just to see if "state save" would work. We ran "recover" and it did—we got our document back! Our technical specialist blanched at the idea of turning a computer off with disks in the drives, so we tried that exercise only once.

We used the help option many times rather than looking through the manual. HELP is available for each command, but you must type the command code carefully or you get help for the wrong thing—there's no way to correct the error in time to avoid the unwanted menu.

The nine main menus are invoked by typing "Ctrl + X." Then each menu has a choice of submenus. Users may enter the selections without waiting for the menus to appear. Individual options can be invoked; for example, to save a file, "Ctrl + X,F,W", which means: 1) Envoke the extended command processor, 2) Choose the File menu, and 3) Select the Write option (or write a file). We found that the use of menus assisted us in controlling the overall flow of data for our Medium Range Plan report.

Our secretaries also found that they were able to update the appropriate figures in the "Plan" because cursor movement is very well implemented. The cursor can be moved by character, line, sentence, and even paragraph. This kind of easy editing made changing nearly any document a lot easier than usual, and contributed to a general satisfaction with the product in the area of document correction.

We also found that there were a number of other helpful keys available to assist in the entering of our data. When an incorrect function is chosen (something beginners did often), the "Ctrl + Z" combination will cancel the request. The "Ctrl + A" (again) function allows you to repeat the same function over and over again. This was helpful in performing repetitive editing operations.

We found the window feature to be very helpful as well. With it, we were able to view the outline of our report while we keyed the body without having to have a paper copy of the outline present. It also added to the speed with which our professional staff was able to generate documents, since the writer could use a window to view a paragraph that introduced multiple topics, and the other to develop each topic in turn. Only one additional window is supported, but it was sufficient for our needs.

With the advanced formatting we were able to create a boldfaced chapter heading and subsection title headings (underlined). The system automatically created a Table of Contents and our secretaries used the same principle later when revising a procedure in our administrative manual. The use of the advanced formatting options requires some pre-planning of the document, and some experience or time to experiment with alternatives. We produced several interesting documents in "ragged LEFT" form while learning.

The system is flexible even when underlining text. It lets you underline all characters, including punctuation but

Mark of the Unicorn Inc FinalWord
Word Processing Package

excluding blanks; underline all characters, including blanks and punctuation; or all text characters except punctuation and blanks. We have several documents published each month, and the various rules of each publication for underscore were all accommodated.

We concluded that FinalWord will require some time to master; however, once mastered it would supply almost all of our word processing needs. About the only major function missing is some type of spelling checker, which is needed by our professional staff.

☐ Ease of Use

FinalWord offers a vast number of commands and options that support all of the word processing functions normally expected in a dedicated word processor, but because of this complexity, make it difficult to pick up and use without training.

We found that the usage and combinations of the "control key" (Ctrl) functions are fully explained in the tutorial and we found the "extended" commands, which work in conjunction with the command keys, easy to remember. However, IBM PC tailoring is not mentioned in the tutorial. Indeed, the only reference to that is provided in the "READ THIS FIRST," Installation Guide, so we had to have both the tutorial and the guide at hand until we learned the system.

The documentation is very detailed in the description of all functions and commands. It is important that it be read carefully to make sure nothing is missed, particularly references to associated features and commands. One of our staff had difficulty printing a document properly. The person requested the assistance of one of our technicians, who read the section carefully and printed the document with no problem. It turned out that the staff member had missed the line in the manual which said that unless the "advanced print" option was used, the document would print with all the "@commands" used for formatting treated as text. exactly as it had been typed! It is all too easy to miss something like this.

We were able to print one or two pages at a time from a large document and we experienced no difficulty in stopping the printer to insert new forms or letterhead. Initially, however, we could not find a way to get rid of the page numbers the system assigns automatically. We finally noticed that the null option on the "@pagefooting" command supresses the page number.

Our secretarial staff had a major complaint with the system and that was that they could not obtain a clean screen. Everytime the system was turned on, the last document they had worked on appeared on the screen. This meant they had to delete the document using the deleted command before typing anything else. This is a part of the "fail-safe" orientation of the product, and we are sure that somewhere in those 400-plus pages there is a "clear out previous document" command.

FinalWord is unquestionably more difficult to use than a personal word processor, since there is no way to give a user several dozen command and format options without requiring some skill to employ them properly. The dedicated user will quickly learn all the common features, however, and for the experienced user the structure is as good as any other product. Unfortunately, many of the features offered by FinalWord will not be used frequently in the standard office environment—perhaps only when special projects happen to come along. It is these functions and features that will cause problems for the user, and there is little that can be done to make the adjustment each time less difficult.

☐ Support

Mark of the Unicorn does not provide a toll-free number for support purposes. It does, however, have a responsive customer support department. We called in order to get clarification on the method of implementing some of the commands. Our name and number were taken and we received a call-back that same day. All of the questions we asked were answered in a competent and courteous manner.

Our problem entailed an oversight of the documentation, which seems all too common. One of the comments that was directed at us was that all of the information we needed was in the manual. The problem we experienced was that the manual was organized from a technical viewpoint rather than a functional one. This makes it much more difficult for the uninitiated to use. Our complaint received a courteous hearing, but of course we have no way of knowing if it will be acted upon.

☐ System Interface

From a software point of view, no specific interfacing with other products is mentioned; however, from a hardware perspective, multiple terminal types, printers, and other peripheral devices are supported.

We were disappointed by the lack of material addressing foreign files, since most users of IBM PCs will have used some other form of word processor and may have documents which remain in the older form. We tried to use a few and were unsuccessful.

☐ Vendor Experience

Mark of the Unicorn was incorporated in 1982 in order to produce the FinalWord product. The company also markets a communication product called PC/InterComm.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • FinalWord is available on a license for purchase only for a single computer system from Mark of the Unicorn, computer dealers, software dealers, and mail-order houses throughout the U.S.

Support • support provided by vendor; revisions to the product are available to registered owners at a cost of $25.

☐ Component Summary

Software elements consist of the following programs and files.

FW.SWP is a document swap file; CONFIG.DAT is a configuration file; FW.COM is the FinalWord program; FW.OVL is an overlay file used by FW.COM; FWF.COM is a format program; FWF.OVL is a code overlay file for CP/M-80 only; FWP.COM is the FinalWord

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Word Processing Package

print program; FWP.OVL is a code overlay file for CP/M-80 only; FWHELP.TXT is a Help file.

FinalWord:

$300 lcns

☐ Computers & Operating Systems Supported

FinalWord runs on an IBM PC or PC/XT, Compaq, Chameleon, or Hyperion computer under PC-DOS, MS-DOS, CP/M-86, or CP/M-80 operating systems.

☐ Minimum Operating Requirements

FinalWord requires 64K bytes of RAM under PC-DOS Version 1.1 or 128K-bytes of RAM under PC-DOS Version 2.0 and above, plus 2 single-sided diskette drives, monochrome display or color/graphics board and color display, and printer with appropriate interface. Two double-sided diskette drives or hard disk are preferred to single-sided drives.

☐ Features

Display Type • generally a print-image display, but imbedded format commands are also shown on the display and may alter the appearance of the print image.

Display Feature Utilization • no special utilization.

Command Structure • commands are entered via function keys, control keys, key sequences, and selection from menus; 3-page summary of IBM PC key utilization is provided.

Error Recovery • extensive error recovery supported • "Undelete" function to recover deleted text • swap file to recover documents from power failures • Un-case command to correct capitalization errors.

Block Operations • handled through the "Regions" menu which allows definition of blocks; • once a block is defined, it may be moved, copied, or deleted.

Merge/Print Functions • merge of files for multiple-file documents and/or form letters is handled through @INCLUDE advanced print function • input is also possible from the console by specifying CON: as the file to be @INCLUDEd or via the @STRINGINPUT command.

Spelling Check/Aid • none.

Multiple Window/Multiple Document Support • 11 files and the "Kill" file buffer may be active simultaneously; maximum of 2 windows may be used to view any of the buffers.

LCNS: license fee.

• END

Mark of the Unicorn, Inc PC/InterComm
Data Communications Support Program

■ PROFILE

Function • provides terminal emulation support for the attachment of a PC to a minicomputer or mainframe, including file transfer capability.

Computers/Operating Systems Supported • IBM PC or PC/XT with PC-DOS; PC-compatible support is not stated by the vendor.

Configuration • minimum 64K bytes of RAM and a single disk drive, plus an IBM Asynchronous Communication Adapter or compatible device; the monochrome display is recommended for optimum display quality.

Current Version/Version Reviewed • 2.0/1.21; version 2.0 to be released in February.

Comparable Products • Perfect Software Perfect Link, Microstuf Crosstalk XVI, Headlands Press PC-TALK III, Southeastern Software DataCapture/PC.

First Delivery • November 1983.

Number of Installations • approximately 10,000.

Optional Associated Software • none.

Price • $99 retail price.

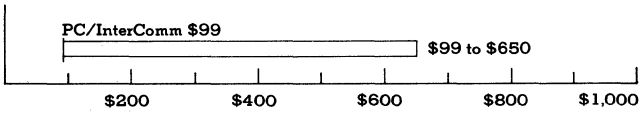
Vendor • Mark of the Unicorn, Inc; P.O. Box 423, Arlington, MA 02174 • 617-526-2760.

■ ANALYSIS

User requirements for communication support on personal computers vary considerably, and there is therefore a variation in the approach taken to provide data communication interfaces by software vendors. One clear market area is the DEC user with directly-connected or modem-connected PC devices which emulate DEC terminals. PC/InterComm is intended to support these users.

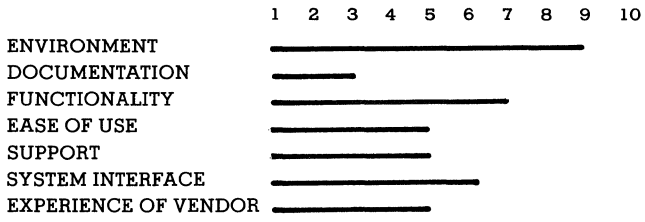
From a connection setup perspective, PC/InterComm is a no-frills product. There is no support in the package for automatic dialing and the support for command files to store parameters is not particularly user-friendly. The program makes an IBM PC into a DEC VT100, subject to the display restrictions of the PC. You can do little with the PC that a VT100 could not do alone, except for the file transfers. Feature extensions, such as a transparent monitor mode, may be extremely helpful to specialists but incomprehensible to the average user.

PURCHASE PRICE RANGE Software Price Range



MARK OF THE UNICORN PC/INTERCOMM PRICING • open bar shows the typical range of prices for **DATA COMMUNICATIONS** software used in a corporate environment • the vertical line within the bar graph indicates the price of **PC/INTERCOMM**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

Where a communication application is supported by direct connections via RS-232 cable, or by modems which cannot support automatic dialing, PC/InterComm provides a faithful reproduction of VT100 functions and a basic file exchange capability. That capability is best utilized by personnel with some understanding of data communication if any changes in parameters or setup are anticipated. Corporations who cannot provide such specialization may be advised to seek another communication support alternative.

☐ Strengths

For a product with full VT100 emulation capability, the screen menus and option selection process is not unduly complex. The communication and setup parameters are selected from nicely structured menus with English-language descriptions and prompts. A monitor mode permits the use of the product as a simple data monitor, even displaying control characters for inspection.

Display speed on PC/InterComm is excellent, even at 9600 bps. This means that the product can be used to provide VT100 emulation in environments where the speed of display is important—text editing, for example.

For personnel with some computer and communication literacy, PC/InterComm is fairly easy to use. The options are related to VT100 features, so users of the DEC terminal will have little trouble identifying the equivalent operations.

☐ Limitations

Many of the nicer features of the product seem designed more for communication specialists than communication users. The same could be said for the manual. Those who know the VT100 will find it easy to relate to. Those who do not will have some difficult times ahead.

The file receiving and saving technique utilizes a capture buffer which is emptied to disk when its capacity is reached, or manually at the appropriate point. This tech-

Mark of the Unicorn, Inc PC/InterComm
Data Communications Support Program

nique of "wait till it's full" may, according to the documentation, result in the loss of data if flow control is not implemented.

The emphasis placed in the documentation on the ability of the product to support full-screen features of a CRT such as the VT100 may lead to users attempting data capture while in this mode. CRT control characters are also captured, and the data file may be unusable for some applications.

■ HANDS-ON EVALUATION

Our technical specialist was overjoyed by the fact that the documentation associated with PC/InterComm was complete and related to the VT100 terminal. With some minimal assistance from the data center, we were able to define a setup which worked with our existing VT100 terminal interface.

The joy of our technician may not altogether represent the attitudes of other users. Since many organizations do not use VT100 terminals in their daily activities, the constant reference to VT100 functions may do little to instruct them in the use of the product.

One thing which was praised by nearly everyone on our staff was the fact that the display seemed to "keep up" with the communication link. Some terminal emulator products present long pauses at critical moments in the exchange because the data being captured must be processed to the display. PC/InterComm seems to drive the screen directly from the characters received.

We were forced to give our non-DEC operators a short course in the package in order to support their use and increase their confidence, but once that was done the product performed well in a DEC environment.

☐ User Interface

PC/InterComm emulates the DEC VT100 terminal, and in normal communication mode emulates most of the features of that terminal. Some special display attributes are NOT emulated because of the restrictions of the IBM graphics adapters and character set. Some of the VT100 control keys are likewise not exactly emulated due to the differences in the keyboards. The SETUP function of the VT100 is emulated via a set of menus rather than through the use of a single cryptic status line. The setup of PC/InterComm via these menus is considerably easier than the setup of the VT100.

Menus: Menus are available only in set-up mode. They are hierarchically structured and commands are entered by keying the number of the selection. There are two levels of menu structure, and the menu screen is visible only in set-up mode.

Control Characters: Control characters keyed are passed through to the other computer or device as data.

Function/Special Keys: The F9 function key is used to enter the set-up mode from the normal communication mode. F10 is used to exit the program and return to DOS. F1 through F4 represent the VT100 PF keys, and F5 through F8 function as cursor control. Function keys in Shift, Ctrl, or Alt-Shift mode may be defined by the user to represent up to 23 characters of text. That text will be generated in communication mode when the key is depressed. The numeric keypad may be used for cursor control (in addition to F5 through F8) or as a means of data entry.

Command Language: Not specifically provided, but function keys may be defined to represent up to 23 text characters. Shift, Ctrl, and Alt-shift modes of function keys may all be programmed in this way.

Positive Feedback: This is generally the responsibility of the host computer if in communication mode. In set-up mode, prompts and menu changes indicate the acceptance of keyed data.

Status Display: Line 25 of the display is used to display status. This includes the program name, the usage of the F9 and F10 function keys, full/half duplex indicator, the status of the VT100 keyboard LEDs, and indication of whether the numeric keypad of the PC is being used for cursor control or for numeric entry. The status of the link—Carrier Lost—will also appear if appropriate.

Help Facilities: A reminder on the use of the F9 and F10 keys is shown in the status line at all times. No other form of Help facilities is provided. No templates or reference cards are supplied with the program.

☐ Environment

If there are any communication packages with a more flexible set of configuration requirements than PC/InterComm it is difficult to imagine how they could be loaded onto a computer. An IBM PC, PC/XT, or many PC-compatibles (of type generally not specified, though Compaq is said to work) with 64K bytes of RAM and one disk drive will do it. Of course, a communication port compatible with the IBM Asynchronous Communication Adapter is required.

The product is not copy-protected, and it is possible for it to be moved to hard disk or to be made self-loading by copying it to a DOS boot disk. The program will run from any drive designated the current drive through DOS, or will look for any of its runtime files on the A: drive if they are not on the currently logged drive.

Unlike many programs, PC/InterComm will support the directory structure of DOS 2.0.

☐ Documentation

The PC/InterComm manual is written primarily to help those familiar with the functioning of the DEC VT100 terminal to use a PC as an emulator for it. There is some attempt to communicate the functions at a basic level, but things kept moving back to VT100 mode throughout.

The first chapter of the manual provides a very useful summary of the features and applications of PC/InterComm. This is helpful because the specific commands in the later chapters are sometimes vague as to application. Chapter two describes installation procedures. Since the program disk contains only one file which can be copied,

Mark of the Unicorn, Inc PC/InterComm
Data Communications Support Program

little space is needed in the manual for this section.

Chapters three through five cover the operation of the product, both in a generally tutorial way and in detail by the menu selections which are supported. Chapter three is the best for a beginner; it has quite a bit of jargon but the difficult sections can be skipped over—that is in fact what the manual recommends in several cases. We found that most of our users could deal with the instructions in chapter three.

Chapters four and five are really best left to those who understand data communication in general and the VT100 in particular. For these types of people, the material is well presented and complete. There were a few confusions in the exact workings of the "save set-up" command, however. The menu description for the command in chapter 5 does not indicate the face that it saves the communication parameters.

The appendices of the manual are a gold-mine of information for the tech. There is a good description of trouble-shooting problems with the settings of the communication parameters and the RS-232 interface cable. A glossary provided even gives the correct definition for the most misused word in the data communication vocabulary—"baud."

Organizations with some technical expertise will have little difficulty with the manual; the specialist can absorb what is needed and interpret it as required for the actual user. Those users with no communication expertise and no familiarity with the VT100 may require additional training, otherwise a protracted start-up period can be anticipated.

☐ Functionality

As a terminal emulator for the VT100 (and the earlier VT52), the PC/InterComm is a full-feature product. Some features of the VT100 are not supported due to PC display restrictions; 132-column mode is not supported and some combination display attributes will not function the same. For example, bold, underscored, reverse-video text with blink will display without the reverse video. Smooth scroll is also not supported, and alternate character ROM features are not available.

The initial setup of the PC/InterComm environment is easily handled by a professional, and the material in the manual is more than satisfactory. Our tech was delighted with the fact that the response of the emulator to the VT100 Report Current State commands is provided in detail. This attention to technical detail is useful with DEC interfacing, but may be VITAL to interfacing with other asynchronous host systems.

A disappointment in the functioning of the product is the lack of automatic dial support. We had a Hayes Smart-Modem and wanted to use the feature. It turns out that the product CAN be made to dial phone numbers, and our technical specialist was able to set it up quickly. PC/InterComm provides users the ability to define a sequence of up to 23 characters for each function key in its shifted, Ctrl-, or Alt-shifted modes. One of these key sequences can be the modem dial prefix, and another sequence can represent phone numbers in the form needed by the modem for dialing.

Our experience with the dialing prompted us to stop our training process and examine the other uses of the function key string features. As a result, we made up a set of key definitions to perform the most common operations associated with calling, logging on, requesting data, and signing off. These are compiled into a directory in card form and posted with the system.

Connection to a host system for terminal emulation (casual inquiry without data capture) for file transfer is a multi-step operation. Our proper setup was stored by the initial configuration actions of our technician, so the program loaded with proper communication parameters set. We then used our function key commands to make the connection, waiting for the sign-on message from the host system. Another function key sent the user name (which was always a department name, rather than an individual) and a third the password. These were entered as needed by the operator. When the sign-on was accepted, the operator entered the application name (a file dump program or an online accounting system) via another function key.

Inquiry activities using the product were very successful. The full emulation of the common VT100 features meant that our online software functioned with the program with no difficulties. We had not made any special attempt to use or avoid any custom VT100 features, but the program did not appear to encounter any of these not emulated (or did nothing unusual or unacceptable if it did).

File transfer was a little more complex because our file sizes are large enough to require multiple disk saves. PC/InterComm normally receives text in a capture buffer, but that buffer can be set to save to disk automatically if it becomes full. You can also specify that DEC's standard XON/XOFF flow control is to be applied to shut off the host while the data is being written. This option is REQUIRED even at 1200 bps—we lost data if we tried to run without it.

Binary file transfer to PC/InterComm is special protocols, MODEM7 or inter-PC/InterComm. Since our DEC host supported neither, we were unable to transfer any binary data. The program has no simple teletype mode where control characters are NOT recognized, so it is not possible to send any data which may contain characters used by the VT100 terminal for control purposes.

We had some success using PC/InterComm with the information services since most of them would generate no particular cursor control information. The lack of basic teletype mode caused us a problem in connecting to an IBM TSO system. The TSO installation was not configured to support any asynchronous terminals other than the IBM 3101, which PC/InterComm does not emulate.

☐ Ease of Use

It is difficult to fairly assess PC/InterComm in the area of operating ease. If a user has access to technical resources to help in system setup, particularly in the use of function keys to control dialing, log-on, etc, the package is relatively easy to use. Without that expertise, users may fall back to

Mark of the Unicorn, Inc PC/InterComm
Data Communications Support Program

making manual phone connections with modems capable of automatic dialing just because they do not fully understand the capabilities as the package.

If your modem prompts you for dial commands upon connection, prompts will display on the PC/InterComm screen and following the normal sequence of actions, will dial a call. Some users do not see this interaction, however, because other modem programs perform dialing automatically. Reference to the modem operator guide will provide the necessary information to dial manually, but the guide makes no reference at all to that possibility.

Some of the other nicer features of the product are obscured by their placement. For example, the definition and saving of function keys, as an essentially user-oriented function, might be better located on the main menu than on a menu entitled "Function key, Set up, and Answerback". Few novice users are willing to prowl through menus with unfamiliar names in a communication program.

In other areas, the VT100 orientation clouds the explanations. The status line, for example, refers to one of the displays as "the status of the four LEDs." What four LEDs? If you have a VT100, you know that. We didn't, and had to consult a VT100 manual to find out that the LEDs are program controlled and mean nothing unless someone programs them.

The package has a clean menu structure, and our users felt that with proper documentation the product would have been usable with a minimum of technical support.

☐ Support

Mark of the Unicorn changed their phone number recently, something not yet represented on the cover page of the manual. We got the right number from an intercept and called them about the automatic dialing support question. Our support contact was helpful in the confirmation of what our technician had said, but there was still an obvious VT100 orientation.

We related our problems with the documentation, and the contact said that another manual was being prepared in conjunction with version 2.0, to be released shortly. He admitted that the material has not significantly changed.

Other calls on minor issues such as why control characters were being captured (we were using the wrong program on the VAX for file transfer) were all answered promptly and accurately.

☐ System Interface

The VT100 and the VT52 are probably among the most popular terminal types, and the emulator will function generally as a teletype emulator for simple connections, but there are some functionality problems in the interface area.

Lack of direct support for a "protocol-less mode" such as a TTY emulator mode means that the file transfer of binary data from a host system to the emulator is not possible without writing a program to emulate the MODEM7 protocol on the host. We had a program which output data in binary form to the port, but the PC/InterComm program could not receive from it.

A second problem is the fact that the product does not support the IBM 3101 terminal. While it is true that to do so would make the product more complex (and expensive), users with both IBM and DEC connection requirements may find that lack of 3101 support may force custom work on the host.

☐ Vendor Experience

Mark of the Unicorn was established in 1980. The firm has several microcomputer software products, including Final Word, a word processor. PC/InterComm is a recent addition to their line.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • PC/InterComm is available from Mark of the Unicorn, Inc on a purchase license basis only • distribution is through personal computer dealers, software dealers, and mail order firms throughout the U.S.

Support • telephone support provided by the vendor.

☐ Component Summary

The sole software element is IC—the PC/InterComm program. Once loaded, the resident diskette may be removed.

PC/InterComm Program:

$99 lcns

☐ Computers & Operating Systems Supported

PC/InterComm runs on the IBM PC or PC/XT with DC-DOS.

☐ Minimum Operating Requirements

PC/InterComm requires a minimum memory of 64K bytes. Also required are a simple disk drive and an IBM Asynchronous Communications Adapter or compatible device. A monochrome display is recommended for optimum display capability

☐ Features

Type of Product • terminal emulator, emulating the DEC VT52 and VT100 terminals.

Target Host Computers • DEC PDP-11 or VAX systems; other computers with asynchronous communication support may be able to interface with the product, but some host interface support effort may be required.

Protocol • asynchronous, ASCII character set.

Data Rates Supported • to 9600 bps; operation at 19.2K bps is selectable but not guaranteed.

Format Conversion Features • none.

Automatic Setup Features • multiple setups, including communication parameters and function key settings, may be saved to disk and loaded on command; function keys may be associated with strings of up to 23 characters.

• END

LCNS: license fee.

Metasoft Corp Benchmark
Word Processing Package

■ PROFILE

Function • word processing, report production, document development.

Computers/Operating Systems Supported • Apple IIe under CP/M, DEC Rainbow under CP/M-86 and MS-DOS, IBM PC and PC/XT under PC-DOS, Northstar Advantage, Sony, TeleVideo, TI Professional Computer, Victor 9000, other personal computers running MS-DOS and CP/M-86, and most 8-bit CP/M systems.

Configuration • minimum memory requirement under CP/M is 64K bytes; under CP/M-86, PC-DOS and MS-DOS, 128K bytes is required; requires at least one single- or double-sided diskette drive; supports a wide variety of printers; will support a hard disk drive if available.

Current Version/Version Reviewed • Version 3.0M/Version 3.0M for the IBM Personal Computer.

First Delivery • Version 3.0 was first delivered in February 1982, based on earlier versions of the product.

Number of Installations • between 75,000 and 100,000.

Comparable Products • MicroPro's Wordstar, Microsoft's Word, Perfect Software's Perfect Writer.

Optional Associated Software • Benchmark Mail List, Benchmark Spelling Checker.

Price • $350 retail price.

Vendor • Metasoft Corporation; 6509 West Frye Road, Suite 12, Chandler, AZ 85224 • 602-961-0003.

Canada • Distributors: Citation Software, 1901 Logan Avenue, Winnapeg, MAN R2R 0H6; 204-632-0559 • Northern Shied, 255 Newton Drive, Willowdale, ONT M2M 2P5; 416-225-8760.

■ ANALYSIS

Benchmark is a visually-oriented, menu-driven word processor designed for use in general document, memo, and form letter production. It provides a wide variety of functionality that makes it suitable for both simple and complex assignments. It can be easily tailored to suit the needs of the user, making it a useful tool for novices and sophisticated users alike.

Benchmark builds its own directory and maintains all of its files in a single DOS file called a storage unit. Multiple storage units may be defined in order to logically group files. The user specifies the size and drive to be associated with each storage unit desired. This provides a convenient way of organizing large numbers of files on a hard disk, using either DOS 1.1 or DOS 2.0; the software treats storage units as one-level subdirectories. It does not understand the tree-structured directory scheme of DOS 2.0, however; all references to the hard disk are routed to the same default subdirectory.

The package is distinctly oriented for the corporate user. It contains facilities for the production of form letters and other fill-in-the-blank forms. Methods of creating whole documents from commonly-occurring paragraphs are supported. It can handle very large documents without additional memory requirements, and supports the collection of many documents into a single printing session. Its high price for its product category reflect these additional capabilities, and should remove it from consideration by the user with a casual need for word processing capabilities.

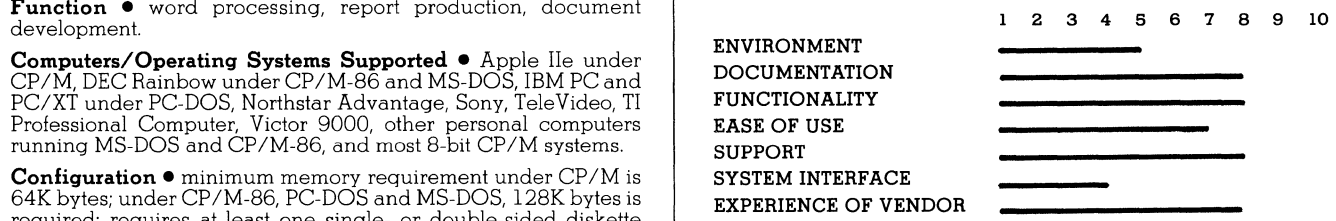
☐ Strengths

The menus used to lead you through Benchmark are simple, clean, and easy to understand. One easy way to test the clarity and completeness of any menu-driven product is to see how far you can get before you absolutely have to look in the manual.

The biggest problem with menu-driven systems that are excellent for novices is that one does not remain a novice for very long. The menus rapidly become a boring process to have to wade through. Benchmark addresses this with its ability to define frequently needed key sequences, enter them into the library and assign them to a particular letter key. These key-phrases can then be recalled with two keystrokes to rapidly perform common functions, such as changing the print style, without having to go through the normal menu selection sequences. This allows you to customize your system to fit your particular need, creating sequences to your specifications, and assigning them to places that make sense to you.

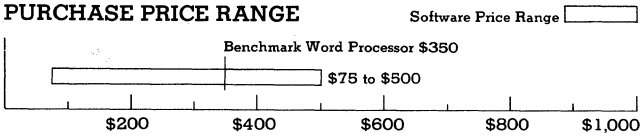
One office function for which word processors are particularly suited is the creation and usage of form letters, or form

PRODUCT QUALITY RATINGS*



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

PURCHASE PRICE RANGE



METASOFT CORP. BENCHMARK PRICING • open bar shows the typical range of prices for **WORD PROCESSING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **BENCHMARK**, the evaluated product, relative to the price range of similar products.

Metasoft Corp Benchmark
Word Processing Package

documents, where a few well placed blanks can be rapidly filled in by the user, producing a tailored, original-looking document on the printer. The obvious extension of this capability is also supported; the automated handling of mail lists, where a whole collection of information is presented to the word processor at once, for the production of many such form letters in one pass.

Benchmark handles these needs with its document MERGE facility. Any type of fill-in-the-blank document can be created, from address labels and form letters, to generic wills. The user identifies those portions that are to be filled in later by surrounding them with square brackets, such as [name]. This form may then be MERGED with data from a benchmark Mail List file, or with data entered from the keyboard. When the keyboard is used, it rapidly leads you through the document, prompting for each piece of information needed, and replaces the original bracketed phrase with the typed data. The resultant file can either be printed, saved to a separate disk file, or both.

A further extension of the customized document concept that is supported by Benchmark WP is the creation of large documents with many pre-defined paragraphs, such as contracts and other legal documents. You may create a document that contains all of the commonly-occurring portions of a contract or proposal, giving each paragraph a distinct, easily remembered name. You then INDEX the document, a process that causes Benchmark WP to remember all of the paragraph or section names and their locations. The next time that you need to write a contract, you start by telling Benchmark WP that you want the standard definitions section, a penalty clause for late delivery, and two disclaimers. You then need only type the paragraphs that are unique to this contract, and Benchmark WP gathers all of the other information into your new document.

☐ Limitations

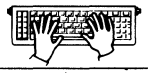
WP was not originally written for the IBM PC; it was designed to support a wide variety of terminals, many of which operate differently from the PC. The product has the tendency to repaint the screen more times than is necessary on the IBM PC and other memory-mapped terminals. Similarly, in some modes the cursor jumps all over the screen in a very distracting manner, updating such things as the column counter with every keystroke. On the IBM PC, this could easily be done without changing the actual cursor location. On the bright side, Benchmark doesn't produce the "snow" on a graphics monitor that is so common with other products that write indiscriminately to the display memory without regard for the display's timing constraints.

Another phenomenon that may be related to its design history is the mode used to Insert text. In most word processors, there are two common modes of editing text. In Insert mode, whenever you type a character the system moves every charater from the cursor onward to the right one character in order to make room for the new character typed. In Overstrike mode, each new character typed over top of existing text replaces the existing text. Both modes have their advantages. And usually both modes still allow full-screen editing functions such as cursor movement with the arrow keys, allowing for the rapid traversal and correction of the text. While in Overstrike mode, Benchmark is a true full-screen editor. But in Insert mode, you lose all full-screen editing features. The only editing key that is available in Insert mode is a backspace that erases the previous character, reminiscent of the old Teletype days. This is most annoying at original text entry time, where one is forced to use Insert mode. It is also annoying when the program automatically switches you from Overstrike mode back into Insert mode when adding text to the end of a document. These characteristics should put the product at a slight disadvantage over word processors written specifically for the PC compatible market.

Even though the system supports the handling of large documents, operations involving large movements through the text can be painfully slow, even with Jump command and a hard disk. Use of the ability to split documents into many smaller sections and join them together again at print time comes highly recommended.

Benchmark does not contain a spooled print facility, so that the user is prevented from further editing while the printer is being used.

■ HANDS-ON EVALUATION



Benchmark word processor is easily installed on a hard disk, and can be copied to floppy disks for backup purposes, or for creating floppies that have been customized for different applications. The installation procedures are accessed from the same program dispatcher that must be used to execute the word processor or the mail list handler. The only real initial concern during installation is the selection of the appropriate printer driver for the user's system.

The user may begin creating small documents immediately, because the software comes with a default storage unit defined on the program disk. It is recommended, however, that the user create the actual storage units to be used in the real environment. Storage units are specified to the program as always appearing on a certain drive. Though this may be overridden if necessary, it is convenient to not have to specify the drive every time. Storage units are limited to 500K bytes. The only confusing part of the storage unit creation came when the software supplied a default storage unit size of 510K bytes for a storage unit on a 320K-byte floppy disk. The number was changed to 100K, and the storage unit was created with no problems.

The first surprise that will probably be encountered during actual usage of Benchmark is after completion of the first document. The user is allowed to specify a descriptive, 30-character name for each document. But upon asking to view a newly created document, the user is prompted for the document number. The remainder of the prompt offers to display a list of your files for you if you leave the fields blank and hit Execute. Upon doing so you are presented with a nicely formatted list of the files, complete with their descriptive names, and the system-assigned document numbers—a two-digit number followed by a revision letter. This display should be presented by default. The user cannot be expected to know or remember such a cryptic file designation.

Metasoft Corp Benchmark
Word Processing Package

☐ User Interface

The Benchmark word processor interface consists of a combination of simple menus used for handling most function selection, and a simple command mode used while editing a document for performing specific tasks, or calling up other menus.

Menus: The menus provided are clear and easy to understand. Good use is made on color terminals to separate the menu text from the user modifiable fields. Menus are used to lead the user into the function desired, such as document viewing, editing, or printing. Once in editing mode, menus may be called up via command keys for the selection of specific options such as print style.

Control Characters: Control characters are not used as commands in the program, but may be used by specific terminals as cursor-positioning keys.

Function/Special Keys: Commonly used functions are assigned to the function keypad on the IBM system, and a function key template is provided.The cursor control keypad is used for movement of the cursor within a document. Specific key sequences may be created by the user, stored in the key phrase library, and recalled with a two-stroke sequence by hitting the Cancel key, and the letter key to which the phrase was assigned.

Command Language: No command language per se exists in Benchmark. Modes are used where it is necessary to distinguish one letter command from text; while editing a document, if the display indicates Control Mode, then single character commands may be given to enter various other modes, such as Insert or Overstrike. The Cancel key is then used to return to Control Mode.

Positive Feedback: Benchmark keeps the user informed as to what operations are occurring. In instances where significant disk I/O is occurring, a System Working message appears in the center of the screen. Most feedback is in the way of new menus appearing, or an indication of a mode change in the status display.

Status Display: While editing, the top line is used as a status display, and contains the current mode (CONTROL, INSERT, OVERSTRIKE, etc.), the line, column number, and document designation. It is constantly updated, leading to a jumpy cursor which can cause some distraction.

Help Facilities: Help information is only provided while actually in the process of editing a document. Since the movement between the various editing modes is a non-menu driven operation, a several page summary of the command letters is available if called for. A reference card is also provided.

☐ Environment

Benchmark word processor is supported on a wide variety of personal computers. Its memory requirements of 128K bytes on an MS-DOS based system, while larger than the typical entry level computer system, are commensurate with a product of its capabilities and intended marketplace. It can be used in single-sided and double-sided floppy systems, and also integrates well into a hard disk environment. The only drawback on hard disk systems is the lack of support for the tree-structured directories of DOS 2.0.

☐ Documentation

The documentation provided includes a good user manual, written in tutorial fashion. The manual is organized by user functionality, in increasing order of complexity. It contains many examples, with complete screen image pictures and step-by-step instructions on what to do next and why. The manual also contains an index in addition to a good table of contents. Also provided are a function-key template, fill-in-the-blank forms for recording your own key assignments for many of the common operations such as print controls, and a reference card. A summary page of how the major function keys mentioned in the manual map onto the IBM PC keyboard is provided. Since the product is available for many systems, generic names for the major functions, such as Execute and Cancel, are used throughout the documentation. One needs a score card to find out that Execute is F10, and Cancel is the Escape key. This makes the function key template a real necessity. A drawback of the template is that its light, cardboard construction makes it easily dislodged from the keyboard.

☐ Functionality

The first requirement of a word processor is that it contains all of the features of a good text editor. The Benchmark Word Processor (WP) contains a full-screen editor with cursor control, overtyping, automatic word-wrap at end of line, and text insertion abilities. It provides the ability to delete text by character, word, sentence or paragraph, and provides for block text manipulation, either by line or by column.

The provision of complex text formatting capabilities is what separates a word processor from a simple text editor. Benchmark WP provides control over printing characteristics such as bold, underline, shadow, superscripts, subscripts, and overstriking. It contains overall document formatting and printing funtions, including headers and footers, revision marking, widow/orphan control (the ability to prevent the first or last line of a paragraph from appearing on a separate page from the rest of the paragraph), hard and soft pagination and ghost hyphenation; it also provides for the printing of the screen, page ranges, complete documents and multiple documents with number-of-copies control.

Benchmark WP also provides features needed by the sophisticated user in a complex environment. These include large-document assembly and merging, fill-in-the-blank forms preparation and usage, calculator capabilities for use in the preparation of financial documents, and key-phrase assignments for commonly used functions.

There are a few features commonly available in word processors and text editors that are missing from Benchmark WP. Among the missing ones is the ability to display and edit more than one document at a time (multi-windowing). This is a feature that is not often truly needed, but very valuable to have when it is. A second feature missing is the complete "What you see is what you get" concept. Benchmark WP does not attempt to emulate print controls such as bold and underlining on the terminal itself. It does allow you to hide the print controls, so that the screen accurately reflects the alignment of the text as it will appear on the printed page. Even with the print controls displayed, you

Metasoft Corp Benchmark
Word Processing Package

have no feel for exactly what feature is being called for without closer investigation.

A feature that some will miss is the ability to "Undo" editing changes. Benchmark will actually create a new document, increment the revision letter of the document number, and save the original document, unless you explicity request otherwise. This provides an excellent trace of a document's history, and allows you to "Undo" the last entire editing session (or even several prior sessions).

☐ Ease of Use

The simple menu system makes most operations simple and easy to invoke. Once one enters editing mode, things become a little more confusing. The anomalies of the INSERT mode are likely to briefly confuse anyone who has had experience with any other IBM PC-specific editing product.

The keystroke-phrase mechanism is a valuable short-cut to the menu method of specifying options desired for the experienced user. The program also contains extensive and flexible printing capabilities, in addition to print style selection of special features such as bold, underline, superscripts and subscripts. Margin, tab and indentation rulers are displayed in the text where they take effect.

☐ Support

Support for Benchmark is provided at both the local and vendor level. Training classes are provided for dealers of the product, and special training arrangements can be made. A separate customer support group is available on at a toll-free 800 number for special problem reports, questions and discussion.

Benchmark/Metasoft has a liberal update policy that includes free updates for serious problem corrections, and enhancement updates for such things as new printer support capabilities. The fee for this update policy is $25.

☐ System Interface

No documentation on the internal file structure used by Benchmark Word Processor (WP) is provided, and no method for copying anything but DOS files is present. Benchmark WP does copy to and from DOS files efficiently, allowing you to specify a complete list of files to copy all at once. In copying to DOS from a given storage unit, it displays the directory of files, and you need simply mark the one you wish to copy.

☐ Vendor Experience

Metasoft has been in existence approximately 4 years, and has installed in excess of 75,000 copies of Benchmark. The most recent major version of the product was first delivered in February 1982. This was based on a prior version which was on the market for considerably longer.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Benchmark Word Processor is available for purchase only, from Metasoft Corporation, through computer dealers, software dealers, and mail-order firms; quantity discounts are available for the volume corporate purchaser.

LCNS: license fee.

Support • a support group is available at a toll-free 800 number; updates are made available to purchasers at reduced rates of $25.

☐ Component Summary

Benchmark Word Processor (WP) is provided on one single-sided diskette, containing 4 programs: RUN.COM, METASOFT.WP, METASOFT.DRV, and METASOFT.OP1. RUN.COM is the main menu driver, used to execute any BENCHMARK function; METASOFT.WP is the word processing program, used during program execution. METASOFT DRV is a wide collection of printer and screen driver utilities, used to adapt the BENCHMARK system to your computer configuration. Accessed whenever you change the driver(s) selected. METASOFT.OP1 is the initial storage unit, used for document storage and retrieval. Can be reconfigured at installation time as to size and drive on which it resides. Additional storage units may also be defined.

Benchmark (WP):

$350 lcns

☐ Computers & Operating Systems Supported

Benchmark runs on a wide variety of personal computers, including most 8-bit CP/M systems, Apple IIe under CP/M, IBM PC, PC/XT and PC-compatibles running MS-DOS, DEC Rainbow and Victor 9000 under CP/M-86, MS-DOS, and others.

☐ Minimum Operating Requirements

For CP/M systems, the minimum memory requirements are 64K bytes. On MS-DOS and CP/M-86 systems, 128K bytes of memory are required. The program will operate on single and double-sided disk drives and supports a wide variety of printers. A hard disk is supported if available.

☐ Features

Benchmark WP is a word processing package that contains many special features designed to support the corporate user in a business environment. Some of the capabilities offered are:

Full-Screen Editing • all common document editing capabilities are provided, including full-screen cursor movement, global search and replace functions, and block text copying and movement.

Document Formatting Options • the program supports heading and footing creation, extensive print style controls, automatic word wrap, and flexible printing capabilities.

Key Phrase Assignment • the user may create phrases of frequently needed words or commands, and assign them to specific keys. Invoking a key phrase is then reduced to a two-keystroke operation.

Document Merge Facilities • the ability to merge a document with either keyboard input or data from another file allows for simple creation of form letters, mailing lists, and generic documents.

Support for Large Documents • large documents may be edited without requiring large memory configurations; documents may also be separated into many files and combined at print time to produce a complete document.

Built-in Calculator • eases the production of financial documents by providing simple calculator operations on columns of numeric text or on single numeric entries.

☐ Other Facilities

Optional, extra cost packages available for use with Benchmark Word Processor include Benchmark Mail List for maintenance and use of mailing lists, and Benchmark Spelling Checker, for proofreading documents for misspelled words.

Benchmark Mail List:

$150 lcns

Benchmark Spelling Checker:

75

• END

Metasoft Corp Benchmark Mail List
List Management Package

■ PROFILE

Function • Benchmark Mail List is a list management system for the creation, maintenance, and usage of name and address files.

Computers/Operating Systems Supported • Apple IIe under CP/M, DEC Rainbow under CP/M-85 and MS-DOS, IBM PC and PC/XT under PC-DOS, Northstar Advantage, SONY, TeleVideo, TI Professional Computer, Victor 9000, other personal computers running MS-DOS and CP/M-86, and most 8-bit CP/M systems.

Configuration • minimum memory requirement under CP/M is 64K bytes; under CP/M-86, PC-DOS, and MS-DOS, 128K bytes is required; requires at least one single- or double-sided disk drive; supports a wide variety of printers; will support a hard disk drive if available.

Current Version/Version Reviewed • a totally integrated office package called Benchmark Version 4.0 is now available/Version 1.25 was reviewed for the IBM Personal Computer.

First Delivery • late 1980.

Number of Installations • approximately 15,000.

Comparable Products • Mail Route by Affordable Software; Mailroom II by The Software Works; MailStar-I by Sapana Micro Software.

Optional Associated Software • Benchmark Word Processor, Benchmark Spelling Checker.

Price • $250 retail price.

Vendor • Metasoft Corporation; 6509 West Frye Road, Suite 12, Chandler, AZ 85224 • 602-961-0003.

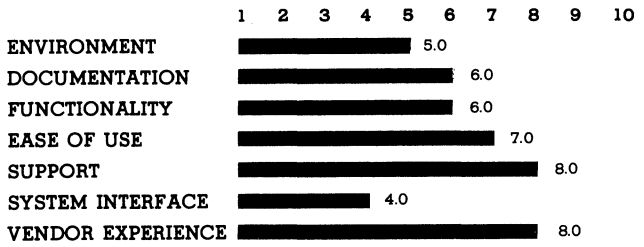
Canada • Benchmark of Canada; 2610 Departure Bay Road, Nanaimo, BC V9F 3W5 • 604-758-7853.

■ ANALYSIS

Benchmark Mail List is a visually oriented, menu-driven list management system designed for the creation, maintenance, and usage of name and address files. It operates under the total Benchmark environment, and can be used in conjunction with the Benchmark Word Processor and other Benchmark office products. It provides flexible facilities for the merging of lists, the selection of particular records from a list, and for the printing of mailing labels. Records are indexed by specified fields at list creation time, eliminating the need for additional sorting before printing.

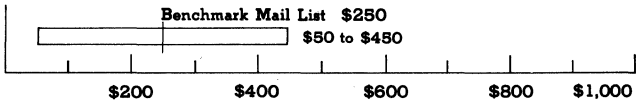
Current users of other Benchmark products, such as the Benchmark Word Processor, may wish to consider the addition of Mail List. It is designed to work well with the other Benchmark products. Unfortunately, like other early Metasoft products it is priced right at the top of the product price range. The $250 price tag makes it compare unfavorably with other mail list managers that sell for under $100. Metasoft has attempted to address this problem with its Version 4.0 introduction, where it has bundled several of its office software products together under a new pricing strategy. Those interested in the concept of the Benchmark line will do well to investigate the new product offering.

PRODUCT QUALITY RATINGS*



*For an explanation of rating criteria, please refer to the Software Evaluations (805) report. The Overall Package Average is 6.3.

PURCHASE PRICE RANGE Software Price Range



BENCHMARK CORPORATION MAIL LIST PRICING • open bar shows the typical range of prices for **WORD PROCESSOR UTILITIES** software used in a corporate environment • the vertical line within the bar graph indicates the price of **Mail List**, the evaluated product, relative to the price range of similar products.

☐ Strengths

Benchmark Mail List was designed to work well with the other Benchmark product offerings, particularly the Benchmark Word Processor. Mail lists created via the Mail List program may be used by the Word Processor in the creation of form letters and the addressing of envelopes. Though they are separate programs, the main Benchmark menu driver provides a simple access path for switching between the two.

The use of indexed files for the maintenance of the mail lists provides a greater degree of flexibility than other, more simplified approaches. It allows easier access to a particular portion of a given list, and more efficient merging and selection of records from a list meeting specific criteria.

☐ Limitations

In spite of the use of indexed fields in the maintenance of the mail lists, the program is still just a mail list manager and not a database system. A few pages at the end of the manual describe a crude method of encoding user-defined information into the last 2 lines of the screen, providing a very primitive and difficult to use database facility that is probably not worth the effort. This alone is not a negative aspect of the product, but when combined with the high price of the program, must be taken into

Metasoft Corp Benchmark Mail List
List Management Package

consideration. For just a little more money, a real database system could be purchased and used for handling mail lists and much more. With the new Benchmark Version 4.0, several of the office products have been bundled together, hopefully producing a much better price/performance ratio for the package as a whole.

■ HANDS-ON EVALUATION

Benchmark Mail List is easily installed on a hard disk, and can be copied to floppy disks for backup purposes, or for creating floppies that have been customized for different applications. The installation procedures are accessed from the same program dispatcher that must be used to execute the Mail List program. The only real initial concern during installation is the selection of the appropriate printer driver for the user's system.

The user may begin creating small documents immediately, because the program comes with a default storage unit defined on the program disk. It is recommended, however, that the user create the actual storage units to be used in the real environment. Storage units are specified to the program as always appearing on a specified drive, and though this may be overridden if necessary, it is convenient to not have to specify the drive every time. Storage units are limited to 500K bytes. The only confusing part of the storage unit creation came when it proposed a default storage unit size of 510K bytes for a storage unit on a 320K-byte floppy disk. The number was changed to 100K, and the storage unit was created with no problems.

The first surprise encountered with Benchmark Mail List came after completion of the first list. You are allowed to specify a descriptive, 30-character name for each document. But upon asking to view a newly created document, you are prompted for the document number. The remainder of the prompt offers to display a list of your files if you leave the fields blank and hit EXECUTE. Upon doing so you are presented with a nicely formatted list of the files, complete with their descriptive names, and the system-assigned document numbers—a 2-digit number followed by a revision letter. This display should be presented by default; the user cannot be expected to know or remember such a cryptic file designation.

All other operations of Mail List performed as expected. An anomaly occurred when we mistakenly entered the key numbering desired when creating a new list into the menu where "D's" were supposed to be entered to eliminate undesired fields. No errors were reported, but when it came time to enter the first data record, the program displayed the first field, and refused to continue. After rebooting and creating the file correctly, no other errors were encountered.

□ User Interface

The Benchmark Mail List user interface consists of simple menus used for handling all function selection and data entry. The menus contain all information necessary to operate the program, including function key definitions. You may easily move from one function to another within the program.

Menus: The menus provided are clear and easy to understand. Good use is made on color terminals to separate the menu text from the user-modifiable fields. Menus are used for all operations associated with the operation of Mail List, including data entry.

Control characters: Control characters are not used as commands in the program, but may be used by specific terminals as cursor-positioning keys.

Function/special keys: Commonly used functions are assigned to the function keypad on the IBM system, with their operation defined on each menu. The cursor control keypad is used for movement of the cursor within a document.

Command language: No command language per se exists in Benchmark Mail List.

Positive feedback: Benchmark Mail List keeps the user informed as to what operations are occurring. In circumstances where significant disk I/O is occurring, a SYSTEM WORKING message appears in the center of the screen. Most feedback is in the way of new menus appearing, with the mode change clearly indicated at the top of each menu.

Status display: The last 2 lines of the CREATE mode display show the number of records currently contained by the file, and the key being used to access the file. Drive and file information is displayed in the top corners of the screen.

Help facilities: No Help facilities are provided per se; all of the information necessary to operate the program is displayed on each menu.

□ Environment

Benchmark Mail List is supported on a wide variety of personal computers. Its memory requirements of 128K bytes on an MS-DOS based system, while larger than the typical entry-level computer system, are commensurate with a product of its capabilities and intended marketplace. It can be used with single-sided and double-sided floppy systems, and also integrates well into a hard disk environment. The only drawback on hard disk systems is the lack of support for the tree-structured directories of DOS 2.0.

□ Documentation

The documentation provided includes an 8.5x11 manual, written in tutorial fashion. The manual is organized by user functionality, in increasing order of complexity. It contains many examples, with complete screen image pictures and step-by-step instructions on what to do next and why. All of the documentation is geared for the novice computer user.

The documentation for the version that was reviewed was unfortunately not current with the product. The product was version 1.25, while the documentation was that of version 1.0. Numerous minor menu changes were noted during usage, and the address on the cover page for Metasoft is not current. In addition, since the product is available for many systems, generic names for the major functions, such as EXECUTE and CANCEL, are used throughout the documentation. You must read all of the

Metasoft Corp Benchmark Mail List
List Management Package

documentation to find out that EXECUTE is F10 and CANCEL is the ESCAPE key on the IBM Personal Computer.

☐ Functionality

Benchmark Mail List provides a complete menu-driven system for the creation and maintenance of name and address lists. The primary selection menu offers the functions CREATE, UPDATE, VIEW, PRINT, MERGE, and DISK maintenance.

The CREATE menu defines 14 separate fields that are associated with a given list entry. When a particular list is initially created, the first thing you must do is define which of the fields displayed will be used in accessing the list later. Portions of each field may be specified to be used as the "key" for later ordered access of the file. Mail List automatically keeps the file in sorted order as records are entered through the use of the key, eliminating the need for later sorting steps prior to using the list. Typical use of this feature would involve using the zip code and some portion of the name fields as the key, allowing the production of mailing lists sorted by zip code for postal discounts.

After proper definition of the file, records may be entered, viewed, and modified, if desired. VIEW mode allows you to rapidly scan a list of entries and select those for change or deletion. UPDATE allows you to modify an entry previously entered, and permanently records the changes in the mail list. Movement back and forth among all of the various functions is easily accomplished. Information on date of entry is retained for every data record.

New lists may be created from existing lists for special purposes. One list may be copied to another with a different key definition in order to arrange the entries in a different order. The MERGE-SELECT function provides control over which entries of one list become entries in the new list. Selection conditions may be specified based on any of the record fields, or based on the date of the record itself. This allows the creation of lists containing only a certain sequence of zip codes, or only for names from a particular portion of the alphabet. The MERGE capability allows 2 files to be combined in the same step that the selection process is taking place.

It is not necessary to perform the MERGE-SELECT function on a list simply to create a temporary list from which mailing labels are to be printed. The PRINT function also provides access to the selection mechanism, allowing you to directly print only a portion of a particular mailing list. The PRINT function also allows for both horizontal and vertical pitch selection. In addition to the selection of exactly which fields should appear, you are also allowed to specify additional fixed text that is to be printed on every label.

To facilitate use by other programs, the primary Benchmark driver program provides the capability of copying Benchmark files to regular DOS files, and vice versa.

☐ Ease of Use

The menu system used makes all operations simple and easy to invoke. With the exception of the EXECUTE and CANCEL keys, all function key usage is clearly defined on each menu. Once you learn that EXECUTE is F10 and CANCEL is the ESCAPE key, the program is simple to operate.

The only concept with which the novice user may have difficulty is that of the RECORD KEY, which has nothing to do with the keyboard. The manual devotes an entire page to the "Understanding the Key Concept." Once the novice understands this use of KEY to mean the particular piece of information by which you keep track of the entire record, the usage of the rest of the system will fall into place.

☐ Support

Support for Benchmark is provided at both the local and vendor level. Training classes are provided for dealers of the product, and special training arrangements can be made. A separate customer support group is available at a toll-free number for special problem reports, questions, and discussion. The support number is 800-621-1908.

Benchmark/Metasoft has a liberal update policy that includes free updates for serious problem corrections and enhancement updates for such things as new printer support capabilities for a fee of $25.

☐ System Interface

No documentation on the internal file structure used by Benchmark Mail List is provided, and no method for copying anything but DOS files is present. Mail List does copy to and from DOS files efficiently, allowing you to specify a complete list of files to copy all at once. In copying to DOS from a given storage unit, it displays the directory of files, and you simply need to mark the one you wish to copy.

☐ Vendor Experience

Metasoft has been in existence approximately 4 years, and has installed in excess of 75,000 copies of its Benchmark Word Processor. The vendor has just recently announced a completely new integrated version of its entire office software product line.

■ DETAILED PRODUCT DESCRIPTION

☐ Terms & Support

Terms • Benchmark Mail List is available for purchase only, from Metasoft Corporation, through computer dealers, software dealers, and mail-order firms; quantity discounts are available for the volume corporate purchaser.

Support • support is provided at both the local and vendor level; a separate support group is available at the toll-free number 800-821-1908; a liberal update policy is provided, including the availability of enhancements to registered purchasers at reduced rates.

☐ Component Summary

Benchmark Mail List is provided on one single-sided diskette, containing: RUN.COM—the main menu driver, used to execute any BENCHMARK function; METASOFT.ML—the mail list program, used during program execution; METASOFT.DRV—a wide collection of printer and screen driver utilities, used to adapt the BENCHMARK system to your computer configuration; it is accessed whenever you change the driver(s) selected; METASOFT.OP1—the initial storage unit, used for document

Metasoft Corp Benchmark Mail List
List Management Package

storage and retrieval; it can be reconfigured at installation time as to size and drive on which it resides; additional storage units may also be defined:

$250 lcns

☐ Computers & Operating Systems Supported

Benchmark Mail List runs on a wide variety of personal computers, including most 8-bit CP/M systems, Apple IIe under CP/M, IBM PC, PC/XT and PC compatibles running MS-DOS, DEC Rainbow and Victor 9000 under CP/M-86 and MS-DOS, and others.

☐ Minimum Operating Requirements

For CP/M systems, the minimum memory requirements are 64K bytes. On MS-DOS and CP/M-86 systems, 128K bytes of memory are required. The program will operate on single- and double-sided disk drives, and supports a wide variety of printers available. A hard disk is supported if available.

☐ Features

Benchmark Mail List is a list management package for the creation, maintenance, and usage of mailing lists in a business environment. Some of the capabilities offered are:

LCNS: license fee.

List Creation & Management • allows creation of lists containing 8 lines of name and address information, plus 2 additional lines of user-defined information; allows viewing, updating and deletion of individual records within a list.

Ordered Access to Lists • user-selectable index fields provide ordered access in any way desired; records are automatically indexed upon entry, eliminating the need for an individual sort operation prior to accessing the list.

List Merging & Selection • lists may be selectively created or combined by the specification of the desired selection criteria.

Mailing Label Printing • vertical and horizontal pitch selection provided; selective record printing may be performed by specification of the desired selection criteria; additional text to be printed on all labels may be specified.

Primitive Data Management Facilities • last 2 lines of input may be defined as index keys and used for encoding of user-defined information.

☐ Other Facilities

Optional, extra-cost packages available for use with Benchmark Mail List include Benchmark Word Processor, for creation and maintenance of documents, and Benchmark Spelling Checker, for proofreading documents for misspelled words.

• END

Metasoft Corp BENCHMARK Spelling Checker
Spelling Correction Package

■ PROFILE

Function • spelling checker for Benchmark Word Processor documents.

Computers/Operating Systems Supported • IBM Personal Computer or PC/XT using PC-DOS 1.0, 1.1, or 2.0; other 8088-/8086-based processors running MS-DOS; and most CP/M-based systems.

Configuration • minimum memory requirement under CP/M is 64K bytes; under CP/M-86, PC-DOS, and MS-DOS, 128K bytes is required; requires at least one single- or double-sided disk drive; supports a wide variety of printers available; will support a hard disk drive if available.

Current Version/Version Reviewed • Version 2.0/Version 1.0D for the IBM PC.

First Delivery • July 1983.

Number of Installations • 3,000.

Comparable Products • Hayden Software The Speller; Emerging Technology Spellix.

Optional Associated Software • Benchmark Word Processor.

Price • $175 retail price.

Vendor • Metasoft Corporation; 6509 West Frye Road, Suite 12, Chandler, AZ 85224 • 602-961-0003.

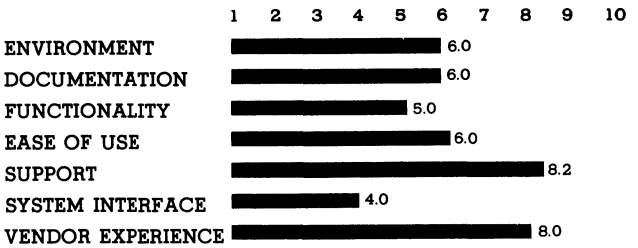
Canada • Distributors: Citation Software; 1901 Logan Avenue, Winnipeg, MB R2R 0H6; 204-632-0559 • Northern Shield; 255 Newton Drive, Willowdale, ON M2M 2P5; 416-225-5835.

■ ANALYSIS

The Benchmark Spelling Checker is a member of the Benchmark product line that is integrated with the Benchmark Word Processor. It allows the checking of word processor documents for misspellings using a 27,000-word system dictionary. It also allows specialized dictionaries to be created and used for handling different classes of documents.

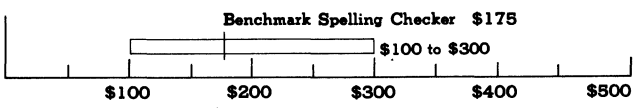
Overall, the Spelling Checker does not try as hard as similar programs do to make life easy for the user. It is only useful in conjunction with the Benchmark Word Processor (WP), and cannot be used with any other system. Even for Benchmark WP users, it does nothing to help correct a document. For the limited amount of help that a user actually receives, it is outrageously priced. Due to Benchmark's use of non-DOS files for maintaining documents, there is little recourse for their word processor users. Their files cannot be spell-checked by any other program. Fortunately, Benchmark has recently announced an entire repackaging of their product line, with many of the office products such as the Word Processor, Spelling Checker, and Mail List Manager bundled into one package. This will at least provide Benchmark users with a minimum of the necessary functions. However, if the Spelling Checker is the same, a minimum is all they will receive.

PRODUCT QUALITY RATINGS*



*For an explanation of rating criteria, please refer to the Word Processing Features section in the Software Evaluations (805) report. The Overall Package Average is 6.2.

PURCHASE PRICE RANGE Software Price Range



METASOFT BENCHMARK SPELLING CHECKER PRICING • open bar shows the typical range of prices for **WORD PROCESSING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **Benchmark Spelling Checker**, the evaluated product, relative to the price range of similar products.

☐ Strenghts

About the most that can be said in terms of strengths for the Spelling Checker is that it is well-integrated with the rest of the Benchmark product line. It runs under the same program dispatcher, using the same menu formats and internally maintained file structure common to the other Benchmark products. It marks misspelled words with brackets, relying on a feature of the Word Processor that allows rapid location and modification of bracketed items. It also allows selective viewing, updating, and deletion of words from any dictionary, a feature absent in some other good spelling checkers.

☐ Limitations

The Spelling Checker simply does not perform very much work for the user. The options are severely limited. After completion of the checking process, it reports the number of questionable words found, but offers you no idea as to what they are. You must exit the Spelling Checker, for it has performed all that it is able to do. In order to correct a problem, you must enter the Word Processor, and use its Verify command to locate all items that were bracketed by the Spelling Checker. You must examine each and every occurrence of every word; if you have consistently misspelled a word throughout the document, the Verify command cannot help you correct all of them at once. You must exit the Verify command and use other features of

Metasoft Corp BENCHMARK Spelling Checker
Spelling Correction Package

the editor to correct the problems.

The program dictionary contains only 27,000 words, somewhat small for a good dictionary. You are allowed to add words to the system dictionary, or create your own dictionary, but you may use only one dictionary at a time for checking a document, requiring you to duplicate much information. In order to add words to a dictionary, you must either create a separate file containing the new words, or rerun your entire document through the Checker once again in order to pick up the new words. In either case you are forced to perform extra separate steps in addition to the original verification run.

■ HANDS-ON EVALUATION

The Benchmark Spelling Checker is provided on one single-sided floppy disk. It may be easily installed on a hard disk and backed-up using normal copy procedures. The dictionary storage unit must be assigned as one of the storage units available to the system. The Spelling Checker is not one of the programs appearing on the dispatcher's menu by default, so you must remember that METASOFT.SPL is the name of the program, and enter it for each execution.

Benchmark's use of separately maintained "storage units" in which they keep their own file system proved to be a continual problem in the use of the Spelling Checker. All of the storage units that had been created to date were fairly small. The dictionary was quite large however, and overflowed our default storage unit when we tried to copy it. The dictionary is best left in its own storage unit, and permanently assigned within the system so that it is always accessible. It creates a duplicate of the original document with misspellings bracketed. At one point during the editing of this document, we received an error message indicating that the disk was overflowing, and were instructed to hit "C" to continue. All responses entered simply resulted in a redisplay of the same message, and the system eventually had to be booted.

The Spelling Checker was used on a 27K-byte text file. Since we do not normally use the Benchmark Word Processor, a large DOS file created with another editor was copied into the WP storage unit for examination. This document contained formatter commands, however, and the Spelling Checker provides no method for circumventing these commands, so every formatter command was flagged as an error. The processing time was comparable to that of other checkers—approximately two minutes from start to finish. Because of the large number of formatter commands, we could not ask the Spelling Checker to add all of the unrecognized words to its dictionary when the actual spelling errors were corrected. This is probably unlikely even under normal circumstances, for most documents contain many proper names and initials that a user does not wish to have placed in the dictionary. It therefore becomes a time consuming and actually error-prone process to create another document with the new desired words.

☐ User Interface

Menus: The Spelling Checker is completely menu driven. Each menu follows the style set by the Benchmark family in general, and is fairly straightfoward and easy to use. A series of documents may be marked for checking at once from the file list menu by simply placing an "S" next to each one desired.

Control characters: Not used.

Function/special keys: Only one function key is used. The F10 key is used to issue the execute command.

Command language: Not used.

Positive feedback: Audible beeps are used. The beeps require the user to respond Y/N after completing a menu. They also prompt the user to hit the F10 key to execute or the ESC key to back up one step.

Status display: Not used.

Help facilities: No Help function is available, but in general is not needed. All destructive operations request confirmation from the user. The original documents may be retained through the use of Benchmark's revision level marking. If the user specifies that the original file is to be retained, the Spelling Checker creates a new document with the same document number and revision letter one level higher.

☐ Environment

The Spelling Checker is supported on a wide variety of personal computers. Its memory requirements of 128K bytes on an MS-DOS-based system, while larger than the typical entry-level computer system, are not unreasonable in a business environment. It can be used on single-sided and double-sided floppy systems, and also functions well in a hard disk environment. The only drawback on hard disk systems is the lack of support for the tree-structured directories of DOS 2.0.

☐ Documentation

The Spelling Checker documentation consists of about 30 sparse 8.5-by-11-inch loose-leaf pages. A half-page index appears at the end, but the document is not entirely self-contained. Since you must have the Word Processor to use the Spelling Checker, much reliance is made on information in the Word Processor manual. The manual consists mostly of full-screen displays showing the various menus that appear during the use of the program. Little other documentation is provided, primarily because of the limited capabilities of the program.

☐ Functionality

Most of the functionality of the Spelling Checker has already been covered. From the main menu, you may check the spelling of a document, insert a word list into a dictionary, delete a word list from a dictionary, create a dictionary, or view words within a dictionary. An additional entry will take you to another menu for additional procedures, but descriptions of most of these procedures do not appear in the Spelling Checker manual. Reference to the Word Processor manual is necessary to understand some of these functions.

Upon invoking the checking portion of the program, you must first choose a dictionary to use. The program uses

Metasoft Corp BENCHMARK Spelling Checker
Spelling Correction Package

Benchmark's cryptic numbering system to identify file names, and does not by default display a directory listing. It will not default to any given dictionary name, requiring you to determine and enter the system dictionary number and revision level with each use. After selecting the storage unit number containing the file or files to be checked, it displays a list of all documents within the storage unit. You may mark any number of files to be checked by placing an "S" next to their entry. You also have the option of retaining all of the original files without their being marked up with brackets by the Checker.

Insertion and deletion of words from a dictionary is performed by providing a separate file containing all of the words that are of concern. In the case of insertion, any document that contains nothing but valid words may be used, and all words which are not already contained by the dictionary will be inserted. Dictionary words may have their proper hyphenation provided by the insertion of periods at the appropriate break points, but the manual does not explain exactly how the system makes use of this feature.

☐ Ease of Use

The menu system used makes all operations simple and easy to invoke. With the exception of the EXECUTE and CANCEL keys, all function key usage is clearly defined on each menu. Once you learn that EXECUTE is F10 and CANCEL is the ESCAPE key, the program is simple to operate.

☐ Support

Support for Benchmark products is provided at both the local and vendor level. Training classes are provided for dealers of the product, and special training arrangements can be made. A separate customer support group is available at a toll-free number for special problem reports, questions, and discussion. The support number is 800-621-1908.

Benchmark/Metasoft has a liberal update policy that includes free updates for serious problem corrections and enhancement updates for such things as new printer support capabilities for a fee of $25.

☐ System Interface

Since The Spelling Checker can only be used for files contained within Benchmark's own private file structure, this limits its use severely. Though it contains the capability to copy DOS files to and from its own file structure, this is a waste of time for anyone not already using the other Benchmark products.

☐ Vendor Experience

Metasoft has been in existence approximately 4 years, and has installed in excess of 75,000 copies of its Benchmark Word Processor. The vendor has just recently announced a completely new, integrated version of its entire office software product line.

■ DETAILED PRODUCT DESCRIPTION

☐ Terms & Support

Terms • the Benchmark Spelling Checker is available for purchase only from Metasoft Corporation, through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally; quantity discounts are available to volume corporate purchasers.

Support • a designated support group is at the toll-free number 800-621-1908; a reduced-price upgrade policy for registered purchasers is also provided.

☐ Component Summary

The Benchmark Spelling Checker is provided on one single-sided floppy disk containing the following files:

METASOFT.SPL is the executable spelling checker file, METASOFT.OP1 is a storage unit containing the dictionary. METASOFT.DRV provides the main Benchmark dispatcher program and RUN.COM is an executable file that initiates the dispatcher:

$175 lcns

☐ Computers & Operating Systems Supported

The Benchmark Spelling Checker runs on the IBM Personal Computer or PC/XT using PC-DOS 1.0, 1.1, or 2.0, on other 8088-/8086-based processors running MS-DOS, and on most CP/M-based systems.

☐ Minimum Operating Requirements

For CP/M systems, the minimum memory requirements are 64K bytes. On MS-DOS and CP/M-86 systems, 128K bytes of memory are required. The program will operate on single- and double-sided disk drives, and supports a wide variety of printers available. A hard disk is supported if available.

☐ Features

The Benchmark Spelling Checker is a document spelling checker that is integrated with the Benchmark Word Processor.

File Type Support • supports Benchmark Word Processor files contained in Metasoft storage units.

Multiple Dictionary Support • specialized user dictionaries may be created and used as an alternative to the main system dictionary.

Dictionary Maintenance • dictionaries may be viewed, and words inserted or deleted as needed.

LCNS: license fee.

• END

MicroPro International Corp CalcStar
Electronic Spreadsheet Package

■ PROFILE

Function • electronic spreadsheet.

Computers/Operating Systems Supported • IBM PC or PC/XT and PC-DOS; other 8086/8088-based systems using MS-DOS or CP/M-86; 8-bit systems using CP/M-80.

Configuration • PC-DOS, MS-DOS and CP/M-86 versions require 128K bytes of memory; additional memory up to 1M byte can be utilized; an 80-column screen with addressable cursor is required; on an IBM system under PC-DOS the IBM color graphics board and terminal can be utilized; under CP/M-80, 48K bytes of memory are required, 64K bytes recommended • 2 single- or double-sided floppy disk drives or one floppy drive with a hard disk are recommended.

Current Version/Version Reviewed • Version 1.46 on an IBM PC 1.46.

First Delivery • November 1982.

Number of Installations • information not available.

Comparable Products • Visicorp VisiCalc; Perfect Software Perfect Calc; SORCIM Supercalc.

Optional Associated Software • can be integrated with MicroPro WordStar and InfoStar.

Price • $195.

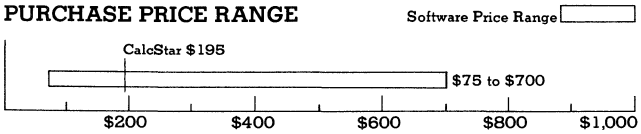
Vendor • MicroPro International Corporation; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-499-1200.

■ ANALYSIS

CalcStar provides the ability to build financial models, perform business forecasting functions, and generate "what if"-type analyses, using an electronic representation of an accountant's spreadsheet. It is a simple-to-use package, aimed at making spreadsheet capabilities accessable to users of the MicroPro family of products. Results provided by CalcStar may be easily incorporated into a WordStar report, or processed by database programs such as InfoStar and ReportStar.

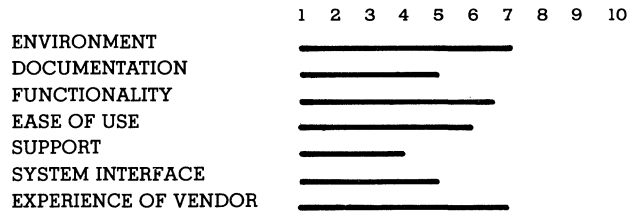
CalcStar appears to be targeted at the home and small business environment in which other MicroPro products such as WordStar have appeared for some time. It offers all of the minimum capabilities required in an electronic spreadsheet in today's market, with some enhancements, such as automatic forms capabilities and extensive use of color. It does not attempt to compete at the high end of the product line, with the single, integrated "spreadbases" and "graphsheets," and is therefore priced accordingly.

PURCHASE PRICE RANGE



MICROPRO INTERNATIONAL CALCSTAR PRICING • open bar shows the typical range of prices for **SPREAD SHEET** software used in a corporate environment • the vertical line within the bar graph indicates the price of **CALCSTAR**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

The primary strength of CalcStar is that it efficiently compliments the MicroPro product line, offering spreadsheet capabilities that integrate to a certain extent with most other MicroPro products. CalcStar provides the ability to save a worksheet to a disk text file, which may then be loaded by WordStar for further editing or for inclusion in a report. Worksheet data may also be written to a data file for processing by database and report processors, such as InfoStar, DataStar, and ReportStar.

The ability to generate automatic forms is one of CalcStar's more powerful capabilities. After creating a standard worksheet model, one may establish certain cells into which data must initially be entered before the worksheet can be calculated. In automatic form mode, CalcStar guides the data entry into the worksheet by automatically moving the cursor from field to field, prompting the user for just those cells that must be filled. The blank cells to be filled in may be further highlighted on the worksheet by the assignment of a specific color combination.

The flexible use of color in CalcStar on a color monitor is a nice feature. The foreground color, background color, and the foreground intensity may be individually specified for each of 6 different display classes: menus, worksheet, forms, errors, negatives, and locked cells.

☐ Limitations

Probably the biggest limitation of CalcStar is that it provides little in the way of unique capabilities that would cause it to stand out in a head-to-head competition with other spreadsheet packages. It is fairly modest in its functionality compared to current state-of-the-art electronic spreadsheets, lacking such capabilities as named cell referencing, graphing of information, and built-in database functions. It provides yet another style of interface that is the same, only different, from eariler products in this type, offering little

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incentive for the user of any other package to change allegiances.

Users of CalcStar were probably users of other programs of the same product line first, and reap benefits from the product interrelationships. It does not have the capabilities of today's second-generation spreadsheets, and has not recently undergone a major revision.

■ HANDS-ON EVALUATION

CalcStar is provided on one single-sided floppy diskette. There is sufficient room left on the floppy disk for user worksheets, but the disk is not copy protected, allowing it to be backed up and installed on a double-sided bootable diskette, or on a hard disk. The program installed for the IBM PC includes default color selections, and may immediately be executed.

CalcStar allows the user complete control over the colors used for several different portions of the worksheet. The color representation for the CalcStar screen layout portions, such as menu and prompts, the worksheet itself, error messages, locked cells, form slots, and negative numbers may all be specified separately. The program contains defaults for each section. Although initial impressions were that the default values of white on dark blue for the worksheet area and prompts could probably be improved upon, experimentation failed to yield any significant breakthroughs.

The color selection program is unfortunately a separate utility. It consists of a very easy to use BASIC program that displays all of the sections, their old color values, and the new color values selected by the user. It then displays a rectangular pallette demonstrating all of the possible variations of foreground color and background color. Selection is done by choosing a color combination via the cursor control keys, and entering a single-letter name for the section to which it should be assigned. When complete, the program allows you one last chance to change your mind, then makes the new color selections permanent. The whole process was quick and easy, except for the fact that it was a separate program. When it was decided that the default values weren't so bad after all, we had to exit CalcStar again, reload BASIC, change the values, exit the program, and reload CalcStar all over again. Once a workable arrangement is found, though, this should no longer cause any problems.

The command menu should look familiar to WordStar users. It appears at the top 5 lines of the screen, leaving a fairly miniscule 10-line worksheet display area. Fortunately, once the user has become familiar with the basic commands, it may be removed with the ";*" command (one of the less mnemonic commands).

The key sequence necessary to invoke a command seems to be one of the most controversial subjects around; it seems that every new program on the market has to do something different. In other spreadsheet programs the command prefix key is a "/", or a "control-x"; in some, there is no command prefix at all. In CalcStar, it is a semi-colon (;). The slash (/) is reserved for formatting commands used to justify text or insert printer page breaks. Experienced VisiCalc users will have some difficulty for a while, especially since the ";" and "/" are so close to each other on the keyboard.

Aside from small obstacles such as these, which really only affect users experienced with other spreadsheet packages, CalcStar provided no surprises in its operation. It is straightforward, and performs the functions for which it was designed.

☐ User Interface

The CalcStar user interface consists of single-character commands and option field prompts combined with the use of the cursor control keypad to position the worksheet on the screen. A command summary may be displayed on the screen at all times, at the expense of 5 fewer rows of the worksheet being visible.

Menus: A 5-line command summary menu is displayed at the top of the screen, ala WordStar. It contains the name of all letter commands available, and a summary of the control keys that can be used for cursor movement. On the IBM PC the arrow keys are the preferred cursor control keys. Some of the commands invoked by special characters are not listed in the command menu. The menu may be removed from the screen, allowing 5 additional rows of worksheet to be displayed, bringing the total to 15 rows, instead of 10. The lower portion of the screen is used for a status information display and command processing.

Control characters: Control characters are not used for commands, but are used on some terminals for cursor movement functions. On the IBM PC, the control-left-arrow and control-right-arrow portions of the keypad are used for scrolling the worksheet horizontally one screen at a time.

Function/special keys: Function keys on the IBM PC are not used by CalcStar. All commands and options are available through single, mnemonic letter keys. CalcStar does take advantage of the cursor control pad on the IBM PC, including the PGUP and PGDN keys, but not the HOME and END keys.

Command language: No command language is provided by CalcStar; there are complex functions available for the conditional selection of result values for formulas.

Positive feedback: Provided for most operations, either in the form of obvious results (such as a new cursor position) or an on-screen message. Operator confirmation is always requested for destructive commands, including exit from the package.

Status display: A status line appears directly below the worksheet on the screen, and contains the name of the current worksheet, the cell references for the current and original cursor locations, and the current recalculation mode (left to right, or top to bottom). Below status line are fields that display the current format and formula for the cell currently being referenced by the cursor. Lines 23 and 24 are used for user prompts and error messages.

Help facilities: A 2-screen HELP description is available via the Help command (;H). The first screen describes generic usage information on cursor movement, and the second screen gives one-line descriptions of all commands. A reference card is provided showing general usage information, commands, and built-in functions.

☐ Environment

CalcStar comes already installed for the IBM PC system.

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Some terminal configuration may be necessary in other environments. It is easily adapted to a hard disk environment, and normal procedures may be used to create backup copies of the Master diskette. An easy-to-use color customization program written in BASIC may be used to modify the default colors for a color monitor.

CalcStar requires 128K bytes of memory in an MS-DOS or CP/M-86 environment, more than some spreadsheet programs with greater capabilities. It is capable of supporting up to 1M bytes of memory for use as a worksheet. It is unclear whether a worksheet of that size would be a manageable application or not.

☐ Documentation

The CalcStar documentation consists of a single manual, written in tutorial format. It provides step-by-step instructions, leading the user through the features of CalcStar by experimenting with the development of several small applications of increasing difficulty. Three chapters are spent developing a worksheet to balance a checkbook, 3 on building a job cost estimation model, and one each on asset depreciation, forecasting business trends, and preparing an income statement. The manual contains many full-screen images of the worksheets being developed along the way.

The documentation seems to have been targeted specifically for the home and small business user. It proceeds in a simplistic fashion, every chapter containing instructions on how to enter and leave CalcStar. The manual is written specifically for the CP/M system. Reference is constantly made to use of control keys for cursor movement, when the arrow keys of the IBM PC are much simpler to use. A reference card identifies the screen layout and overall usage characteristics. It also contains a command and function summary.

☐ Functionality

CalcStar provides all of the traditional spreadsheet capabilities and operations. Normal cursor movement from cell to cell is done via the arrow keys on the IBM PC keypad, though the manual and HELP screens consistently refer to the control keys used on CP/M systems. The IBM PGUP (page up) and PGDN (page down) keys may be used for rapid vertical movement through the worksheet one screen at a time, and control-left-arrow and control-right-arrow produce similar horizontal movement. The HOME and END keys, however, do not take the user to the top left and bottom right corners of the worksheet, as would be expected. The EDGE command (;E) will adjust the worksheet display so that the cell at the current cursor position becomes the upper left corner of the display.

Cell referencing is by absolute column and row designation, with the columns being lettered, and the rows numbered. Computer- or mathematically oriented users may find this going against their previous training of specifying the row first, then the column, but it does conform to traditional spreadsheet usage. Cell reference by name or relative location is not provided, though a formula may be designated as containing relative references when it is to be copied to another location.

The built-in functions include several for performing linear regression operations on worksheet data, useful in forecasting trends. Statistical functions are available for computing sums of columns, averages, minimums, and maximums. In addition, there are several mathematical functions, including square root, base 10 and natural logarithms, and exponentials.

The ability to print a complete or selected part of a worksheet is supported. The results may be directed to the printer or to a disk file in either TEXT format, for use by WordStar, or in DATA format, for use by data management programs. The user may provide title information, and may specify that the row and column headings within the worksheet be included when only a portion of the worksheet is being printed.

Files may be loaded or saved only in CalcStar format. Files may be loaded into any coordinate position, allowing flexibility in combining multiple smaller worksheets into a single larger one easily. If overlay occurs during the merging of multiple worksheets, the new cell values, formulas and settings will override the old ones.

One particularly useful feature in CalcStar is the ability to generate automatic forms. An automatic form is a worksheet that has had particular cells designated as blanks to be filled in at a later time. The end user then invokes the worksheet, and issues the AUTOMATIC command. CalcStar then leads the user through the spreadsheet, automatically positioning the cursor in each successive blank cell that must be entered. Cells that are designated as fill-in-the-blank cells are displayed by default in a different color combination. This allows the creation of the spreadsheet equivalent of the word-processing form letter.

☐ Ease of Use

CalcStar comes ready to execute on the IBM PC, with the menu describing the available commands displayed by default. The information provided by the Help command is only 2 screens for the entire product, and cannot take the place of the reference portion of the user manual.

Actual operation of the worksheet is in line with the traditional worksheet model. New users should have no more difficulty mastering CalcStar than they would any similarly functioned spreadsheet program. Experienced users, once having mastered the trivial differences relative to other spreadsheets, should have no problems being immediately productive.

The feature most likely missed for ease-of-use is the lack of any multiple window capability to allow viewing different portions of a large worksheet simultaneously.

☐ Support

MicroPro supplies an End User Acknowledgement Card that must be returned in order to be eligible for customer service. In addition, registered users will receive information regarding updates, new products, and application suggestions.

Purchase of a MicroPro product entitles one to use of the product on a single computer. If used on more than one computer, or in a multiple-terminal environment accessing common memory, the user must fill out a configuration report and pay additional license fees. The fee schedule is a sliding scale requiring 2 license fees for a 3 to 5 user

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system, to 10 license fees for a system supporting 82 to 100 users.

Support is provided primarily by the local dealer and distributor network.

☐ System Interface

Like other MicroPro products, CalcStar is designed to interface with other programs in the MicroPro family line. A brochure contained in the manual specifically mentions WordStar (a word processing package), InfoStar (database management), PlanStar (financial planning), and StarBurst (the system builder).

No other information regarding information interface is mentioned in the documentation. Specifically, there is no indication of any support for a symbolic file format, such as the DIF format popular in other spreadsheets. This eliminates the possibility of transferring existing spreadsheet models from other packages into a CalcStar model, and vice versa. CalcStar can print the data contained in the worksheet to a disk file for use by other applications.

☐ Vendor Experience

MicroPro is an established vendor of personal computer software, but the majority of their experience has been in the area of CP/M systems; typically used by small businesses rather than by corporations. CalcStar has been in the marketplace for approximately a year and a half. Version 1.4 is an adaptation for the 16-bit environment of Version 1.2 for CP/M-80 systems.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • CalcStar is available for purchase only from MicroPro International, through computer dealers, software dealers and mail-order firms throughout the U.S. and internationally; quantity discounts are available to volume corporate purchasers.

Support • no support information was provided in the software documentation.

☐ Component Summary

CalcStar is provided on one single-sided floppy disk, containing: CSMASK.MSK, CS.*—13 files that make up the CalcStar executable, TERMCAP.SYS—file containing terminal specification information, CSDUMP.COM, CSDUMP.OVR—executable program for printing contents of CalcStar worksheets, showing cell locations and formulas, CSCOLOR.BAS—BASIC program for configuring color assignments on a color monitor, DEMO.CSD, HELPER.CSD, HELP1.CSD—simple demonstration worksheets used in the manual.

CalcStar:

$195 lcns

☐ Computers & Operating Systems Supported

CalcStar is available for the IBM PC or PC/XT and other 8086/8088-based systems using PC-DOS, MS-DOS, or CP/M-86. It is also available for 8-bit systems using CP/M-80.

LCNS: license fee.

☐ Minimum Operating Requirements

PC-DOS, MS-DOS, and CP/M-86 versions of CalcStar require 128K bytes of memory. Additional memory up to 1M bytes can be utilized. An 80-column screen with addressable cursor is required. On an IBM system under PC-DOS the IBM color graphics board and terminal can be utilized. Under the CP/M-80, 48K bytes of memory are required, with 64K bytes recommended. Two single- or double-sided floppy disk drives or one floppy drive with a hard disk are recommended.

☐ Features

CalcStar is an electronic spreadsheet package for the development of financial models, budget systems, reports and forecasting models. Features supported include:

Spreadsheet Size • 255 rows and 127 columns in a single spreadsheet; number of actual cells available for use depends on system memory; a 256K system can support over 5,000 cells.

Command Type • single letter with semi-colon prefix; optional command window with command summary can be displayed; one HELP menu available through the Help command.

Statistical Functions Supported • COUNT, AVERAGE, MIN, MAX, and SUM provided for simple statistical operations; REGR (regression), PROJ (projection), DEPD (dependent) and SLOPE functions available for linear regressions analysis; the mathematical functions LOG (base 10 logarithm), LN (natural logarithm), EXP (exponential), and SORT (square root) also provided.

Cell Reference • cells may be referenced by pointing using cursor movement functions, or by specific reference to row and column identifiers (D15); no explicit relative cell referencing or cell naming capability is provided • when copying formulas, the user may specify that all cell references within a formula be treated as absolute or relative for the purposes of the copy; if a formula to be copied contains mixed relative and absolute cell references, the absolute references must be followed by an "!".

Window Capabilities • no multiwindow capabilities are provided.

Range Facilities • allows complete linear and rectangular ranges of cell locations to be specified whenever groups of cells may be referenced (Blank, Copy, Delete, etc).

Formatting Capabilities • formatting capabilities for text and numeric entries, including left, right and center justification, continuous text, and percentage values.

Automatic Form Facilities • the ability to create the spreadsheet equivalent of the form letter, with particular cells for which the end user of the form will be prompted for information.

Print Facilities • any portion of worksheet may be printed, either to a printer or disk file; column and row indications may be included or suppressed; formula printing capabilities are provided by a separate utility.

File Transfer Capabilities • full or partial worksheets may be saved or loaded; loading of multiple worksheets merges data; if overlap occurs, new worksheet information takes priority; user can control overlap by specifying exact position to load each worksheet.

☐ Other Facilities

CalcStar information may be further utilized by other MicroPro products, including WordStar, ReportStar, and InfoStar.

• END

MicroPro International Corp DataStar
Data Management Package

■ PROFILE

Function • database management.

Computers/Operating Systems Supported • IBM Personal Computer, PC/XT, personal computers using CP/M (Version 2.0 or higher), CP/M-86, MS-DOS, PC-DOS.

Configuration • 48K bytes of RAM, one floopy drive containing at least 100K bytes of; monochrome display or color/graphics board and the appropriate monitor.

Current Version/Version Reviewed • 1.42/1.4.

First Delivery • May 1980.

Number of Installations • information not available.

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

Optional Associated Software • ReportStar, a report formatting and preparation program can be used in conjunction with DataStar to create a viable database management system; when the 2 packages are combined, the composite program is known as InfoStar.

Price • $395 retail price.

Vendor • MicroPro International Corporation; 33 San Pablo Avenue, San Rafael, CA 94903 415-499-1200.

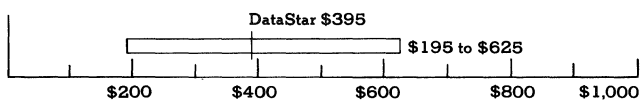
■ ANALYSIS

MicroPro bills DataStar as a "comprehensive key-to-disk data entry, control, and retrieval program." We found that, in general, it lives up to its billing. Unfortunately, data entry is only one of the considerations for a viable data base management system.

The lack of a comprehensive reporting facility seriously weakens its position in the field. DataStar only provides a rudimentary reporting facility which is useful to produce lists of records in order to verify data entry. No facilities for reporting in a sequence different from the order of the key specified (by alternate key) or different from that in which they were entered (entry sequence) are provided. There is also no means of providing control break reports. (A control break report is one in which data is reported in detail and summarized by intermediate levels with a grand total at the end. It is one of the most basic types of report.) MicroPro has recognized the omission and offers InfoStar, a composite package consisting of DataStar for data entry and ReportStar for reporting, but that is an additional expense for what we believe to be a required piece.

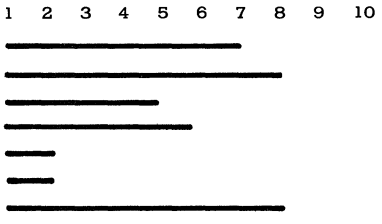
DataStar is a valuable and flexible part of a total information management system for personal computers in a business environment, but it is only a part.

PURCHASE PRICE RANGE Software Price Range



MICROPRO INTERNATIONAL DATASTAR • 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 **DATASTAR**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

The creation of a form is not accomplished in the DataStar program. Instead, a separate program called FormGen is provided. This effectively separates the functions of form creation and data entry so that the uninitiated user will have little chance to modify the data editing or other specifications created for the form.

Users have extensive control over the entry characteristics of fields, a fact which helps prevent the entry of unreasonable data. For example, DataStar permits specification of the initial contents of the field (empty or filled from the database), the modification rules (protected, required entry, etc), and the characteristics of the data to be entered. This is not restricted to simple alpha/numeric tests; a user could restrict the range for a field to be not less than 01 and not greater than 12—and guarantee that a valid month would be entered in the field. Even with this power, an uncaring user can still thwart the system.

The documentation provided by MicroPro for this product is of high quality. It is broken into 2 distinct manuals, a tutorial and a reference manual, and the organization within the reference manual is by user function. This allows the user to find out how to accomplish a given task, such as data entry or form preparation, not just how to enter a particular command.

☐ Limitations

The most serious limitation of DataStar is its lack of a viable reporting capability. It is primarily geared to data input and verification and the only function that printed documents provide is to assist in the verification process. MicroPro has

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Data Management Package

recognized this shortcoming and now offers a bundled package called InfoStar which contains DataStar for data entry and ReportStar for reporting.

The factory tailoring of it to the IBM-PC/XT environment is, at best, incomplete. They have provided for the translation of some of their commands from control character sequences into the more streamlined function keys provided on the IBM-PC, but it is only a partial translation; thus, the user must remember both the control character sequence, i.e. P (meaning "while holding down the CTRL key, type P") and its funtion key equivalent, in this case F3. MicroPro does provide a HELP facility which will display the control character sequences, but none for the function keys.

The separation of FormGen and DataStar, a benefit in that it insulates casual users from the process of defining a database and forms for entering it, causes some problem with control key usage. Many of the commands have meanings in both packages, and often the meanings are not the same.

■ HANDS-ON EVALUATION

DataStar comes packaged in the now familiar IBM-type slipcase with a high-quality binder for the 2 manuals. Index tabs are not provided, but each chapter is marked with a block on the edge of page which can be seen edge-on. This is the same type of marking that IBM employs on its PC manuals.

Our technical staff made a working copy of the programs and installed the package. The only hitch here is that the statement that the package is pre-configured is not contained in the manuals, but is on a separate flyer. It did cause some additional time to be spent by our technical staff in verifying that all of the files which were supposed to be present on the disk were, in fact, there. It would have been easier for us had MicroPro supplied an installation program which did nothing except create the working copies of the programs.

Our technical and professional staff had little difficulty with the tutorial. The material is presented in such a manner that little experience is needed to create a usable form. It is only when one attempts to make the form error-proof that the data processing experience of our technical staff was needed.

None of our staff had any problems with the data entry portion of the product. We did not find any loop holes which would allow improper data to be entered. We found the field editing features of the FormGen program to be sufficient for our purposes.

Entering data is rarely the ultimate objective of a business; we have to see results. All were disappointed with the reporting capabilities of the program. Any serious corporate implementation will require reporting capabilities far in excess of those provided by DataStar unaided.

☐ User Interface

DataStar employs a combination of menu screens and control character sequences to support its processing. Subfunctions, such as HELP, are also menu-driven. Its reliance on control character sequences is a hold-over from its implementation on the CP/M operating system. Its failure to use the function keys of the IBM PC fully make it more difficult to use than necessary on that system.

Menus: Menus control the major flow throughout the product. Generally, a single level of menu hierarchy is available; Add mode, for instance, sports only a single level menu. There are exceptions; notably, the HELP menu consists of multiple screens. Menus are associated with each general category of command, and appear when appropriate.

Control characters: All of the major processing is accomplished via control character sequences. For example, Ctrl + R is used in the form generation program to assign attributes and Ctrl + E + D initiates the Scan/Modify mode of DataStar. The control sequences are not mnemonically related to the command names in many cases.

Function/special keys: Several of the function keys have been assigned as shorthand for the control character sequences; however, their definition only appears in the Addendum supplied with the product. All references within the manual are control character sequences. A menu of selected function key definitions appears on the screen.

Command language: None.

Positive feedback: The user is generally led through multiple steps in each command, with the prompt indicating the action which will be taken. This prevents users from accidentally invoking an inappropriate function. Special actions with potentially destructive effects are possible only if confirmed in a separate step. For example, it is possible to exit without saving your current work; however, the specific command to "exit without saving" must be invoked.

Status display: In addition to the Mode and Form in process, the options permitted for the function entered may be displayed via the HELP function.

Help facilities: Ctrl J causes the main HELP menu to appear on the top of the display. Several additional help screens are available by entering additional Ctrl Js. A quick reference card is also provided.

☐ Environment

DataStar was first (and still is) a product geared to run under CP/M. There it supports some 35 separate terminals. The version which we tested had been "factory configured" to the IBM-PC/XT environment, so they did not supply the installation program. This did not pose any problems as we were able to run our working copy of the program without difficulty. We did spend some time in looking for the installation program, however, since we missed the "factory configuration" part initially.

The product consists of 2 packages, a FormGen program which is used to define a data form for entry of records into a database, and another program (DataStar) for actually entering data or retrieving records using that defined form.

FormGen is designed to run in 35K bytes of RAM while DataStar requires a minimum of 26K bytes of RAM for

MicroPro International Corp DataStar
Data Management Package

online operation and 27K bytes of RAM for batch processing. Additional space is required for each list verification file used in the form. Needless to say, this is a modest environment by PC standards.

We tested using an IBM-PC with 128K bytes of RAM, 2 disk drives (1 160K bytes, the other 320K bytes), a color/graphics board and a Princeton Graphics System color monitor, and an Okidata Microline 92 printer. We had no hardware difficulty and were able to fit all of our test applications without difficulty. The maximum file size supported by DataStar is 8M bytes which is well within the basic IBM/XT configuration.

☐ Documentation

MicroPro has supplied documentation which is patterned after that provided by IBM. The double manual, actually a tutorial and a reference manual, is housed in the same type slipcase binder as those supplied with the IBM products.

The tutorial manual, entitled DataStar Training Guide, contains 5 chapters which lead the user from the creation of a form, through its use online, to its batch application. Also included is an introductory section which includes a synopsis of the product and instructions on the use of the manual and 5 appendices which provide detailed specifications for attributes, error message explanations, sample forms, quick guides to the FormGen functions, and a quick commercial for the other MicroPro products. An index is provided. Sample forms are provided on the diskette which support the lessons.

The reference manual presents its material in a user-friendly format. The data is organized by function and includes form design (beginning then advanced), data entry, data retrieval and modifications, and finally batch processing. Appendices are supplied for installation procedures and user modifiable code in addition to ones for program requirements and ASCII codes.

Our single complaint with the documentation is that it is directed to the CP/M environment with all reference to the commands being control code sequences. Even the pocket guide provided does not list the function code equivalents for the control code sequences. Since so few program function keys are implemented, it makes little practical difference that the manuals make no reference to them, but the impression that the IBM version of the product is an afterthought cannot be dismissed.

☐ Functionality

The creation of a specialized screen for data entry (MicroPro calls it a form) is not done in the DataStar program proper. Instead, a separate program, FormGen, is supplied with which the user can create a screen tailored for the processing of the particular input wanted. Via this "form generation" program, special editing features may be enforced. This also provides a means of specializing personnel use; the technical staff can build the screens for the user community utilizing their data processing expertise to enact the appropriate special editing features available, and the user community can use the forms created to enter the data. This does not, however, preclude knowledgeable users from creating their own input forms. Our non-technical staff was able to create simple forms within a matter of minutes. More complex forms with appropriate editing features took longer and required some advice from our technical staff.

We were pleased with the range and power of the editing capabilities available within the FormGen program. We were able to specify such basic criteria as entry requirements, data type selectivity, and range validation. In specifying the entry requirements, 8 distinct options are given for each field. These include a "must enter" character which forces the keyer to enter data into the field before proceeding, a "don't care" feature which allows the keyer to enter data or leave blank, an "automatic copy" specification which will copy the corresponding field from the previous record, and several forms of constants.

We found the "must enters" useful for key fields and fields without which the record was not useful such as zip code for our mailing addresses. We used the "automatic copy with user override" for the state field as our data was entered in zip code sequence and, consequently, the state field was generally the same as the previous one. Constants in the phone number fields improved readability, we forced a format "(area code) exchange-number," and optional constants for commas within amount fields.

We were also able to specify that a given field would be "looked up" on another file, and a resulting matching record could be used to fill fields on the form. We found this feature to be very helpful by allowing the user to enter a code and have it expanded to readable text. Entry of allocation codes was facilitated by this feature, because the operator received positive feedback from the translated form of the code to assure that the transaction had been encoded properly. The tutorial uses a very good example of this feature, the looking up of the postal state abbreviations, to demonstrate its value.

Data characteristics selectivity provides 18 separate options for alphabetic, numeric, and mixed data for each character within a given field in addition to offering decimal point alignment and a "don't care" option. It was a challenge for our technical staff to justify the use of each of the options on our input form, and a few attempts which succeeded resulted in a program for entry which was almost uncanny in its ability to defeat entry errors. We could specify fields where the data was entered in either upper- or lowercase and appear on the form converted upper case, to restrict data to alphabetic, lowercase, uppercase, numeric, numeric in combination with alphabetic, and numeric in combination with numeric operators such as the number sign, dollar sign, percent sign, parenthesis, asterisk, and plus and minus signs. The range of options here defeated most non-technical users in the area of forms design, so we adopted a policy of letting the user organizations lay out the data entry form and the technical staff specify the entry and editing rules.

Each file within DataStar is stored as 2 files, an index file which contains the keys and a data file. A key is the field or fields on which the data filing is based; similar to the "company name" sequence of an accounting file. We were

MicroPro International Corp DataStar
Data Management Package

required to specify a key for our mailing list sample and chose zip code as the primary with phone number as the secondary key. In their example, MicroPro chose phone number as the primary key for a similar application, but pre-sorted mail represents a significant savings in postal costs so we chose zip code. Keys must uniquely identify a record, so multiple keys may be required if the major key is not unique. The program will support the generation of a "tie breaker," but it is better to use some actual field in the record to assure a unique key. By itself, zip code would not have produced a unique key for each record. We chose to add phone number to the key, but needed a tie-breaker anyway because we quickly ran into 2 individuals in the same company and at the same extension. We were well within the 120-character key length limit. We were somewhat disappointed that DataStar only supports 1 index. Some of our users wanted an alphabetic list of our mailings, and the limited report facilities of DataStar could not produce it.

As a secondary test of the product, we used it to build some mailing list records for mass mailings using MicroPro's word processor, WordStar. The combination of the 2 packages proved excellent for the maintenance and mailing functions associated with prospect lists.

☐ Ease of Use

In general, we found DataStar easy to use for data entry. Our technical staff experienced little difficulty in installing the product (what problems we had stemmed from searching for a non-existent installation module which was omitted because the product was pre-configured for the IBM-PC).

The FormGen program performed according to specification. Our technical staff (we decided to have our professional staff design the data entry procedure, our technical staff create the forms, and our secretarial staff enter the data) had no difficulty in creating the requisite screens with appropriate editing criteria. However, they did experience a minor glitch when they printed out the calculations for the forms: only the first field of the calculation printed! That is to say that for the calculation "#001=ORDER NUMBER + 1" only "#001=ORDER" printed. This is an inconvenience which required that we verify the content of the calculation formulas online and in practice. It may be that our non-IBM printer caused the problem.

Our secretarial staff had no problem in entering the data prepared. And, since we had segregated the FormGen program on a separate diskette, were unable to subvert the intent of the editing provided. They found the product easy to use and especially enjoyed the "copy from previous record" feature.

Those who had never been exposed to a full-feature data entry package before were amazed at the ease with which applications could be designed. We had an ad hoc requirement for a system to maintain information for a sales contest, and the entire system took only 1 hour to set up, test, and load with the information on 30 salespersons. Even some specialists with mainframe database experience were pleasantly surprised by the features and the ease with which applications could be developed.

☐ Support

MicroPro's first line of defense is the dealer, but as our questions were aimed at the internal workings, we wanted to speak directly to MicroPro. We wanted to know when they would support user color on the menu screens and when an IBM version of the manual would be produced. We also wondered if our non-IBM printer configuration could have caused the loss of printed data when we printed the form specifications. We called several times and were placed on hold each time for a "specialist." No one ever came on the line.

MicroPro will provide updates, customer service and a newsletter only if the End User Agreement Acknowledgement Card is signed and mailed.

MicroPro products are designed for a single user on 1 computer; however, by paying a license fee, additional users may be added to the system. This ranges from a single license required for 1 to 2 users to 10 for 82-100.

In our quest for answers, we finally called the main number of MicroPro. "All support lines were busy" and a recording gave us an 800 number for "dealers in your area or brochures." We chose dealers and called the one given. They were unable to find someone familiar with the product immediately. They took our name and number and said they would get back to us, which they did not.

☐ System Interface

Like other MicroPro products, this one is designed to work in concert with its relatives. Indeed, MicroPro has even bundled this product with ReportStar, a report formatting and preparation product and named the composite InfoStar. In fact, ReportStar has many of the features which, if included in DataStar, would have made it a much more complete product. The tutorial manual states that the files created with DataStar are compatible with WordStar, SuperSort, and CalcStar. We determined that, at least, WordStar compatibility is a fact.

DataStar file formats are relatively easy to decode, but not easily produced by other programs. While the output of DataStar can be made to work with many word processors and merge/list programs, DataStar does not easily accommodate foreign files or combinations with foreign programs.

☐ Vendor Experience

MicroPro has extensive experience in the microcomputer software area, and the basic designs of their products are almost always excellent. DataStar has been available on CP/M systems for several years, so updates and enhancements are based on a long period of field experience.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • DataStar is available for purchase only from MicroPro International Corporation, through computer dealers, software dealers, and mail order firms throughout the United States and internationally.

Support • provided mainly by the dealer; MicroPro will provide

MicroPro International Corp DataStar
Data Management Package

updates, customer service, and a newsletter if the End User Agreement acknowledgement card is mailed.

☐ Component Summary

Software elements consist of DataStar programs and files for support of the tutorial. The programs include: FORMGEN.COM—a form specification program, DATASTAR.COM—the form processing program, and BATCH.OVR—a batch input processing program.

The additional files provided for tutorial support include: ORDER.DEF—the order data input form specification file, ORDER.NDX—the order file index, ORDER.DTA—the order file data, CUSTOMER.NDX—a customer file index, CUSTOMER.DTA—the customer data, PRODUCTS.NDX—a product file, PRODUCTS.DTA—the product data, OKSTATES.NDX—a postal state abbreviation file index, and OKSTATED.DTA—the state file data.

DataStar:

$395 lcns

☐ Computers & Operating Systems Supported

DataStar is supported for the IBM PC, PC/XT, other personal computers using CP/M (version 2.0 or higher), CP/M-86, MS-DOS, PC-DOS.

☐ Minimum Operating Requirements

DataStar requires a minimum of 48K bytes of RAM, one disk drive with at least 100K bytes, and a monochrome display or color graphics board and the appropriate monitor.

☐ Features

Record Size Limitations • no more that 245 fields may define a form (record).

File Size Limitations • dependent upon media.

Field Size Limitations • a data field must be contained on a single line and may contain up to 255 characters.

Key Field Limitations • the total key length may not exceed 120 characters; at least one key field must be defined for each file.

Screen Format Definition • forms (screen formats) are designed via the FormGen program; it is menu/control character driven and offers a wide range of form design options; the program provides unusually good user control over screen formatting for a system which does not require a "pseudo-programming-language" for screen definition.

Entry Edit Capabilities • each field is given an attribute which determines the type of data which may be placed into it; several major areas of editing are supported including range checking, digit checking, and required field entry; editing features are comprehensive.

Report Format Definition • the only reporting permitted is a listing with or without accompanying form of the data; selection may be by key or the current record; no control breaks, totaling, or sorting is permitted; MicroPro has provided ReportStar at additional cost to perform these tasks.

Sort/Merge Capabilities • add transactions against the file may be "batched" for future processing; in this manner, input from multiple sources may be merged into the file; no formal sort/merge function is supported.

Programming & Batch Processing Capabilities • transactions against the file may be formed into a batch for later processing; no programming language is supported.

☐ Other Facilities

DataStar can also be purchased as part of a combined package. The combined package includes DataStar and ReportStar, MicroPro's report generation package. The two products together are marketed as InfoStar.

InfoStar: **$495 lcns**

LCNS: license fee.

• END

MicroPro International Corp MailMerge
Form Letter Production Utility

■ PROFILE

Function • merges database information and text files to produce form letters; chains and inserts multiple documents during printing; generates standardized document.

Computers/Operating Systems Supported • IBM PC and PC-DOS; 8086/8088-based systems using MS-DOS, CP/M-86 or MP/M; 8080/Z80-based systems using CP/M version 2.0 or later.

Configuration • runs on 16- or 8-bit machines • 16-bit microprocessors require a minimum of 64K bytes of RAM • systems running under CP/M-86 require 80K bytes of RAM • concurrent CP/M-86 requires 256K bytes of RAM • 8-bit microprocessors require 56K bytes of RAM minimum • at least 1 floppy diskette is required; two are recommended; hard disk is not supported for loading, but command, data, and text files may be located on that medium.

Current Version/Version Reviewed • Version 3.3/Version 3.30 for the IBM PC.

First Delivery • June 1980.

Number of Installations • information not available.

Comparable Products • no known major comparable products.

Optional Associated Software • must be used with WordStar.

Price • $225 retail price.

Vendor • MicroPro International Corporation, Inc; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-494-1200.

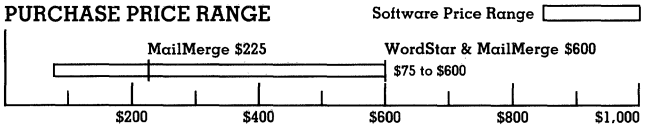
■ ANALYSIS

MailMerge is a file-management utility designed solely for use with the WordStar word processing package. It provides a considerable expansion of WordStar's printing and file manipulation abilities, allowing the production of personalized form letters and standardized documents. It can also be used to print documents made up of multiple files.

The structure of the MailMerge commands and documentation is consistent with that of WordStar. The program is called directly from the WordStar startup menu, and operates on both document and non-document WordStar files. WordStar may be used to create data file input to MailMerge and simple mailing lists, with no need for other utilities. More complex databases are supported through DataStar, another MicroPro product.

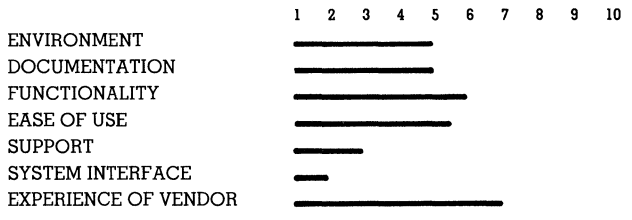
The MailMerge package provides a much needed expansion of WordStar, one which most corporations will find necessary to meet the demands of their business. The combined price of WordStar and MailMerge, however, places the packages far above the "traditional" range.

PURCHASE PRICE RANGE



MICROPRO MAILMERGE PRICING • open bar shows the typical range of prices for **FORM LETTER PRODUCTION** software used in a corporate environment • the vertical line within the bar graph indicates the price of **MailMerge**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

With the ability to operate from command files, accept input from the console, and use any text file as an input, the MailMerge package provides a flexible facility for specialized document generation, including form letters and mailing labels. It also allows the merging of many small documents into 1 large print file.

File merging may be done by chaining any number of files together, or by "nesting" files up to 7 deep. Different files may be located on different diskettes. Multiple copies may be specified, and the output may be "printed" to diskette.

All features are handled in a way familiar to WordStar users, making a transition from a WordStar environment to a combined WordStar/MailMerge environment relatively painless.

☐ Limitations

A major limitation of MailMerge is the same one that crops up in all of the MicroPro products: a difficult command structure made even less comprehensible by a poor reference manual. As with WordStar, a certain amount of experience is necessary before the user is comfortable with the package. While WordStar may be operated by the occasional user with some confidence (thanks to its comprehensive command menu), MailMerge master documents are best created by people expert in the necessary formats.

Formatting documents with MailMerge is somewhat of a trial-and-error process, since the formatting specifications must be made when the form master (called a "matrix document") is generated. However, the results cannot be seen until the merge takes place, making the setting up of documents a frustrating task for novices.

MicroPro International Corp MailMerge
Form Letter Production Utility

MailMerge does not have a database file management capability, although the non-document mode provided by WordStar can be used to create a database file. Instead MicroPro relies on another of its products, DataStar, to produce the files to be merged. The combined price of ALL of these packages is truely significant, and although the total range of their capabilities is very large, few users will need full database and data entry capability just to enter a mailing list.

Label printing is inconvenient for anything above a single label. In fact, we had to use certain "tricks" to handle simple 2-up to 4-up printing. While there are "tricks" provided in the reference manual, we felt that the whole process was unnecessarily complex.

The quality of the documentation also was lacking, especially when it comes to describing commands and features. The absence of specific examples made learning MailMerge difficult for inexperienced and/or nontechnical users, and our technical staff became quite irritated at both the childish tone of the material and the lack of reference.

■ HANDS-ON EVALUATION

Setting up MailMerge is simple; you copy the program to your WordStar diskette and it becomes available as the "MERGE" command on the main menu. Invoking the program is simple, but creating what to invoke it ON is more complex.

WordStar users reacted to MailMerge with "here we go again!" Some of our staff had difficulty with the MailMerge commands, the correct use of which were often less than obvious.

Everyone felt that the documentation could have been more helpful. Creating documents based on "matrix documents" was easy, but creating such a document properly required some special skill and experience. Once some familiarity was obtained with the package, though, the majority felt that MailMerge was simple enough to use. The package does greatly expand WordStar's printing capabilities, and for that reason several members of our staff felt that MailMerge should be a standard feature rather than an option.

☐ User Interface

Menus: One menu is used to set optional parameters at startup. Parameters controlled by this menu are: output device, beginning page number, ending page number, number of copies, insert form feeds between pages, suppress page formatting, and pause between pages. Default values are provided for all parameters.

Control Characters: None.

Function/Special Keys: None.

Command Language: The command language used to control MailMerge operation consists entirely of three character "dot" commands, so called because they always begin with the period character. There are eleven of these commands for the IBM PC, they consist of a "dot" followed by a two character sequence that represents the name of the command. These commands include three for operator interaction, two for file control, three for format control, two for value insertion, and a repeat command. An example of a MailMerge command is the File Insert command, .FI, used to nest and chain files for printing.

Positive Feedback: None.

Status Display: None.

Help Facilities: A pocket guide listing the commands for the three WordStar optional utilities is provided with the documentation. No online help facility is provided.

☐ Environment

The memory requirement for MailMerge are identical to those of WordStar. Only 64K bytes of RAM are required on the IBM PC. Additional memory is no benefit to MailMerge.

MicroPro recommends the use of 2 diskette drives with MailMerge. The package allows files on separate diskettes to be merged at print time, and can be operated with only 1 diskette. While the LOADING of WordStar and MailMerge is not possible from hard disk (since WordStar expects the MailMerge overlay to be in the "A" drive), there is no problem in merging and printing files maintained there. There is sufficient space on a single-sided diskette to include WordStar, MailMerge, and the MicroPro spelling package SpellStar, in addition to the operating system files.

The program is not copy protected, so it is possible to move it to other WordStar diskette with no difficulty.

☐ Documentation

The documentation provided with MailMerge consists of a reference manual, a pocket guide, and removable fold-out charts detailing the steps necessary for printing form letters. None of our staff found the charts useful. The pocket guide provided is common to all the WordStar optional utilities, and provides only a list of MailMerge commands, some of which are not applicable to the IBM PC version of the program.

The manual is a supplement to the WordStar reference manual and does not contain a true tutorial section (MailMerge is described in the WordStar manual, however). The manual is not a true reference document either; its unique form missed the mark for most of our operators. Those with limited experience found the lack of specific examples for most commands and features made learning too difficult, while our data processing professionals were irritated at the lack of reference material and the somewhat childish tone of some material. The tutorial section included with WordStar is much easier to use, and our inexperienced staff members in particular were much happier with it.

☐ Functionality

MailMerge is an enhancement to WordStar, not a database or file management package. The functions provided

MicroPro International Corp MailMerge
Form Letter Production Utility

are basically extensions of WordStar's printing abilities. MailMerge defines a "master" or "matrix" document, which contains constant text information, merge commands, and space for variable data to be added. This matrix document is "merge/printed," at which time it is combined with variable data in a data file to produce the actual print-out. The merge process is controlled by commands in the familiar "dot" structure of WordStar. For example, a ".DF" command defines the data file to be used in the merge.

A matrix document file which contains mostly commands is normally called a "command file." This form of matrix document is normally used to gather segments of text together to form a single document. This ability to operate from a command file is MailMerge's greatest asset. When used in conjunction with the package's ability to accept variable data from the keyboard, a command file can prompt for input and print the result, making it possible to insert "personalized" or special data directly into form letters or other documents. We found this valuable when generating labels for certain mailings where we did not desire to keep a name and address on file unless the prospect responded. The package permits you to prompt for a file name, so a special form can be set up and run against variable files.

A database file is the normal source for data in the variable fields of a standardized (or matrix) document. This allows the creation of the standard form letter, with the name, address, salutation, etc taken from a database file specified in the matrix document or supplied by the operator. The database may also supply additonal information for the body of the letter, such as an indication of the area of interest, an amount due, etc. We found that nearly every sales follow-up letter could be generated from a properly maintained prospect file, and each letter had a "personalized" quality based on the last contact data and area of interest.

The operator interface is enhanced by commands to clear the screen and display messages. Using more experienced personnel to create command files which combined these features allowed the package to be operated by the relatively inexperienced people with virtually no startup time. This proved to be the most effective strategy for use. Since the average qperator cannot grasp the concepts of MailMerge without experience and since the number of matrix documents prepared will make everyone into an expert user, it's best to let people do the matrix/command document design.

The command file facility to link documents together at print time allows multiple-file documents to be generated. We did a major report by chapter, giving several typists the work at the same time. A command file was used to link the resulting chapters into a single report. Any number of files may be chained together in this fashion, and maintained on separate diskettes. The operator interface commands enable prompting for the changing diskettes. Once the MailMerge program has been activated it does not return to the program diskette until termination, allowing the use of the "A" drive for these "transient" document files.

Little in the way of enhanced formatting is provided with MailMerge. WordStar print-time format ("dot") commands are interpreted by MailMerge, however. Normally, all paragraphs are reformatted after data is inserted, but this feature may be disabled if necessary. We had a report which contained columnar data, so formatting it had to be suppressed or the column structure would be lost. Text justification may be turned off or forced on for both input and output independently. This allows passages of data or text to be inserted without justification or reformatting of paragraphs, while the rest of the document is reformatted as necessary.

Since the formatting of MailMerge is limited, all formatting must be done via WordStar's screen formatting at the time the matrix document is created. This causes an obvious problem in cases where a command file includes documents with different formats, but that problem can be solved by management or editorial control. A more serious problem stems from the appearance of the matrix document. It is sometimes quite different from that of the final document printed, making the setup of the matrix format, a series of change-print-review-change steps. After 2 or 3 cycles, our operators gave up and let someone else do the matrix documents.

Multiple copies of a document can be requested through the MailMerge print menu, but another way of generating multiple copies is to include the repeat print command in the text file to be printed. This can cause a lot of surprises if the need for duplicates is a temporary one. For example, one user asked for 10 copies of a small report as a part of a generalized report command file. That same file was used later when the format was required for a much larger report, and produced over 300 pages before someone checked what was printing and canceled the job. After that experience we discouraged operators from changing the command files.

The print menu for MailMerge is very similar to that of WordStar, permitting specification of the number of copies, use of form feeds for single-sheet page production, etc. The normal spooled print capability of WordStar is not available in a merge/print because of the additional processing required.

☐ Ease of Use

There are basically 2 steps to using MailMerge: first, the command, matrix document, and possibly database files, are created using WordStar. Second, the MailMerge program is invoked from the WordStar startup menu, the required options are specified, and the desired files merged and printed.

The commands used by MailMerge are similar to the 3 character "dot" commands used by WordStar to control page formatting. Users well versed in WordStar will encounter little difficulty in creating matrix documents, once the function of each command is understood. Achieving that understanding can be something of a tedious under-

MicroPro International Corp MailMerge
Form Letter Production Utility

taking, however, because the reference manual does not fully support the task. In many cases too much attention is devoted to the step-by-step process needed to produce one type of document, while no real information is provided about the function of the command. The consensus of opinion was that matrix document generation was best handled by a select group of experienced WordStar professionals.

The operation of MailMerge is a much simplier task. The program is invoked with a single key from the WordStar menu. Once the filename of the file to be "MailMerged" is entered (the so-called "matrix document"), the operator may fill 7 optional parameters. These parameters set the output device (diskette or printer), select how much of the file to print, determine how many copies are to be printed, and allow paper changes between pages.

One parameter is not quite so obvious, however: the infamous/cryptical "suppress page formatting." This option was not mentioned anywhere in the documentation or index, sending the more curious staff members back to the trial-and-error orientation mode. They quickly reached a conclusion—you never want to do that.

One failing of the MailMerge structure is the way in which special printing formats such as mailing labels must be dealt with. The mailing label must be defined in a matrix letter just as form letters and memos are. This is not inconvenient if only 1 label is printed at a time; however, printing multiple labels on 1 line requires the use of some tricks that are fortunately provided in the manual, since no one would ever discover them on their own. The need for tricks in printing 2-up to 4-up labels is an annoyance, since most companies who require label printing need far too many to be satisfied with 1-up label stock.

☐ Support

The primary source of customer support for MicroPro products is the local dealer. MicroPro's address and phone number are provided in the documentation, but no separate number is provided for customer support. No mention is made of a customer support service. Calls for technical assistance are either met with long (10 minute!) periods of holding for a specialist who is "on another line" or with a request to call an 800 number for the name of your nearest dealer. The lack of phone support was more a philosophical disappointment than a real problem; the kind of questions we had on the use of matrix documents just cannot be communicated over the phone by inexperienced personnel.

☐ System Interface

MailMerge is strictly a WordStar utility, and does not run independently or with another word processor. The package will operate on both WordStar document files and standard text (or non-document) files, and accepts standard text files as database file input. The database format is provided in the reference manual, and the user is instructed to use the non-document mode of WordStar to create these files. Since variable field delimiters and MailMerge commands are all standard printable characters, there should be little difficulty in preparing a matrix letter with another package—provided that package supports the MailMerge conventions.

☐ Vendor Experience

MicroPro is one of the oldest and most experienced software suppliers for microcomputer systems. Unfortunately, its experience with the CP/M marketplace and its peculiar characteristics seems difficult for MicroPro to shake. In the IBM and compatible market, MicroPro is somewhat of a novice, and its product design suggests that the IBM PC products draw heavily from the earlier CP/M designs, even though those designs were based on 8-bit computer systems with external terminals and limited memory.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • available on purchase license from MicroPro, through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally • corporate users may use the same license for multiple systems, in accordance with a special schedule available from MicroPro or included with the software.

Support • support is principally through the dealer network • vendor will provide telephone consulting.

☐ Component Summary

MailMerge is an overlay program used by WordStar to perform MailMerge functions, and containing all those functions unique to the MailMerge package.

MailMerge:

$225 lcns

☐ Computers & Operating Systems Supported

MailMerge runs on the IBM PC under PC-DOS and MS-DOS. It is also compatible with 8086/8088-based systems using MS-DOS, CP/M-86 or MP/M, and 8080/Z80, machines employing CP/M version 2.0 or later.

☐ Minimum Operating Requirements

The minimum hardware requirements vary with the machine's word size and operating system. For 16-bit machines running under PC-DOS or MS-DOS, the minimum RAM required is 64K bytes. For CP/M-86 and concurrent CP/M-86, the RAM requirements are 80K and 256K bytes, respectively. An 8-bit machine requires at least 56K bytes of RAM regardless of the operating system.

Auxiliary storage calls for at least 1 floppy diskette, but 2 are recommended. MailMerge cannot be loaded from a hard disk, but that medium can be used for holding command data and text files.

☐ Features

Display Features • MailMerge provides two display-oriented commands; these are used to clear the screen and also to display messages on the screen; these messages can be used in conjunction with a command to read console data, thus allowing the operator to input information into a file being MailMerged, or to specify a file name to a command file.

Data Insertion Capabilities • data may be inserted into a document from three sources; one source is the command or document file itself, the value of a variable may be set to a constant value

LCNS: license fee.

MicroPro International Corp MailMerge
Form Letter Production Utility

within the file; another source is the keyboard; data entered from the keyboard may be used to replace a variable field in document or command file, allowing quite a bit of flexibility; the third and most commonly used source is a database file; data is read from a database file, the appropriate variable fields replaced in the document, and the document printed; this process is repeated until the end of the database file is reached.

Merge Capabilities • in addition to the merging of a database and document file by use of the data insertion capabilities, MailMerge offers two additional ways of merging files; 2 or more document files may be merged for printing; up to 7 document files may be nested one within the other, while any number may be chained together.

Format Control • format controls with MailMerge are minimal; the only control is to allow the insertion of data into a table without destroying the format of the table.

☐ Other Facilities

MailMerge runs only with WordStar and works with its document and non-document files. WordStar may also be used to create data file support to MailMerge.

WordStar:

$375 lcns

• END

MicroPro International Corp ReportStar
Database Management System

■ PROFILE

Function • data base management used for report creation and generation

Computers/Operating Systems Supported • IBM Personal Computer, PC/XT, personal computers using CP/M (version 2.0 or higher), CP/M-86, MS-DOS, PC-DOS

Configuration • 96K-byte RAM, one floppy drive containing at least 100K bytes each; monochrome display or color/graphics board and the appropriate monitor • MicroPro program product DataStar is required

Current Version/Version Reviewed • 1.4.2/Release 1.0

First Delivery • 1982

Number of Installations • information not available from vendor

Comparable Products • Ashton-Tate dBase II, VisiCorp VisiFile

Optional Associated Software • DataStar is an extra cost package used to improve data entry capabilities

Price • $350 retail price

Vendor • MicroPro International Corp; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-499-1200

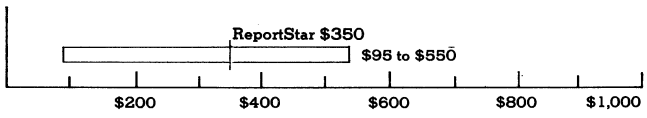
■ ANALYSIS

MicroPro tends to produce products which must be used in conjunction with other members of its product line to support normal corporate computer activities. ReportStar is such a package, working with the DataStar product to provide a complete data base and reporting system. Unfortunately, it is impossible to purchase the packages separately, and the total cost of the two exceeds that of many other products.

ReportStar is composed of two major functions, Quick Reports and User-Designed Reports. Quick Reports allows the user to create usable reports in a minimum of time while User-Defined Reports allows the user full control of the reporting function. Either will accept data from disk files or from keyboard input. It provides the capability for "control breaks" (a control break is the ability to create subtotals when the value of a field changes in a report; an example is a total by employee and another by department). It also allows the user to look up data items on separate files.

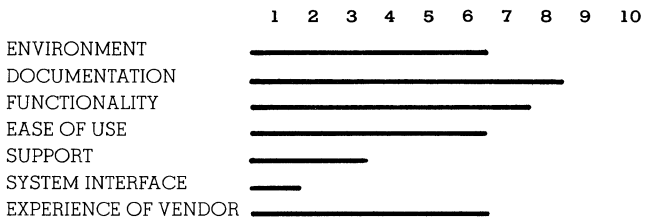
The combination of DataStar and ReportStar generate an environment where the entry and reporting of general corporate information can be accomplished. The packages lack a data base language for more complex program development and thus may be limited in terms of application complexity, but complex development may be a task which corporate management wishes to reserve to its data processing organization.

PURCHASE PRICE RANGE Software Price Range



MICROPRO INTERNATIONAL CORP REPORTSTAR 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 ReportStar, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

The most powerful aspect of this product is probably its "quick report" function. This gives the user a predefined report with menu-driven options which may be selected to tailor the report for the specific purpose intended. If one can live within its constraints, this feature greatly reduces the time needed to produce a report.

The documentation provided with the product is well organized and easy to understand. MicroPro provides six areas of documentation, a General Information manual, a Training Guide, a User Reference manual, a Technical Reference manual, a Command Summary card, and an extensive on-line help facility. Clearly, they have invested a significant amount of time and effort to describe the product, and, even though the documentation is directed at the CP/M environment, it is easy to use on the IBM PC/XT.

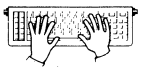
☐ Limitations

ReportStar is not a self-contained product; it requires a program called FormGen which is used to define the data files. The FormGen program is one of the components of the DataStar data entry product from MicroPro. It is a separate entity, not dependent upon any other programs, and could have been included with ReportStar, but was not. MicroPro does offer a product, InfoStar, which includes both DataStar and ReportStar, but does not offer the FormGen program as a separate product. Thus, the user of ReportStar is forced to buy a second piece of software in order to run!!

Without DataStar, ReportStar is pitifully inadequate in the area of data entry. The facility for entering data for a report from the keyboard is very limited. This serves to demon-

MicroPro International Corp ReportStar
Database Management System

strate that the program is unable to function without the assistance of DataStar.



■ HANDS-ON EVALUATION

Buyers of a stand-alone ReportStar have a very short product test to look forward to—the package will not work unless you have the FormGen portion of DataStar, another MicroPro product. Since DataStar is generally useless without ReportStar, and vice versa, users would purchase InfoStar. That product is a combination of DataStar and ReportStar at a lower combined price.

We first read through the instructions provided with the product, specifically the Addendum: InfoStar 1.0 For Your Microcomputer. (Yes, we had to get the FormGen program so we chose the combined package, InfoStar.) It contained special instructions for the IBM Personal Computer which were of special interest to us. We followed MicroPro's suggestion to make copies of each disk, but chose to place all of the ReportStar files on one diskette. As we used DOS 2.0 to format our 320K-byte diskettes, we actually had 360K bytes of usable space. ReportStar, as delivered, takes up 326K bytes of disk space on three separate diskettes. In practice, the training files contained on ReportStar disk 3 will not be required which will allow sufficient room to install a copy of the FormGen program. You are well advised to do that, because FormGen is needed for subsequent operation.

We then asked our technical staff to install the program since there was mention of a custom printer installation. Unfortunately, our printer was not listed among those supported, so we chose the backspacing teletype option. While this option did not support all of the advanced features of our printer, it did allow us to use it.

After installation was completed, we released the product to our secretarial and professional staffs. Both followed through the tutorial provided in the Training Guide without great difficulty. As was to be expected, our secretarial staff felt more comfortable using the Quick Report feature than having to design the reports themselves.

All staff members were able to produce acceptable reports within a reasonable time frame. The tutorial supplied contains 8 chapters each of which emphasizes a particular feature of the product. It took our staff an average of one half of one day to fully complete it.

☐ User Interface

ReportStar uses a combination of menus and control character sequences to supply additional reporting capability to databases developed with the DataStar program. This is not a stand alone program, but requires the DataStar program in order to run. The separation of the entry and reporting functions into two programs creates a sense of disconnection in the combined product.

Menus: Command menus are provided for each functional area. They may be toggled on or off via the Ctrl J control character sequence. The menu structure is extensive and covers all commands and options.

Control Characters: Extensive use is made of control character sequences. Control functions consist of the control key pressed in combination with an alphanumeric key. Generally, the key pressed is related in some way to the command name, but there are many such functions and the relationships are sometimes tenuous.

Function/Special Keys: Selected control character sequences have been redefined as function keys. Either method, control sequence or function key, will invoke the function. The reference manual does not list the values of the function keys. For that, one must go to the reference card or the special instructions for the IBM-PC.

Command Language: None.

Positive Feedback: Multilevel prompt structures and requests for confirmation of steps indicated are used to lead the operator through the entry process. Commands with potentially harmful effects require specific confirmation.

Status Display: The report name, file name, and the number of columns used are displayed in the status line. The number of columns used is the greater of the length of the data field plus two or the data field name.

Help Facilities: The command menu is displayed on each screen. It may be toggled on and off via the Ctrl J (function key F1) command. The menu is a comprehensive list of command options.

☐ Environment

MicroPro recommends that the IBM PC/XT have a minimum of 96K bytes RAM in order to function optimally. We suspect that the sort program included, FORMSORT, will be the only piece of the product to benefit from additional memory, but did not verify it. FormGen is designed to run in 35K bytes RAM which is well within the 96K bytes RAM required by ReportStar.

We tested using an IBM-PC with 256K bytes RAM, two 320K-byte disk drives, a monochrome display, and an Anadex WP6000 printer. We had no hardware problems and were able to fit all of our test applications without difficulty.

We tried two separate installation procedures for the printer since it was not on the list of those supported. First, we configured it as a backspacing teletype device. This supported most of our reporting needs and did not require the involvement of our technical staff. Our second installation, performed by our technical group, involved the detailed configuration of the printer as described in Appendix B of the Reference Manual. By having this done, we were better able to utilize the considerable features of the printer; however, the installation took longer and was much more complex.

☐ Documentation

Documentation is one of the strengths of this product. Five separate manuals are provided in two IBM-style binders. The first manual entitled simply REPORTSTAR, contains the Addendum, the General Information manual, and the ReportStar Training Guide.

The addendum contains specific instructions for the IBM Personal Computer and the Apple II computer, tips on managing files, and a model illustrating the use of the product. The General Information manual contains an overview of the product, suggestions for its use, and its interfacing with other MicroPro products.

The second binder, entitled REPORTSTAR REFERENCE MANUAL, contains detailed instructions on the operation and use of each of the programs included in the product: Quick Report (RGEN), File Description (REDIT), Report printing (REPORT), and Sorting data files (FORMSORT). In addition, appendices are provided which give additional instructions on certain areas such as installation procedures and preparation of report index files.

Also provided is a quick reference card. This is generally helpful as you become more familiar with the product, as it reduces the amount of time you need to spend reading the manual. Our technical staff generally found that the card was too basic for use during the learning period and unnecessary thereafter, but occasional users found it helpful.

☐ Functionality

As has been mentioned before, the ReportStar program is functionally incomplete. The FormGen program, a required program, is not part of the product.

MicroPro does include two report preparation modules, RGEN and REDIT; a sort module, FORMSORT; and a report print module, REPORT. None of our staff had any significant difficulty with any part; however, it soon became clear that reports could be produced much more quickly using the Quick Report facility of the RGEN program.

Our secretarial staff was much more comfortable in using the five-step approach offered by the Quick Report function. First, they entered the name of the report which they were about to create. Second, they selected the file which will be reported upon. Third, they chose the individual fields within the file which will make up the report in the specific order wanted. Fourth, they specified the field summarization wanted (total, average, minimum, and maximum are available). And finally, they passed through the report completion phase which allowed them to indicate the disposition of the report specification (save, abandon, etc).

MicroPro International Corp ReportStar
Database Management System

Our technical staff preferred the intimate control that the Report Edit program offered. With it, they were able to specify detailed information about each file to be used, layout the report format in detail without the constraints inherent in the Quick Report program, and define each data field in the report. The structure of such changes is somewhat unusual; there are fixed points in the report generation process where user coding in a high-level pseudo-language can be inserted. The process is similar to so-called "own coding exits" supplied in some mainframe sorting and reporting products.

Our professional staff preferred a combination of the two. They liked to lay out the basic criteria for the report using the Quick Report method, then use the Report Edit function to provide any tailoring necessary. It is possible to start a report using the basic Quick Report structure, then tailor the document using the Report Edit, a combination which most of the managers found valuable.

If the file to be used is not in the correct sequence and the index file associated with the file does not contain the key field(s) for the particular report wanted, the file must either be sorted or a new index built with the appropriate keys. The FORMSORT program included performs these functions and more. It will sort a data file without creating a new index, create a new index without altering the sequence of the data file, or merge two or more files to make a single data file with or without creating a new index. Our secretarial staff was not enthusiastic when asked to perform this function and generally deferred to either the professional or the technical staff.

Finally, when the report specification is complete and ready for a run, the Report Print program, REPORT, executes the report to the specifications given. None of our staff had any difficulty with this program. It is generally self-explanatory and allows the user to specify whether the report is to be placed on disk for later printing or to be routed directly to the printer. The purpose of routing the print run to the printer is to allow the enhancement of the report through the facilities of WordStar, the MicroPro word processing product, or to save the report for later printing.

☐ Ease of Use

Our staff found ReportStar to be well documented and illustrated, but some portions of the product were found to be easier to use than others. No one on our staff had any difficulty with the Quick Report program; all were able to produce credible reports with it after performing the appropriate chapters in the tutorial.

Our secretarial staff and to a lesser extent our professional staff had some questions concerning the Report Edit program even after working through the tutorial. All of the questions encountered were answered by a careful reading of the appropriate chapters in the manual or a more careful execution of the instructions provided.

Our secretarial staff was also reluctant to attempt the sorting feature, but after a while of hand holding by our technical staff, they were able to create new index files like veterans. Our professional staff was able to use the sort feature with little or no trouble.

The help facility provided with the product was found to be quite "helpful" by all members of our staff. Whenever an error was detected by one of the programs, the error message displayed contained a reference number which pointed directly to a specific command in the Reference Manual. This eliminated having the user fumble through an entire table of error messages to find the appropriate one, then flip to the command which sent the message for the proper syntax. Instead, the user was directed to the right page of the manual immediately.

☐ Support

MicroPro will provide updates, customer service and a newsletter only if the End User Agreement Acknowledgement Card is signed and mailed.

MicroPro products are designed for a single user on one computer; however, by paying a license fee, additional users may be added to the system. This ranges from a single license required for one to two to ten licenses for 82-100 users.

MicroPro's first line of defense is the dealer, but as our questions were aimed at the internal workings, we wanted to speak directly to MicroPro. We wanted to know when an IBM version of the manual would be produced. We also wondered if and when our non-IBM printer would be supported in installation.

We called MicroPro at the California number. All support lines were busy and a recording gave us an 800 number for "dealers in your area or brochures." We chose dealers and called the one given. They were unable to find someone familiar with the product.

☐ System Interface

Like other MicroPro products, this one is designed to work in concert with its relatives. Specifically mentioned in the literature provided are WordStar, a word processing program; CalcStar, a spreadsheet program; and DataStar, a data base entry program. The FormGen program, a component of the DataStar program product is required for the product to work properly and must be purchased separately. Since the documentation provides no guidance for the use of data sources other than DataStar, we did not attempt to use ReportStar with any other products than DataStar.

☐ Vendor Experience

MicroPro is an established vendor of personal computer software, but the majority of their experience has been in the area of CP/M systems, typically used by small businesses rather than by corporations. DataStar and ReportStar were conceived in a CP/M environment and adapted for use on systems such as the IBM PC.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • ReportStar is available for purchase only from MicroPro International Corporation, through computer dealers, software dealers, and mail order firms throughout the United States and internationally • it is also available as a part of the InfoStar package which is distributed as above and retails for $495.

Support • package updates, customer service and newsletter provided when End Year Agreement Acknowledgement Card is mailed • 800-number provides dealers in user's geographic area.

☐ Component Summary

ReportStar is provided on three 160K-byte disks.

FORMSORT is a program to sort the data files and/or create new indexes. It contains both a COM and an OVR segment. INSTALL is a program to custom tailor a printer to the product. It contains both a COM and an OVR segment. REDIT is a program to build detailed specifications for a report. RGEN is the "Quick Report" program to generate standard reports. REPORT is a program to process the report specification and actually create the report.

Five additional data files are provided for the tutorial each of which contains a definition (DEF), a data (DTA), and an index (NDX) component • CLIENTSR is a reference file of clients; INVCE is a file of invoices; PAYMENTS is a file of payments; PRODUCTR is a product reference file; STAFF is a file of staff members.

ReportStar:

$350 lcns

☐ Computers & Operating Systems Supported

ReportStar runs on the IBM Personal Computer, PC/XT, personal computer using CP/M (version 2.0 and higher), CP/M-86, MS-DOS or PC-DOS.

☐ Minimum Operating Requirements

ReportStar requires a minimum memory of 96K bytes and one floppy disk with 100K bytes. A monochrome display on color/graphics board and monitor are also necessary. Required software includes MicroPro's DataStar for data entry and a FormGen program to define data files

LCNS: license fee.

MicroPro International Corp ReportStar
Database Management System

☐ Features

Record Size Limitations • uses DataStar files.

File Size Limitations • uses DataStar files.

Field Size Limitations • uses DataStar files.

Key Field Limitations • maximum of 9 control break fields.

Screen Format Definition • primitive entry formats definable in ReportStar, but DataStar is the normal vehicle for data entry.

Entry Edit Capabilities • uses DataStar for entry.

Report Format Definition • Quick format language uses non-procedural specifications via entry forms • Report Edit facility permits prompted specification of detailed report formats in semi-procedural format • up to 255 columns may be supported, 9 control break fields, and sorting on up to 25 key fields with an aggregate length of 120 characters.

Query/Selection Capabilities • report Edit features permit selection of records for inclusion in reports based on tests coded in a high-level pseudo-language.

Programming & Batch Processing Capabilities • printing can be affected by high-level program statements during input selection, print generation, calculation of report fields, and end processing • programs may perform calculations, clear fields, read data from a file, and control pagination.

• END

MicroPro International SpellStar
Spelling Correction Utility

■ PROFILE

Function • spelling correction and dictionary maintenance • runs as a utility under WordStar word processing package.

Computers/Operating Systems Supported • IBM PC and PC-DOS • 8086-/8088-based systems using MS-DOS, CP/M-86 or MP/M • 8080-/Z80-based systems using CP/M version 2.0 or later releases.

Configuration • 16-bit microprocessor requires minimum of 64K bytes of RAM • systems running CP/M-86 requires 80K bytes of RAM; concurrent CP/M-86 require 256K bytes of RAM • 8-bit microprocessors need at least 56K bytes of RAM • double-sided, double-density diskette recommended; single diskette possible if file is small enough for sorting in memory.

Current Version/Version Reviewed • Version 3.3 for 16-bit systems; 4.0 for 8-bit systems/Version 3.30 for the IBM PC.

First Delivery • September 1981.

Number of Installations • information not available.

Comparable Products • PeachTree Spelling/Proofreader.

Optional Associated Software • none.

Price • $250.

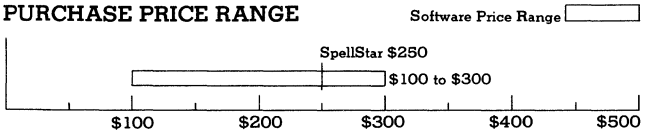
Vendor • MicroPro International Corporation, Inc; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-499-1200.

■ ANALYSIS

Spelling is often a problem in business documents, especially where professional or technical personnel key their work directly. If no quality proofreading is available, a spelling checker program can help produce quality work for external or internal distribution, without slowing the writer excessively.

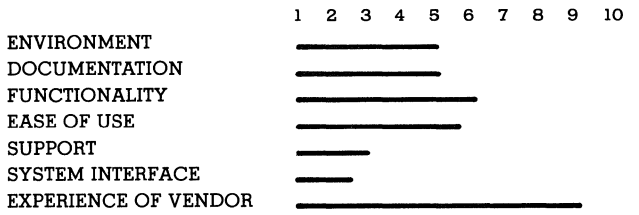
SpellStar is a useful addition to the WordStar word processing package. Command and menu formats are compatible with WordStar; a user familiar with that package will have little difficulty in learning to use SpellStar. Package operation is easily learned, but execution is a little time consuming. The dictionary at 20,000 words, is large enough to flag almost every non-technical term misspelled. SpellStar allows dictionary updating and supports the creation of subordinate dictionaries, so names and technical terms soon cease to be a problem. Additional dictionaries may be purchased, created with a word processor, or built from documents being corrected.

PURCHASE PRICE RANGE



MICROPRO INTERNATIONAL SPELLSTAR PRICING • open bar shows the typical range of prices for **SPELLING CORRECTION UTILITY** software used in a corporate environment • the vertical line within the bar graph indicates the price of **SPELLSTAR**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

SpellStar is easy to use, and the command and menu structures are fully compatible with WordStar. The spelling check process, while complex, is fully controlled by the user so that special terms are not "corrected."

The dictionary provided with the package is comprehensive enough that most documents do not present any difficulties, although some esoteric words were able to confound the package slightly. In an average 1,500-word document, the number of non-technical words not included in the SpellStar dictionary varied from zero to around a dozen.

Supplemental dictionaries containing names and technical terms may be purchased and converted by SpellStar, or they may be created by the SpellStar dictionary maintenance utilities. While checking a document, SpellStar creates a file containing flagged words that may in turn be added to either the main or subordinate dictionary, or used to create a new dictionary. This multiple dictionary facility encourages the development of special-purpose dictionaries for departments, groups, or even individuals.

☐ Limitations

SpellStar is strictly a WordStar utility and will not run independently, or with another word processing package. The documentation supplied with SpellStar 3.30 is a supplement to the documentation supplied with WordStar 3.30. If earlier versions of WordStar support the SpellStar option there may be inconsistencies in the documentation, while some earlier versions of WordStar may not support SpellStar at all.

The sections of WordStar 3.30 tutorial manual dealing with SpellStar are clearer and easier to read than the documentation supplied with the SpellStar package itself. The correction process, made clear in the WordStar tutorial, is NOT clear from reading the SpellStar manual supplement.

MicroPro International SpellStar
Spelling Correction Utility

SpellStar does not offer an auto-replace feature. When a word is flagged as incorrect, the user must make one of 5 decisions to fix the word. At this point, SpellStar enters the WordStar editor, and the user must make the correction manually. This manual correction saves dictionary space by eliminating the need to carry misspellings and the associated correct spelling, but results in many frustrating passes through material to correct it.

■ HANDS-ON-EVALUATION

The packaging of the SpellStar manual is excellent, but the material inside varies in usefulness. Purchasing SpellStar after WordStar is likely to create a problem for users accustomed to the excellent WordStar material.

Installation of the product is easy, since SpellStar is copied onto the WordStar disk in order to run. The excellent installation instructions describe everything in excruciating detail. Like WordStar, SpellStar tends to assume that the reader of the manuals has ABSOLUTELY NO IDEA WHAT COMPUTERS DO, an assumption we found caused some problems because actual users tended to tune out on the manual and try things on their own.

SpellStar is not copy protected, so setting up each user with a copy and a private library of words is not difficult. A private copy might be considered essential, since the package flags every bit of jargon (usually nonstandard English). Giving each user a private dictionary lets each define unique terms.

The initial use of SpellStar is certain to be marred by the problems with technical and special terms. But once a private dictionary is developed, the operation goes much smoother and resentment over the false errors lessens. All the users felt that by the end of a week's testing the product had reached a state where it was quite useful.

☐ User Interface

Menus: Menus are used to control all SpellStar functions. The main SpellStar menu is obtained from the WordStar startup menu. This provides access to the dictionary maintenance menu and the spelling check menu. The spelling check menu is used to select parameters such as document filename and drive, dictionary name and drive, and the drive to be used as a work disk. The dictionary maintenance menu is used to select similar parameters, and also to specify if the maintenance pass is for word addition, deletion, or both. Main and supplemental dictionaries are maintained separately, a parameter specifying the type of dictionary is set in this menu. Default values are provided for all parameters.

Control characters: Control character sequences are used during the correction phase of SpellStar operation. Once the misspellings have been flagged in the text, the WordStar editor is automatically entered by the SpellStar program. Normal WordStar editing commands are used to correct misspellings. In addition, a control sequence is used to move through the text to the next error, after an error has been corrected using the editor.

Function/special keys: None.

Command language: None.

Positive feedback: Positive feedback is provided for three dictionary maintenance related functions. When a word from the document is selected for entry in either the main or supplemental dictionary, confirmation is required before a record of the word's selection is made. When a word is to be deleted from the dictionary during a dictionary maintenance pass, confirmation is required before the word will be deleted.

Status display: Status displays are provided for both the spelling check and dictionary maintenance functions. These displays are updated continuously during the operation. The spelling check display provides information about the length of the document in words, the number of different words in the document, the number of misspellings, and the total number of misspelled words. Also indicated is the number of dictionary words that have been checked. The maintenance display provides information about the beginning size of the dictionary, number of words added and deleted from the dictionary, and its ending size.

Help facilities: A number of fold-out charts are provided in the SpellStar documentation. These detail the operation of the package. No online help function is available.

☐ Environment

The memory requirements for SpellStar are identical to those of WordStar. Only 64K bytes of RAM are required on the IBM PC. Additional memory is no benefit to SpellStar.

MicroPro recommends the use of 2 double-sided, double-density diskette drives. This is an increase over the requirements of WordStar. The need for increased diskette capacity stems from the size of the dictionary files involved, and the space necessary for the temporary work files created by SpellStar. Early systems equipped with single-sided drives may still use SpellStar, but a certain amount of diskette shuffling is required. Systems with a single disk drive are limited to correction of very small documents.

The diskettes supplied are not copy protected, so setup of user environments is easy. The only problem we had was that SpellStar, like WordStar, always wants its program files on the "A" drive, even on hard-disk systems.

☐ Documentation

The documentation provided consists of a reference manual, a pocket guide, and removable fold-out charts detailing the menus. The pocket guide is common to all the WordStar optional utilities, and is not really of any value to SpellStar users. The fold-outs show the menus available for each main logic path; spelling check, and dictionary maintenance.

The manual is a supplement to the WordStar reference manual. It does not contain a tutorial section, as this is part of the WordStar tutorial. The manual is difficult to use, owing both to its reference orientation and the way MicroPro approaches the reference manual concept. The tutorial section included with WordStar is much better, and our staff discarded the SpellStar documents as soon as the WordStar tutorial section was discovered.

☐ Functionality

SpellStar is divided into two main functional areas: spelling check and dictionary maintenance. The spelling check

MicroPro International SpellStar
Spelling Correction Utility

function is a straightforward, multiphase process. In the first phase, the proofreading phase, the input file is compared with the dictionaries word-by-word. Statistics are compiled and displayed. Professionals used the statistics to measure the writer's vocabulary and to count the number of words being published. As a bonus, the number of unique words flagged helped determine if the document was too technical.

In the second phase, "misspelled" words are flagged in the file with an "@" and optionally listed on the monitor. A backup file is created during this phase so that an unmarked copy is always available. Listing the words on the monitor seemed initially a waste of effort—most users felt that it just cluttered the screen with information you couldn't use anyway. We found a use for it later.

During the third correction phase, the text is scanned and each word is displayed in the text. Then one of the five options may be selected: the word may be ignored; it may be marked for inclusion in the main dictionary or the supplemental dictionary; it may be bypassed; or it may be fixed. Selecting the ignore option causes the "@" mark to be removed. The "mark for inclusion" option removes the "@" and adds the word to a separate file maintained on diskette. This file is used in the dictionary maintainance phase to add and delete words from the dictionaries. Bypassing the word leaves the "@" mark for future reference.

Selecting the fix option causes the program to go into edit mode, where the user fixes the mistake with normal WordStar edit procedures. A WordStar Ctrl-L function is used to return to searching for misspelled words. When the pass is completed, the document file must be saved using one of the WordStar save options. This process can be tedious, especially early in the use of the product when many words appear as questionable because of the normal business or special vocabularies used.

Some users made wholesale errors with a single word—the "I really thought that was how it was spelled!" school. These people sometimes wanted to use the global replace feature of WordStar to correct the problems, and skipped these words in the text to save effort. We found that skipping over words tended to be a bad practice—they sometimes did not get corrected at all. The best way to handle this type of problem is to request a list of the misspelled words, write them down, and NOT have errors flagged in the text. The major errors can then be corrected by global replacement and another spelling check initiated.

The dictionary maintenance function allows the creation of new dictionaries as well as the maintenance of existing ones. Words are added and deleted from existing dictionaries from a file maintained on diskette. This file is created automatically during a correction pass when the add option is selected, and may also be created with a text editor. New dictionaries can be created in this way, and dictionaries purchased from other sources can be converted to SpellStar format by using a variation of this procedure. A list of the words in the dictionary may also be obtained.

Adding words to the main dictionary can be time-consuming because of the dictionary sort; systems with only single-sided disk drives probably cannot perform main dictionary updates at all due to space limitations. We found that private or group dictionaries were a better solution than changing the main one; all of the staff had their own and there was some sharing of sections. The accounting organization found it advisable to construct a basic accounting dictionary and let each accountant add to it as needed. These private dictionaries are called "supplemental dictionaries" in the program documentation.

Adding any word to the dictionary causes SpellStar to "remember" the fact that the word is now valid and drop the flag of subsequent repetitions of the word—something which can make a lot of errors disappear in a rush, and possibly make a user wonder if something is missing.

All levels of SpellStar users were able to make the product work productively once the private dictionaries were built.

☐ Ease of Use

The SpellStar program, like WordStar, is entirely menu driven. The commands are generally simple one letter responses to questions shown on the menu, or entry of the specified filename. Some combinations of options are not immediately obvious, though, and it is necessary to read the tutorial sections in the WordStar manual before full confidence can be achieved. We found that regular use instilled a high measure of confidence in all personnel types within several days.

While the spelling correction procedure is effective, an auto-replace feature might be a nice option. Most testers felt that the majority of mistakes caught by SpellStar were typos, but one tester complained that if he couldn't spell the word the first time, he wasn't going to be able to do so a second. This was, in fact, the major source of complaint on the package—the lack of even simple auto-correction.

The procedures necessary for operation with single-sided diskettes are ponderous, requiring a lot of diskette swapping. These same procedures could make double-sided diskettes necessary when operating with very large documents, particularly if a large supplemental dictionary is used. The procedures for dividing the word processor, dictionaries, and document files among different diskettes could be better explained. One report of about 100 pages could not be spell-checked unless it was copied to a fresh diskette for the process, and that fact was not initially obvious. You need approximately twice the space a file takes in order to check it; if you have a file of 100K bytes, you'll need another 100K as work space.

☐ System Interface

Since SpellStar is strictly a WordStar utility, it is not possible to run the program independently or with another word processor. Any conversion of files from other word processors to be used by SpellStar must be done by WordStar. SpellStar does provide for the conversion of other dictionary files to SpellStar dictionary format, and also allows dictionary files to be built from text editor input.

We tried the dictionary conversion process with a file of words taken from a remote minicomputer. The data was formatted in basic ASCII, and SpellStar accepted it with no difficulty.

MicroPro International SpellStar
Spelling Correction Utility

☐ Support

The primary source of customer support for MicroPro products is the local dealer. MicroPro's address and phone number are provided in the documentation, but no separate number is given for customer support. No mention is made of a customer support service.

We got MicroPro's number and called them with some questions on the optimum structure for external dictionary sources. We were passed quickly to a person who apparently knew something of the programming of the system, and the question was quickly answered.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • SpellStar is available on a purchase license basis from MicroPro International, through computer dealers, software dealers, or mail order suppliers of software products throughout the U.S. and internationally.

Support • the vendor will provide telephone support but apparently does not encourage it (no support service phone number is given) • primary support is through dealers.

☐ Component Summary

Software elements consist of a spelling checker program and a dictionary. SpellStar is the spelling checker program provided as an enhancement to the basic WordStar word processor; the program must be copied to the WordStar disk for use. Spelling Dictionary is a dictionary of 20,000 words which can be upgraded to include user terms and special constructions if desired.

SpellStar:

$250 lcns

☐ Computers & Operating Systems Supported

The package runs on an IBM PC under PC-DOS. It is also compatible with systems employing 8086/8088 microprocessor and MS-DOS, CP/M-86 or MP/M operating systems. Those PCs with 8080/Z80 micros can use SpellStar under CP/M Version 2.0 or later release.

LCNS: license fee.

☐ Minimum Operating Requirements

For 16-bit microprocessors, the package requires at least 64K bytes of RAM. Those PCs running under CP/M-86 or concurrent CP/M-86 will need 80K or 256K bytes of RAM respectively. The vendor recommends a double-density, double-sided diskette for best results. If the files are small enough for memory sorting, however, a single diskette will work.

☐ Features

Display Capabilities • SpellStar can provide a list of misspelled words, and also flags misspellings in the text for editing • errors are corrected using WordStar, during the editing process all of that package's features are available.

Correction Features • none • this package only indicates which words are not contained in the dictionaries used during the spelling check; misspellings are not corrected automatically, nor are suggested spellings or possible synonyms provided.

Error Detection • only misspelled words are detected • no capacity for detecting repeated words or punctuation is provided.

Reformat Capability • none • reformatting of text after the insertion of additional characters is done manually using the WordStar reformat command.

Dictionary Capability • the dictionary provided with the package contains 20,000 words; additional dictionaries may be defined by the user; 2 dictionaries may be used during one pass through the document; words from the document may be flagged for inclusion in the dictionaries • dictionary maintenance is a separate task independent of the spelling check.

Edit Capability • full editing capabilities are provided through WordStar, allowing changes to text as well as spelling correction.

• END

MicroPro International StarBurst
Systems Utility Package

■ PROFILE

Function • systems utility.

Computers/Operating Systems Supported • IBM Personal Computer, PC/XT, personal computers using CP/M (version 2.0 or higher), CP/M-86, MS-DOS, PC-DOS.

Configuration • 96K bytes of RAM, 2 floppy disk drives containing at least 120K bytes of RAM each; monochrome display or color/graphics board and minimum screen size is 20 lines by 80 characters; maximum screen width is 132 characters; hard disk is recommended.

Current Version/Version Reviewed • Version 1.0/Release 1.0.

First Delivery • July 1983.

Number of Installations • information not available.

Comparable Products • unique product; no known comparable products.

Optional Associated Software • none.

Price • $195 retail price.

Vendor • MicroPro International Corporation; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-499-1200.

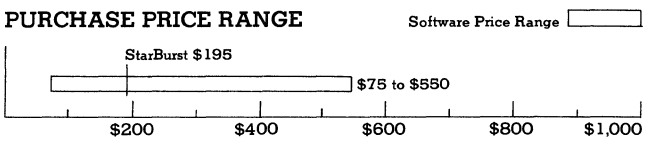
■ ANALYSIS

One of the areas missing in the world of corporate microcomputer users has been that the user had to know all of the details about how the computer worked and what steps were necessary for the successful invocation of each program that was to be run. This has meant that top executives, who could ill-afford the time to learn the nuances of microcomputer systems, were forced either to pick up enough about the systems to "get by" or resign themselves to do without the power that the microcomputer brings to their fingertips.

MicroPro's answer to this dilemma is StarBurst. It provides a vehicle for the automation of a given function by creating menus and tasks. The menus allow the user to choose one of many options; for instance, which program is to be run. The tasks contain the actual commands necessary to accomplish the work.

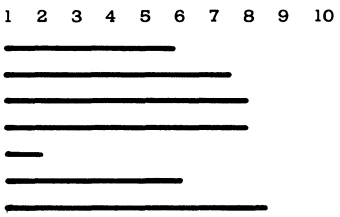
With StarBurst, MicroPro has created a means of "canning" the steps necessary for the successful completion of a highly complex and technically involved task or tasks. The user merely picks from the menu, answers the questions asked, and mounts the disks requested in the appropriate drive. The technical details of how each task is accomplished need only be entered once by an expert to be used by all. (The user must, of course, possess the resources, including StarBurst, to accomplish the task.)

PURCHASE PRICE RANGE



MICROPRO INTERNATIONAL STARBURST PRICING • open bar shows the typical range of prices for **UTILITIES** software used in a corporate environment • the vertical line within the bar graph indicates the price of **STARBURST**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

Although it is designed to interface particularly well with other MicroPro products, it is not restricted to them. It will support most products that follow the standard operating system procedures. It does have a stated problem with those programs which load at a particular address. We thought that this might apply to the ".COM" class of operating system commands, but we found that CHKDSK.COM worked while EDLIN.COM and COMMAND.COM did not.

StarBurst uses the term "menutree" to mean the set of choices from menus with the appropriate procedures to accomplish the tasks indicated by those choices. They isolate the creation of a menutree from its use by means of a password. We found that this provided a level of protection against inadvertent and unauthorized alterations.

The user is not forced to use the limited screen editor provided by StarBurst for the development of the menu screens and the task command lists. The screens and tasks may be written to and read from independent files; however, they must be processed by the StarBurst command processor before they become part of the working version.

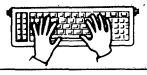
☐ Limitations

The documentation provided with StarBurst, while aesthetically beautiful, is written primarily for the CP/M user, MicroPro's first and perhaps still-favorite market. The only references to the IBM personal computers are contained in a three-page addendum specifically for them. Elsewhere in the manuals, commands are referenced by their "control character" sequence ("while holding the CTRL key down, key . . ."), even when they have function key support (keys F1 through F10 on the left-hand side of the IBM-PC/XT keyboard).

MicroPro International StarBurst
Systems Utility Package

The screen editor provided does not live up to expectations. It does not support "block" commands such as "move" and "copy" which make it a poor vehicle for creating either menu screens or task command lists. MicroPro has also failed to go the extra mile in providing for graphics input. It is supported, but it takes a 4-key sequence to enter each graphics character.

In the production of StarBurst, MicroPro has demonstrated that they are very much aware of the power and professional appearance that color adds to a display screen, however, they chose not to implement the ability to add color to the user menu screens created via StarBurst.



■ HANDS-ON EVALUATION

StarBurst comes packaged in the now-familiar IBM-type slipcase with a high-quality binder to hold the 2 manuals which comprise the documentation, the Builder's Book and the Workbook. Included separately is an addendum entitled "StarBurst for the IBM Personal Computer." In the addendum are some key instructions stating that the program has been tailored for the IBM-PC and the IBM-PC/XT and, consequently, no installation is necessary. We missed the paragraph the first time through and it cost us some time and trouble trying to follow the installation procedures in Appendix B of the Builder's Book. After installation was complete, we followed MicroPro's suggestion and made a backup copy of the distribution disk, which is not copy protected, and began the tutorial.

The on-screen tutorial consists of 5 lessons. MicroPro supports them with 2 included menus entitled "Preview" and "Model." The first lesson acquaints the user with the broad view of the product through the menu Preview. Lessons 2 through 5 lead the operator through the actual design and construction of a "Model" menu map. We finished the tutorial without incident in about an hour. The only distraction we found was that the documentation is written for the general CP/M user; consequently, none of the particular values of the IBM function keys are illustrated. Instead of stating that the key for additional information is the function key F1, the documentation shows a control-J (meaning "while holding down the CTRL key, depress J"). We found it helpful to keep a copy of the keyboard assignment page of the IBM addendum, page IBM-3, handy. StarBurst does provide an indication of function keys which are active on the display screen so the inconvenience is transitory.

After completing the tutorial, we moved on to the acid test. We attempted to build a system control function which would allow us to control our program development cycle. This included 4 main functions: Documentation via word processor, Program Entry via editor, Compilation in the appropriate language and Testing.

We were able to complete our test. We found that the screen editor and error handling facilities had some aspects which made their operation cumbersome. We also verified that the documentation warning programs which load at a specific address like ".COM" files could not run. The results were inconclusive; some .COM programs, such as EDLIN.COM, did not work while others, such as CHKDSK did. The operation was smooth, but it was clear to us that this program was a general implementation not designed to take advantage of all of the features of the IBM family of personal computers, even though a special IBM supplement was included. We were disappointed that, while StarBurst makes good use of color in its own displays, it does not provide the same facility for the menus created with it.

☐ User Interface

StarBurst uses control character sequences to instruct the program in the creation of menus for other applications. Its processing is divided into two segments, one in which menus are built, the other in which the menus are used. The result is the creation of a very user-friendly environment, especially in conjunction with other MicroPro products.

Menus: Within the build phase, user menus and tasks are constructed. The menus created allow the seletion of another menu or a task. The tasks perform some unit of work. The menu and task creation process is itself menu driven.

Control Characters: Control characters are used during the building process to create, update, and delete the elements of both menus and tasks.

Function/Special Keys: Some of the control character sequences are redefined using funtion keys for the IBM PC. It is possible to perform all of the functions without using a function key. The use of function keys to replace control sequences would make the IBM PC interface more user-friendly.

Command Language: Eighteen action statements ranging from requesting a value from an operator to starting another program are provided. In addition, two conditional statements are supported: if/else/endif and repeat/stoprepeat/endrepeat. The nesting of conditions within conditions is supported.

Positive Feedback: The user is generally informed whether or not a command has been acted upon. Potentially destructive commands require several steps to complete, and consequently, need little feedback. For instance, in order to delete a menu or task, one must first unlink it. If the menu or task is not empty when unlinked, it will not be deleted. In order to be deleted, a menu or a task must be unlinked and empty.

Status Display: The status line contains the name of the menu system being built, the name of the menu or task currently being worked upon, the default choice (if any), the cursor position, and the status of the insert function.

Help Facilities: Online Help is displayed on the screen by entering Ctrl J or the F1 function key. Ready reference cards are provided for both user and builder.

☐ Environment

Version 1.0 of StarBurst requires a minimum of 96K bytes of RAM with 2 single-sided disk drives; however, at that level, it has very little functionality. MicroPro recommends that StarBurst be run on a hard disk system. We believe that it will provide more functionality on a hard disk system; it would eliminate the diskette switching which is otherwise required if many programs are included in a menutree.

MicroPro International StarBurst
Systems Utility Package

☐ Documentation

StarBurst is provided with documentation on a par with that supplied by IBM. The 2 manuals provided are housed in a slipcase binder similar to IBM's. MicroPro has even supplied index tabs which assist in finding your place quickly.

The 2 manuals, Workbook and Builder's Book, contain explicit instructions on each aspect of the product. They each contain an index. The Workbook is a textual reference for the on-screen tutorial and the Builder's Book is a detailed reference manual. Also, included as appendices to the Builder's Book are examples of use, installation procedures, messages, an ASCII conversion chart, program specifications, and a diagram of the capabilities of the system.

Also included with the documentation are 2 quick reference cards, a User's Map and a Command Card. The User's Map provides a pictorial reference guide to the flow of the StarBurst system, a glossary of terms and a list of commands. The Command Card contains the command list for building a StarBurst menu system.

Our only major complaint about the documentation is that, with the exception of the 3-page IBM insert, the manuals are geared to using control functions rather than function keys. This means that when the user looks up a command in the reference manual, only the control key sequence is present. We found it helpful to write in the function key equivalents for the commands in our manual.

☐ Functionality

StarBurst provides a control structure for executing multiple tasks. Its major features are **menus** which are used to control the flow from one area to another and **tasks** which interface with the outside world, either the operator or a program or both, to perform a function.

We decided to try and set up a menu-driven application development subsystem using StarBurst as the control, but no other MicroPro products were included. (The model system provided as a tutorial contains links to DataStar, the MicroPro data base program; we ran it and it worked.) The application development subsystem would include 4 major areas: Documentation, Program Editing, Compile/Linking, and Testing.

We had no trouble with the basic design of the system. We were able to create the basic menus in a matter of minutes. The menu part of the structure works easily; one merely enters a choice from 1 to 8 characters on the screen, then uses the Control-L, LINK, command to attach it to another menu or a task. Dressing up the menus so that they appeared in a more professional format took much longer. The package does support character graphics; that is, characters which are represented in the IBM-PC's Technical Reference Manual by the decimal values from 128 to 256. The package does not contain a list of these graphic symbols nor does it provide an easy method of entering them. All of them use the cumbersome technique of holding down the ALT key, entering the decimal value of the symbol wanted on the numeric keypad keys, i.e. 1 then 6 then 9, then releasing the ALT key, and then the symbol appears on the screen. It takes considerable time to add the graphics to the screen, but the result is a much more professional looking display. StarBurst does support word highlighting, but rather than increasing the intensity of the color of the display, they chose to implement using reverse video. This provides for black characters on a low-intensity white background. We chose graphics instead. Color graphics would have been ideal, but StarBurst does not support the use of color for the menu screens created with it. MicroPro uses color freely in the StarBurst screens which shows that they are aware of the power of a properly conceived color display; however, they do not provide any means of adding color to the menus that are created using it.

The facility for creating automated functions is isolated from their use by a password which is assigned when the task is begun. This prevents the destruction of the function by someone who inadvertently presses the wrong keys. It does not provide any real means of security against a competent technician who wishes to gain entry.

The task processing portion of the program consists of 18 commands which range from ASKing the user to answer a PROMPT, to RUNning other programs. A limited, but sufficient, logic statement structure consists of the IF and the REPEAT statements which may be "nested" up to 10 levels deep.

The commands can be broken down into 3 categories, those which interface with the operator, the file access section, and the control funtions. The operator commands include the "ask" command, which if present must be the first command of a task: the "prompt" command, which is used in conjuntion with the "ask" command to pose the question to the user; the "clear screen" command, the "display" command, which sends a line to the screen and does not wait for a response; and a "pause" command, which waits for a key to be struck before operation can continue. We found the fact that only 1 question could be "asked" on each menu and that the variable response to an "ask" is not transmitted to any other menu to be restrictive.

The file access commands are used to "set" the default drive to a particular value, "mount" a particular diskette on that drive, then "check" to see that the file wanted is present. We found this mount/check very helpful in setting up applications for novice operators; it keeps them from using the wrong diskette. In addition, the file can be copied, deleted, and renamed at the creator's whim. The "reset" command is only pertinent to CP/M systems. We did not use it.

The rest of the commands fall into the control category. They allow the "task builder" to turn the display of the commands as they execute via the "list/nolist." We found this helpful in debugging our application. They also provide a "remark" statement which allows the builder to leave instructions to aid subsequent builders in determining the intent of the commands. They provide a vehicle for "RUNning" using a program other than StarBurst. We used this extensively. The word processor, program editors, and program compilers were all executed using this command. In conjunction with this, the StarBurst code may be set either in the task to be tested in a program or vice versa. None of the programs we tried supported the test.

MicroPro International StarBurst
Systems Utility Package

Finally, we wanted to include the EDLIN program as one of our choices on the edit screen or our development screen. We did and built a task which asked for the name of the module to be edited then started the EDLIN program with the name given. The task ran but we received an "invalid parameter" message. We could see that the appropriate disk drive was being searched but we did not get an inkling of where the exact problem lay until we read the details of the RUN command again: "generally, any program that must be loaded at a special address in RAM will not work under StarBurst." Any program supplied on the DOS diskette is liable to fit this category.

In general, we were pleased with the functionality offered by this product. We were able to build our menu structure with only a few pitfalls along the way which the careful user can avoid.

☐ Ease of Use

While building the menus and tasks, we resisted the temptation to develop the menu screens and task commands on a separate editor or word processor as we were trying to exercise the muscles of the StarBurst screen editor, but you may find it more convenient to use the editor which suits you best. StarBurst does have the capability to read in an externally created file consisting of up to 100 80-character lines or to write its menu or task to a file which may then be processed by an editor or word proessor. The StarBurst screen does not support block manipulations; that is, commands which operate on a block of text, such as move and copy. These would be helpful in replicating graphics symbols rather than rekeying them. It does support cursor movement by character, word, and line. It also allows the user to scroll the screen by line or page. It supports insert mode and allows deletion by character, word and line. We found the screen editor adequate for building menus and simple tasks, but wished for more power. StarBurst does supply command templates which allow the user to key in the first word of the command, then enter the template key which, on the IBM PC/XT is the function key F4, and have a generic version of the command appear on the screen with the cursor positioned at the first field to be adjusted. We found this to be very helpful in creating new tasks.

We found the manner of reporting errors annoying. First, the text compiler is single-threaded; it stops on the first error which it finds and requires the user to correct it before proceeding. If an error occurs multiple times, the program will find them eventually, but only after each preceding error is corrected in turn. We tried to correct all of the errors that we could find each time an error was detected. It provides the line and column numbers where the problem is located and then the text of the message, but it does not provide either line numbers or a tab scale in the body of the menu. We were forced to count lines and columns or type the RETURN key and lose the text of the message in order to have the cursor positioned at the point of "infraction."

☐ Support

MicroPro products are designed for a single user on 1 computer; however, by paying a license fee, additional users may be added to the system. This ranges from a single license required for 1 to 2 users to 10 for 82-100. MicroPro will provide updates, customer service and a newsletter only if the End User Agreement Acknowledgement Card is signed and mailed.

MicroPro's first line of defense is the dealer, but as our questions were aimed at the internal workings, we wanted to speak directly to MicroPro. We wanted to know when they would support user color on the menu screens and when an IBM version of the manual would be produced.

We called MicroPro at the California number. All support lines were busy and a recording gave us an 800 number for "dealers in your area or brochures." We chose dealers and called the one given. They were unable to find someone familiar with the product immediately. They took our name and number and said they would get back to us. They didn't. StarBurst is not a typical dealer support product, and users should validate their local support in selecting a dealer.

☐ System Interface

StarBurst is structured to interface with most programs. However, some programs characterized by a need to begin at a fixed address, such as COMMAND.COM, will not run under StarBurst.

A special location in memory is used by StarBurst as a means of passing a code to the programs which it executes and a way for the programs to report success or failure. MicroPro has provided code for a BASIC routine which will access this field.

☐ Vendor Experience

MicroPro has extensive experience in personal computer software of all types, but StarBurst is almost an operating system extension and as such is a little outside their normal comfort zone.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • StarBurst is available for purchase only from MicroPro International Corporation, through computer dealers, software dealers, and mail order firms throughout the United States and internationally.

Support • MicroPro will provide program updates, customer service, and a newsletter if the User Agreement Acknowledgement card is signed and returned • primary support is responsibility of local dealer • MicroPro non-800 telephone support also available.

☐ Component Summary

Software elements consist of the following programs and files: SB.COM is a program to initialize StarBurst; SB.OVR is the control program for StarBurst; SB.UTL is a group of utility programs; SB.MSG contains all the messages that appear on the screen; PREVIEW.SB1 and PREVIEW.SB2 are the preview menu tree; MODEL.SB1 and MODEL.SB2 are the model menu tree; and MODELCST.DEF, MODELCST.DTA, and MODELCST.NDX provide the DataStar customer data base model.

StarBurst:

$195 lcns

☐ Computers & Operating Systems Supported

StarBurst is supported for the IBM PC, PC/XT, and other personal computers using CP/M (version 2.0 or higher), CP/M-86, MS-DOS or PC-DOS.

LCNS: license fee.

MicroPro International StarBurst
Systems Utility Package

☐ Minimum Operating Requirements

StarBurst requires 96K bytes of RAM and 2 disk drives containing at least 120K bytes of storage each. Hard disk is recommended. Also requires a monochrome display or color graphics board with minimum screen size of 20 lines by 80 characters.

☐ Features

Security • the integrity of the menu system is protected by a four character password assigned by the first builder; specifying a null password allows open access.

Programs Supported • "Most standard applications programs can be used in a run statement; certain operating system specific programs cannot be used."

Parameters • a single parameter may be passed to each task within a menu system via the "ASK" statement; it is limited to 78 characters; global variables are not supported, thus, a parameter cannot be passed from one task to another.

Task Status Codes • a "system variable" (exit status code) may be set by a program and interrogated by StarBurst for purposes of controlling the execution of subsequent programs; this permits a limited degree of task-to-task communication.

Display Limitations • ASCII graphics are supported; the user must enter them by using the Alt key in conjunction with the numeric keypad on the right side of the keyboard.

• END

MicroPro International StarIndex
Table of Contents & Index Generator

■ PROFILE

Function • generates an alphabetized index and table of contents for documents being prepared under WordStar • lists tables and figures, as well as chapters, sections, and appendices.

Computers/Operating Systems Supported • IBM PC and PC-DOS • 8086/8088-based systems using MS-DOS, CP/M-86 or MP/M • 8080/Z80-based systems using CP/M version 2.0 or later.

Configuration • a minimum of 48K bytes of RAM and one diskette drive; if only one drive is present, a double-sided diskette is suggested; two drives are recommended; StarIndex may be installed on and operated from a hard disk.

Current Version/Version Reviewed • 1.01/Version 1.01 for the IBM PC.

First Delivery • May 1983.

Number of Installations • approximately 100,000.

Comparable Products • unique; no known comparable product.

Optional Associated Software • WordStar is the source of input for StarIndex.

Price • $195 retail price.

Vendor • MicroPro International Corporation, Inc; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-499-1200.

■ ANALYSIS

StarIndex eliminates 2 of the most unpleasant tasks associated with word processing: generating a table of contents and a good index. The mechanical and recordkeeping aspects of either or both tasks is enough to discourage even researchers.

StarIndex handles both marking index items and index production with aplomb. Any style of document can be accommodated through judicious use of the STYLE program that is a part of the package, including the various formats required by a database description document for a large software project, a maintenance manual for a complicated piece of machinery, and a geography textbook.

Indexing is more than mechanics, however. There is nothing in the StarIndex system to make the selection of items for an index anything but a tiresome task. Even the functional potential of the product must be balanced against the amount of time needed to become proficient with it. The selection of index items is managed through insertions of control sequences, a process during which the format and readability of the documents becomes almost hopelessly muddled.

Businesses producing documents which MUST be provided with indexes or tables of contents may find that StarIndex will considerably improve productivity. Those who think that the product will make indexing possible or practical in their normal production environment may be severely disappointed. The additional work required in the creation of the document which StarIndex generates may, for these users, offset the benefits.

☐ Strengths

The strength of this package lies in its adaptability. Any type of document, from a novel to a software database description, can be indexed, tabled, and numbered with equal ease. StarIndex can create an alphabetized index with subentries, and a table of contents which includes a list of figures and a list of tables. It numbers chapters, sections, appendices, figures, and tables in Arabic or Roman numerals, or letters. Headings and reference aids may be printed in boldface, underlined, printed with spaces between the characters, or elongated on dot matrix printers. StarIndex will insert blank pages to make every chapter begin on an odd page. Once the package is mastered, the organization of any large reference document becomes relatively simple. StarIndex can operate on multifile documents, and allows document files to be used.

☐ Limitations

StarIndex can be difficult to learn due to the inherent complexity of the task, the format of the commands, and the quality of the documentation. Because indexing requires supporting control sequences keyed during document production, it impacts the normal keying process and may limit the number of typists or professionals who can be used to key documents.

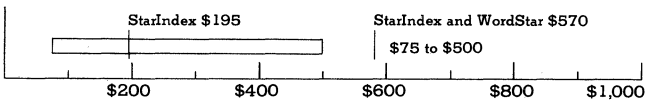
StarIndex is a WordStar utility; it is not intended to operate with any other package. Although the program runs inde-

PRODUCT QUALITY RATINGS*

	1 2 3 4 5 6 7 8 9 10
ENVIRONMENT	
DOCUMENTATION	
FUNCTIONALITY	
EASE OF USE	
SUPPORT	
SYSTEM INTERFACE	Not applicable: interfaces to WordStar
EXPERIENCE OF VENDOR	

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

PURCHASE PRICE RANGE



MICROPRO INTERNATIONAL STARINDEX PRICING • open bar shows the typical range of prices for **INDEX GENERATOR** software used in a corporate environment • the vertical line within the bar graph indicates the price of **STARINDEX**, the evaluated product, relative to the price range of similar products.

MicroPro International StarIndex
Table of Contents & Index Generator

pendently, and may be operated on a non-document text file, WordStar is necessary to print the resulting output files since they contain WordStar formatting commands. The users of other word processors will have to convert to WordStar to use StarIndex, a requirement which may be difficult to justify.

The documentation, especially the pocket guide listing the commands, could stand some improvement. The pocket guide, for example, does not provide the relationships between the index and outline commands, and the format commands that can be used with them. Fortunately, the appendix has a command list.

The support operation needs a lot of improvement. When we attempted to contact the vendor with problems, we were told to go through the dealer. Our local store had no experience with StarIndex, so they were no help at all. The inexperienced user needs all the assistance he can get, but with dealer reliance it's a hit-or-miss proposition.

■ HANDS-ON EVALUATION

StarIndex can be a powerful tool in the production of reference documents. Our technical writers and word processing people tended to appreciate the features provided by the package, once they became accustomed to the disruption in document continuity caused by the StarIndex commands. Programmers and engineers with document generation duties were less enthralled. They had more difficulty with the breaks in "think pace" caused by the insertion of control information to manage the index process. This problem is difficult to overcome; some people just couldn't cope with the document when the StarIndex lines were added. A WordStar command to hide the StarIndex commands might help alleviate this problem.

The package is very versatile. Any style of document can be created, from a novel to a textbook. We used it to generate 3 different types of reference documents with equal success, and the wide variety of numbering schemes and text options ensure that almost anything is possible.

There were some complaints about the style and organization of the reference manual. It is written in a semi-tutorial fashion that detracts from the reference function without providing the benefits of a true tutorial manual. Fortunately, a very comprehensive example is provided in the appendix, and a sample document file is provided with the package to allow experimentation.

☐ User Interface

Menus: None.

Control characters: None.

Function/special keys: None.

Command language: The command language used with the StarIndex program consists of 3 types of commands. The first type is the "dot" command, so named because it consists of three characters, the first of which is always a period. These are used primarily for format control. The second type is the StarIndex directive. These usually consist of 1 or 2 characters, and are sometimes followed by text. These are used to generate index entries, appendices, chapter and section headings, and also control printer options and numbering. The third type of command is a sequence of 2 control characters used to delineate general index entries which are embedded in text. The command characters often represent the function that is controlled by them, which simplifies use of the commands. All commands are entered into a document using WordStar, no editing capability is provided as a part of StarIndex.

Positive feedback: StarIndex displays the filenames of the files created during a run, which is a form of positive feedback.

Status display: The current section number, page number and heading is displayed during StarIndex operation. This information may be used to locate errors when an error message appears.

Help facilities: A command reference card is provided as a part of the package. No online help facility is available.

☐ Environment

StarIndex is not overly restrictive of computer environment. A minimum of 48K bytes of RAM is required, and 2 diskette drives are recommended. This is less memory than is required by WordStar, a dubious benefit since WordStar is a necessary accessory to this package. WordStar is also easygoing on computer environment though, with only 64K bytes of RAM and 1 diskette drive needed. MicroPro suggests that single drive systems be equipped with a double-sided drive. No increase in the performance of StarIndex results from increased memory capacity, although WordStar operation is enhanced if additional memory is available. The use of a hard disk allows files of up to 8 megabytes in length.

StarIndex, unlike WordStar, can be executed directly from a hard disk. This helps reduce the number of disk changes required to create documents. Those that must be made are facilitated by the fact that StarIndex uses a MailMerge command between files if needed. Lack of support for direct hard disk execution in the parent WordStar, however, detracts from the general operational flexibility of the system.

☐ Documentation

The documentation consists of a reference manual, a pocket guide common to StarIndex, MailMerge, and SpellStar, and a removable multicolor fold-out chart that purports to be a quick guide to StarIndex operation. The pocket guide provides a list of StarIndex commands, organized by type. It does not, however, provide the relationships between index and outline commands, and the format commands that may be used with them. This is a serious shortcoming that makes the pocket guide almost useless. Fortunately there is a command list in the appendix that provides most of that information.

The command list in the appendix is probably the single most useful reference aid in the manual because MicroPro insists on trying to blend the functions of tutorial and reference manual into one. When attempting to use the manual as a reference, it is always necessary to go to the index, and sometimes the manual has to be referenced in 2 or 3 places before the desired information can be found. The

MicroPro International StarIndex
Table of Contents & Index Generator

problem is one of structure. The manual is organized by command, but the command explanations are strung together in chapters relating to ways in which they MIGHT be used. Less experienced personnel often find the information provided to be inadequate. The manual would have greatly benefitted from having been generated with StarIndex, which would have at least forced the command explanations into sections.

☐ Funtionality

StarIndex basically provides 4 functions; it can create an alphabetized index; generate a table of contents; number chapters, sections, appendices and tables; and enhance the printing of headings and reference aids. These functions are provided with a flourish, however, and almost any form of document can be created using the proper combination of options.

The StarIndex program is flexible enough to allow personal style to be reflected in document format. The default values provided for document formatting are acceptable for some types of technical documents; however, we found that even when the format was acceptable, the manager or project leader always needed a few minor alterations.

Two methods are available for altering the format of the document: default format and index entries. Default format values may be set using a utility provided with StarIndex. This is called (appropriately) STYLE, and it creates a format control file that is used by StarIndex when the document is generated. This type of format control is particularly applicable when many files are to be created with the same format, and we found that the STYLE concept noticeably improved document consistency.

Default values set by the format file may be overridden by "format directives," consisting of 3 character commands similar in structure to WordStar "dot" commands used to alter the format in the document in which they are contained. This type of format control is more applicable to one-of-a-kind documents.

A minimum of 3 files are created when StarIndex is run. One file is the table of contents, 1 the index, and 1 the text of the document. Entries for the table of contents and the index are generated from the text file based on either "dot" commands or control character sequences.

Index entries consist of general entries and master entries, and may be created 2 ways. For cases where the entry would exactly follow the written text format, text may be marked in place by surrounding it with control character sequences. If a custom structure is required, then a non-printable line may be inserted that contains the index entry text.

Master entries are printed in boldface with the corresponding page number. General entries are printed in normal typeface, also with page number. Both types of entries may have sub-entries, since a major topic may have several sub-topics listed under it. Chapter, sections, and subsection headings may also be included in the index. The complexity of the index structure directly relates to the complexity of keying the index control information, so many of our users began their tasks with grand objectives and quickly retrenched to something more modest. A technical specialist counted the index control entries on a 3-page section and found that there was an average of 1 for each 3 words.

The table of contents is built from chapter, section, and subsection headers. Four levels of emphasis are available for these headings, and the header line is delineated by the insertion of the appropriate level "dot" command on the preceding line. Sections and sub-sections may be numbered automatically, with higher level numbering suppressed if desired. Letters may be used instead of numbers at any level, and chapters may be numbered with upper or lower case Roman numerals as well as traditional Arabic. Headings may be printed with various printer special effects including boldface, double-strike, and underline. In addition, spaces may be inserted between the characters of the title, or the letters may be elongated. Figures and tables can also be included in special sections of the table of contents if desired, and summary desriptions can be entered for each entry in the table. The tables of contents produced with StarIndex are impressive, and worth the slight extra keying effort.

Table of contents and index generation requires page number control. Pages may be numbered consecutively through the document, or by chapter. Any appendices may be numbered with the letter of the appendix followed by the page number, or numbered as part of the document. The index may also be numbered separately, with the page number preceded by the word "index." Page breaks may be set such that chapters always start on odd or on even pages.

Printing files resulting from a StarIndex pass must be done using WordStar or MailMerge. MailMerge is preferred, particularly if the document is contained in more than one file, as the output files from StarIndex are chained together with MailMerge .FI commands.

☐ Ease of Use

The problem with evaluating ease of use is that the task of indexing is inherently unpleasant. People complained constantly about the need to indicate the words to be indexed, but on consideration were unable to suggest any practical alternatives to the StarIndex system. Considering the difficulty of the application, StarIndex is not really all that difficult to use. The biggest problem is the damage that the command lines and embedded control characters do to the format and readability of the document as it displays on the screen. Professional and technical personnel in particular found that the extra material was intrusive and could not adjust to the disruption. Most typists and researchers had no difficulty whatsoever, and were quite happy to deal with the more serious problem of determining the correct entries for the index. One of our research librarians commented that writers should never index their own works; we found it easy to obey that injunction.

There is a definite startup time associated with StarIndex: the task is difficult, and the commands are numerous and sometimes complicated. The problem of coming to grips with the package is made more difficult by the quality of the documentation. The best strategy is to undertake a formal hands-on training period using examples and common source material. Although this is a considerable amount of

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extra work and requires an extended start-up period during which even normal documentation production is impacted, we found no alternative.

Indexing a document is not an easy task, and StarIndex goes further to make it POSSIBLE than to make it EASIER.

☐ Support

The primary source of customer support for MicroPro products is the local dealer. MicroPro's address and phone number are provided in the documentation, but no separate number is provided for customer support, nor is customer support even mentioned. Contacts with MicroPro on some application questions did not produce satisfactory results; even getting a specialist on the telephone requires perseverance. Since our dealer had not used StarIndex (and a quick survey of others in the area found none with experience in the use of the product) we were largely on our own.

The concept of dealer supported software falls short of meeting user requirements with packages as complex as StarIndex.

☐ System Interface

StarIndex is billed as a WordStar utility, and is intended to work only in conjunction with that package. Although StarIndex may be run against non-document text files created by any editor, output files from StarIndex must be printed by WordStar since they contain WordStar formatting commands.

☐ Vendor Experience

MicroPro is an experienced supplier of personal computer software, and has especially strong credentials in the word processing area. The design of the product reflects this experience, but the support and documentation testify to a remaining "small user" orientation where the buyer of the software was a hobbyist or technician.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • StarIndex is available for purchase only from MicroPro, through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally.

Support • technical support is rendered by local dealers • no official vendor support is indicated.

☐ Component Summary

StarIndex components consist of the following programs and documentation. STARINDX.COM, STARINDX.OVR are program files used during index and table of contents generation. STYLE.COM, STYLE.OVR are program files used to generate format files. FORMAT.FMT is a sample format file. MACHINES.TXT is a sample document included as a learning tool.

LCNS: license fee.

StarIndex:

$195 lcns

☐ Computers & Operating Systems Supported

StarIndex runs on the IBM PC under MS-DOS and PC-DOS. It is also compatible with 8086-/8088-based systems using MS-DOS, CP/M-86 or MP/M, as well as 8080/Z80 systems running CP/M Version 2.0 or later.

☐ Minimum Operating Requirements

The minimum configuration required for StarIndex is 48K bytes of RAM and 1 diskette drive (preferrable double-sided); two drives are recommended. Since this package must run in conjunction with WordStar, an additional 64K bytes must be reserved for that package as well.

☐ Features

Display Type • the StarIndex display consists of the original WordStar "near print-image" display, heavily overlaid with StarIndex commands and directives.

Display Feature Utilization • none; the WordStar package used in creating a StarIndex file makes extensive use of half-intensity displays; no additional display utilization is provided by StarIndex.

Command Structure • none; StarIndex is controlled entirely by directives and dot commands imbedded in the text of a document; no commands are used in operating the package.

Merge/Print Capability • both chained and nested printing are supported by StarIndex; both are controlled through the use of a three character "dot" command that is identical to the one used for the same purpose by the MicroPro file management package MailMerge; up to 8 files may be nested, an unlimited number may be chained; these files may be contained on separate disks.

Enhanced Print Capability • StarIndex provides an enhanced printing capability for headings and reference aids such as index entries; printing features supported are: boldface, double-strike, underline, elongate characters, and space between characters.

Reference Aids • StarIndex provides the capability of generating an alphabetized index, a table of contents, a list of figures and a list of tables; index entries may have subentries; chapters, sections, and subsections may be given headings, figures and tables may be provided with captions.

Numbering Capabilities • StarIndex can number almost anything; chapters, sections, and subsections may be numbered to 4 levels; pages may be numbered consecutively or by chapter, and appendixes may be numbered separately; figures and tables may also be numbered.

☐ Other Facilities

Output files from StarIndex contain WordStar formatting commands and therefore must be printed by WordStar. It is intended for use only with the WordStar product. A MicroPro Professional package is available which contains StarIndex, MailMerge, and SpellStar.

WordStar:

$375 lcns

Professional Package:

695

• END

MicroPro International WordStar
Word Processing Package

■ PROFILE

Function • word processing and document development, program source file generation.

Computers/Operating Systems Supported • IBM PC and PC-DOS, other 8086/8088-based systems using MS-DOS, CP/M-86 or MP/M, 8080/Z80-based systems using CP/M version 2.0 or later, DEC Rainbow 100, and TI Professional.

Configuration • 16-bit microprocessors require a minimum of 64K bytes of RAM, block operations are limited to 15 lines of text; larger memory configurations allow greater block size • systems running under CP/M-86 require 80K bytes of RAM; use of concurrent CP/M-86 requires 256K bytes of RAM • systems using 8-bit microprocessors require 56K bytes of RAM minimum • single disk operation is possible; 2 disks are recommended.

Current Version/Version Reviewed • Version 3.3/Version 3.30 for the IBM PC.

First Delivery • 1979.

Number of Installations • approximately 800,000 copies.

Comparable Products • Microsoft Word, VisiCorp VisiWord, Satellite Software WordPerfect.

Optional Associated Software • MicroPro StarIndex and SpellStar.

Price • $495 retail price.

Vendor • MicroPro International Corporation, Inc; 33 San Pablo Avenue, San Rafael, CA 94903 • 415-499-1200.

■ ANALYSIS

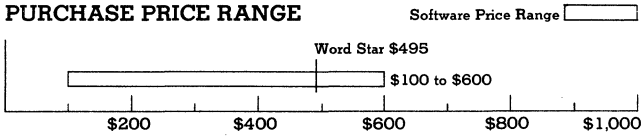
If there is a fully mature and almost universally accepted software product for a microcomputer, it is probably WordStar. While many other products have been developed to unseat this "old generation" product, none have been able to do so. Part of the reason lies in the combination of functionality and ease of use which make WordStar applicable to nearly every level of user.

WordStar is a menu-driven word processor designed for use in memo, document, and non-document production. While it is sometimes considered difficult to learn, the detailed menus and Help displays make it possible to run the package without reference to the documentation. A professional or technical person with only limited familiarity with the package can thus use it successfully, while secretarial personnel will find the speed of operation and functional capabilities to their liking.

The package supports a wide variety of popular printers, both parallel and serial. Memory requirements are not restrictive, and limited operation is possible on 64K-byte equipped systems. Single and dual floppy drive operation is possible, although 2 drives are recommended.

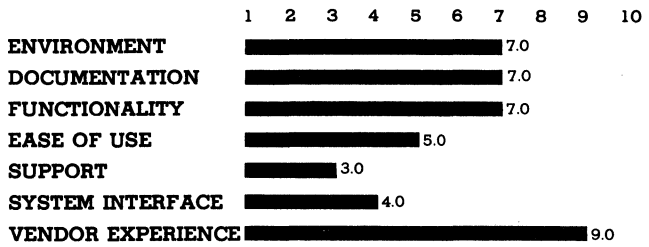
Newer word processors have attracted a following of users, and word processing is probably the most subjective of all PC software. WordStar nevertheless represents one of the best products for broad business applications, and few companies will find a choice of WordStar a decision to regret later.

PURCHASE PRICE RANGE



MICROPRO INTERNATIONAL WORDSTAR PRICING • open bar shows the typical range of prices for **WORD PROCESSING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **WORD STAR**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



***For an explanation of rating criteria, please refer to the Word Processing Features section in the Software Evaluations (805) report. The Overall Package Average is 6.0.**

☐ Strengths

The detailed menus, Help explanations, and field prompts are a definite plus. A person with limited familiarity can run the program without reference to the manual. The documentation is good, and the tutorial manual covers all of WordStar's features in some detail. The keytop labels aid in overcoming resistance to the command structure. Use of the cursor control keys is consistent with keyboard labeling.

The speed of operation, and the richness of formatting and editing commands make WordStar a powerful tool in the hands of an experienced operator. Backup file creation helps reduce the trauma involved in disk and operator error situations alike. The functions provided allow fast and easy generation of both small and large documents, with memo or outline formats presenting no problem. The non-document mode, when coupled with WordStar's screen editing capabilities, makes the package a very powerful program source editor.

☐ Limitations

The command structure of WordStar can be difficult for some people to learn, and the package does not take full advantage of the function keys provided on the IBM PC. Deleting and backspacing are particularly frustrating, making the correction of material much more difficult than usual.

MicroPro International WordStar
Word Processing Package

The documentation is obviously written to cover many different machines and operating systems; some information of importance to IBM PC users is not available in the reference manual, but buried in the installation manual. You are occasionally taken through a series of steps to be greeted with the display that the action you selected isn't appropriate to your system—but those steps were directly out of the manual.

WordStar is not copy protected, and may be installed on diskettes containing the operating system. The default drive for program overlays and menu files is always the A drive, however; thus the program cannot be run from a hard disk.

The lack of features such as multiple text windows, upward building footnotes, and the ability to store phrases for future reference makes WordStar less capable in the generation of articles, and therefore of less interest to writers.

■ HANDS-ON EVALUATION

WordStar is not an easy program to learn. Most commands require multiple keystrokes, and the command codes are not generally a mnemonic for the operation to be performed. While the hierarchical menu structure provides most of the information needed to operate the package, the information is often buried in another menu. The Help function is only available from the main menu.

MicroPro has attempted to address the learning curve problem by providing a very comprehensive tutorial manual, and to a large extent this has been successful. Although testers unfamiliar with WordStar had some difficulty with the package initially, most were happy with it once a degree of familiarity had been obtained.

The initial reaction to the WordStar screen is that it is very cluttered. A Help menu fills the top third of the display (although how much is displayed depends on the Help level that is set), leaving the view/edit area rather small in comparison to other products. When used on a small-screen portable, the effect is positively claustrophobic; one typist was observed to draw his shoulders in during use and remarked that he felt "cramped."

☐ User Interface

WordStar uses an extensive menu structure which makes reference to a manual almost unnecessary. Commands are mechanized through combinations of the control key and an alphanumeric key for primary function selection, then a single letter for specific function selection. The Save file command, for example, is a Ctrl-K primary selection of a Block menu, then an "S" to select the save sub-function.

Menus: Menus are used throughout WordStar to provide access to all functions. They normally occupy the top third of the screen. Menus are normally three levels deep, but extend to four levels in the optional spelling check and file management utilities. Menus are displayed in low intensity to aid operator differentiation from text. The user may set a "help" level to inhibit the display of menus once familiarity with the product is achieved. The expert user may enter commands without waiting for menu display.

Control characters: All WordStar commands are accessed via control characters. Examples are control-B for reformat paragraph, and control-K for the block operations menu. Commands may not be redefined. Editing commands accessible from the main menu are one character in length, commands accessed from the other menus are two characters in length. On the IBM PC, some of the latter have been assigned to function keys.

Function/special keys: The function keys on the IBM PC are used by the WordStar program to simplify some commonly used commands. They may be redefined at initialization to perform other WordStar functions. A description of each function key is provided at the bottom of the screen, and this changes when the function key definition is altered. The cursor control, INS, and DEL keys are used as labeled. The paging keys HOME, END, Pg Up, and Pg Dn are also used as labeled.

Command language: None.

Positive feedback: Positive feedback is provided for all nonediting commands such as file operations. No feedback is provided for the potentially disastrous block delete operation. Feedback generally consists of the display of the next menu level or a prompting for fields; in the "quit" command, confirmation is required to abandon an edited file.

Status display: None.

Help facilities: Help is continuously provided in the form of command menus and function key descriptions. These may be reduced in number by setting the "help level" such that some or all of the menus and command prompts are suppressed. For example, the main command menu is displayed at help level three, but suppressed at help level two. The individual command menus are stilled displayed at help level two, but omitted at level one.

☐ Environment

WordStar is very easygoing on the subject of computer environment. Only 64K bytes of RAM and 1 single-sided drive are needed on the IBM PC, although block operations are limited in size to 15 lines of text in this configuration. Additional memory allows full block operations. No noticeable increase in search and replace speed seems to result.

MicroPro does recommend the use of 2 disk drives. This version of the program does not support hard disk loading of the program itself, but disk files can be edited on the hard disk. We were unable to get the programs to run from drive "C" although the distribution disks are not copy protected and the program can be moved there. WordStar uses several program overlays which must be located in the A: drive for the program to run. The unfortunate fact is that the program can be installed on a hard disk but not run there.

☐ Documentation

The documentation supplied in the WordStar package consists of a combination Installation, Tutorial, and Reference manual, a pocket guide, and a sheet of keytop labels. The majority of our testers found the installation manual to be a little on the cryptic side. The installation procedures and processor dependent features are described for a number of different personal computer systems and operating systems. The amount of information provided varies

MicroPro International WordStar
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according to the system described, but enough information is provided to configure the system in each case. These special processor sections are at the END of the manual, however, and easily overlooked. We followed the main instructions, and were told in several places that the IBM PC version was preconfigured for the options we were trying to select. Nothing was damaged in the attempt, however.

This section is the only place in the manual that the cursor control and function keys on the IBM PC were described. This section contains its own index; referencing "function keys" in the main index did not provide a reference to the installation manual. A removable chart outlining the installation procedure is also included, although this is of dubious value.

The tutorial section is very comprehensive, and very long. MicroPro states that from 2 days to a week are necessary to complete the course. We found this to be a slight exaggeration; although the course was lengthy, every WordStar function is covered. Like all tutorials, the WordStar tutorial inspired evasion on the part of the users—people wanted to skip this and go on to the real work. Those who did were usually about a day behind in the learning curve. After a time, we got tough and EVERYONE did the tutorial. It was excellent in every respect.

The reference manual is organized by function, with related functions grouped in chapters. Two consistent complaints about this section were excessive wordiness, and that the individual command descriptions did not always start a page, making it difficult to find a description immediately. All WordStar functions are covered in great detail, although system specific features such as function key usage are not mentioned. Included as a part of the reference manual are 2 removable charts, 1 a "quick" guide to operation, the other a menu map. Also included is an alphabetic error message list, with suggested recovery procedures.

The keytop labels contained in the package consist of peel-and-stick plastic squares that may be affixed to the appropriate key. All the standard WordStar single keystroke command keys are labeled, but there are no labels for the function keys. The cursor control keys that work under WordStar work as labeled on the status line, so no additional labels are necessary. We found that people did not like the labels and soon threw them away.

☐ Functionality

Generating letters and small reports presented no problem for anyone once they had mastered the command format. The package contains all the standard features of a word processing package: full screen editing, cursor control, search and replace, fast movement both vertically and horizontally (including auto scroll), headings, footings, page numbers, and so on. Page, line, and column numbers are displayed at the top of the screen, as is the text ruler. Delete and fast movement functions include word as well as character delete. Paragraphs may be indented individually, and line spacing may be set on a paragraph basis to allow indentation of quoted blocks of text. Additional features such as auto centering of lines, hard and soft hyphens, and column alignment also ease memo and report generation. A neat trick offered by the column alignment function is the ability to specify the character to be aligned. This allows a column of numbers to be included in the European style, with a comma instead of a decimal. Trying WordStar on a complex financial analysis proved that it could do what had to be done to format to nearly everyone's requirements; the entire accounting staff had a hand in the document.

WordStar helps users who skip around by the ability to set place markers in the text. You can define a spot in a document with a temporary marker and skip to it at any time. This helps make up for the lack of multiple window capability, but not altogether.

Find and replace options include "ignore case" and "find whole word," and a global "replace all" is available. Previous search or replace operations can be repeated via a Ctrl-L command.

No restore or "undo" function is provided, but WordStar does automatically create a backup file on entry or save, and deleted text can be restored from the backup file if necessary. This is a valuable feature during the learning process.

Four additional disk operations are supported by this package: copy, rename, and delete a file, and print a file to disk. These functions may be done without exiting the editor, hence "disk full" disasters can be recovered simply by moving some files to another diskette. We found that this type of activity had to be declared off limits to most personnel, however, because of the potential dangers in file loss.

WordStar also allows the creation of a non-document file. Coupled with the full screen editing capabilities and block operations available this makes WordStar a very powerful program source editor. Non-document files may also be used to create input files for other MicroPro packages, and to convert files for input to WordStar. One of our testers found that a listing file that had been unusable due to the inclusion of printer control sequences was recoverable under non-document mode. We used WordStar as a program editor for IBM Pascal, and the results were more than satisfactory. The power of a word processor makes many programming functions much easier. Word wrap, however, destroyed the usefulness of a program file. Non-document mode suppresses most formatting, but you can still force word wrap by accidently hitting the Ctrl-B key.

A full range of printer "special effects" are available with this package. These include subscript and superscript, boldface type, character pitch and spacing, underscore, overprinting of character or line, striking out a character, ribbon color selection, non-break spaces (which will not allow 2 words to be split at the end of a line), headings and footings. These may be combined in a section of text, allowing the creation of some really unique passages. Support for single sheet paper, and a switch to disable bidirectional printing are also included. WordStar will underscore and boldface even with a printer which has backspace capability—one of the few which will.

In some areas WordStar falls short of the norm. When special printer effects are included, they are displayed on the screen as text delineated by control characters, which confuses the appearance of the line, and makes the text difficult to read. Other shortcomings include the lack of multiple

MicroPro International WordStar
Word Processing Package

text windows, and the lack of an upward building footnote feature. The wealth of features makes almost every key significant, so hitting a Ctrl key with anything by mistake will cause SOMETHING TO HAPPEN. Often it isn't good. Particularly confusing are the accidental use of Ctrl-R and C, the page up and down commands. These cause such a fast change in context on the display that operators sometimes thought the text was lost.

Inserts into previously formatted text will cause lines and paragraphs to enter a "format limbo" where the material is not properly aligned or justified. A special "reformat paragraph" key is defined to correct this, but it is easily forgotten and failure to use it produces very unappealing documents. We had several which were barely caught, and one which unfortunately was not. The BIG complaint in this area arose from a global replace of a word with a slightly longer one. The word occurred 119 places, and each paragraph including it had to be reformatted.

Both a mailing list/form letter facility and a spelling checker are available as options from MicroPro. The mail merge feature should have been a standard feature—at the WordStar price anyway. These two optional packages may be accessed from the WordStar menu. Also mentioned in an advertising brochure included in the package was an index facility, StarIndex. No mention was made of this package in the installation or reference manuals.

☐ Ease of Use

Most of our users had some difficulty accustoming themselves to the WordStar command structure. Although the function and cursor control keys are used on the IBM PC, this is not mentioned in the tutorial or referene manuals, making a small amount or experimentation necessary. The function keys are defined in a reverse video bar across the bottom of the screen, while the cursor control keys function pretty much as expected.

The help function is only available from the main command menu. Most of our testers found that they did not have to rely on the help function, as the command menu contains most of the information necessary to operate the program. In addition to the command menus, field prompts assist in the operation of the more complex commands and functions. WordStar can be operated solely from the menus, without reference to the documentation. The command menus are optional, and more experienced users tend to turn off some of them, allowing more space on the screen for the document. Some of our users went to a very abbreviated menu structure to gain a larger document display area.

Speed does not seem to be a problem with this package. Under normal conditions WordStar is fast enough to stay ahead of the fastest typist. Even search and replace, top of document, or paragraph reform commands are not unduly time consuming. Printing while editing does slow things down somewhat, but not enough to create a problem.

The backup file created by WordStar, and the other file operations supported by the package, take a lot of the worry out of the creation of large documents. Unfortunately, the generation of a backup file is not optional, and a lot of disk space can be chewed up with .BAK files of memos and short letters whose importance does not justify the creation of a backup copy. The disk space occupied by the backup file can also become a consideration if the document becomes very large, particularly since there is no way to create a document in sections and append it while printing. On balance, the backup file is a definite blessing. More than once a harried typist or programmer has muttered a thankful prayer to MicroPro when the backup file has saved them an hour of frenzied restoration work.

The largest complaint on the use of WordStar came from the way in which the backspace and delete keys worked. Hitting the backspace key moved the cursor to the previous position, but did not delete the character, as it would normally do with IBM PC software. Using Ctrl-backspace deleted the character, but the procedure could not be learned by anyone who ever used the PC in other modes. The Del key also functioned in an unexpected way. Instead of deleting the character on which the cursor was placed, it deleted the character to the LEFT of the cursor, making it the equivalent of the Ctrl-backspace we had or the "real" backspace we wanted.

☐ Support

The primary source of customer support for MicroPro products is the local dealer. MicroPro's address and phone number are provided in the documentation, but no separate number is provided for customer support. No mention is made of a customer support service.

We called MicroPro (using a bootleg source for the number) to ask why the delete functions work the way they do. They indicated that it was to retain compatibility with previous versions on other computers. They also said that the phone number was on the license agreement (which we, and probably everyone else, threw away with the package wrapping!).

☐ System Interface

MicroPro does not provide any information on the file structures used by WordStar, and no utilities are provided to support the exchange of files with non-MicroPro products or other computers. The reference manual does mention that .BAK files have different characteristics than document files; no details are given as to the nature of the differences. We couldn't find any.

WordStar does provide a non-document file option. Although no details are provided concerning file formats, this appears to be a conventional text file in the form produced by the EDLIN program from IBM. This feature may be used to create text files for input to other programs such as data base management packages or language compilers. In addition, this mode may be used to edit text files created by other programs and reformat them to WordStar specification. We were also able to accept a foreign word processor document into WordStar and reformat it for proper use—we could NOT do the reverse.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • WordStar is provided on a purchase license from MicroPro International, through personal computer dealers, software dealers, or mail order firms in the U.S. or internationally • the retail price of the product is $495.

MicroPro International WordStar
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Support • primary support provided by local dealer; additional support may be obtained by telephone call to MicroPro at number printed on the license agreement.

☐ Component Summary

Software elements include the following programs and files. WSU.COM is the WordStar word processing program in uninstalled form. WSOVLY1.OVR are overlay programs used by the WordStar word processing program. WSMSGS.OVR is a file containing the menus and messages used by the WordStar word processing program. WS.INS, WINSTALL.COM, and WINSTALL.OVR are utility programs and overlays provided to configure WordStar for use; used only at initial configuration or when changing printers. WSCOLOR.BAS is a BASIC program supplied to provide WordStar with color menus on those systems equipped with a color graphics adaptor and color monitor. PRINT.TST is a test file containing demonstrations of the special printer effects obtainable with WordStar.

WordStar:

$495 lcns

☐ Computers & Operating Systems Supported

WordStar is supported for the IBM PC and PC/XT; other 8086/8088-based systems using MS-DOS, CP/M-86; or MP/M; 8080-/Z80-based systems using CP/M version 2.0 or later; DEC Rainbow 100; and TI Professional.

☐ Minimum Operating Requirements

Systems using 8-bit microprocessors require a minimum of 56K bytes of RAM, 16-bit microprocessors a minimum of 64K bytes. Systems running under CP/M-86 require 80K bytes, and use of concurrent CP/M-86 requires 256K bytes. Single disk operation is possible, but 2 disks are recommended.

☐ Features

Display Type • WordStar's display falls far short of print-image; special print options such as underline and boldface are delimited by control characters; in addition to being different from the final form, these also create havoc with page formatting displays; WordStar also uses "dot commands" for such things as control of pagination; these commands are entered on a separate, non-printing line, causing further display/print deviations.

Display Feature Utilization • display feature utilization is extensive, but limited to high/low intensity; marked blocks are highlighted by low-intensity text.

Command Structure • commands are primarily entered via control characters, generated by depressing the control key and another character; another character is then entered to select a command or function from a command sub-menu; in the PC version, some functions have been implemented via the function keys and cursor control keys available on the IBM PC.

Error Recovery • characters, words, and blocks of text deleted during WordStar operation may not be recovered; a backup file is automatically created when a file is opened for editing, and any data contained in the original file that is inadvertently deleted may be recovered from the backup file.

Block Operations • WordStar offers a wide range of block operations; text and columns may be manipulated from the Block menu; block operations available include copy, move, and delete; also available is a disk write feature wherein blocks of data may be saved on disk.

Merge/Print Functions • none standard; the MailMerge option provides file merge and append facilities.

Spelling Check/Aid • none standard; the SpellStar option provides a spelling check utility.

Multiple Window/Multiple Document Support • no multiple window facility is provided; a file read facility may be accessed during editing allowing documents to be nested.

☐ Other Facilities

Two other MicroPro products can be used in conjunction with WordStar: StarIndex and SpellStar. StarIndex is a utility which generates a table of contents and an index from a WordStar file; SpellStar is spelling correction utility for WordStar files.

StarIndex:

$195 lcns

SpellStar:

250

LCNS: license fee.

• END

Microrim R:base Series 4000
Relational Data Management Package

■ PROFILE

Function • database management and report writing system usable by nonprogrammers.

Computers/Operating Systems Supported • IBM PC, IBM PC/XT, DEC Rainbow, Victor 9000, TI PC; PC-DOS 1.1 and MS-DOS 1.1 or higher, CTOS 8.0 and BTOS 8.0 or higher.

Configuration • 256K-byte RAM, 2 double-sided drives.

Current Version/Version Reviewed • 1.11/1.01 MS-DOS for IBM PC.

First Delivery • October 1983.

Number of Installations • information not available.

Comparable Products • Ashton-Tate dBase II, Condor.

Price • $495 retail price.

Optional Associated Software • Program Interface, Extended Report Writer.

Vendor • Microrim, Inc; 1750 112th Avenue NE, Bellevue, WA 98004 • 206-453-6017.

Canada • Canada Microsystems; 1226 West 12th, Vancouver, BC V6K 2N5 • 604-736-1284 • Softcan; 230-1333 Johnson Street, Vancouver, BC V6H 3R9 • 604-669-2710.

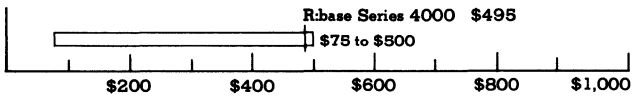
■ ANALYSIS

R:base succeeds in combining power and flexibility with ease of use. It is very useful wherever a relational DBMS is to be implemented in a manner that necessitates full and flexible use by both technical and clerical staff members. The product facilitates such an implementation by the use of a plain-English command language and by the fact that it is a complete product. Unlike other products, the integration of a series of additional third-party products is not required to achieve the desired ease of use.

The product provides a tool to managers who have no desire to become programmers and are frustrated with the simplistic file managers which prevent them from obtaining the results they seek.

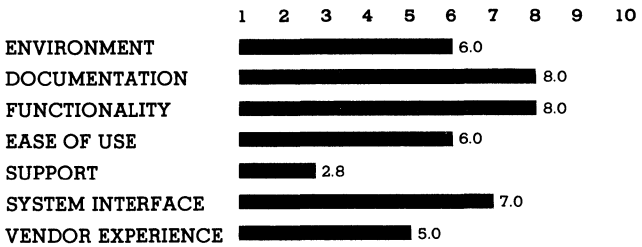
In an environment where the application of computer technology by user organizations is a management requirement, R:base is the type of product which is desirable to have, even without a specific application. Once people begin to experiment with it they will discover the additional abilities it can provide. This flexibility will promote uncontrolled growth of applications, however, and organizations desiring to control programming activities within user organizations will need to apply management controls to its use.

PURCHASE PRICE RANGE Software Price Range



MICRORIM R:BASE SERIES 4000 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 **R:base Series 4000**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

The plain-English command structure is easy to use, as database languages go. It allows almost anyone with any idea of what a database can provide to create, manipulate, and retrieve whatever they want whenever they want. The clearly written manual seems to go hand-in-hand with the plain-English command structure. The product is easy to learn and comfortable to use. The syntax of the language is similar to IBM's SQL for mainframes.

All of the additional features and utilities which previously had to be purchased separately from third-party vendors are included as standard, and at a price that is not objectionable. The optional report writer may be necessary for some uses, but the heart of the system is all there.

Fast, direct access to any particular field is possible. Any field may be labeled as a key field, not just the first field listed, as in some products. In fact, there are no restrictions on key fields. If desired, all fields may be identified as key fields. Changes can be made to the list of key fields by indicating that a field be either added or deleted as a key field.

The product's ability to interface rather easily with almost any other system is very reassuring, as is the absence of a cumbersome and limiting copy-protection scheme. Utilities, or the means to create them, are provided for interfacing to mainframe computers using RIM, other microcomputers using R:base, Multiplan, dBase II, VisiCalc, Lotus 1-2-3, and any system with the ability to handle ASCII files.

☐ Limitations

While in retrospect somewhat minor, the unusual terminology describing files as relations, fields as attributes,

Microrim R:base Series 4000
Relational Data Management Package

and records as rows may intimidate the first-time database user. The abandonment of more conventional microcomputer technology does not seem justified. To be sure, relational database concepts do have a different terminology, but there does not seem to be a reason for an office user to learn it.

Command files must be created to avoid the lengthy and tedious typing of command lines when many fields are being included in a function such as sorting. If 20 fields are to be included, all 20 must be typed on the command line.

The design of forms and input/editing screens can be awkward. Only very basic editing functions are available, such as line insert and delete. Centering, etc, must be done by eye or with pencil on a preprinted grid and then carefully transferred to the screen.

The only direct file interchangeability for both import and export is with Multiplan. While other exchanges can take place, they require the user to create the appropriate formulas and command files, directions for which are given.

Security is limited to the file level. No control is provided over individual fields, unless one establishes separate files to include specific fields on the basis of system security—a time-consuming and wasteful use of both time and system capabilities.

■ HANDS-ON EVALUATION

Our staff has experienced many products recently that have promised power combined with ease of use, so they were understandably pessimistic in approaching R:base. Fortunately for all concerned, they found themselves pleasantly surprised. The product is very professional from packaging to operation.

Everyone had been looking for a product that truly combined power and ease of use for both the novice and experienced members of our staff. Such a product would allow our programming staff to develop sophisticated applications that could be modified and maintained with minimal time, effort, and expense. The same product should also allow less experienced users to manipulate the data for query and report generation and even set up their own databases. While R:base is such a product, it achieves the flexibility of operation through a query language implementation which proved difficult for some of our staff and impossible for others.

R:base can be effectively used by organizations with some computer knowledge and expertise, but it is not a menu-structured database system and therefore is more difficult to apply to organizations which have little computer literacy. Applications developed using R:base, however, are simple to use and applicable to nearly any type of office environment.

☐ User Interface

The product uses a command line interface with optional help and prompting modes. Commands are structured similar to the normal thought process and are very easy to work with.

Menus: A prompting system is optionally available for use with all commands, providing a step-by-step, question-and-answer approach to communicating with the system. Inappropriate sections within a prompted sequence can be bypassed.

Control characters: None used.

Function/special keys: Cursor positioning, tab, and F1 and F2 for insert and delete line are used. F3 and F4, when active, have their functions displayed on the screen. F5 and F6 are not utilized. Function key definitions are not accessible for modification, and no keyboard template is provided.

Command language: A plain-English command structure is utilized. Commands are typed as one would normally describe them: SELECT ALL FROM INVOICE WHERE AMNT GT $1200.00 (GT = GREATER THAN). Frequently used commands may be recalled from command files. An optional program allows for direct access from other application programs.

Positive feedback: Incorrect system commands result in an error message describing the problem, including the appropriate syntax to be used, if applicable. The opportunity is then given to try again. Confirmation is required for potentially destructive commands. Custom error messages can also be implemented, as well as informative text to be displayed during data entry or report generation.

Status display: The prompt letter is used to indicate the current operational mode, such as main R:base module, or HELP, etc.

Help facilities: An online Help system is accessible by typing "help," which produces a list of topics from which to choose. A particular topic can be accessed directly by including its name with the Help command. An optional prompting mode can be used with all system commands to provide a step-by-step procedure for completing system commands. A command summary booklet is provided.

☐ Environment

The product operates on 2 floppy diskettes, but a hard disk is recommended for all but the smallest of applications. The requirement of 256K bytes of RAM will necessitate additional memory for the use of RAM disks, spoolers, and background programs for many users. We found that performance on floppy-only systems ranged from uncomfortable at modest data volumes to frighteningly slow at high volumes. The hard disk system brought all levels of performance into acceptable ranges.

The printing capabilities of the basic R:base product are not sophisticated, so any printer which is capable of running from the parallel printer port without special software protocol will serve.

No copy protection scheme was encountered. We were able to back up both the tutorial and program diskettes.

☐ Documentation

The product is supplied in a standard IBM-style ring binder and slip case. The tutorial is a separate booklet which the

Microrim R:base Series 4000
Relational Data Management Package

user is instructed to use before proceeding to the reference manual. Included in a separate pamphlet are instructions for loading and operating the tutorial as well as corrections to be made to the printed tutorial text.

The tutorial, while quite good, and definitely better than most, is not exemplary. A quaint scenario is provided, depicting a typical business situation in which the student takes the role of a consultant who must provide specialized reports for the owner of the business. Each lesson tells the student what to do in a step-by-step manner, more like a script than a learning experience. No allowance is made for the unfortunate individual who does not do exactly as he is instructed. There is no provision to back up and try again, or any indication of the common errors that one might make at a given point in the program.

There are no operational references supplied with the product. A limited amount of help, such as listing available choices, is given on the screen after calling a command. Since minimal use is made of the special function keys, this did not pose a significant handicap. The style of the interaction is very similar to other database products such as dBase II, and the documentation is likewise very similar; commands are listed with syntax and instructions and the user decides which to use based on a combination of the tutorial and experience.

The major difficulty encountered was in adjusting to the unusual terminology used to describe the database elements. In R:base, a file is called a relation, a field is called an attribute, and a record is known as a row.

The reference manual is clear and straightforward. An example scenario is included, which many staff members found more helpful in learning the system than the tutorial because it included complete explanations of commands and the options available. Tabbed dividers are used to clearly identify the chapters, which are logically sequenced for use by someone setting up an initial database and producing the first report. The chapter titles are clear: Database Structure, Data Input, Data Inquiry, Reports, and so on. Error messages are grouped first by those which are common to almost any portion of the program, and then by the command with which they are associated. The index is thorough and adequately cross-referenced by user-oriented topics.

A separate command summary booklet lists all available commands alphabetically. An example of the proper syntax and a brief explanation is given for each command. It is clear and easy to use, but is lacking in detail. Defaults are not listed, and the listings are not cross-referenced to the reference manual to facilitate obtaining more information.

☐ Functionality

The command structure of R:base is very similar to the IBM SQL product offered on mainframes, and as such is more a programming language than a simple database system. While this structure is also present in other popular database products, there is an alternative menu form for the development of simple applications or for use by non-DP professionals. R:base provides more powerful statements for expert manipulation than most other systems, and no menu or simple mode of operation.

R:base commands are entered at a prompt or command line, and consist of a key "verb" followed by a set of operands and modifiers. A series of commands may be strung together, and commands may be entered into a file for group execution.

R:base utilizes a prompting option which is in addition to the online Help system. By preceeding a command with the word "prompt," one is walked through the command in a step-by-step procedure. This fill-in-the-blanks approach enables the most inexperienced user to perform almost all system functions. In addition to the standard prompts, custom prompt menus can be created.

The first step in any operation is to define one or more databases. This is done in DEFINE mode, and in essence it consists of naming the file, the owner, and the fields (called attributes) which make up the file. The database structure is defined by describing its attributes (fields). The type of field, such as dollar, date, text, time, integer, or real and its length (if appropriate) is typed after the D when in define mode, or in response to the prompts when in the prompted mode. Relations (files) are then created with the appropriate attributes specified for each field.

Rules may be optionally established to check for a range of data values or require a specific value. Also, checks can be made against another field. For example, in entering names, a check can be made to determine if that particular name has already been entered. In addition to the basic rule definition, an error message can be created which will display whenever that rule is violated, such as "You are entering a duplicate name!"

Password definition allows the specification of access privileges on a file or database level. At the database level anyone with the password has unrestricted access. Access may be restricted on a file-by-file basis for read only or read and write.

To keep track of the system activity, a log of all activity can be maintained. This log can be specified to be written to a disk file, a printer, or both. This would be most helpful in the event that data must be restored from a backup file.

Data may be input with or without prompting for field names and data types. The elimination of prompting allows the data to be typed on a single line (if less than 80 characters), which speeds up the process. Data input forms can be created to allow for more efficient data entry by arranging the information to represent a table, chart, graph, letter, or text block. Fields can also be combined on the same line, such as separate area code and telephone number fields, or name and title fields. These forms are created by typing the information directly on the screen, and do not involve any programming.

Once entered, data may be saved, edited, or erased. For highly repetitive information, the data can be presented for editing after being saved. If several names are being added to a list, and all of those people are located in the same city, state, and zip code, much repetitive typing can be eliminated.

Having entered data, a query activity may be defined to

Microrim R:base Series 4000
Relational Data Management Package

retrieve it selectively. This is done via the SELECT command, which defines the fields to be accessed from the database and the conditional tests which data must meet in order to qualify for selection. Coding complex conditions is supported, but conditions of any reasonable size must be handled by creating a command file rather than by entering the commands individually, because the relationships are complex enough to be almost impossible to enter correctly each time. Professionals and programmers on the staff had little trouble with the coding of inquiries, but noncomputer types found that one or two tests were all that could be handled.

The results of database queries may be output to the terminal, printer, an ASCII disk file, or a combination of destinations. Inquiries can be made about any or all fields in a file and totals may be requested. Data can be sorted in ascending or descending order, and only specific rows for retrieval and display can be specified. The frequencies or occurrences of a data item can be listed, and functional values for a selected field can be calculated.

Formal reports, with column headings, subtotals, etc, are created in the same fashion as data entry forms. The report is composed with headings, detail, and footings, and the data positions are indicated on the screen. The data may be obtained from fields or by computing variables. Heading, detail, and footing lines may be defined in reports. You must allocate each type of print line defined into one class or the other, or it will not appear on the report. Once a report definition is complete, it is invoked using a PRINT command, which may also select data in pretty much the same way as a SELECT does.

Transportability is extensive. Data files are directly compatible with other microcomputers running R:base or mainframe computers running RIM. The product can also interface with Multiplan, VisiCalc and Lotus 1-2-3 word processing packages, and dBase II.

Since R:base is a relational database system, there is a full set of commands to provide for the creation of new relations based on existing ones. INTERSECT, UNION, SUBTRACT, PROJECT, and JOIN functions can be used to create a new database or just to answer a specific inquiry. These features require more than the average amount of skill to employ, and we found them to be beyond the scope of departmental data processing needs.

☐ Ease of Use

Our professional staff found R:base to be easy to use. No special installation or configuration was needed for our PC, even though we tested it with one of our nonstandard printers which has caused some difficulty with other products. The real surprise was that it is easy for both the DP professional and other professional users. Most products, in an effort to be simple, end up being cumbersome for anyone with more than a limited amount of experience and ability. We did find that the administrative staff had more difficulty using the product because of its programming orientation. Only a few ever became comfortable with it at the basic level, and none ever advanced to any true proficiency.

The use of a plain-English command structure is the key to the product, allowing anyone with a minimal familiarity with the syntax and a willingness to start with simple statements to produce the desired results. What could be easier to understand than "SELECT ALL from Cities"? Unfortunately, selections of some fields from a file rather than all fields, with formatting of data specified, and with complex selection criteria, creates a very cluttered command line. It is not difficult to learn to use all the features if you start with the basic commands, but it is very easy to make an error.

Typing a conditional command is likely to extend to 2 or more lines and can become tedious. Once a user is at that point, he is capable of beginning to build his own library of command files. The command files can be created with a separate text editor, the screen editor supplied with R:base, or as a report from within R:base with a page size of 0.

Form and report design utilizes a practical, straightforward approach. What is to be printed on the screen or page is typed directly on the screen. The data to be added later is then positioned on the screen with "S" to mark the starting point of the field and "E" to mark the end.

Providing for optional command prompting allows the user to adjust the system to his experience level on an as-needed, command-by-command basis. As a result of this prompting option, our staff found little need for the online Help menus. The extensive error messages also made operating the system easy.

Our technical staff found the product to be suitable for their larger projects, with the added benefit of allowing users to manipulate their data and produce reports without extensive technical support.

☐ Support

Support is provided directly by the vendor. A phone number is provided, along with an application for the extended support contract, at an annual cost of $150. Included in the contract is telephone hot-line support, a product upgrade service, application notes, and new product announcements. We found Microrim technical support personnel helpful and knowledgeable, but occasionally had to spend several minutes getting the terminology straight.

☐ System Interface

Mainframe computers using RIM and other microcomputers using R:base use the same syntax for data definition and row data, and can produce directly compatible files.

A directly compatible file interface is also provided for Multiplan or any other product using the Microsoft SYLK data format, on both a file import and export basis.

DIF output file formats (for VisiCalc, Lotus 1-2-3, etc) can be created by designing a special report for which specifications are given in the documentation. The same is true for producing file output to be read by MailMerge or other compatible files.

Data compatibility with other systems is provided primarily via the product's ability to read and write ASCII files in a

Microrim R:base Series 4000
Relational Data Management Package

flexible manner by defining appropriate formats with the report function.

☐ Vendor Experience

Microrim was formed in 1982 and introduced R:base 400 in the fall of 1983. There are 3 other products currently available, and versions of the program run on many different computers, including minicomputer systems.

■ DETAILED PRODUCT DESCRIPTION

☐ Terms & Support

Terms • the product is available on a license purchase basis from computer and software dealers; a 30-day warranty is provided, and extended support is available for $150 per year.

Support • telephone hot-line support provided by the vendor; extended support available for $150 per year; this support includes telephone hot-line, product upgrades, application notes, and new product announcements.

☐ Component Summary

The following files are contained on 2 program disks. An additional disk contains the tutorial. RBASE.EXE is the program, RBASE.TXT provides the logo screen, RBASE.OVL provides the screen overlays, and HELP.RBS is the help file. PROMT.RBS gives the prompt screens, PROMGEN.EXE is the custom prompt screen generator, and RBEDIT.EXE is the screen editor:

$495 lcns

☐ Computers & Operating Systems Supported

R:base will run on the IBM PC and PC/XT with PC-DOS 1.1, and on the DEC Rainbow, TI Professional, and Victor 9000 with MS-DOS 1.1 or higher, and CTOS 8.0 and BTOS 8.0 or higher.

LCNS: license fee.

☐ Minimum Operating Requirements

The package requires 256K bytes of memory and 2 double-sided drives for operation. However, use of a hard disk improves performance.

☐ Features

Record Size Limitations • 1530 characters.

File Size Limitations • 2.5 billion records (or operating system limit).

Field Size Limitations • 1500 characters.

Key Field Limitations • none.

Screen Format Definition • full-screen editing features are used to create the format by typing directly on the screen; the limitation is 23 lines x 80 characters.

Entry Edit Capabilities • data may be entered with or without prompts for field names and types, or via a predefined form; if specified, only those fields for which data is available will be used.

Report Format Definition • may be typed on the command line or recalled from a command file; full-screen editing capability may be used to create a report form, including headers and footers; data may be selected, sorted, and tested; the results of computations may also be included.

Sort/Merge Capabilities • up to 10 fields may be included, and will be sorted in the order in which they are specified; fields and/or files can be combined to create additional files and/or fields.

Query/Selection Capabilities • inquiries can be made about any or all fields; data may be sorted and only specific records may be displayed; frequencies and occurrences can be tallied and functional values can be calculated; specifications can be typed on the command line or recalled from a command file; output can be made to the screen, printer, a disk file, or any combination thereof.

Programming & Batch Processing Capabilities • rules for data entry may be created, which can include appropriate error messages; data may be entered directly from the keyboard or from a disk file.

• END

Microsoft Multiplan
Electronic Spreadsheet Package

■ PROFILE

Function • electronic spreadsheet.

Computers/Operating Systems Supported • Multiplan is supported on the Apple II, Apple IIe, systems running CP/M-80 (including the Apple II, Apple IIe, and Apple III systems with Softcard); IBM Personal Computer and PC/XT under PC-DOS; and personal computers using MS-DOS.

Configuration • requires a minimum of 64K bytes of memory; one single- or double-sided disk drive; and a display device, either monochrome or graphics • on Apple systems with Softcard running CP/M-80, 56K bytes is sufficient; on personal computers running MS-DOS, the memory available to the application must be at least 48K bytes.

Current Version/Version Reviewed • Version 1.1 on an IBM PC/Version 1.1.

First Delivery • October 1982.

Number of Installations • information not available.

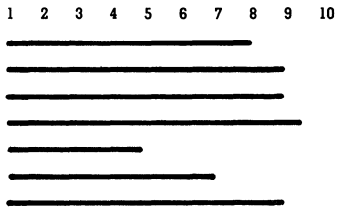
Comparable Products • VisiCorp VisiCalc IV, Lotus 1-2-3, Sorcim Supercalc-3.

Optional Associated Software • Multi-Tool Expert Systems, Financial Statement and Budget.

Price • $275.

Vendor • Microsoft Corporation; 10700 Northup Way, Bellevue, WA 98004 • 206-828-8080.

PRODUCT QUALITY RATINGS*



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

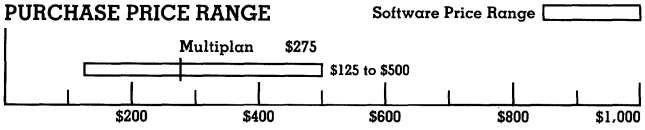
■ ANALYSIS

Multiplan is an electronic spreadsheet package designed to support the entry and manipulation of numerical data. It can be used for complex financial processing, modeling, or "what if" analysis, in either a personal or business environment. It allows the specification of relationships between pieces of data via formulas, providing automatic recalculation of the spreadsheet with changes in the data. It provides easy-to-use methods of copying, moving, saving, and manipulating the data within the spreadsheet.

Experienced spreadsheet users will find themselves settling into Multiplan quite easily, with little or no review of the reference manual. The vast advancement made in the areas of functionality and ease-of-use rapidly convert users of first-generation spreadsheet packages. Though some of the improvements in the user interface are slightly incompatible with earlier packages, the adjustments are natural and easily made.

With the introduction of Multiplan, Microsoft set a new standard, not only for spreadsheets in general, but for user interfaces in particular. It has served as a model for other products in terms of ease-of-use, and as an example to other software vendors of what a "next-generation" software package should be. No "Visiclone" product here. It serves a wide range of users, from computer novice to experienced computer professionals. While the current wave of integrated software packages provide access to additional capabilities beyond a mere spreadsheet, Multiplan should satisfy the vast majority of a computer user's financial applications.

PURCHASE PRICE RANGE



MICROSOFT MULTIPLAN 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 **Multiplan**, the evaluated product, relative to the price range of similar products.

☐ Strengths

Multiplan's strengths are its ease-of-use, its power, and the successful integration of both factors into a single product. The ease-of-use is first seen in the usage of complete English words for command and option prompts. All commands are displayed compactly in a 2-line area near the bottom of the screen, with one command highlighted. With the use of the space bar or tab keys, the command desired can be highlighted, then executed with the return key. The options associated with the selected command are now displayed in the same manner, with some options requiring values to be typed. This process continues at each successive stage until the function desired is completely specified. There is a short-cut function that is available at all stages of operation that speeds usage for experienced users. It is the ability to enter the first letter of the desired option, instead of highlighting the desired option.

A HELP file, which is a simplified version of the reference manual, is available online at all times. It contains an entry for every command and for each option of every command. At any time during the command selection process, a command or option may be highlighted, and the "?" key pressed. Multiplan brings the HELP documen-

Microsoft Multiplan
Electronic Spreadsheet Package

tation onto the screen, and rapidly positions it at the exact section covering the highlighted option. The HELP command itself will position the user at the beginning of the HELP file, where general usage information, such as cursor movement and how to use the rest of the HELP file, is presented. Once the HELP file is displayed, one may scan back and forth through the entire file, if desired, before returning to the worksheet.

Some products are easy to use because one cannot do very much with them. The flexibility and number of options available are what distinguish Multiplan as one of the second-generation spreadsheet programs. These capabilities begin with the ability to associate a name to a cell, and use the name in other formulas; a major improvement over the old mandatory row-column designation. Other features include the ability to specify individual column widths, to protect cells and/or formulas from modification, and to sort information by columns.

Multiplan also provides the ability to link multiple worksheets together. Many major financial models may contain vast amounts of information, and while most spreadsheet programs can support thousands upon thousands of cells, a single huge worksheet rapidly reaches the limits of manageability. Such a large application usually consists of several self-contained pieces, with only the final answers, such as gross revenues or cost-of-goods-sold, being needed by the other portions of the financial model. With Multiplan, one can arrange multiple worksheets in a manner reflecting the logical blocks of the whole application, and link them together so that they share the few important pieces of information necessary. This reduces a complex application to a collection of manageable tasks.

☐ Limitations

The main limitations of Multiplan are the lack of data graphing and selective data extraction capabilities available in some of the newer spreadsheet packages that have appeared since the introduction of Multiplan. The limited bar chart display capability provided is not worthy of being called a graph when compared to some of the integrated packages available now. The graphing features will be missed only by those who must put together serious visual presentations of data. There are a number of graphing packages available that can be used in conjunction with any spreadsheet, but the combined price of 2 packages is usually excessive compared to one of the multifunction programs.

One area found in many original spreadsheet packages that does not seem to have been addressed by Multiplan and its extensive improvement program is that of built-in functions for use in cell formulas. There are many functions that are used in accounting and statistical analysis that could have been provided. Such an oversight in a product that otherwise addresses most of the needs of the corporate customer is a disappointment.

The other capability missing, for which Multiplan should be taken to task, is its lack of ability to make use of color on a color monitor. It is not a case of color being necessary for the proper presentation of data, but if it is at one's disposal and not being used, something is being wasted. Other spreadsheet packages, that do not compare favorably with Multiplan at all in terms of overall sophistication, contain very impressive color specification features.

■ HANDS-ON EVALUATION

Multiplan is delivered on 2 single-sided disks: an installation disk and a system disk. The disks are not copy protected, allowing the user to properly backup the program, then archive the original disks. This also allows for the easy creation of a bootable floppy disk, or for movement of the product to a hard disk system. After creating the backups, the installation disk is used to customize the product for the end user's particular computer terminal. A list of 30 or so terminals are presented to the user. After selection of the terminal desired, and a series of floppy disk switches, an executable version of Multiplan is created on the system disk.

Two simple tests of any user interface are the extent of what a novice must memorize before being able to do productive work, and how far a person familiar with the particular program type can go without looking at the reference manual. Multiplan does well on both tests by providing prompts for commands and options in plain, descriptive English words. No special key must be struck to signal that a command is coming; any alphabetic key is assumed to be a command character. It doesn't take long for the experienced user to deduce that a command is therefore needed to signal the entry of alphabetic data into the worksheet, and locate the ALPHA command. This extra step in entering spreadsheet text will probably be a source of confusion and frustration for experienced users until they adapt. It is very easy to rapidly type 5 or 6 characters of a text entry into the command processor before noticing the strange messages, prompts, and error beeps for the invalid option selections that are occurring.

A moderately complex spreadsheet produced by another program was loaded and translated by Multiplan with no difficulties. All formulas were translated into relative cell references, which made identifying distant cells a little difficult. This was easily rectified by using the naming facility to assign useful names to the most important cells, and modifying the formulas to use the new cell names. Formulas, which had previously consisted of an inconsistent collection of row and column numbers, now became familiar equations.

The only difficulty encountered with using Multiplan from a hard disk was its insistence upon termination on reloading the COMMAND.COM file from Drive A, as opposed to the current default drive, Drive C.

☐ User Interface

The Multiplan user interface is an abbreviated, menu-like capability combined with the use of the cursor control keypad to position the worksheet on the screen. All commands or options that are legal at the moment appear as full English words within a 2-line portion at the bottom of the screen. The prompting and selection mechanism is clear

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enough to satisfy the needs of the novice, yet efficient enough for the experienced user.

Menus: The main commands are listed alphabetically near the bottom of the screen, with the first command being highlighted. Command selection is done by either moving the highlighting via the tab key or space bar to the desired command and hitting return, or by typing the first letter of the desired command. This process continues at successive levels as the user is led through the various legal options. Occasional options allow the entry of specific data, such as column numbers or line counts, with proposed values being supplied. Command and option prompts are only one word, and any single group of words must all begin with different characters.

Control Characters: Control characters are not used for commands. Some control keys may be specified at installation time to provide the necessary cursor control mechanisms. It is also possible to enter control key representations to be used during printer setup.

Function/Special Keys: Function keys are not used by Multiplan. All commands and options are available through single, mnemonic letter keys. Multiplan does take advantage of the cursor control pad on the IBM PC, including the HOME, END, PGUP, and PGDN keys.

Command Language: No command language is provided by Multiplan; there are complex functions available for the conditional selection of result values for formulas.

Positive Feedback: Positive feedback is provided for most operations, either in the form of obvious results or an on-screen message. Operator confirmation is always requested for destructive commands, including exit from the package.

Status Display: The twenty-fifth line of the display is used to show the current cell row and column number, the formula for the cell, an indication of the percentage of free memory remaining, and the worksheet disk file name. Line 24 is used for additional operator prompts and for error messages.

HELP Facilities: At any time, the user may highlight a particular command or option of the 2-line menu displayed, and hit the "?" key. This causes the online HELP file to be shown on the screen, positioned at the entry for the command or option referenced. The HELP file explanations parallel the actual reference manual. No reference card is supplied.

☐ Environment

Multiplan will operate in most commonly occuring computer environments. Its 64K-byte memory requirements on an MS-DOS system are very reasonable, and it supports a wide variety of terminals. Instructions are included on how to configure any terminal not included on the installation disk. Both 80-column and 40-column displays are supported, allowing its use on an inexpensive video monitor.

Spreadsheets may be saved on the program disk, but in a single disk system, very little room is available. For any real work, one would need to save the worksheet on a separate disk, or use a double-sided disk.

☐ Documentation

Multiplan boasts an excellent set of documentation. It consists of a tutorial, a reference manual, and a series of appendices. The tutorial is functionally organized, in increasing order of complexity, covering most of the capabilities of the program. It contains step-by-step instructions supported by numerous full-screen displays and business-oriented examples. No reference card was provided, but the rapid and detailed HELP information available online is vastly superior to an easily misplaced and mistreated reference card.

The reference manual contains 4 sections: a more detailed explanation of the elements of Multiplan, an alphabetical summary of all commands and their options, an alphabetical summary of all functions available for use in formulas, and an alphabetical list of program messages, with detailed cause and action explanations.

The appendices are far from a compendium of little-used trivia. Included are helpful hints for making the best use of Multiplan, a detailed glossary, notes for the VisiCalc user on the differences in usage, a complete description of the Microsoft Symbolic Link file format, and a chapter on solving more difficult problems with the Iteration option.

☐ Functionality

Multiplan was a late entry into the spreadsheet market place. Microsoft did not produce a first-generation spreadsheet product, or "Visi-clone", as they have come to be known. But sufficient effort was put into generating this superior product that it rapidly took over as one of the most popular personal computer software products. With the exception of financial function support and the lack of color, it practically defines the limits of a product that is "only a spreadsheet," though the version being designed to support the Apple Macintosh supposedly has some "nice surprises." The newer products to appear in the marketplace have not tried to compete with Multiplan solely on the merits of an electronic spreadsheet, but have integrated capabilities from other disciplines, such as graphing and database facilities, to produce a more complete overall product.

Multiplan provides all of the traditional spreadsheet capabilities and operations, with many enhancements. Normal cursor movement from cell to cell is done via the arrow keys. On the IBM PC cursor control keypad, the HOME and END keys are used for moving to the upper left and lower right corners of the worksheet currently in use. In addition, the PGUP and PGDN (page up and page down) keys allow vertical scrolling one screen at a time, and control/left-arrow and control/right-arrow are used to scroll horizontally in the same fashion. The order of recalculation of the cells of a worksheet, when information is changed, is no longer limited to a strict top to bottom, left to right regimen. Multiplan will make additional passes over the worksheet during recalculation in order to resolve forward references to cells placed elsewhere on the sheet. This provides much

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more freedom in arranging the visual aspect of a worksheet so that it meets the needs of the user, not of the computer.

Lengthy text entries may be made within a single cell, but text beyond the width of the current column will not spill over into the next cell automatically unless both cells have been formatted for CONTINUOUS text entry. The manual recommends that the simplest way to provide for such multicolumn headings is to format an entire row as CONTINUOUS. In many newer products, automatic spillover has become the default mode of operation.

The data formatting capabilities supported by Multiplan are no longer anything out of the ordinary, though they were at its introduction. They include options to left- or right-justify or center text entries within a column, the automatic text spillover capability mentioned above, plus the ability to display numbers in scientific notation, as fixed point with a specified number of places to the right of the decimal point, as integers, percentages, or as dollar amounts.

One major area of improvement over more traditional spreadsheets is in the referencing of cells within the worksheet. Original programs allowed references only as absolute row and column combinations. If a section of the worksheet was copied or moved, the program had to prompt for every formula to be translated to determine whether the cells referenced were really references to absolute cell locations, or were intended to be relative references to the cell containing the formula. Multiplan defines a specific format for the specification of relative cell references. A simple example of formulas that use relative cell references would be a row of data that specifies a projected growth rate over time of the initial entry in the row. Each cell would contain a formula stating that its value was to be 10 percent larger than the value in the cell immediately to its left. This type of formula can easily be moved or duplicated anywhere within the worksheet with no translation of the formula being necessary.

The ability to name cells and reference them by their given names is the most valuable improvement of all. It becomes much easier to develop, modify, use and understand a spreadsheet model if it contains formulas that say the formula for the cell named "profits" is "revenues minus expenses." This capability vastly reduces the time needed to generate complex worksheet models by removing the need for the developer to remember in exactly which cell on the worksheet each important piece of information is stored. Fewer mistakes are made in worksheet development due to mistaken cell usage. Multiplan also supports the usage of the cell name in the GOTO command, allowing rapid and straightforward positioning within a complex worksheet containing many related sections.

The ability to sort columns of data within a worksheet is a feature not found in some of the programs on the market. Sorting may be done on text or numerical data, in ascending or descending order. Multiplan also provides for support of up to 8 separate windows on the display at once, with separate positioning and option control within each.

Another innovation introduced by Multiplan is the ability to link multiple worksheets together, allowing information produced by one worksheet to be shared with another worksheet needing this information. This allows the user to break down a complex worksheet model into small, easily understood subtasks, and combine them later in a master worksheet. An example would be the collection of corporate financial figures into separate worksheets by region, processing the information by region, then passing the final totals onto an overall corporate balance sheet. Named cells within a supporting worksheet may be referenced by file name and cell name within the larger worksheet. Temporary or permanent links may be established. Permanent links would cause the corporate worksheet to be automatically updated with the latest information from the regional worksheets whenever it was accessed.

A last interesting capability in Multiplan is support for the creation of certain types of circular reference models that can be solved by successively processing the worksheet until the answers converge on a final value. Normally, circular references are forbidden in spreadsheet formulas. But some legitimate uses of circular references exist. The appendix on the Iteration option contains several examples, the simplest being the calculation of a bonus that is specified as being 10% of the net profit of a business. The net profit cannot be calculated until the bonus value is known and subtracted from gross profits, and the bonus cannot be calculated until net profits are known. The problem is solvable, however, and is a particularly appropriate use for the computer that goes beyond it's being an extremely fast pencil, eraser, and calculator.

☐ Ease of Use

Multiplan is easy to install, either in a floppy disk or hard disk environment. Normal procedures may be used in the creation of a backup copy of the Master disks. An Install program must be run to specify which of the possible system terminals that run under MS-DOS is being used.

The ease-of-use considerations were obviously uppermost in the minds of the Multiplan developers. The result is a program that is usable by novices and veteran users alike, though the veterans may complain a bit more. Experienced users of VisiCalc may have some difficulty with some of the simplifications made to the user interface. It is not necessary to type an escape character, such as "/", to invoke the command mode. Multiplan is in command mode by default, so a command is necessary to enter alphabetic text into a cell. The Multiplan method probably offers a minor improvement over the previous mode of operating for the beginning user, and the experienced user must simply learn to adjust. A separate appendix is provided for VisiCalc users that details all of the differences that a VisiCalc user is likely to notice. Unlike some programs, Multiplan contains sufficient new capabilities to make it worthwhile to break some old habits and form new ones. Aside from this small, temporary obstacle, users familiar with the operations of an electronic spreadsheet are able to be productive immediately upon bringing up the program.

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Multiplan also contains a more sophisticated recalculation mechanism than previously available, allowing the user much more flexibility in the design and presentation of the worksheet.

☐ Support

The details of any kind of customer support information contained in the Multiplan package are conspicuous by their absence. A good brochure containing all software and hardware support information was finally located in the manual accompanying the Microsoft Mouse, and a sales office 800 telephone number was found in an ad in a personal computer magazine. This is in stark contrast to the detailed support manuals provided by other major manufacturers, and a disappointment for a company that is supposed to be one of the leaders of the industry.

The new support brochure, that hopefully will begin appearing in all product manuals, does describe the customer support group, problem reporting procedures, and software replacement and enhancement update policies.

☐ System Interface

Though no information is provided on the format of the files used directly by Multiplan (Normal files), the format of the Symbolic Link files is thoroughly specified, allowing the sharing of data between Multiplan and other user programs. Multiplan explicitly does not provide support for the more popular DIF file for information interchange. However, it does have the ability to read actual VisiCalc files, and perform all the formula translations necessary to make the worksheet a Multiplan worksheet.

☐ Vendor Experience

Microsoft is one of the original suppliers of software for microcomputers. They remain a leader in the industry, both in the provision of old favorites such as BASIC, and in the area of innovation, with Multiplan, Word and the Microsoft Mouse. Multiplan has now been on the market for approximately a year and a half.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Multiplan is available for purchase only from Microsoft Corporation, through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally; a separate version is also marketed by IBM; quantity discounts are available to volume corporate purchasers.

Support • support is provided through local dealers and a customer support center; product enhancement notices are sent to registered users, with enhancements available to purchasers at a reduced fee.

☐ Component Summary

Multiplan is supplied on 2 single-sided floppy disks: an installation disk and a system disk. The primary purpose of the installation disk is for terminal configuration. The system disk consists of 3 program files that constitute the executable Multiplan system: MP.LOD, MP.SYS, and MP.COM; 3 data files containing the on-line HELP file: MP.HLP; and data files for 40- and 80-column screen support: MP40.DAT and MP80.DAT.

Multiplan • purchased from IBM: **$250 lcns**

Multiplan • purchased elsewhere: **275**

☐ Computers & Operating Systems Supported

Multiplan is supported on the Apple II, Apple IIe, systems running CP/M-80 (including the Apple II, Apple IIe, and Apple III systems with Softcard); IBM Personal Computer and PC/XT under PC-DOS; and personal computers using MS-DOS.

☐ Minimum Operating Requirements

Multiplan requires a minimum of 64K bytes of memory, one single- or double-sided disk drive, and a display device, either monochrome or graphics. On Apple systems with Softcard running CP/M-80, 56K bytes of memory has been found to be sufficient. On personal computers running MS-DOS, the spreadsheet application alone must be allocated at least 48K bytes of the minimum 64K-byte environment.

☐ Features

Multiplan is an electronic spreadsheet package for the development of financial models, budget systems, reports and forecasting models. Features supported include:

Spreadsheet Size • 255 rows and 63 columns in a single spreadsheet are supported; actual size available for use depends on system memory; larger systems are supported via linked worksheets.

Command Type • single letter from list of complete command or option words; commands may also be selected via highlighting; extensive online HELP information is provided.

Financial Functions Supported • Net Present Value (NPV) calculates the present value of a list of cash returns at a specified discount rate.

Statistical Functions Supported • COUNT, AVERAGE, MIN, MAX, and SUM provided for simple statistical operations; standard deviation (STDEV) function also provided.

Cell Reference • cells may be referenced by pointing using cursor movement functions, by absolute reference using row and column numbers (R4C5), by relative cell reference from the current cell location (R[-1]C[-2], with lone R or C used to represent row or column currently at), or by naming cell locations with mnemonic names.

Window Capabilities • display may be broken up into as many as 8 separate windows, with independent global specifications and formats.

Range Facilities • allows complete linear and rectangular ranges of cell locations to be specified whenever groups of cells may be referenced (Blank, Copy, Delete, etc).

Formatting Capabilities • extensive formatting capabilities for text and numeric entries, including left, right, and center justification, continuous text, and percentage values.

Print Facilities • any portion of worksheet may be printed to a printer or disk file; column and row indications may be included or suppressed; data or formulas may be specified.

File Transfer Capabilities • full or partial worksheets may be saved or loaded; loading of multiple worksheets merges data; no

LCNS: license fee.

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control over data merging is provided; files may be saved or loaded in Symbolic Link (SYLK) format for use by other programs; no support for more popular DIF symbolic format provided, though VisiCalc files may be read directly and translated.

☐ Other Facilities

Optional, extra-cost software available for use with Multiplan includes a new series of Multi-Tool Expert Systems that supports the rapid production of complete financial and budgeting models. Packages available include Multi-Tool Financial Statement and Multi-Tool Budget.

	$100 lcns
Financial:	
Budget:	150

• **END**

Microsoft Multi-Tool Budget
Cost Accounting System

■ PROFILE

Function • Multi-Tool Budget is a cost-accounting system for the generation and monitoring of business operating budgets.

Computers/Operating Systems Supported • IBM PC or PC/XT using PC-DOS, other 8086-/8088-based systems using MS-DOS; Apple II, Apple II+, and Apple IIe • requires Microsoft Multiplan.

Configuration • PC-DOS and MS-DOS versions require a minimum of 128K bytes of memory and one disk drive, although 2 disk drives are recommended; all Apple versions require a minimum of 64K bytes of memory and one disk drive; product can take advantage of a hard disk drive and printer, if available.

Current Version/Version Reviewed • 1.0/Version 1.00 for IBM PC.

First Delivery • second quarter of 1983.

Number of Installations • approximately 5,000.

Comparable Products • none.

Optional Associated Software • Multi-Tool Financial Statement.

Price • $150 retail price.

Vendor • Microsoft Corporation; 10700 Northup Way, Bellevue, WA 98004 • 206-828-8088.

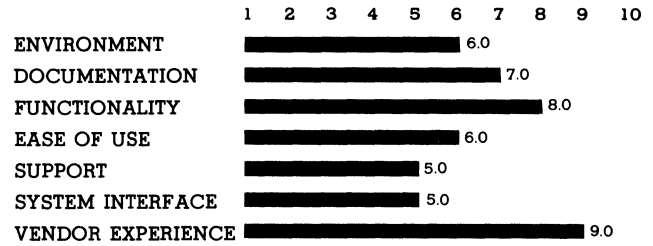
Canada • Citation Software; 1901 Logan Avenue, Winnipeg, MB R2R 0H6; 204-632-0559 • Cybertech; #9-11720 Voyager Way, Richmond, BC V6X 3E1; 604-278-4848 • Frantec; 1685 Russell Road, Ottawa, ON K1G 0N1; 613-523-7272.

■ ANALYSIS

Multi-Tool Budget is a cost-accounting system for the generation of business operating budgets. It is designed to provide the manager of a business, who wishes to use an electronic spreadsheet for the processing of budgetary information, with an alternative to creating his or her own financial worksheets from scratch. By answering a series of questions for each of 6 budgetary areas, Multi-Tool Budget will automatically generate a collection of linked Multiplan worksheets that allow the user to create a business operating budget, maintain actual expenditures, and analyze variance when it occurs.

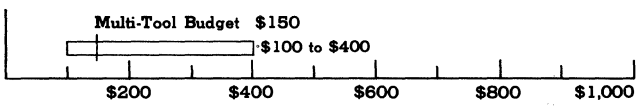
Multi-Tool Budget goes beyond pre-built electronic spreadsheet templates to provide a worksheet to solve complex financial problems by customizing the worksheet to your needs. Though its slightly simplified approach to cost accounting may not be appropriate for large and complex business operations, it should be a worthwhile tool for small- and medium-size businesses.

PRODUCT QUALITY RATINGS*



*For an explanation of rating criteria, please refer to the Software Evaluations (805) report. The Overall Package Average is 6.6.

PURCHASE PRICE RANGE Software Price Range



MICROSOFT MULTI-TOOL BUDGET PRICING • open bar shows the typical range of prices for **COST ACCOUNTING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **Multi-Tool Budget**, the evaluated product, relative to the price range of similar products.

☐ Strengths

The greatest strength of Multi-Tool Budget is the fact that it is an extension of the concept of the ready-made spreadsheet template. A spreadsheet template is a worksheet that already contains all of the formulas for performing a particular spreadsheet application. All that must be entered by the end user is the initial data. Many templates are now available for performing common business applications. The problem with the typical template is that it is too limiting; in an attempt to meet the needs of a wide variety of users, it may end up not being appropriate for the actual needs of a particular business.

Multi-Tool Budget addresses this by meeting the problem at a higher level. It prompts you for information on your particular business needs, and then constructs custom-built Multiplan templates for your application. It tailors the worksheets to your product line and the methods by which you must do cost accounting for each product. You may generate different templates for different areas of your business or for vastly different operations. You are no longer limited to a single fixed template into which you must fit your business needs.

☐ Limitations

The biggest limitation of Multi-Tool Budget is that its own view of cost accounting may be a little too rudimentary for very complex business applications. This is true even though the concept of the "activity base" to be used for the calculation of variable costs may seem complex enough on first reading of the manual for those not well-versed in cost accounting. The program allows you to select one particular activity as the activity base. Unfortunately, in some cases it would be much more appropriate to allow a combination of activities to be factored into the final activity base to be used for projections.

Microsoft Multi-Tool Budget
Cost Accounting System

The user interface for Multi-Tool Budget and for the whole Expert System Program, of which it is a part, needs some work. All of the standard information on company name and address has to be re-entered with each worksheet. It would be easy to construct a separate worksheet containing this information and reference it from all of the others. The Expert System interface is very limited. The only editing operations available to the user are the destructive backspace during initial data entry, and the ability to completely delete an answer and re-enter it. The left and right arrow keys are totally non-functional.

Other user interface issues arose throughout the use of the program. The LEARN program is much too slow for what little functionality it provides. It would also be much more useful if the EXAMPLE command would show you the example for the particular display page in question, then allow you to return to your own work and continue processing where you left off. A PREVIOUS command to review the last page or two of answers would also be an improvement over the REVIEW command that forces you to restart from the beginning. The lack of all of these features limits the ease of use of the program.

■ HANDS-ON EVALUATION

Multi-Tool Budget is provided on 4 single-sided floppy disks. After the installation is complete, it is possible to get all other files onto one double-sided disk in order to reduce disk swapping, but this is not specifically recommended in the manual. All disks may be backed up using normal copy procedures. This also allows them to be copied to a single subdirectory on a hard disk. However, like Multiplan, the program insists on reloading the COMMAND.COM file from the A: drive when it is finished, instead of the default drive.

Installation consists of running the INSTALL program in order to configure the Boot disk for the particular terminal used by your system. In most cases your terminal will appear in the list of terminals known to INSTALL, and all you have to do is indicate the corresponding terminal number. If your particular terminal is not known to INSTALL, then you must explicitly define how your terminal operates to INSTALL. Be prepared to consult your hardware manuals or even your dealer if this case should arise. In our case, the IBM PC appears on the first page of terminals, and installation was completed in seconds.

The LEARN program is built on the same base as Multi-Tool Budget itself, so it serves as a good means of presenting a self-paced course in how to use the product. LEARN is very simplistic in nature, introducng each concept one at a time and very clearly. The biggest problem is that LEARN is very slow in moving from one screen to the next. This was true even when a hard disk was used. An experienced computer user will not be willing to sit through the 5 four-minute sessions that LEARN contains. Particularly painful was the portion halfway through the session that suggested you try the REVIEW command. Upon taking their suggestion, you will find yourself back at the beginning of the lesson and will have to slowly page through all of the screens again in order to continue. Most of the commands, though listed at the bottom of each LEARN screen, are actually disabled during execution of the program until such time as LEARN wants you to try them. If you are confident at all with your ability to use your computer, you should read the manual and take their word for what each command does, and skip LEARN.

The programs themselves seemed to operate faster than the LEARN program. Some information, such as the company name and address, must be re-entered in each worksheet program. For each individual program there is an associated example data file of typical answers to each question for a fictitious furniture company. The most disappointing discovery was the fact that the EXAMPLE command used to display the example data was a one-way street. The example always starts at the beginning, and the only way out is to either quit the program in the middle or to work your way all the way through the example, and exit the program at the end. In both cases you must restart the program to work on your own answer file, and any information that you may have entered before executing EXAMPLE will have been lost if you had not SAVED it beforehand. It would have been much more useful for EXAMPLE to work much the same as HELP does, showing you the answers for the page in question, and returning you to your original place.

□ User Interface

Multi-Tool Budget's user interface is a combination of question menus prompting for information, and a Multiplan-like command line of 8 possible commands. Mechanisms are provided for saving, reviewing, and changing answers, but there is little editing support. An incorrect answer is changed by entering the correct one in full.

Menus: All information is entered into Multi-Tool Budget by answering a sequence of question menus. Each menu displayed in the prompting area contains several simple questions about your particular business environment. Some are multiple-choice menus, others fill-in-the-blank. The commonly chosen answer is usually selected automatically on the multiple-choice menu, though you may change it if desired.

Control Characters: No control characters are used by the program on an IBM PC. During installation, a terminal without cursor control keys may be configured to use control keys for the up and down arrows, backspace, and tab keys.

Function/Special Keys: No function keys are used by the program. The up and down arrow keys are used to move between answer fields on a given screen. The Tab key moves between the question area and the command line. Backspace deletes the last character entered, while the Delete key deletes the entire answer.

Command Language: The commands are all single-word items selected from a Multiplan-like command list near the bottom of the screen. Each command may be selected by hitting the space bar until the command desired is highlighted, then hitting return, or simply by typing the first letter of the command name. Commands provided are Example, Help, Load, Next, Previous, Review, Save, and Quit.

Microsoft Multi-Tool Budget
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Positive Feedback: The only positive feedback is provided during movement of the pointer from line to line, or from command to command. The answer or command that is pointed to at the moment is highlighted in inverse video. Confirmation is required for writing files to disk and for exiting the program.

Status Display: A rudimentary status display is maintained at the bottom of the screen. It is used primarily as a message line for additional prompting or error message reporting.

Help Facilities: At any point during the execution of the Budget program, the Help command may be selected from the command line. Two Help pages are displayed. The first page gives a brief description of each command available on the command line. The second page describes the function of all special keys that may be used during the entry of data. After reading the second page, you are returned to the point at which you asked for help.

In addition to the Help command, the Example command will take you through the particular worksheet you are using with example data entered for a fictitious furniture company. Unfortunately, it does not operate like the Help command. The Example command always starts at the beginning of the example worksheet, forcing you to slowly work your way to the particular page in which you were interested. Once satisfied, you cannot return to the place where you requested the example, but must exit the program and start again.

☐ Environment

Multi-Tool Budget provides support for a wide variety of systems under MS-DOS, including the ability to support special user-defined terminals and terminals with 40-, 80-, or 132-character width. Unfortunately, its 128K-byte memory requirements are twice that of Multiplan. It is not intuitively obvious why it takes twice as much memory to generate Multiplan worksheets as Multiplan takes to process them, or what other benefits the Expert System software on which it is based provides for the 64K-byte increase in memory. The use of 4 floppy disks also causes a lot of disk swapping to occur. Fortunately, the program can be used from a hard disk without this particular problem.

☐ Documentation

The documentation for Multi-Tool Budget is provided in the traditional PC-sized binder, in Microsoft's not-so-traditional plastic box that can be opened to serve as an easel for the manual. The manual is divided into two major parts. The first part, called Using the System, consists of a tutorial section, a description of the LEARN case that can be executed to better familiarize yourself with the program, and a reference manual giving a general overview of the operation of the Questioning system. The second part of the manual is titled Budget Planning and Control and contains a thumbnail sketch of the cost-accounting theory behind each budget worksheet.

The tutorial section of the manual is very simplistic, making it easy for non-computer users to pick up the program and begin using it. Experienced computer users may find themselves bored by the time the LEARN program has taken 20 minutes to explain the usage of a half dozen keys and 6 or 7 commands. The budget planning section of the manual explains some of the theory of cost accounting at a much faster pace and compressed style. Each worksheet is covered in 4 to 6 pages, including examples. Those with computer experience and little budgeting background will find themselves left in the dust in the discussions of cost accounting principles. Fortunately, there is a bibliography of cost accounting texts included at the end of the section.

A separate fold-out of each Multiplan worksheet for the furniture company used in all of the examples is also provided, as is a Customer Service Plan brochure and Microsoft Product Catalog.

☐ Functionality

Multi-Tool Budget is a template-building program. It asks you certain questions about your business operation, such as breakdown of product line, manufacturing costs per product, and project sales and expenses. Based on all of the initial information, it creates a series of customized Multiplan worksheets, complete with formulas, that together make up your entire operating budget. After loading the worksheet into Multiplan, you may experiment with "what-if" projections on variations in sales or growth, and analyze the potential results. Even if you do not make any further modifications to the operating budget itself, you may also use the set of worksheets to study variations in actual revenue and expenditures. This analysis can be used to point out problem areas that need attention over the course of the business year.

Central to the theme of cost accounting is the breakdown between fixed and variable costs. This is covered thoroughly throughout the program documentation and in each of the worksheet areas. Suggestions are given on the selection of an appropriate activity base for each of the variable cost aspects of the budget. For all cost and sales estimates, projections over the course of the budget period may be made individually for each period for cyclical business, or projected at a fixed growth rate for non-cyclical activities.

Seven different worksheets are generated by the program. The first 6 form a linked Multiplan worksheet set that describes the entire operating budget. The seventh is used for budget tracking. The Manufacturing Overhead budget calculates the variable overhead application rate based on a selected activity base. The Unit Cost budget projects the direct material and labor costs required to produce each unit of product. The Sales budget provides a summary of planned sales for all product lines of the company. The Cost of Goods Sold budget projects variable cost figures primarily for purchased products that are then resold. The Selling and Administrative Expenses budget calculates total variable and fixed selling and administrative expenses of the business.

Finally, the Operating Budget summarizes the projected financial results of the planned business operations. This is essentially a compilation of the other budget worksheets. All worksheets are linked together by Multiplan. Changes that are later made to one of the first 5 budgets will automatically affect the total Operating Budget. Once the

Microsoft Multi-Tool Budget
Cost Accounting System

entire operating budget is complete, the Variance Analysis worksheet measures actual performance against the original budget figures. Favorable and unfavorable variances are uniquely identified.

☐ Ease of Use

There are 2 considerations to make under ease of use for Multi-Tool Budget. For the generation of electronic spreadsheets for the management of a business operating budget, it is hard to imagine the process being much simpler. Generation of the worksheets by hand would require a reasonable investment in time and expertise, not to mention modifications for each variation in business activity needed.

But for trying as hard as Multi-Tool Budget does to present a highly simplified user interface, it falls somewhat short. Perhaps they have oversimplified. The LEARN program is very slow and tedious. In the actual program, information must be re-entered in worksheet after worksheet. The REVIEW and editing capabilities are severaly limited. All in all, the program is easy to use, but is not necessarily as functional as it could be.

☐ Support

Microsoft has finally begun providing information on customer support with their products on a widespread basis. An 8-page Customer Service Plan brochure is included with the manual, and details all software and hardware support policies. It refers you to your local dealer as the first line of defense if you cannot solve a problem by re-reading the documentation. If your problem cannot be resolved there, you may call the Product Support Department at 206-828-8089. No toll-free number is available.

Registered purchasers are entitled to free replacement of any program disks found defective within the first 90 days. After that, replacement disks may be purchased for $25 per disk. Product upgrade notices detailing enhancements, upgrade price, and ordering information are mailed to registered purchasers when product modifications are made. The upgrade price is a substantial discount from the list price.

☐ System Interface

Multi-Tool Budget generates SYLK files which are then used by Multiplan to build normal Multiplan worksheets. Any program that can read SYLK files can read the Budget output files, but since most vendors have been creating their own formats for data interchange, it is unlikely that any use could be made of the Budget files other than the one for which it was intended.

☐ Vendor Experience

Microsoft is one of the original suppliers of software for microcomputers. They remain a leader in the industry, both in the provision of standards such as MS-DOS and BASIC, and in the area of innovation with Multiplan, Word, and the Microsoft Mouse. Multiplan has been on the market for approximately a year and a half now, and Multi-Tool Budget for about one year.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Multi-Tool Budget is available for purchase only from Microsoft Corporation, through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally; quantity discounts are available to volume corporate purchasers.

Support • support is provided through local dealers and the Microsoft Product Support Department at 206-828-8089; no toll-free number is available • product enhancement notices are sent to registered users, with enhancements made available to purchasers at a reduced fee; defective disks are replaced free within the first 90 days, after which a $25 fee per disk is charged.

☐ Component Summary

Multi-Tool Budget is provided on 4 single-sided disks; an installation and boot disk, and 3 worksheet disks. After installation is complete, it is possible to copy everything but the installation programs onto one double-sided disk. The main files contained on the 4 floppies are listed below. For each of the last 7 file groups, an extension of .LD is used for the executable file, .SAM for the sample data used by EXAMPLE, and .TXT for the text to be displayed on the screen.

INSTALL.* are installation files for configuring the terminal used. XP.COM is the eXPert system manager used to load other programs; XP.HLP is the eXPert system help information. S*.DEM are the demo information text files used by LEARN and LEARN.* is the demonstration program that teaches Budget. OVERHEAD.* provides files for generation of overhead worksheet; UNITCOST.* contains files for generation of unit cost worksheet; BUDGETS.* are files for generation of budgets worksheet; EXPENSE.* contains files for generation of expense worksheet; OPBUDGET.* provides files for generation of operating budget worksheet; VARIANCE.* are the files for generation of variance worksheet.

Multi-Tool Budget: **$150 lcns**

☐ Computers & Operating Systems Supported

Microsoft Multi-Tool Budget is supported on the IBM Personal Computer or on PC/XT using PC-DOS, on other 8086-/8088-based systems using MS-DOS, and on Apple II, Apple II+, and Apple IIe systems.

☐ Minimum Operating Requirements

The PC-DOS and MS-DOS versions of Multi-Tool Budget require a minimum of 128K bytes of memory and one disk drive, though 2 disk drives are recommended. All Apple versions require a minimum of 64K bytes of memory and one disk drive. Multi-Tool Budget can take advantage of a hard disk drive and printer, if available.

☐ Features

Multi-Tool Budget is a cost-accounting system for the generation of business operating budgets. It builds Multiplan worksheets based on user input about the particular business in question. Six of the worksheets generated make up the complete operating budget for the business. The seventh worksheet allows you to measure and analyze variance in the actual versus budgeted figures. The worksheets generated are:

Manufacturing Overhead Budget • calculates the variable overhead application rate based on a selected activity base; includes all indirect costs of product, that is, all manufacturing-related costs other than direct material and direct labor.

Unit Cost Budget • projects the direct material and labor costs required to produce each unit of product; used primarily by manufacturers.

Sales Budget • provides a summary of planned sales for all product lines of the company; sales are expressed both in terms of units and dollars.

LCNS: license fee.

Microsoft Multi-Tool Budget
Cost Accounting System

Cost of Goods Sold Budget • projects variable cost figures for all product lines of the company; used primarily by retailers.

Selling & Administrative Expenses Budget • calculates total variable and fixed selling and administrative expenses; figures may be entered directly or calculated from total gross sales revenues.

Operating Budget • summarizes the projected financial results of the planned business operations; this is essentially a compilation of the other budget worksheets.

Variance Analysis • measures actual performance against original budget figures; determines sources of deviation from the operating budget.

• END

Microsoft Multi-Tool Financial Statement
Template Generator

■ PROFILE

Function • Multi-Tool Financial Statement is a Multiplan template generator for the production of corporate financial statements and financial ratio analysis worksheets.

Computers/Operating Systems Supported • IBM PC or PC/XT using PC-DOS, other 8086-/8088-based systems using MS-DOS; Apple II, Apple II+, and Apple IIe • requires Microsoft Multiplan.

Configuration • PC-DOS and MS-DOS versions require a minimum of 128K bytes of memory and one disk drive, though 2 disk drives are recommended; all Apple versions require a minimum of 64K bytes of memory and one disk drive; can take advantage of a hard disk drive and printer, if available.

Current Version/Version Reviewed • current version is 1.00/Version 1.00 for IBM PC.

First Delivery • April 1983.

Number of Installations • approximately 5,000.

Comparable Products • no known products perform exactly equivalent functions with Multiplan; PRO/PAC's Financial Management models provide a series of VisiCalc templates.

Optional Associated Software • used in conjunction with Multiplan.

Price • $150 retail price.

Vendor • Microsoft Corporation; 10700 Northup Way, Bellevue, WA 98004 • 206-828-8088.

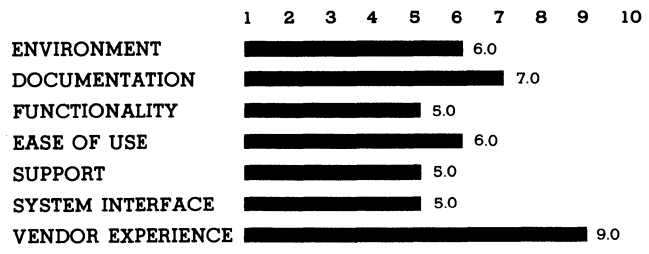
Canada • Distributors: Citation Software; 1901 Logan Avenue, Winnipeg, MB R2R 0H6; 204-632-0559 • Logic West; 555 Dorchester West, Suite 1616, Montreal, PQ H22 1B1; 514-397-9631 • Frantek; 1685 Russell Road, Suite 7, Ottawa, ON K1G 0N1; 613-523-7272 • Cybertech; #9-11720 Voyager Way, Richmond, BC V6X 3E1; 604-278-4848.

■ ANALYSIS

Multi-Tool Financial Statement is a Multiplan template generator for the production of corporate financial statements and financial ratio analysis worksheets. It is used as a complement to Microsoft's Multiplan spreadsheet. It collects all of the financial data necessary to produce a balance sheet and income statement according to generally accepted accounting principles. After the balance sheet and income statement are complete, you may also generate a ratio analysis worksheet that calculates various measures of the operating efficiency of the corporation. These ratios may be compared to historical or industry standards for your particular business in order to pinpoint areas of particular weakness or strength in the management of the company.

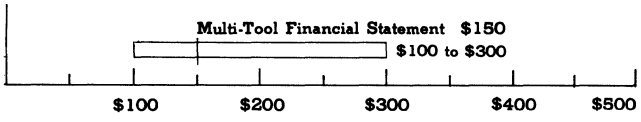
Overall, Multi-Tool Financial Statement does not really do much of the work associated with the production of a financial statement. It would be a welcome program if it would do some of the work in gathering, consolidating, and calculating the numbers that it needs to perform its function. For businesses that already have programs that do these operations, taking the last step in creating a financial statement is not that difficult. For those that don't have all of the numbers at their fingertips, Multi-Tool Financial Statement cannot help.

PRODUCT QUALITY RATINGS*



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

PURCHASE PRICE RANGE Software Price Range



MICROSOFT MULTI-TOOL FINANCIAL STATEMENT PRICING • open bar shows the typical range of prices for **FINANCIAL PLANNING UTILITIES** software used in a corporate environment • the vertical line within the bar graph indicates the price of **Multi-Tool Financial Statement**, the evaluated product, relative to the price range of similar products.

□ Strengths

The greatest strength of Multi-Tool Financial Statement is the fact that it is an extension of the concept of the ready-made spreadsheet template. A spreadsheet template is a worksheet that already contains all of the formulas for performing a particular spreadsheet application. All that must be entered by the end user is the initial data. Many templates are now available for performing common business applications. The problem with the typical template is that it is too limiting; in an attempt to meet the needs of a wide variety of users, it may end up not being appropriate for the actual needs of your particular business.

Multi-Tool Financial Statement addresses this by meeting the problem at a higher level. It prompts you for information on your particular business needs, and then constructs custom-built Multiplan templates for your application. It tailors the worksheets to the structure of your particular business and then permits you to generate different templates for different areas of your business or for vastly different operations. You are no longer limited to a single fixed template into which you must fit your business needs.

Microsoft Multi-Tool Financial Statement
Template Generator

☐ Limitations

The biggest limitation of Multi-Tool Financial Statement is the fact that the user still has to do most of the work. Its major function consists of placing the input data into the commonly accepted format for financial statements, and performing a couple of additions and subtractions to insure that the figures balance. The hard part is the gathering and computation of all of the information that must be entered into Multi-Tool Financial Statement. The most useful part of the system is the financial ratio computation and analysis, but again this is not that complex a piece of work. Any corporate accounting book can tell you which 2 numbers to divide to get any of the ratios.

The user interface for Multi-Tool Financial Statement and for the whole Expert System Program, of which Multi-Tool Financial Statement is a part, needs some work. All of the standard information on company name and address has to be re-entered with each worksheet. It would be easy to construct a separate worksheet containing this information and reference it from all of the others. The expert system interface is very limited. The only editing operations available to the user are the destructive backspace during initial data entry, and the ability to completely delete an answer and re-enter it. The left and right arrow keys are non-functional.

Other user interface issues arose throughout the use of the program. The LEARN program is much too slow for what little functionality it provides. It would also be much more useful if the EXAMPLE command would show the example for the particular display page in question, then allow you to return to your own work and continue processing where you were. A PREVIOUS command to review the last page or two of answers would also be an improvement over the REVIEW command that forces you to restart from the beginning. The lack of all of these niceties tarnishes the ease of use of the program.

■ HANDS-ON EVALUATION

Multi-Tool Financial Statement is provided on 3 single-sided floppy disks. After the installation is complete, it is possible to get all other files onto one double-sided disk in order to reduce disk swapping, but is not specifically recommended in the manual. All disks may be backed up using normal copy procedures. This also allows them to be copied to a single subdirectory on a hard disk. However, like Multiplan, the program insists on reloading the COMMAND.COM file from the A: drive when it is finished, instead of the default drive.

Installation consists of running the INSTALL program in order to configure the Boot disk for the particular terminal used by your system. In most cases, your terminal will appear in the list of terminals known to INSTALL, and all you have to do is indicate the corresponding terminal number. If your particular terminal is not known to the INSTALL program, then you must explicitly define how your terminal operates to INSTALL. Be prepared to consult you hardware manuals or even your dealer if this case should arise. In our case, the IBM PC appears on the first page of terminals, and installation was completed in seconds.

The LEARN program is built on the same base as Multi-Tool Financial Statement itself, so it serves as a good means of presenting a self-paced course in how to use the product. LEARN is very simplistic in nature, introducing each concept one at a time and very clearly. The biggest problem is that LEARN is very slow in moving from one screen to the next. This was true even when a hard disk was used. An experienced computer user will not be willing to sit through the 5 four-minute sessions that LEARN contains. Particularly painful was the portion, halfway through the session, that suggested you try the REVIEW command. Upon taking the suggestion, you will find yourself back at the beginning of the lesson, and will have to slowly page through all of the screens again in order to continue. Most of the commands, though listed at the bottom of each LEARN screen, are actually disabled during execution of the program until such time as LEARN wants you to try them. If you are confident at all with your ability to use your computer, we suggest that you read the manual and take Microsoft's word for what each command does, and skip the LEARN program.

The programs themselves seemed to operate faster than the LEARN program actually did. Some information, such as the company name and address, must be re-entered in each worksheet program. For each individual program there is an associated example data file for a fictitious company with typical answers to each question. The most disappointing discovery was the fact that the EXAMPLE command used to display the example data was a one-way street. The example always starts at the beginning, and the only way out is to either quit the program in the middle or to work your way all the way through the example and exit the program at the end. In both cases, you must restart the program to work on your own answer file, and any information that you may have entered before executing EXAMPLE will have been lost if you had not SAVED it. It would have been more useful for EXAMPLE to work the same as HELP does, showing you the answers for the page in question and returning you to your original place.

When running through the EXAMPLE program from beginning to end, one of the screens came up with several typical expense categories and numbers, and one line of periods preceded by a dollar sign. No text described what it was supposed to be, and the cursor could not be positioned in that field. When transferring the generated worksheet to Multiplan, this line produced an input error! Fortunately, it resulted only in an additional zero entry which seemed to have no effect on the overall worksheet. The foldout of the example worksheet provided in the manual did not contain any entry at the location of the error. It was disappointing to find such a problem in the example case users follow to learn the operation of the program.

☐ User Interface

Multi-Tool Financial Statement's user interface is a combination of question menus prompting for information, and a Multiplan-like command line of 8 possible

Microsoft Multi-Tool Financial Statement
Template Generator

commands. Mechanisms are provided for saving, reviewing, and changing answers, but there is little editing support. An incorrect answer is changed by entering the correct one in full.

Menus: All information is entered into Multi-Tool Financial Statement by answering a sequence of question menus. Each menu displayed in the prompting area contains several simple questions about your particular business environment. Some are multiple-choice menus, others are fill-in-the-blank. The commonly chosen answer is usually selected automatically on the multiple-choice menus, though you may change it if desired.

Control Characters: No control characters are used by the program on an IBM PC. During installation, a terminal without cursor control keys may be configured to use control keys for the up and down arrows, backspace, and tab keys.

Function/Special Keys: No function keys are used by the program. The up and down arrow keys are used to move between answer fields on a given screen. The tab key moves between the question area and the command line. Backspace deletes the last character entered, while the delete key deletes the entire answer.

Command Language: The commands are all single-word items selected from a Multiplan-like command list near the bottom of the screen. Each command may be selected by hitting the space bar until the command desired is highlighted, then hitting return, or simply by typing the first letter of the command name. Commands provided are Example, Help, Load, Next, Previous, Review, Save, and Quit.

Positive Feedback: The only positive feedback aside from obvious results from typing in information is provided during movement of the pointer from line to line, or from command to command. The answer or command that is pointed to at the moment is highlighted in inverse video. Confirmation is required for writing files to disk and for exiting the program.

Status Display: A rudimentary status display is maintained at the bottom of the screen. It is used primarily as a message line for additional prompting or error message reporting.

Help Facilities: At any point during the execution of the Financial Statement program, the Help command may be selected from the command line. Two Help pages are displayed. The first page gives a brief description of each command available on the command line. The second page describes the function of all special keys that may be used during the entry of data. After reading the second page, you are returned to the point at which you asked for help.

In addition to the Help command, the Example command will take you through the particular worksheet you are using with example data entered for a fictitious furniture company. Unfortunately, it does not operate like the Help command. The Example command always starts at the beginning of the example worksheet, forcing you to slowly work your way to the particular page in which you were interested. Once satisfied, you cannot return to the place where you requested the example, but must exit the program and start again.

☐ Environment

Multi-Tool Financial Statement provides support for a wide variety of systems under MS-DOS, including the ability to support special user-defined terminals and terminals 40, 80, or 132 characters wide. Unfortunately, its 128K-byte memory requirements are twice that of Multiplan. It is not intuitively obvious why it takes twice as much memory to generate Multiplan worksheets as Multiplan takes to process them, or what other benefits the Expert System software, on which it is based, provides for the 64K-byte increase in memory. The use of 3 floppy disks also causes a lot of disk swapping to occur. Fortunately, the program can be used from a hard disk without this particular problem.

☐ Documentation

The documentation for Multi-Tool Financial Statement is provided in the traditional PC-sized binder, in Microsoft's not-so-traditional plastic box that can be opened to serve as an easel for the manual. The manual is divided into 2 major parts. The first part, called Using the System, consists of a tutorial section, a description of the LEARN case that can be executed to better familiarize yourself with the program, and a reference manual giving a general overview of the operation of the Questioning system. The second part of the manual is titled Financial Statement Analysis and contains a thumbnail sketch of the accounting theory behind each worksheet.

The tutorial section of the manual is very simplistic, making it easy for non-computer users to pick up the program and begin using it. Experienced computer users may find themselves bored by the time the LEARN program takes 20 minutes to explain the usage of a half dozen keys and 6 or 7 commands. The financial analysis section of the manual explains some of what is meant by Generally Accepted Accounting Principles (GAAP) and how different approaches might affect the final financial statement. Each particular worksheet is discussed in detail, particularly with regard to how to determine the proper number that must be entered for each question. The section on Ratio Analysis describes what each of the particular ratios attempts to measure, and how they might be modified or controlled. Appendices go into much greater detail on methods of inventory costing and valuation, and computing depreciation.

A separate fold-out of each Multiplan worksheet for the fictitious company used in all of the examples is also provided, as is a Customer Service Plan brochure and Microsoft Product Catalog.

☐ Functionality

Multi-Tool Financial Statement is a template-building program for the creation of a set of Multiplan worksheets. The worksheets in turn combine to produce a complete corporate financial statement.

The Balance Sheet program generates a worksheet that shows a statement of the company's financial position at a given point in time. It includes information about the

Microsoft Multi-Tool Financial Statement
Template Generator

company's assets, liabilities, and stockholders' or owners' equity. The example shows 30 different numbers that had to be entered into the program in order to completely specify the company's financial position.

The Income Statement reveals the performance of the company during a specified period of time. It includes information on corporate revenues, expenses, extraordinary gains and losses, and net income. The information necessary for the production of the income statement is what must conform to Generally Accepted Accounting Principles. Because of the complexity of such topics as inventory valuation and depreciation methods, it is recommended that a qualified accountant perform all of the transactions analysis for the company during the start-up period.

The Ratio Analysis worksheet provides all interested parties with valuable information into the operating efficiency of the company. Eighteen different ratios in 4 different categories are calculated for comparison purposes with historical and industry-average figures. This can be used to measure trends in the company's financial position and point out areas in which attention is possibly needed.

☐ Ease of Use

There are 2 considerations to make under ease of use for Multi-Tool Financial Statement. For the generation of electronic spreadsheets for the management of a business financial statement, it is hard to imagine the process being much simpler.

But for trying as hard as Multi-Tool Financial Statement does to present a highly simplified user interface, it falls somewhat short. Perhaps they have oversimplified. The LEARN program is very slow and tedious. In the actual program, information must be re-entered in worksheet after worksheet. The REVIEW and editing capabilities are severely limited. All in all, the program is easy to use, but is not necessarily as enjoyable to use as it could be.

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☐ System Interface

Multi-Tool Financial Statement generates SYLK files which are then used by Multiplan to build normal Multiplan worksheets. Any program that can read SYLK files can read the Financial Statement output files, but since most vendors have been creating their own formats for data interchange, it is unlikely that any use could be made of the Financial Statement files other than the one for which it was intended.

It would be nice if the user could specify to the program that all of the information that was needed was available in another worksheet or database used by the company during the course of business. All of the figures must be transcribed into the Income and Balance programs, providing an opportunity for error. Perhaps as Microsoft increases the number of such programs available under its Expert System umbrella, there will be more possibility of information interchange among the various programs.

☐ Vendor Experience

Microsoft is one of the original suppliers of software for microcomputers. They remain a leader in the industry, both in the provision of standards, such as MS-DOS and BASIC, and in the area of innovation, with Multiplan, Word, and the Microsoft Mouse. Multiplan has been on the market for approximately a year and a half now, and Multi-Tool Financial Statement for about one year.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Multi-Tool Financial Statement is available for purchase only from Microsoft Corporation, through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally; quantity discounts are available to volume corporate purchasers.

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☐ Component Summary

Multi-Tool Financial Statement is provided on 3 single-sided disks; an installation and boot disk, and 2 worksheet disks. After installation is complete, it is possible to copy everything but the installation programs onto one double-sided disk. The main files contained on the 4 floppies are listed below. For each of the last 7 file groups, an extension of .LD is used for the executable file, .SAM for the sample data used by EXAMPLE, and .TXT for the text to be displayed on the screen.

INSTALL* contains installation files for configuring terminal used; XP.COM is the eXPert system manager used to load other programs; and XP.HLP is the eXPert system help information. S*.DEM provides the demo information text files used by LEARN and LEARN.* is the demonstration program that teaches use of system. BALANCE.* contains files for generation of balance sheet worksheet; INCOME.* contains files for generation of income statement worksheet; and RATIO.* contains files for generation of ratios worksheet.

Multi-Tool Financial Statement:

$150 lcns

☐ Computers & Operating Systems Supported

Microsoft Multi-Tool Financial Statement is supported on the IBM Personal Computer or PC/XT using PC-DOS, on other

LCNS: license fee.

Microsoft Multi-Tool Financial Statement
Template Generator

8086-/8088-based systems using MS-DOS, and on Apple II, Apple II+, and Apple IIe systems.

☐ Minimum Operating Requirements

The PC-DOS and MS-DOS versions of Multi-Tool Financial Statement require a minimum of 128K bytes of memory and one disk drive, though 2 disk drives are recommended. All Apple versions require a minimum of 64K bytes of memory and one disk drive. Multi-Tool Financial Statement can take advantage of a hard disk drive and printer, if available.

☐ Features

Multi-Tool Financial Statement is a Multiplan template generator designed to create worksheets that will build a complete financial statement for a given business. The worksheets that are generated include:

Balance Sheet • provides a picture of the company's size, of its asset and liability structure, and of the net investment by the company's owners.

Income Statement • shows the revenues, expenses, and net income for a given period, reflecting the profitability and operational efficiency of the company.

Ratio Analysis • calculates 18 different financial ratios in 4 general categories that demonstrate comparative operational efficiency for the company.

☐ Other Facilities

Once the Multiplan worksheets have been created by Multi-Tool Financial Statement, sophisticated users may perform further customization and modification of the actual worksheets to handle particular special needs. Unfortunately, each successive use of Multi-Tool Financial Statement to regenerate needed worksheets would require the modifications to be re-applied.

• END

Microsoft Word
Word Processor Package

■ PROFILE

Function • word processor.

Computers/Operating Systems Supported • IBM Personal Computer and PC/XT under PC-DOS.

Configuration • requires a minimum of 128K bytes of memory, one single- or double-sided disk drive, and a monochrome or graphics display device; hard disk support is provided; also supports a variety of printers.

Current Version/Version Reviewed • Version 1.1/Version 1.0 on an IBM PC was reviewed.

First Delivery • 1983.

Number of Installations • information not available.

Comparable Products • MicroPro WordStar; Metasoft Benchmark Word Processor; Perfect Software Perfect Writer.

Optional Associated Software • Microsoft Mouse.

Price • $395 retail price; $425 with Mouse.

Vendor • Microsoft Corporation; 10700 Northup Way, Bellevue, WA 98004 • 206-828-8080.

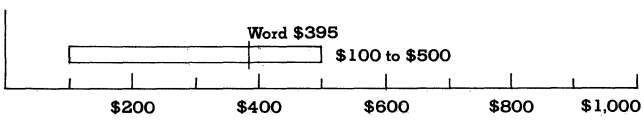
Canada • Distributors: Citation Software; 1901 Logan Avenue, Winnipeg, Manitoba R2R 046; 204-632-0559 • Logigwest; 555 Dorchester West, Suite 1616, Montreal, QB H22 1B1; 514-397-9631 • Frantek; 1685 Russell Road, Suite 7, Ottawa, ONT KIG 01; 613-523-7272 • Cybertech; #9-11720 Voyager Way, Richmond, BC V6X 3E1; 604-278-4848.

■ ANALYSIS

Microsoft's Word is the latest in word processor technology from a company that has made a very late entry into the particular marketplace. It combines ease-of-use designs borrowed from the vendor's Multiplan with new power and capabilities unmatched by any other personal computer word processor. It provides true "what-you-see-is-what-you-get" editing with complex formatting abilities capable of driving a phototypesetter. As with most new products, it will have to go through a shakedown period where the product itself stabilizes, and the market indicates which of the new capabilities are worth pursuing.

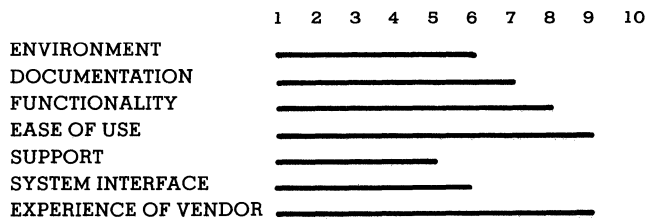
With Word Version 1.0, Microsoft has attempted to do to the word processor world what Multiplan did to spreadsheets: measure, define, and advance the state of the art, and not just introduce a "me-too" product. It succeeds to a slightly lesser degree this time, being partially limited by the fact that the IBM PC is not the state of the art in hardware design and capabilities. It may take a faster machine with a higher resolution screen before the full extent of the impact of Word can be measured. In the meantime, it is still a highly capable product that has taken several steps in a new direction for word processors. Though it may have a couple of more steps to take to firmly establish itself, it is already those few ahead of the competition.

PURCHASE PRICE RANGE Software Price Range



MICROSOFT WORD PRICING • open bar shows the typical range of prices for **WORD PROCESSING** software used in a corporate environment • the vertical line within the bar graph indicates the price of **WORD**, the evaluated product, relative to the price range of similar products.

PRODUCT QUALITY RATINGS*



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

☐ Strengths

Word's greatest strengths are its document formatting capabilities. It supports complete user control over paragraph, division and document formatting styles. Styles may be specified on the fly for new document types or experimentation purposes, or formalized into complete document style sheets. Style sheets allow the specification of an entire document format, including variant formatting styles for indented text, quotations, and footnote references. Each style may specify the character font and size to be used, vertical spacing, indentation characteristics, and the number of columns. Different style sheets may be used for printing the same document at different times. A draft style sheet might not invoke fancy character fonts or multiple column layout, allowing rapid printing of a document for review purposes. After review and modification, the final document would be printed using a production style sheet invoking all possible special characteristics to be used.

The ability of Word to display on a graphics terminal an actual representation of different print characteristics is a definite plus. It gives the user immediate feedback as to the impact that a particular printing style will have in the final document. As mentioned, this display capability is limited by the resolution available on the IBM PC, but is still a valuable capability.

The introduction of a word processor that actually takes advantage of a mouse as a pointing device on the IBM PC is

Microsoft Word
Word Processor Package

not as important for the actual capabilities that it provides in Word, though useful, as it is for the mere availability of the capability. The presence of an actual product using the Mouse in the real marketplace will do much more for the advancement of knowledge about its usefulness and how it might be improved than any amount of extra time spent in the research labs.

☐ Limitations

A potential problem with Word is the fact that it is trying to be state-of-the-art software while executing on a not-so-state-of-the-art machine. On the IBM graphics monitor, all of the special formatting capabilities, such as boldface, underlining, italics, etc, are actually presented as such, giving a true screen representation of the document. Unfortunately the IBM graphics monitor is not of sufficiently high resolution for this to be pulled off well. Some of the features, such as italics, look pretty good; others, such as boldface, do not fare as well. Many users do not like to do text processing on the graphics monitor at all because of the strain of staring at slightly fuzzy characters all day long, a problem that Word simply cannot address no matter how it tries.

An area with room for improvement that will undoubtedly be addressed as time goes on is the overall speed of the product. Though a vast improvement over the demo disk that appeared in magazines prior to shipment, a little more work would be welcome. The program particularly deteriorates when handling multiple windows, since it tries to make sure all windows are up-to-date as one of them is being modified.

Though designed with the widest variety of formatting capabilities of any word processor, the actual printer support provided by Microsoft Word falls way short of most other products. Many products provide hooks by which the program can be modified to produce special results for a particular device being used. The appendix in the reference manual on printing documents with Word states that other printers can be supported by first writing and installing your own device driver that converts Microsoft's Print file format into the particular control sequences necessary to drive the printer in question. This is a task for only the most dedicated assembly-language technicians. It is hoped that a few of these souls will take it upon themselves to free the rest of us from this task.

■ HANDS-ON EVALUATION

Microsoft Word is delivered on 2 single-sided floppy disks: one system disk and one program disk. The system disk is in charge of enforcing the copy-protection mechanism of the product, and contains some of the drivers for the Word program. The program disk contains the remainder of the actual code, the print drivers, and sample style sheets. The program disk may be backed up using standard copy procedures.

The system disk contains a copying procedure that allows the purchaser to make 2 copies of the master disk itself: one to another floppy for backup purposes, and one to install the program onto a hard disk. The disk modifies itself to prevent multiple copies from being made. The purchaser should be particularly aware of this before installation on a hard disk. The opener of the review copy promptly tested out the hard disk installation procedure before realizing that it was a one-shot deal, and installed the program on the wrong hard disk. The only real drawback to this scheme is the possibility of wiping out the hard disk copy accidentally. If this happens, one must contact Microsoft to arrange for a new copy of the system disk that will allow reinstallation on the hard disk.

Users new to "what-you-see-is-what-you-get" editors will require a little time to adjust to Word's reformatting of text on the screen as it is entered. The Multiplan-like command interface should be welcomed by Multiplan users and novices alike. It is easy to use as it is presented on the screen, and help is always available online for any command or command option.

The processing speed of text entry has been improved over the demonstration version that was available earlier, to the point that Word should be able to keep up with the best touch typists as long as only a single window is being used. The performance degrades with each window added to the screen, because Word must spend time making sure changes in one window are reflected in others. The product's use of graphics features means that it was significantly tested on graphics terminals, something not always done with some word processors. The usual result of the latter case is "snow" on a graphics screen that doesn't appear on the monochrome monitor. Word shows no tendencies at all for this.

No problems were encountered in trying to create documents using Word, with the exception of some experienced users with the habit of hitting the INSERT key to insert blanks when editing the text. In Word this pulls text out of the "scrap," a temporary storage area for deleted text. Though Word contains a conversion utility for converting WordStar files to Word format, some annoyances were encountered in attempting to convert some normal DOS files created with various and sundry other editors. One file contained control characters used to indicate style changes. These were retained by the file during Transfer Load, so Search and Replace were invoked to try to remove them. When control characters were specified in conjunction with other characters in the Search criteria, they were located properly, but the Replace function did not remove them. It also appears that control characters cannot be typed into Word files, eliminating the ability to performs quick tricks for invoking special features on unsupported printers.

The Microsoft Mouse takes a little getting used to, especially for dyed-in-the-wool old timers, but in general was seen as an eventually useful tool.

☐ User Interface

The Word user interface is the abbreviated, menu-like system used in Multiplan, combined with the use of the cursor control keypad or mouse for positioning within the text area of the screen. All commands or options that are legal at the moment appear within a 2-line portion at the

Microsoft Word
Word Processor Package

bottom of the screen as full English words. The prompting and selection mechanism is clear enough to satisfy the needs of the novice, yet efficient enough for the experienced user.

Menus: The main commands are listed alphabetically near the bottom of the screen. Command selection is done pressing the ESC (escape) key to leave the text and enter command mode. The command desired may then be highlighted using the cursor control keys with the return key depressed, or the command may be selected simply by typing its first letter. This process continues at successive levels as the user is led through the various legal options. Occasional options allow the entry of specific data, such as column numbers or line counts, with proposed values being supplied. Though the command and option prompts are only one word, and any single group of words must all begin with different characters, careful choice of each word used results in a very logical system.

Control Characters: Control characters are not used for commands. Nor may control characters be entered into the text. The ALT key is used in conjunction with particular characters as a short cut for specifying common formatting options, such as ALT-b for boldface, and ALT-u for underlining.

Function/Special Keys: Function keys are used for the selection of text items, such as word or paragraph, and for common operations such as toggling between insert and overtype modes. Word also takes advantage of the cursor control pad on the IBM PC, including the HOME, END, PGUP and PGDN keys, and the arrow keys in combination with the CTRL and SCROLL LOCK keys for various scrolling options.

Command Language: No command language is provided by Word.

Positive Feedback: Positive feedback is provided for most operations, either in the form of obvious results or on-screen messages. On a graphics display, selection of particular formatting controls are actually performed on the screen, such as bold, underlining, italics, superscripts, subscripts and strike-through. Verification is requested for destructive operations, including exiting the program without saving the data.

Status Display: The 25th line of the display is used as a status display. It includes information on the current mode, the text contained in the scrap (a temporary disposal area), the percentage of free space remaining, the current status of several toggle keys, and the name of the file being edited.

Help Facilities: At any time, the user may highlight a particular command or option of the 2-line menu displayed, and hit the "?" key. This causes the online HELP file to be shown on the screen, positioned at the entry for the command or option referenced. The HELP file explanations parallel the actual reference manual, and are excellent descriptions of the item in question. A flimsy reference card is also included.

☐ Environment

The memory requirement of 128K bytes, though a little stiffer than the typical minimum system, is not uncommon in a word processor as complex as Word. This configuration is also frequently present in a business environment. Hard disk support is provided, complete with full DOS 2.0 file name support.

Though the graphics screen provides for visual effects not available on the monochrome screen, such as true italics, or the full representation characteristics of the Mouse pointer, it is not a requirement for Word. The user pays for these features with loss of resolution for all normal text display.

Neither is the Microsoft Mouse necessary to use Word, though a number of operations can be simplified if it is available. The only penalty that the Mouse demands is the use of an expansion slot in the machine.

☐ Documentation

Documentation for Word consists of a 4-part loose-leaf binder. The first section is a gently-paced tutorial called Learning Word, which takes you through initial file creation and simple revisions. It contains numerous full-screen images, and covers some of the more common features present in the product. Part II, called Using Word, picks up the pace rather quickly in order to cover all of the many formatting capabilities. By the end of part II the manual has gotten fairly terse, making the understanding of style sheets and their proper usage somewhat of a challenge.

Part III of the manual is the Reference to Word. The first section contains a complete description of the elements of Word, including the page layout model used, default formatting styles, and an overview of file operations. The second section is an alphabetical listing of all commands and command options. The last part of the manual is the Appendices, containing information on printing documents and converting WordStar files, and a glossary and index.

A minor problem throughout the manual is the constant mixture of Mouse and Non-Mouse instructions. Regardless of which option is chosen, you must read over large portions of text that do not apply to find the information you are looking for. Some of the important Mouse information is particularly difficult to find.

☐ Functionality

Microsoft Word is one of the most complete word processors on the market in terms of functionality. It is a "what-you-see-is-what-you-get" editor; the screen display is constantly modified to reflect the intended print format. All standard word processor capabilities are represented, including text insertion and overtyping, block manipulation functions, rapid movement through the text (both vertically and horizontally), and automatic word wrap at end-of-line. Up to 8 separate windows can be displayed on the screen simultaneously, with complete synchronization of text modification. An UNDO command allows the backout of undesired or accidental changes.

Word's capabilities begin to show in the area of text and document formatting, both on and off screen. Support is

Microsoft Word
Word Processor Package

provided for enhanced text features such as boldface, underline, italics, superscripts, subscripts, strike-through, and small capitals. With a graphics monitor, these special characteristics are displayed on the screen as they will appear on the printed page. Up to 64 separate character fonts may be specified and used in a document.

Word provides complete document formatting capabilities, including header and footer support, automatic footnote capabilities with end-of-page or end-of-document footnote display, and complete control of margin settings, line spacings, paragraph styles, justification, and font selection. With style sheets, a complete document style may be defined with as many variants as desired. Multiple style sheets allow documents to be printed in draft form using a simple set of style guidelines, then produced in complete final form using a complete set of complex style specifications.

Word is the first word processor for the IBM PC designed for use with an optional Mouse. The Mouse is a pointing device with 2 buttons that may be used to select and carry out commands, select portions of text for modification, perform rapid scrolling functions, and in general simplify the use of a word processor. Some adjustment is usually necessary in using a Mouse, particularly for experienced computer users, but an overall indication of Mouse usage is that it does offer considerable benefits.

☐ Ease of Use

Microsoft Word uses essentially the same user interface that was introduced with Multiplan so successfully. With Word, the escape key is used to enter command mode, after which command selection is simple and straightforward. If the user invokes such options as right justification, some adjustment to the movement of characters on the screen may be necessary as these modifications are made, since Word constantly rearranges the screen to maintain the format selected.

For the vast majority of operations other than text entry itself, the Microsoft Mouse simplifies even further the ease of invoking options. By placing the Mouse pointer on top of the command desired and clicking one button, a command is immediately executed. Option selection and window management is quick and easy, and the marking of text within the document upon which commands should operate is much more efficient than through the use of the cursor and function keys. Some operations will not be made easier through the use of the Mouse, but all of the keyboard functioning is still available while the Mouse is enabled.

☐ Support

The details of any kind of customer support information contained in the Word package are conspicuous by their absence. A good brochure containing all software and hardware support information was finally located in the manual accompanying the Microsoft Mouse, and an 800 sales office number was found in an ad in a personal computer magazine. This is in stark contrast to the detailed support manuals provided by other major manufacturers, and a disappointment for a company that is supposed to be one of the leaders of the industry.

The new support brochure, which hopefully will begin appearing in all product manuals, does describe the customer support group, problem reporting procedures, and software replacement and enhancement update policies.

☐ System Interface

Word has the capability of reading normal DOS files, though much work may be necessary to convert the document to really conform to Word's ideas of paragraphs and special characteristics. DOS files may be created by printing a document to a disk file.

A conversion utility is also provided for converting MicroPro's WordStar files into Microsoft's Word format.

☐ Vendor Experience

Microsoft is one of the original suppliers of software for microcomputers. They remain a leader in the industry, both in providing old favorites such as BASIC, and in the area of innovation, with Multiplan, Word, and the Microsoft Mouse. Word has now been on the market for approximately 6 months.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • Word is available for purchase only from Microsoft Corporation, and through computer dealers, software dealers, and mail-order firms throughout the U.S. and internationally; if Word and the Microsoft Mouse can be purchased together at a discounted price; quantity discounts are available to volume corporate purchasers.

Support • support is provided through local dealers and a customer support center; product enhancement notices are sent to registered users, with enhancements available to purchasers at a reduced fee.

☐ Component Summary

Word is provided on 2 single-sided floppy disks: the system disk and the program disk. The system disk contains: WORD.COM • the initial program file that must be executed to start Word; CONVERT.EXE • the WordStar conversion utility, MWCOPY.COM • the executable copy that allows making one floppy and one hard disk copy of the Word.

The program disk contains: MW.PGM • the main program file; MW.HLP • the HELP file; MW.INI • the session file that remembers settings from the last session; *.PRD • various printer drivers; *.STY • sample style sheets; and EXAMPLE.DOC • an example text file used in the manual.

Word: **$395 lcns**

Word with Mouse: **475**

☐ Computers & Operating Systems Supported

Word is supported on the IBM Personal Computer and PC/XT under PC/DOS. Support for other personal computers is scheduled to be available in the near future.

☐ Minimum Operating Requirements

Word requires a minimum of 128K bytes of memory, one single- or double-sided disk drive, and an 80-column display device, either

LCNS: license fee.

Microsoft Word
Word Processor Package

monochrome or graphics. Hard disk support is provided, in addition to support for a variety of printers.

☐ Features

Microsoft Word is a word processor for the production of simple or complex documents. It supports a wide variety of capabilities, including:

Full-Screen Editing • supports full cursor and screen control functions; in addition, special features such as underline, boldface, italics, superscripts, and subscripts can be displayed on a graphics monitor.

Block Mode Operations • full support for item selection by individual characters, words, sentences, paragraphs, divisions, and documents is provided for any document operation; includes copying, deletion, insertion, or formatting.

Complex Formatting Capabilities • include complete support for specifying document, page, and paragraph layout; support control of headers and footers, character font style and size, indentation characteristics, and automatic footnotes; multiple column display and proportionally spaced printouts are supported.

Multiple Windows • up to 8 windows may be displayed on screen simultaneously; changes appearing on one window are synchronized with other windows displaying the same text; window size may be changed at any time, and is particularly easy to modify with the Mouse.

Glossaries • full support for multiple user-defined glossaries of commonly occurring words or phrases; glossaries may be permanent, or temporary entries may be made.

Complete Style Sheets • all formatting instructions for a given document type may be entered into a style sheet and used as needed in any document; different style sheets for drafts and production copies can be created.

Optional Mouse • support for the Microsoft Mouse as a pointing device is provided; the Mouse can simplify command and text selection, and easily perform such functions as scrolling and window definition and manipulation.

• END

Microstuf CROSSTALK
Data Communications Support Program

■ PROFILE

Function • support the emulation of simple ASCII terminals or popular CRT terminals to permit communication and file transfer between a personal computer and another PC, a minicomputer, or a mainframe.

Computers/Operating Systems Supported • 8080, 8085, 8086, 8088, or Z80 personal computer systems operating under CP/M or MS-DOS.

Configuration • IBM PC or PC-compatible systems require 128K-byte RAM and one disk drive; CP/M configurations vary, but generally require 64K-byte RAM and one disk drive.

Current Version/Version Reviewed • Version 3.4/Version 3.4 of CROSSTALK XVI, for the IBM Personal Computer.

Number of Installations • 2000+.

Comparable Products • Southeastern Software's DataCapture, Headland Press' PC-TALK, Perfect Software's Perfect Link.

Optional Associated Software • none.

Price • $195.

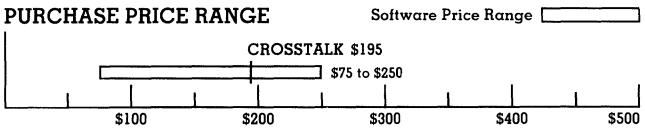
Vendor • Microstuf, Inc; 1845 The Exchange, Atlanta, GA 30339 • 404-952-0267.

■ ANALYSIS

Much of the software presently marketed for personal computers has its roots in the period when the typical user of such systems, particularly the expensive ones, was a hobbyist or professional with a strong interest in the technical aspects of the computer and a corresponding desire to have a technically complete and sophisticated product. CROSSTALK is such a product. It offers considerable flexibility for users who require the ability to communicate with host computers using an asynchronous protocol and the ASCII character set.

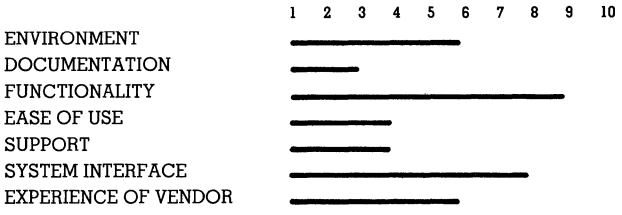
Communication products for personal computers often provide only the most basic form of communication terminal emulation, sometimes called "dumb terminal" emulation to indicate that such devices possess no sophisticated features for cursor control and full-screen display. CROSSTALK has the ability to emulate several of the most popular CRT terminals, so a PC running it can attach to nearly any minicomputer or mainframe and communicate. Within the limits of the connecting system, it can also transfer files.

PURCHASE PRICE RANGE



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

PRODUCT QUALITY RATINGS*



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

The communication features of CROSSTALK are very complete.

The functional sophistication of CROSSTALK is accompanied by a necessary increase in product complexity. While there are some accommodations to the fact that many of the corporate users of the system will NOT be computer specialists, it is not a package quickly learned by the business professional. The product is sprinkled with seemingly useless extras which serve no useful purpose but increase the size of an already bewildering array of commands and options. Even some of the features designed to make the package more accommodating require expert assistance in setting up properly.

There is no question that the flexibility of CROSSTALK is rarely surpassed by other communication products, and that it can support nearly any reasonable communication application where asynchronous data communication is required. Some organizations, in fact, may not need most of the features of the product. A business with an unstructured environment for communication and possessing a reasonable level of computer and communication literacy should find CROSSTALK an excellent choice for supporting their needs. Users without technical expertise within their organizations should insure that assistance can be secured from corporate or dealer sources prior to committing to purchase.

☐ Strengths

If you want to do something with asynchronous communication on a PC, CROSSTALK can probably be made to do it. Nearly any host computer can communicate with at least one of the terminals which CROSSTALK emulates, so the package makes a versatile multipurpose communicator out of a PC.

File transfer options with CROSSTALK are flexible enough to suit nearly any exchange which the host system can

Microstuf CROSSTALK
Data Communications Support Program

support, and PC-to-PC transfer can be managed in an error controlled manner.

Commands and setup for communication sessions can be saved on disk and invoked as needed, making it possible to set up and manage a communication session with a minimum of operator intervention. This facilitates its use by non-specialists.

Full modem control for automatic dial and automatic answer are provided, including the ability to tune the features of the program ot match the modem. Most popular modem brands are supported, and the customization features are versatile enough to make it likely that future offerings will be likewise accommodated.

☐ Limitations

The opening section of the CROSSTALK manual speaks volumes on the complexity of the product: "This manual is organized into 15 chapters, and 7 appendices." An inexperienced user, faced with the volume of features, commands, and options CROSSTALK offers may feel like a janitor trying to cut a piece of twine and confronted with an array of surgical instruments. There are a LOT of choices to be made.

The design of the product aggravates the general complexity of CROSSTALK by adding useless options to many commands. A user is given FOUR different ways of turning the printer on, for example.

The manual organization and style further obscure the features of the product to the novice. Technical jargon, undefined terms, and unstructured explanations make it difficult for people without PC/communication experience to follow. One section tells you that "The STD file is just like any other .XTK file with one exception. . . ."

■ HANDS-ON EVALUATION

CROSSTALK documentation is well packaged, and the initial size of the manual gives the impression that the internals will be clearly defined and well structured. The section on setting up the system instructs the user to make a working copy of the program, and it is NOT copy-protected. The setup instructions include a short section on modem setup, but the material got technical in a hurry so we passed it to our technician.

We followed the installation instructions for the package, and our technician set up the modem. The product loaded with no difficulty, and the set-up screen was displayed as expected. There is a pause of anticipation during loading, and the system displays a random, pithy saying. Our tech loved it and wanted to see how many there were.

We were able to get communication assistance from our data center in the setup of communication parameters so that our PCs could communicate with both an IBM 4300 and a DEC PDP-11. The setup of CROSSTALK with these parameters required a cooperation between the data center personnel and our technical specialist. Even our most dedicated "amateur" programmer was unable to provide much help in this area. the setup task took some time because the specialist was unsure of the relationship between the various types of files used to instruct and parameterize CROSSTALK.

Once the setup was accomplished, we attempted to introduce our staff to the product. The documentation was not satisfactory for clerical or professional, non-technical, users so we had to have our technician develop a users' guide. This proved to be adequate for our purposes, and communication proceeded normally.

☐ User Interface

CROSSTALK provides the user with a comprehensive, and in fact possibly too "busy," status screen. This screen defines the command options by class of command and accepts a one-line command selection. Commands are generally the first two characters of the command name and are easily remembered. Setup commands may be saved to disk and used to establish a communication environment on command. The command settings, however, have redundant and confusing options. That, coupled with the complexity of the product, make it difficult for a novice to use.

Menus: A main status screen is used as the entry point for all commands. Individual commands are entered in free form based on a two-character command code mnemonically derived from the command name. The parameter structure of the command is free form and is not presented on the status screen, but entering a command without parameters causes the system to prompt for them.

Control characters: Control-C is used to send a request for attention across the link to a remote CROSSTALK program. Other control keys are interpreted as data and sent to the opposite system.

Function/special keys: ESCAPE is used to exit from the data mode and accept a command using the last line of the display. The data screen is not displaced by this command. HOME causes the program to switch contexts between the CROSSTALK status menu and the data display, and END causes a BREAK to be transmitted. The function keys in normal, shifted, control, and ALT form, may be user defined to cause any string of text to be sent. Commands to CROSSTALK may be entered as strings, but the entire string must be such a command.

Command language: A "script file" may be generated which contains commands to affect local operation, interrogate data from the other system, or send information over the link. The format of the command language is similar to a structured BASIC. The script files are created with a standard text editor and must be "debugged."

Positive feedback: Most command entry will immediately result in a display change or an additional prompt. Text entered in data mode is transmitted over the communication link.

Status display: A status line at the bottom of the screen provides connect and status information while in data mode. This line displays the use of the ESC and HOME keys, the status of the CAPTURE data feature, the link status, and the time.

Help facilities: The user may toggle to the main status menu of CROSSTALK at any time by pressing the HOME key. This menu provides a basic list of commands. Individual help with commands may be requested through the Help command, which can be entered at any time a "?" command prompt is visible.

☐ Environment

CROSSTALK is a rather large program for a communication package, requiring 62K-byte RAM. This meant that the program could not be run on our oldest and as yet not upgraded 64K-byte system. A 128K-byte system is adequate for most applications; we were able to complete all of our tasks on one without running short of memory. Additional memory beyond 128K bytes can be used to expand the size of the capture buffer used by CROSSTALK, but did not seem to affect operation.

We tried several modem types with CROSSTALK, including a commercial modem which operated at 2400 bps, full-duplex. All the modems operated as expected, and our technician was able to make the automatic dialing features of all modems work with CROSSTALK's dialing command. Printer support is limited to those which can be directly supported via DOS, so no specialty printers such as our Diablo could be used.

Microstuf CROSSTALK
Data Communications Support Program

CROSSTALK is not copy protected, so it can be loaded and run from hard disk as well as from floppy disk, although no specific instructions for such operation are provided.

☐ Documentation

We found CROSSTALK's manual a mixture of good and bad. The information is complete, and there are many examples of commands to help confirm understanding, but there is no clear tutorial structure and it is very hard to find things in it. The material itself seems aimed toward the professional computer hacker rather than toward the business user, because all manner of communication and computer terms are used without explanation. Perhaps reading the material from cover to cover would have provided a better grasp of the meaning of some words, but we could not induce any of our users to attempt such an action without violating the prevailing labor laws.

The manual is an imposing 15 chapters long, and for some unfathomable reason the book has 6 dividers. The dividers actually mark sections rather than chapters, but the lack of easy chapter separation did hamper those who tried to find things by checking the convenient table of contents at the start of each chapter; they missed two-thirds of them.

CROSSTALK has several distinct operating modes, and the manual does not lead a user into an explanation of each. The material progresses from the basics to the emulation of "dumb" terminals, through emulation of common CRT terminals, into file exchange and then on to command summaries. We could not envision a dialog with a system likely to progress in that way.

The department staff found the manual to be too complex for use, and we were forced to develop our own procedure/user manual for the support of our communication sessions.

☐ Functionality

There is no question that CROSSTALK is functionally sophisticated. The command menu is an eyeful, especially on the small screen of a PC-compatible portable which incidently ran the program without difficulty.

Operation of the program begins at the command menu. Commands are listed in the menu along with the current settings of key parameters, and invoking a command is done by typing the first two letters of the name from the menu. They are capitalized in the menu for convenience.

A user can toggle from the menu to the data screen by using a special key which Microstuf calls the "switch" key. This is actually the "home" key on the keyboard. There are a set of these "special keys" which are all named in a way which does not relate to the PC key to which they are tied. SWITCH causes the display to alternate between the menu and the data screen.

The menu permits a user to select the data rate, communication character structure, and other options relating to the connection, and then to actually invoke the dialing function to make a call or the automatic answer function to receive one. The manual setup is not complex for personnel experienced in communication, but novice users tended to do it wrong, resulting in communication failures. A better way is to set up a COMMAND FILE containing the commands needed to set up the connection. This can be done by using a SAVE command to save a setup session as it is being entered.

Our technician did this for each of our two data center system setups, and users could then invoke the correct setup by typing "XTALK IBM" or "XTALK DEC".

There is another type of CROSSTALK file, called a "script file" which differs from a command file in that it is intended to be used after the connection is established. Script files may use a special command language which is nearly a programming language. Script files can be used to generate data to the remote system for functions such as logging on, but they have inherent ability to test for conditions and perform functions based on the incoming data. This makes it possible to devise script files with VERY sophisticated reactions. We were able to perform a complete application sign-on to both data center systems using script files, and even set up the system to download data from the DEC based on whether any files with a specific name were present on the DEC system at the time of sign-on.

Data downloading and uploading (sending from the host system or to it, respectively) are fully supported. Data may be saved in a capture buffer or directly to disk. If the buffer is used, a series of commands is available for such functions as searching for a word in the captured information. You can also use the "picture" command to capture the current screen image to disk, something particularly useful when you are using a full-screen editor.

Terminal emulation of multiple terminal types is supported by CROSSTALK, so we could emulate an IBM 3101 for IBM connections and a DEC VT100 for the DEC log-on. Televideo, ADDS, and TI terminals are also supported. Using terminal emulation may add to the flexibility of the package, but we had a few problems with it. In one application, a user attempted to capture a file from our DEC system using a full-screen editor. Since this type of program transmits CRT commands, the commands were likewise captured. In addition, the sequence of sending data did not always match the sequence of the file. In one case, a single line was sent because it was the only thing on the screen actually changed. The capture capability faithfully saved the single line, leaving the rest of the data. This was a case where the PICTURE command would have served better.

We set up our systems to use both COMMAND and SCRIPT files, and with the aid of a user manual were able to create a communication environment where any of our office staff could establish connections and transfer files. We were also able to use the product at 9600 bps in direct-connection mode to communicate between an IBM PC and a compatible portable system. In this case, we used the error-correcting file transfer protocol.

CROSSTALK allows you to view the disk directory, including the DDS 2.0 current directory, without exiting. Provisions are also made for erasing files, so it is possible to do a certain amount of disk clean-up from within CROSSTALK.

☐ Ease of Use

Once a proper communication environment has been established, CROSSTALK can be very easy to use—as easy as any other communication package. Establishing that proper environment is made unnecessarily difficult by several factors.

The documentation on CROSSTALK does not stress the importance of an organized approach to a communication session for applications where unskilled users are involved. According to our technician and confirmed by the index for the document, the first reference to these facilities is a hundred pages into the manual! A product this complex, possessing features which can simplify its use considerably, should highlight those features in an introduction to assist a non-technical user.

A second problem with the document is that the orientation is toward the technician rather than the businessperson. Our access to a technician within the organization made it possible for a reasonable setup to be achieved, but we could not have done it easily (if at all) using our own staff. The features are presented in a way which might have been acceptable if there had been a better introduction to the style of the product, but without that it was difficult to find anything, and the content relied too heavily on jargon.

The redefinition of key names for the special keys such as "switch" was not reinforced by a template for the keyboard, and in any case seemed useless. Because the documentation kept calling for the use of the "switch" key, or "attention" key, rather than HOME or ESC, our users were often uncertain and made errors. We finally made up key labels.

On the positive side, a properly defined communication application supported by command and script files is a joy to use. The script concept gives considerable power to a well-grounded user in leading through complex interactions with another system. Script files can even be used to perform such tasks as prompting users through the setup of other files! Script file setup at this level, however, is a PROGRAMMING TASK. We did not want casual

Microstuf CROSSTALK
Data Communications Support Program

efforts expended on it, and had to take some administrative steps to prevent tinkering.

For users without the framework of command and script files, there are just too many options and choices to deal with. Some of them add nothing to the benefits of the package. For example, most of the communication or functional options which have an ON/OFF configuration (such as the printer log function) can be set by keying "ON", "+", or "1" after the keyword PRINTER. Turning it off can be done via "OFF", "−" or "0." You can also change its state from whatever it is to the opposite via the "/" operand. It's hard to see how such options contribute to the functionality of the package. Even logical and valuable options are diminished by the fact that there is insufficient attention paid to outlining when one might be used over another. We tried one manager on the system without our setup aids, and after an hour of fiddling she asked why there were so many different options for capturing data. We'd have liked to have known that ourselves.

☐ Support

The manual for CROSSTALK may contain the vendor's phone number, but we could not locate it. We finally found it on the advertising material on other Microstuf products which was included.

We gave the company a call to ask some questions on the relationship between command and script files. Our first attempt, made after normal working hours began in Atlanta, met with a long ringing period and no answer.

☐ System Interface

There are probably few communication programs with more attachment flexibility than CROSSTALK. It can emulate the most popular CRT terminals as well as the basic dumb teleprinter, and thus can be used to log on to all public information services as well as most host computer systems. We even tried the system through a protocol converter to a 3270 port, using a converter which expected an IBM 3101 terminal. It worked.

☐ Vendor Experience

CROSSTALK has been around for some time, first in 8-bit version under the CP/M operating system and then in the form of CROSSTALK XVI for MS-DOS systems. The product and the vendor have solid experience in the PC communication software area. Most of it, however, comes from dealing with hobbyist programmers and professionals with a more than casual knowledge of computers. As a result, the product and documentation are a less perfect fit for corporate use than would be desired.

LCNS: license fee.

■ PRODUCT OVERVIEW

☐ Terms & Support

Terms • CROSSTALK is available in two forms, CROSSTALK 3.0 for CP/M systems and CROSSTALK XVI for MS-DOS systems; both are provided on a purchase license basis from Microstuf, Inc through personal computer or software retailers, or through mail order firms • international distribution is not mentioned • the product is also bundled with many PC modems or sold by modem vendors as an option.

Support • telephone support provided by vendor.

☐ Component Summary

Software elements include XTALK—the CROSSTALK program, resident during execution; STD.XTK—a standard setup file used by CROSSTALK to establish basic communication parameters on loading; SETUP.XTS—a script file used to prompt the user through changes to the default setup of communication parameters:

$195 lcns

☐ Computers & Operating Systems Supported

CROSSTALK supports 8080-, 8085-, 8086-, 8088-, or Z80-based personal computer systems operating under CP/M or MS-DOS.

☐ Minimum Operating Requirements

The minimum memory required on IBM PC or PC-compatible systems is 128K bytes; on CP/M configurations memory requirements vary but are generally 64K bytes. Both types of systems require one disk drive.

☐ Features

Type of Product • ASCII terminal emulator, emulating IBM 3101, DEC VT100, Televideo 910/920, ADDS Viewpoint, or TI 940 terminals; emulation of an ASCII teleprinter is also available.

Target Host Computers • DEC minicomputers or IBM mainframes, but most other computer systems can also be accessed if specialized host software and hardware features are available.

Protocol • asynchronous, ASCII code set.

Data Rates Supported • to 9600 bps.

Format Conversion Features • programmable by user via "script" file programming language.

Automatic Setup Features • extensive, via command and script files for setting parameters and generating transmissions to the host system; incoming data can also be logically tested; command files can be run at operator request or on startup of the program.

• END