*Working numbers: When it is functioning, Number Works can put data into as many as eight windows. Four are used in this example.*

your worksheet while you are working on it when 60 seconds have elapsed since your last keystroke. You can alter this frequency. With a spreadsheet, this feature is a mixed blessing. You won't lose very much of your work if there's a power failure or similar problem that wipes out memory. But if you like to play "what-if" with your model, you might not appreciate the original's being changed to reflect your experimentation. Turning off the feature is cumbersome.

The prewritten formulas provided in Number Works are limited to those provided in the basic Visicalc program. The formula-building features are severely restricted because the documentation states that permitted formulas can be no longer than 42 characters. Actually, you may be limited to fewer. Although not documented, the memory allocated to individual cells is limited; if you use variables in a formula, you could be held to as few as 54 characters.

The system has one unique feature for which there has been some demand. Instead of keeping your entire worksheet in memory, you can theoretically build a spreadsheet of any size as long as you have enough disk space for it.

That's when our problems began. We used a relatively small spreadsheet to test most of Number Works' capabilities. When we set out to fill the newly created disk-based spreadsheet, we decided to replicate data from the smaller spreadsheet. Every attempt was thwarted; the program failed and threw us back into the operating system — when we were lucky. Occasionally, we got a notice from the computer of a divide overflow error. No matter how many times we tried, we couldn't replicate those steps successfully, so we can't even tell you whether the bigger-than-memory spreadsheet works. This is not acceptable.

Another annoyance is the copy-protection scheme, which requires that the program key disk always be in drive A because the program reads it periodically. A backup copy of the program diskette, whose original warranty is 90 days, is available from Paperback Software for $5.

Nothing makes this program uniquely easy to operate or to learn. It is as tough as the original Visicalc, and the added on-line help facility is mediocre. You can get help only when the worksheet is in the ready state. If you are in the middle of a difficult command and need help, you must quit the command, ask for help, and hope you get an answer.

You don't have to install the system. The documentation clearly tells you what you must know before starting and what you must do to install DOS on the program diskette. We don't know whether the program works on all printers or with any unusual hardware configurations; you have no opportunity to account for them.

Error handling is poor. In addition to the system's failing without warning and forcing you to the operating system, you're never quite sure whether a file has been saved. The documentation contains a list of various error messages that appear during normal operation, but it needs elaboration.

At first glance, the documentation seems good. It is clear and simple to read; a short book in large type. Its inadequacies scream at you, however, after you start to use the program. Very little help is available when a question arises on how to do something. You are forced to experiment on your own. A quick-reference guide would also be useful.

Paperback Software sells telephone support. The phones are staffed between 10 a.m. and 7 p.m. (Pacific time) Monday through Friday. This service costs $5 for the first five minutes and $1 for each additional minute, payable by either Visa or Mastercard. You also pay for the call. The staff members are pleasant, but it is hit or miss as to whether your calls will be returned if they are busy.

We have no choice but to give Number Works a Poor in Performance and give the program our lowest overall rating. Many spreadsheets are available for the IBM PC in all price ranges, including those that are "free" (in the public domain) and those that are in the Number Works price range (such as the $48 PC Calc from Buttonware). Number Works' failures are fatal. It has smaller problems, such as a home key, that doesn't work. Formulas are limited, smaller than even the supposedly allowable 42 characters. The constant disk access can also slow it down. You should investigate the many alternatives to Number Works and leave this Paperback on the shelf. □

*WORD PROCESSORS*

# Paperback Disappoints

## EXECUTIVE WRITER COULD BE GOOD WITH SOME WORK; PAPERBACK WRITER IS NOT WORTH BUYING AT ANY PRICE

BY JOHN LOMBARDI
*Review Board*

Every kind of general software seems to be a candidate for Adam Osborne's Paperback Software approach of making packages as inexpensive as possible — and word processing is no exception. In this case, Paperback has delivered two word processing packages, Executive Writer and Paperback Writer; the latter being a subset of the former. Neither is going to amaze you, though for short documents Executive Writer merits consideration; with some work, it could do well with longer documents. But Paperback Writer should never have been committed to disk.

Executive Writer is a middle-range program. It has some interesting features and a few peculiarities. Packaged as a single, copy-protected disk inside a slim paperback manual, the program provides a good full-screen editor and a print formatting program with some special capabilities. The program has instructions for installation on a hard disk, but the copy-protection scheme and the inability to directly handle subdirectories make hard disk use rather clumsy.

Executive Writer handles most of the chores of editing and formatting the text on screen but reserves more complex formatting for the print program. It can handle footnotes, headers and footers, indexing, and can even insert a graphics screen image into the text (if you have a graphics printer and an IBM graphics board). The program can make use of a reasonably long list of printers. We tested the program with the Diablo 630 and Epson FX-100.

Text entry and modification occur quickly and easily within the editing portion of the program. Find and replace and other common editing tasks work as expected. It is easy to switch between insert and typeover modes, although in the insert mode the program will not automatically form lines into the proper length. Instead, you have to use a function key to make

*John Lombardi is a professor of history and author of five books. He has been working with computers since 1967.*

**InfoWorld**

REPORT CARD

**EXECUTIVE WRITER**

| | Poor | Fair | Good | Excellent |
|---|---|---|---|---|
| Performance | ☐ | ☑ | ☐ | ☐ |
| Documentation | ☐ | ☑ | ☐ | ☐ |
| Ease of Use | ☐ | ☑ | ☐ | ☐ |
| Error Handling | ☐ | ☑ | ☐ | ☐ |
| Support | ☐ | ☑ | ☐ | ☐ |

SUMMARY

Executive Writer has potential but it needs work. It has a flexible printing program and can handle smaller documents well enough to merit a better rating. It is slow on the larger documents it permits, and we found errors that are unexplained in the documentation.

PRODUCT DETAILS

List price, $89.95. Version tested (1.0); available for the IBM PC, PC XT, PCjr, PC AT, and compatibles running PC- or MS-DOS (2.0) or later. Requires 128K RAM (256K for PCjr); one disk drive; printer. Second disk drive recommended. Published by Paperback Software, 2612 Eighth St., Berkeley, CA 94710; (415) 644-8249.

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SOME WORK;
AT ANY PRICE

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Text entry and modification occur quickly and easily within the editing portion of the program. Find and replace and other common editing tasks work as expected. It is easy to switch between insert and typeover modes, although in the insert mode the program will not automatically form lines into the proper length. Instead, you have to use a function key to make inserted text match the selected margins.

For large amounts of inserted text, Executive Writer has an insert open mode that clears the screen except for the line immediately following the cursor. This line goes to the bottom of the screen, leaving the other 17 lines open for new text. In this mode, lines are automatically matched to their margins. On the other hand, many advanced editing commands, such as block, move, and copy, do not have that result. Pressing a function key restores normal typeover mode and eliminates the open space.

*Almost the right stuff: Executive Writer is fine for memory-based documents but slows down considerably with longer ones.*

As long as the file stays smaller than 30,000 to 40,000 characters — about 15 single-spaced pages — the editor works quickly and conveniently and merits a higher rating than it has received. Once the file exceeds this limit, however, the program writes portions of the text to the disk, greatly slowing operation. In a small file, movement from top to bottom is instantaneous. The same action in a file of 75,000 characters took two minutes, twice as long as Wordstar (3.3), no speed demon itself.

Reformatting paragraphs or the entire document is rapid for files of less than 40K and considerably slower for larger files. Blocks, portions of text no larger than 8,000 characters, can be marked and then copied, moved, deleted, or stored on the disk. It is possible to restore a deleted block under most conditions. Another feature allows the creation of macros of up to 100 characters, accessible by typing "cntrl" and a number key on the top row.

Executive Writer does not tell you where you are within a document. There are no page numbers or page breaks on the screen; and the program does not show line numbers or column numbers, making it difficult to work with large documents. It does provide six counters that can be incremented, decremented, or set to any number (up to 999, although the manual does not mention this limit). The counters can then be used to handle automatic chapter or section numbers as well as page numbers and footnote numbers.

A special command allows the entry of footnotes that will be printed at the bottom of a page with the correct number. Unfortunately, the program allows only 500 words for all the footnotes, enough for a small chapter with minimal footnoting. Footnotes must be one paragraph and single-spaced.

Executive Writer's printing program has

**InfoWorld**

REPORT CARD

**EXECUTIVE WRITER**

| | Poor | Fair | Good | Excellent |
|---|---|---|---|---|
| Performance | | ■ | | |
| Documentation | | ■ | | |
| Ease of Use | | ■ | | |
| Error Handling | | ■ | | |
| Support | | ■ | | |

SUMMARY

Executive Writer has potential but it needs work. It has a flexible printing program and can handle smaller documents well enough to merit a better rating. It is slow on the larger documents it permits, and we found errors that are unexplained in the documentation.

PRODUCT DETAILS

List price, $69.95. Version tested (1.0) available for the IBM PC, PC XT, PCjr, PC AT, and compatibles running PC- or MS-DOS (2.0) or later. Requires 128K RAM (256K for PCjr); one disk drive; printer. Second disk drive recommended. Published by Paperback Software; 2612 Eighth St., Berkeley, CA 94710; (415) 644-8249.

**InfoWorld**

REPORT CARD

**PAPERBACK WRITER**

| | Poor | Fair | Good | Excellent |
|---|---|---|---|---|
| Performance | ■ | | | |
| Documentation | | ■ | | |
| Ease of Use | | ■ | | |
| Error Handling | | ■ | | |
| Support | | ■ | | |

SUMMARY

Paperback Writer is a crippled form of Executive Writer with all that product's failures but few of its features; especially missed is the printing flexibility afforded by Executive Writer's printing program. We do not recommend it.

PRODUCT DETAILS

List price, $39.95. Version tested (1.0) available for the IBM PC, PC XT, PCjr, PC AT, and compatibles running PC- or MS-DOS 2.0 or later. Requires 128K RAM (256K for PCjr); one disk drive; printer. Second disk drive recommended. Published by Paperback Software, 2612 Eighth St., Berkeley, CA 94710; (415) 644-8249.

many special features. The program can handle a wide range of formatting commands. In addition to standard printing features such as boldfacing, underlining, and super- and subscripting, the program accepts some special printer control characters and manages footnotes and index entries. Although it's not as powerful as that of some other programs, the printer control of Executive Writer is nevertheless quite extensive.

The printing program is easy to use and will print to the screen, a disk, or printer. The screen print routine is especially useful for previewing the effect of the header and footer commands. Although the program takes only single-line headers and footers, it can place pieces of text either on the left or right of a column or center it, place it alternating left or right to match page numbers, and include the date and time.

A special feature of this program is its capability to insert graphic screen images into the printed text. The image reproduced on paper is an exact duplicate of the graphics screen and resides in a special disk file available during printing. A separate program converts any visible graphics screen image into the correct format for printing on a graphics printer, such as the FX-100. This feature works well, although the quality of the printed graph is not as good as that produced by 1-2-3's print graph function, for example.

Executive Writer is relatively easy to use. The paperback manual offers a useful and effective beginning guide, but the main documentation for the program suffers from serious defects. In an effort to present an easy-to-use program, the manual avoids technical information. Although that's understandable in the tutorial part of the manual, it is not adequate for the reference section.

The manual is vague about file size. It says nothing at all about what the program does with large files and gives no warning about the amount of disk space required to handle large files. Although the manual warns the user to check for adequate disk space, there is no indication of how much extra space should be reserved for the overflow file used in editing a large document. The help screens are quite good. However, in some cases the information appearing on the screen, such as maximum block size, is not in the manual, leaving the user confused about where to look for desired information. Some error messages have no explanation either on the screen or in the manual, such as the message "Negative buffer" we received while trying to reformat a file.

The program manual indicates that if you have a full disk, you may lose some files. But you must quit the program to check disk space. When you fill the disk, the program stops and does not allow you to recover. It also issues the error message "Block sync error," which is not explained anywhere in the manual. The manual also fails to explain the logged drive when editing large files: a process that can cause an unexpected disk-full error.

Paperback Writer, for its part, merits but a short mention. It is just a crippled version of Executive Writer, not worth investigating. It has the same editor with fewer editing features. It does not have a print program and can perform only very simple printing operations. It puts a page number at the bottom of the page whether you like it or not and it does all print enhancements by returning the carriage and retyping. Thus, what it calls boldface is actually double-strike printing. Paperback Writer's manual and help system are exactly the same as Executive Writer's, except that the missing features are deleted. It has all of the defects of the more advanced program but few of its redeeming features.

Paperback Software offers telephone support service at $5 for the first minute and $1 for each additional minute, plus long-distance charges. The package comes with only one copy-protected disk that must be in drive A when you use the program. You can send $5 for a backup copy of the disk when you register the original.

For short documents or special applications that require the inclusion of graphics screens, Executive Writer is potentially useful. The heavily populated market for microcomputer word processing programs has many excellent and inexpensive programs. If it had been designed to handle only documents that will fit in memory, Executive Writer would rate very well. But it needs improved documentation and better large-file handling, among other improvements, before it will meet the expectations of those buying for the larger capacity. Paperback Writer is not competitive at any price. □

EDUCATIONAL SOFTWARE

# Rabbits Instead of Turtles

## EXPERLOGO GIVES THE MAC A TRADITIONAL EDUCATIONAL TOOL THAT IS POWERFUL AS WELL

BY STEPHEN SATCHELL
*Review Board*

Ever heard of turtle graphics? How about Logo? If you have, you probably heard about them from a kid who was learning about computers with the Logo programming language, one of the best ways we know of to get acquainted with the technical underpinnings of computer systems. The most popular and widespread versions of Logo use the color and graphics capabilities of the Apple II computers.

The Macintosh may not have color, but it certainly has graphics, and now it has Logo too, in the form of Experlogo. Experlogo is an expanded version of the Logo programming language that utilizes both windows and the Macintosh toolbox to produce a powerful and educational tool.

Experlogo offers 2-D, 3-D, and spherical graphics (two dimensions on the surface of a sphere). For each type of graph there is a bunny icon (which Experlogo uses instead of the customary turtle) that can be directed to move in a specific way, either drawing or not drawing as it goes. Additionally, Experlogo provides access to the Macintosh toolbox, a function normally accessible only to software developers.

Expertelligence has extended the Logo language beyond the educational applications in other ways. It includes full-string, list, and array processing capabilities; the latter are concepts borrowed from LISP, a programming language designed for artificial intelligence programming. You can employ many of the same operators to manipulate strings, lists, and arrays, reducing the number of functions you have to remember. Experlogo also provides "stream input/output," comparable to that available with languages such as Pascal or C, which are commonly used for professional program development. Moreover, the program permits files to be shared with other Macintosh applications.

Its many features make this more than a "toy" for learning programming. You get both the power of a language like Pascal (developed by Niklaus Wirth to teach programming to undergraduate college students but now widely used professionally) and a language that is simpler to use than Basic, another traditional learning language.

Experlogo is unusual in that you never

*Stephen Satchell has been involved in computing for 12 years as a professional systems designer and product programmer. He is currently a senior staff engineer for a major manufacturer.*



Amdahl Computer To Merge With Parallax Technologies
"Time
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