

PRODUCT COMPARISON

Treasures Abound

The High-End Word Processors Get More Graphical and Sport Even More Features

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The hot word processing marketplace has become incandescent over the last six months with the appearance of several new-generation DOS, Microsoft Windows, and OS/2 products that raise the ante for state-of-the-art word processing.

The 11 high-powered office/professional word processors reviewed here illustrate this quantum leap in sophistication. Of these products, three — Samna Ami Professional, NBI Legend, and Microsoft Word for Windows — exploit the new graphical tools provided to Windows-compatible products. Describe Word Publisher is part of this group as well, except that it runs under OS/2.

The remaining seven — IBM Displaywrite, Lotus Manuscript, Microsoft Word, Ashton-Tate's Multimate, Software Publishing's Office Writer, Word Perfect, and Wordstar — offer various levels of text-based professional word processing with graphical capabilities. A few of these text-based models stem from Wang emulations, and still appeal to users with that background.

The differences between these two groups are both stylistic and substantive. Obviously, the Windows interface differs from what we consider a "traditional" word processor look and feel. The use of icons, mixed graphics and text on the same screen, extensive mouse control, and WYSIWYG editing — all characteristics of the Windows environment — go far to improve ease of learning and use.

In addition, the new graphical products each bring to a greater or lesser degree, publishing and page-makeup concepts to the word processing desktop. This blade is double-edged, however: For users familiar with a desktop publishing environment, page-layout concepts are second nature; but for those used to typewriter-style word processing, many of the new methods require a readjustment of perspective and understanding. (See sidebar on Page 111, "Word Processing, Desktop Publishing Use Different Tackle to Catch the Big Fish.") Nonetheless, for many applications the Windows-based products are clearly superior in ease of use, especially for documents requiring complex formatting, multiple fonts, and mixed text and graphics.

These advances in capacity and visual elegance come at a price. While basic program prices have not accelerated substantially — they are hovering just under \$500 list and significantly less through mail order — the requirements for a minimally acceptable hardware platform have skyrocketed. To run the three new Windows products, you'll need at least a fast 286 machine, a graphics monitor (VGA is best, but color is not required); a minimum of 1 megabyte of

RAM (more is better); and, of course, a mouse (while you can run Windows without one, with one it's *much* easier).

While we have seen great advances in graphics inclusion, tables and macros have also become major new features for competitive enhancement among these products. Previously we accepted tables built with decimal tab stops, but now many products offer a spreadsheetlike table mode that constructs a minispreadsheet inside the word processing pro-

grams, complete with rows and columns, calculations by row or column, and formulas. These table objects make the manipulation of tabular material much easier and offer a variety of advantages for importing data from common spreadsheet programs such as Lotus 1-2-3 and Excel. Cell sizes adjust automatically according to font sizes and the amount of text in each. Once you've used automatic tables, you won't want to settle for less. Macros, once simple keystroke cap-

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ture facilities, now come with virtually full programming language capabilities. These make some of the word processors truly effective as programming environments for complex word and number management tasks. Very sophisticated automated systems can be built with these tools when combined with the powerful mail merge and forms management capabilities of some products.

All this increased sophistication has also increased the demands on user expertise and training. While the new graphically based products are significantly easier to learn and use, the effective exploitation of their capabilities requires study and experimentation. At an advanced level of expertise, both Word Perfect 5.1 or Word for Windows will require about the same amount of preparation and training, even though their approaches to text preparation are significantly different.

In short, as the new decade gets underway we are entering yet another era in word processing on microcomputers. As the hardware required to support the graphically based products declines in price, we should expect to see fewer text-based products excelling in the professional word processing class, although the huge installed base of products such as Word Perfect, Microsoft Word, and Displaywrite will delay the transition to Windows-based products.

In this comparison, we have taken another step in our approach to reviewing word processing. In the past, our methodology focused much more directly on in-depth discussions and analysis of the features than on the actual process

The current crop of office/professional programs clearly indicates a fundamental change in the word processing world. Four products fall into the new mode of windowing, layout-oriented word publishing category: Ami Professional, Legend, and Microsoft Word for Windows all exploit the Microsoft Windows environment that works on DOS-based systems. Describe, running under OS/2 Presentation Manager, resembles the Windows products. The remaining DOS programs share a character-based interface with graphics preview capabilities that vary in sophistication: Displaywrite, Lotus Manuscript, Microsoft Word 5.0, Multimate, Office Writer, Word Perfect, and Wordstar.

As the evaluations indicate, four of these packages are head and shoulders above their competition: Ami Professional and Microsoft Word for Windows are the two top graphics-based packages, while Microsoft Word 5.0 and Word Perfect 5.1 are the two top character-based packages. Among the Windows programs, the edge goes to Microsoft Word for Windows, primarily because it has a stronger set of office/professional word processing features combined with strong layout and graphics tools. Ami Professional comes in at a very close second, but is stronger in layout and graphics than Winword. Legend, a superb performer in layout and the frames management champ of the group, lacks significant word processing capability. Describe is good with frames and graphics but much less powerful than its Windows counterparts. One critical consideration is the limited amount of printer support available for OS/2 products.

Within the DOS character-based group, the winner remains

Word Perfect 5.1, although Microsoft Word 5.0 is a very close competitor. If you use style sheets extensively, Microsoft Word is better. Lotus Manuscript, a rather specialized program, is best suited if you're heavily into technical publications and other structured documents.

The two look-alike Wang emulators, Office Writer and Multimate, do not meet the standards set by Word Perfect or Word, although both serve a form-letter/mail-merge office environment quite well. We prefer Office Writer for its better handling of fonts and proportionally spaced text.

Wordstar 5.5 shows its age, although it has a simply wonderful page preview, and a number of features common to Wordstar 2000 Plus have been incorporated into it. Wordstar offers a less effective environment for heavy-duty word processing in spite of its reasonable collection of features, add-on support programs, and optimization for touch-typists.

The least effective product in this group is Displaywrite 4, Version 2, whose clunky interface and limited features place it at the bottom of the heap.

Can any character-based program survive the competition with Ami Professional or Word for Windows? We think so, at least for a while. Windows-based products require a fast 286 or 386 with lots of memory, graphics displays, and ideally laser printers. Without this minimal hardware platform, much of the utility of these packages is lost in slow response and primitive printing. Until the minimum hardware requirements decline in price and become more commonplace, Word Perfect 5.1 and Word 5.0 should continue to enjoy widespread popularity.

involved with document production and use of the product. We have enhanced and, in some cases, overhauled our testing criteria to incorporate more of a "hands-on" analysis of the myriad components now common to high-end word process-

ing. The features are still taken into consideration, but as an integral part of accomplishing a task. While you will not read lengthy iterations of features sets within the body of each product's write-up, we have constructed a comprehensive

features chart for your reference.

John Lombardi is provost of a major university and author of five books. He has been working with computers since 1967.

REPORT CARD

INFO
WORLD

Office/Professional Word Processors

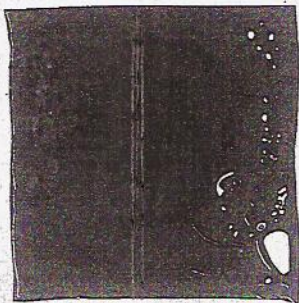
	InfoWorld weighting	Your weighting	Ami Professional Version 1.1	Describe Version 1.0	Displaywrite 4 Version 2	Legend Version 2.01	Lotus Manuscript Version 2.1	Microsoft Word Version 5.0	Multimate Version 4.0
Price			\$495	\$595	\$495	\$495	\$495	\$450	\$565
Performance									
Basic editing	(60)	()	Excellent	Very Good	Poor	Good	Very Good	Excellent	Satisfactory
Spelling checking/ thesaurus	(60)	()	Excellent	Excellent	Good	Poor	Satisfactory	Good	Good
Mail merge	(20)	()	Excellent	Satisfactory	Very Good	Satisfactory	Very Good	Very Good	Very Good
Layout	(60)	()	Excellent	Excellent	Satisfactory	Excellent	Very Good	Very Good	Satisfactory
Graphics	(50)	()	Excellent	Very Good	Poor	Very Good	Good	Very Good	Very Good
Outlining	(20)	()	Satisfactory	N/A	Satisfactory	Satisfactory	Excellent	Excellent	Satisfactory
TOC & indexing	(20)	()	Very Good	N/A	N/A	Good	Very Good	Very Good	Good
Style sheets	(20)	()	Very Good	Very Good	N/A	Very Good	Good	Very Good	N/A
Font support	(60)	()	Excellent	Very Good	Poor	Excellent	Very Good	Good	Good
Footnoting	(25)	()	Good	N/A	Good	Good	Good	Good	Very Good
Macros	(25)	()	Excellent	Excellent	Satisfactory	N/A	Satisfactory	Very Good	Satisfactory
Printer support	(60)	()	Very Good	Poor	Poor	Very Good	Very Good	Excellent	Very Good
Compatibility	(60)	()	Excellent	Poor	Good	Good	Good	Good	Excellent
Speed	(50)	()	Satisfactory	Good	Satisfactory	Good	Very Good	Excellent	Satisfactory
Documentation	(75)	()	Good	Poor	Good	Good	Satisfactory	Excellent	Good
Ease of learning	(75)	()	Very Good	Good	Good	Good	Satisfactory	Very Good	Good
Ease of use	(130)	()	Very Good	Very Good	Satisfactory	Good	Very Good	Very Good	Good
Error handling	(40)	()	Very Good	Very Good	Satisfactory	Good	Very Good	Very Good	Good
Support									
Support policies	(20)	()	Very Good	Good	Good	Very Good	Very Good	Very Good	Very Good
Technical support	(20)	()	Very Good	Satisfactory	Very Good	Very Good	Unacceptable	Very Good	Satisfactory
Value	(50)	()	Excellent	Good	Satisfactory	Satisfactory	Good	Excellent	Good
Final score			8.3	6.0	4.7	6.4	6.5	8.0	6.2

Use your own weightings
to calculate your score

Tackling the Giants: Testing Office/Professional Word Processors

In this product comparison, you will find that our write-ups are more terse than in previous word processing comparisons. This is due, in part, to our new criteria and system of scoring word processors; but it is also a result of our "side-by-side" format, in which we only list outstanding or exceptional traits rather than enumerating all the capabilities of a given feature. Conversely, we have expanded our features chart (Pages 98-99) to include more features, in much more detail.

This year, we enhance the review process by incorporating additional real-life elements. Models were drawn up representing the standard output we hoped to achieve with each office/professional word processing package. In the course of attempting to duplicate the models with all the products, extensive notes were taken on accomplishing the various jobs at hand. The data and results we came up with contributed not only to individual performance scores, such as mail merging or outlining, but also to other areas such as ease of use and documentation. The information produced by the Test Center was passed on to our Review Board contributing editor, who is a specialist in word processing. The resulting evaluations were critiqued and edited by *InfoWorld* editors for accuracy, consistency, and style. The results, consequently, have been scrutinized by several word processing experts. Much of the criteria, as well as the



GORDON STUBER

products chosen for review, are the result of an *InfoWorld* survey of readers involved with the use or purchase of office/professional word processors. These surveys also helped us determine how to weight report card scores.

With the new breed of graphical word processors becoming quite common, scoring considerations between graphical and character-based products were thrown into relief, such as WYSIWYG font handling. Yet character-based products can still receive high scores for most features if they are implemented fully given their interface.

Products that receive satisfactory scores in various performance tests were capable of completing the requisite models; but required unnecessary machinations. Products that completed the model

with little fanfare or few obstacles receive a score of good. If special features were offered that substantially added to the process of completing the model, very good scores or, in truly exceptional cases, excellent scores were in order.

The testing models we used comprised mail merging (including labels), graphics, spelling checking, basic editing, formatting, outlining, and table-of-contents generation. We also performed benchmark tests while performing a standard set of tasks (such as search and replace and cursor movement) to obtain speed results. The remaining categories were evaluated according to our traditional method of assessing the completeness and effectiveness of features.

The model methodology expands and builds on *InfoWorld*'s traditional evaluation system, but does not replace the comparison of capabilities and features that define these products. For example, some tasks attempted in the models may well have been very difficult for novice users but relatively trivial for experienced users. Also, the models place very heavy emphasis on output appearance while the traditional *InfoWorld* product comparisons stress the completeness and effectiveness of tools. The combination of these two approaches — model building and tool comparison — provides considerably more depth to our review results.

All tests (except for Describe) were performed on an 8-MHz IBM AT Model 339 80286 with a 30-megabyte hard disk.

EGA, and 640K of RAM. Several higher-end packages — Ami Professional, Word for Windows, Microsoft Word, and Word Perfect — were also benchmarked on a Compaq Deskpro 386/20e with 2 megabytes of RAM, a 110-megabyte hard disk, and on-board VGA running under Compaq DOS 3.31 for comparison between our standard configuration and a more optimal setup for these powerhouse word processors. Describe, which runs under Presentation Manager and OS/2, was also tested on this platform.

PERFORMANCE. Basic editing was checked against an existing document with a multiple column table and three differently justified paragraphs. Also examined were search and replace functions and the capability to revise a document by placing time-stamping codes in it. We started with an unformatted document and went to work with each package, attempting to define and move columns with tab functions. To breeze through this model, the word processor should easily accomplish all these things, in addition to being capable of cutting and pasting columns within tables and providing automatic hyphenation options.

We expected a number of features to qualify a package for a satisfactory score. There should be left, right, decimal, and center tabs as well as some means of providing left, right, and full paragraph justification. We also looked for case-sensitive search and replace, status-line information (page number, etc.), windowing different documents or the same document, and date/time stamping.

Our spelling checking model comprised a two-page document with numerous misspellings, some phonetic and some with transposed letters. The result we wanted from each product was for the same document to be printed out with no spelling mistakes. We also examined the thesaurus and noted the way it operated and its functionality. Two grammatical errors were inserted in the model as well, in the event a product was equipped to

REPORT CARD

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Office/Professional Word Processors Continued

	InfoWorld weighting	Your weighting	Office Writer Version 6.1	Word for Windows Version 1.0	Word Perfect Version 5.1	Wordstar Version 5.5
Price			\$495	\$495	\$495	\$495
Performance						
Basic editing	(60)	()	Good	Excellent	Excellent	Good
Spelling checking, Thesaurus	(50)	()	Very Good	Good	Excellent	Very Good
Mail Merge	(20)	()	Very Good	Excellent	Excellent	Very Good
Layout	(60)	()	Good	Excellent	Very Good	Good
Graphics	(50)	()	Good	Very Good	Very Good	Poor
Outlining	(20)	()	Satisfactory	Excellent	Satisfactory	Good
TOC & indexing	(20)	()	Good	Very Good	Excellent	Good
Style sheets	(20)	()	N/A	Very Good	Good	Satisfactory
Font support	(60)	()	Good	Excellent	Very Good	Very Good
Footnoting	(25)	()	Good	Excellent	Excellent	Very Good
Macros	(25)	()	Satisfactory	Excellent	Excellent	Satisfactory
Printer support	(60)	()	Excellent	Excellent	Excellent	Excellent
Compatibility	(60)	()	Very Good	Excellent	Very Good	Very Good
Speed	(50)	()	Good	Good	Very Good	Good
Documentation	(75)	()	Good	Very Good	Excellent	Good
Ease of learning	(75)	()	Good	Very Good	Very Good	Good
Ease of use	(130)	()	Good	Excellent	Very Good	Good
Error handling	(40)	()	Good	Good	Excellent	Good
Support						
Support policies	(20)	()	Good	Very Good	Excellent	Very Good
Technical support	(20)	()	Very Good	Very Good	Excellent	Poor
Value	(50)	()	Good	Excellent	Excellent	Good
Final score			8.4	9.7	9.6	8.4

Use your own weightings
to calculate your score

GUIDE TO REPORT CARD SCORES

InfoWorld reviews only finished, production versions of products, never beta test versions.

Products receive ratings ranging from unacceptable to excellent in various categories. Scores are derived by multiplying the weighting (in parentheses) at each criterion by its rating, where

Excellent = 1.0 Outstanding in all areas.

Very Good = 0.75 — Meets all essential criteria and offers significant advantages.

Good = 0.625 — Meets essential criteria and includes some special features.

Satisfactory = 0.5 — Meets essential criteria.

Poor = 0.25 — Falls short in essential areas.

Unacceptable or N/A = 0.0 — Fails to meet minimum standards or lacks this feature.

Scores are summed, divided by 100 and rounded down to one decimal place to yield the final score out of a maximum possible score of 10 (plus bonus). Products rated within 0.2 points of one another differ little. Weightings represent average relative importance to *InfoWorld* readers involved in purchasing and using that product category. You can customize the report card to your company's needs by using your own weightings to calculate the final score.

catch them. Ideally (though this would merit a bonus), the finished document would have corrected these errors.

For a satisfactory score, each office/professional word processor should include at least a 100,000-word spelling checker and a 75,000-word thesaurus, as well as a single-user dictionary, word replacement suggestions, and a replacement feature that maintains capitalization and punctuation. Bonus items include synonym definitions, multiple dictionaries, and the capability to globally replace words. We lower the score for the absence of a thesaurus or case sensitivity.

The *mail-merge* model consisted of a form-letter template with variables representing names, addresses, salutations, and fictional products ordered. We also inserted a date-stamp code. The data file consisted of 10 or more records with field names matching the template. The model for this procedure was a professional-looking business letter, properly punctuated and formatted on the page. The task we undertook was to use each product to create and combine both the template and data files, then generate the desired output. Since it is common practice to print labels for mass mailing, we included this task in our mail merge, as well. Our label output consisted of one sheet of 30 labels (in a three-by-10 configuration). We basically require each package to perform error checking (skipping incorrectly entered records) and automatic paragraph reformatting. Bonus features can include mail-merge templates, flat-file managers, programming features (such as conditionals), and database links (DBF or WK1, for example).

Our *layout* model was one of the most extensive of the group; as such, it was the most time-consuming. The model consisted of a multipage document with numerous font and margin changes, including an 18-point underlined heading, two subheadings, and two 12-point paragraph styles. It was here that we were able to determine how well a word processor handled style sheets; thus, this

category complemented our style sheet category. The products that passed this test were capable of effectively using style sheets or some other method to obtain the same results. We looked at paragraph hanging indents, and font- and style-changing capabilities, too. Basic scored features include multiple columns, right/left-page orientation, column balancing, multiple views/zoom in and out, and other factors affecting page composition.

The *graphics* model was a single page of two-column text with a straddling headline at the top of the page. Between the columns of text was a vertical dividing line, upon which was centered our TIFF image. To pass this test, each word processor needed to snake text in the columns, flow it around the image, and draw the line so that the picture overlaps it. To be able to see this process while it was performed (WYSIWYG-style) was preferable. We require each package to import at least PCX and PIC graphics files and to preview graphics in the document to some degree. We also require the capability to draw at least two styles of lines on the page. Bonuses are given for free-form drawing capabilities, box or circle drawing, fill patterns, and the capability to rotate, scale, crop, or capture screen shot images.

The *outlining* model was the single-most difficult to reproduce in most of the word processors we tested. This was because few of the products could perform "true" electronic outlining features well enough to meet our criteria. While we still considered it satisfactory if basic outlines could easily be constructed, we have updated the criteria to require the capability to automatically collapse/expand sections as well as easily and automatically shuffle sections in order to get a score higher than satisfactory. Our 17-page test document was used as the backbone of our outlining sessions. The numerous headings and subheadings were marked for inclusion in an outline, numbered appropriately, and the text belonging to each heading was collapsed,

BENCHMARKS

INFO
WORLDOffice/Professional Word Processors
386 Platform

	Aml Professional (Layout)	Aml Professional (Draft)	Describe	Microsoft Word	Word for Windows (normal)	Word for Windows (draft)
File						
Load	5	2	2	1	4	4
Save	5	4	2	2	3	3
Import ASCII	5	5	3	<1	5	2
Export ASCII	6	5	2	1	4	4
Import DCA/RFT	12	8	N/A	21	33	4
Cursor movement						
Top to bottom	4	<1	<1	<1	1	<1
Manual scroll	20	17	2:03	16	25	12
Reformat	5	Layout only	14	<1	2	1
Search						
Last word	3	3	1	<1	2	2
Global replace	12	4	17	3	9	10
Append file	3	2	5	<1	13	14

Time in seconds unless otherwise noted.

Tests performed on a Compaq Deskpro 386/20e with 2 megabytes of RAM, a 110-megabyte hard drive, and on-board VGA running under Compaq DOS 3.31 (Describe tested under OS/2 and Presentation Manager).

when possible. The result, when executed correctly, was a standard outline with three levels and a title. We looked at a product's capability to move a heading from one level to another and retain the text belonging to it. For packages that could not perform this series of tasks, we generated from scratch an automatically numbered outline to match our model; this capability earned a satisfactory score.

The *table of contents and indexing* model was reasonably elementary, with styles applied to certain sublevels. Our method of achieving this, however, was not so simple. We used our 17-page

document and marked each heading for inclusion in a generated table. If this was possible, we also looked to see if leader characters (typically a period) were available for use. The inclusion of the first entry as a table-of-contents title was also a desirable goal. Style sheets or their equivalent came in handy, for those packages that supported them. For indexing, the word processor should be capable of creating an index automatically by "marking" words in some manner. Bonuses were given for the capability to create multiple indexes in the same document or create "concordance" in-

BENCHMARKS

INFO
WORLD

Office/Professional Word Processors

	Aml Professional (layout)	Aml Professional (draft)	Displaywrite	Logend	Lotus Manuscript	Microsoft Word	Multimate	Office Writer	Word for Windows (normal)	Word for Windows (draft)	Word Perfect	Wordstar
File*												
Load	29	13	6	18	8	1	5	3	6	6	2	<1
Save	13	10	4	6	4	2	9	1	5	5	1	7
Import ASCII	25	15	14	13	7	2	32	12	9	4	15	32 ¹
Export ASCII	12	10	50 ²	6	10	2	1:27	27	10	10	8	<1
Import DCA/RFT	38	27	15	22	19	1:01	46	1:39	1:24	1:17/1	14	53
Cursor movement												
Top to bottom	<1	<1	3	<1	<1	1	<1	2	<1	<1	7 ³	4
Manual scroll	1:37	1:46	1:36	1:13	1:14	31	1:09	1:31	1:07	28	49	1:04
Reformat	25	Layout only	3:53 ⁴	6	N/A ⁵	12	3:23 ⁶	21	24	24	2:16 ⁷	32
Search												
Last word	21	12	5	9	1	2	11	4	4	4	7	5
Global replace	48	11	43 ⁸	11	16	10	10	6	30	30	12	17
Append file	21	5	6	1:58	4	2	8	10	18	17	1	3

*File size approximately 50K/17 pages.

Time in minutes-seconds, unless otherwise noted.

Tests performed on an 8-MHz IBM AT Model 339 80286 with a 30-megabyte hard drive, EGA, and 640K of RAM.

¹Wordstar combines two timings: opening the file and reformatting text.

²This time included the 20 seconds it took in Displaywrite to manually select a document one page at a time for exporting to ASCII.

³Second timing was significantly faster in Word Perfect (three seconds).

⁴The time for pagination in Displaywrite included how long it took to manually adjust margins on several rulers (over three minutes).

⁵Lotus Manuscript paginates separately from editing.

⁶We had to manually alter each ruler in Multimate.

⁷We could not globally alter rulers/style sheets in Word Perfect. Time indicates how long it took to alter each ruler/style sheet individually.

⁸Displaywrite allows up to three search strings at one time. To replace all occurrences of "the," we had to replace two strings ("The" and "the").

indexes (an index that automatically retrieves different words used in a document and lists them alphabetically so an index can be created from the list). Another enhancement is the capability to create table-of-contents levels from an outline.

For both automatic indexing and table-of-contents generation, we required that each word processor support at least one subtopic level and perform basic formatting. Bonuses were given for cross-referencing capabilities.

To score satisfactory in *style sheets*, each word processor should be capable of storing a set of styles that include paragraph and character information (line widths, fonts, etc.). Bonuses are given for the capability to store named styles, to record styles by example, or to view styles before they are selected. The formatting/layout category contributed to the style sheet rating, as well.

For most users, *font support* is a must. Each package should be capable of changing fonts within the text and producing underlined, boldfaced, or italicized fonts. You should also be able to edit the font as it will appear on the screen; this is called WYSIWYG editing. Bonuses are given for WYSIWYG fonts appearing on the screen. Each product performed at least satisfactorily in fonts overall. We also expected packages to support soft fonts.

Each office/professional word processor should support *footnotes and endnotes*. For a satisfactory score, there should be automatic numbering with notes embedded in the text and formatting and automatic superscripting. Bonuses are given for cross-referencing capabilities and on-screen numbering.

Macros are actually short programs that provide automation for manual tasks. Macros provide the capability to customize and perform basic programming functions in a word processor. Many users customize automatic commands, embed functions, and reassign keys to suit their individual tastes and needs. Each word processor should be capable of recording macros and entering commands, as well as saving macros by storing them in the program (not a separate file). Bonuses are given for conditionals or variables support and the capability to reassign function keys.

Printer support Each word processor should be capable of printing on an HP Laserjet, a dot-matrix printer, and a Diablo-type daisy-wheel printer. Bonuses are given for HP Deskjet or color printer support as well as support for Postscript or for soft fonts such as Bitstream.

Compatibility Each word processor should import and export ASCII and DCA/RFT files. Bonuses are given for additional file format support, with an emphasis on reading and writing current versions of Word Perfect 5.0 and Microsoft Word 5.0.

We scored *speed* by comparing the results of all the packages' performance in 11 tests: file loading, file saving, importing an ASCII file, exporting an ASCII file, importing a DCA/RFT file, cursor speed moving from the top to the bottom of a document, manually scrolling to the bottom of a document, reformatting text, searching for the last word in a document, searching and replacing a string of characters throughout a document, and appending a file to the test document. For a satisfactory score, the word processor had to perform quickly and efficiently in a majority of the tests. Higher scores meant the word processor did better overall, generally, if not always, exceeding mean times for all tests. For the higher-end packages and some graphical prod-

ucts, we also tested on a 386 platform.

DOCUMENTATION. Scores reflect the quantity and quality of both written and on-line information. At a minimum, documentation should describe the product and how to use it. Bonuses are awarded for a quick-start guide, on-line tutorial and help programs, a quick-reference card, and a written tutorial. Poor organization, missing information, or an incomplete index lower the score. Error messages are also considered under documentation.

EASE OF LEARNING. Scores depend on the user interface and the intuitive design of the products. Other factors that influence

this score include the complexity of the word processor and the quality of documentation and tutorials. A graphical interface can help make learning an easier task, yet switching from a character-based product to one running under a graphical environment can be intimidating and require reorientation. To earn a satisfactory score in this product comparison, a program must be learnable by novices.

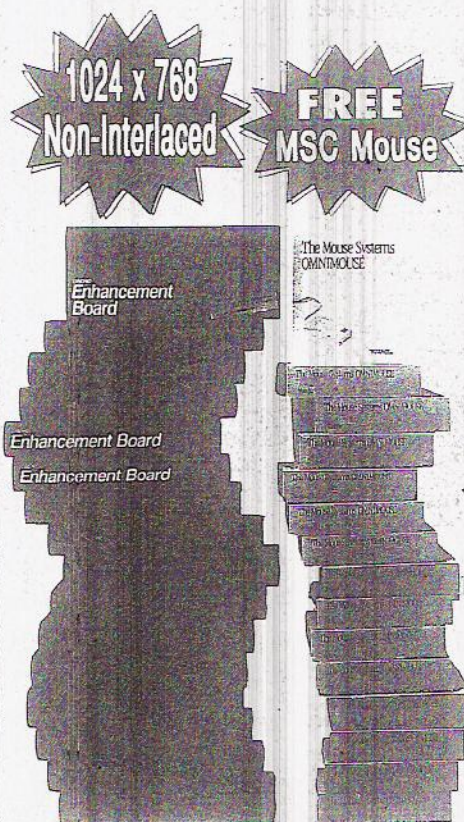
EASE OF USE. Ease of use is largely a function of the program's design. We evaluate how easy the user would find the word processor to use once the basics have been mastered. An easy-to-follow menu system and command shortcuts can simplify

using a program. A full macro programming feature enhances ease of use because much of the program can be automated.

ERROR HANDLING. To earn a satisfactory score in error handling, a program must prompt you to save files and shouldn't do anything to corrupt data or make it easy for you to lose information. Bugs or serious performance problems can affect scoring. An undo command, which lets you "undo" an editing action such as deleting a block of text or placement of graphics, can enhance the score, as can an automatic save or timed backup. Bonuses are also awarded for error messages that

See How We Tested, Page 111

The reasons to buy an Orchid ProDesigner VGA keep stacking up.



Orchid ProDesigners are the EASIEST graphic cards to use. And that's not just hype.

First, you'll never again have to put up with a flickering interlaced monitor. The ProDesigner can support the higher resolutions (800 x 600 - 256 colors and 1024 x 768 - 16 colors) in both interlaced AND non-interlaced monitors.

Secondly, you can feel comfortable in selecting your favorite monitor since the ProDesigner is compatible with all of them. And you don't have to do anything to make the board work with the monitor you choose. The ProDesigner automatically configures to monochrome or color, single frequency analog or multi-frequency, and interlaced or non-interlaced monitors. In short, the ProDesigner supports all the monitors on the market.

Thirdly, you'll never again have to manually change modes to use your applications since the Pro automatically determines the graphic standard being used. The ProDesigner also allows you to turn in register-level EGA, CGA, MDA and Hercules modes while connected to a VGA single frequency monitor.

Fourthly, without any effort on your part, the ProDesigner automatically adapts for use to either an 8-bit or 16-bit bus. And, of course, it's fast.

No other super VGA card can give you all that on one board. Actually, you'll be hard pressed to find a card that can do any *one or even two* of the above. Other graphic cards may be able to provide the resolutions and the colors. The question to ask then, is how painless they are to use.

Finally, (as if that weren't enough) as an added bonus, for a limited time only, you'll receive a Mouse Systems opti-mechanical mouse FREE - a \$69 value - when you buy a ProDesigner Plus.

Go to your nearest dealer today to see if the competition stacks up.

Orchid Technology • 4300 Northport Loop West • Fremont, CA 94538 • 1-800-868-1000 ORCHID

FEATURES

INFO
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Office/Professional Word Processing

	Ambi Professional Version 1.1	Describe Version 1.0	Displaywrite 4 Version 2	Legend Version 2.01	Lotus Manuscript Version 2.1	Microsoft Word Version 5.0	Multimate Version 4.0	Office Writer Version 6.1	Word for Windows Version 1.0	Word Perfect Version 5.1	Wordstar Version 5.5
Bullets, automatic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Columns											
Parallel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Newspaper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Auto column balancing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cross referencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Document tracking											
History	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Summaries	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Comments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Redlining	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Strikeout	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Equation generator											
Print equation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
WYSIWYG equation view	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Export, file (all support ASCII)											
DCA/RFT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Word Perfect 5.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Optional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Microsoft Word 5.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.0
Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Optional	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Footnotes and endnotes (same doc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Footnotes or endnotes (same doc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Form processing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frames											
Graphics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Text	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mixed text/graphics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Automatic white space	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Automatic text wrap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Graphics editing											
Bit-map editor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rotation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Scaling/cropping	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Contrast manipulation (gray scaling)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Drawing tools	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Graphics integration											
Insert by code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Insert with frame/box	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
File formats											
GEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PCX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PIC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TIFF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EPS (encapsulated Postscript)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	w/macro	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Windows Metafile	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Help, on-line											
Indexed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
In-context	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pull-down menus	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hyphenation											
Set zone	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
By formula	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
By dictionary	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Import, file (all support ASCII)											
DCA/RFT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Word Perfect 5.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.2	Optional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Microsoft Word 5.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Optional	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.0
Wordstar 5.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Optional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.0	4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Indexing											
Single index	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Multiple index	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Concordance/exclusion list	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Optional	<input type="checkbox"/>	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>	Excl.
Kerning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SOURCE: SOFTWARE MANUFACTURERS

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Office/Professional Word Processing

	Aml Professional Version 1.1	Describe Version 1.0	Displaywrite 4 Version 2	Legood Version 2.01	Lotus Manuscript Version 2.1	Microsoft Word Version 5.0	Multimate Version 4.0	Office Writer Version 6.1	Word for Windows Version 1.0	Word Perfect Version 5.1	Wordstar Version 5.5
Letter spacing adjustable											
Overall	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
By word	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
By paragraph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Line numbering											
Continuous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
By page	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Skip lines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
List generation (list, tables, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Macros											
Keystroke	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Programming functions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mail merge											
W/ conditional record select.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
W/ ext. database file input	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
W/ spreadsheet file input	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Miscellaneous											
Electronic mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grammar checking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mouse support	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	in graphics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Outlining											
Paragraph numbering/indent.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Collapsing/expand. sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Page size, custom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pagination, automatic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Printer support											
HP Laserjet	<input checked="" type="checkbox"/>	limited	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Postscript	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HP Deskjet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Epson, Okidata, NEC, Diablo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reformatting, automatic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spell. check. (in K words)	130	180	125	80	110	130	110	80	130	120	100
Style sheets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Table of contents generation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	opt.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mult. TOC or other lists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tables of authorities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Table generation											
By tab stops	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
By cols. & rows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Formatting indiv. cells	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Math by cols. & rows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Import from Lotus 1-2-3, Excel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ASCII	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hot links to spreadsheets	1-way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tabs											
With leaders	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Centered	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Right justified	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Left justified	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Thesaurus	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tutorial, on-line	opt.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Views											
Graphics/WYSIWYG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Editing in WYSIWYG graphics mode	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Magnify	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greeked	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Facing pages	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Multiple pages	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Draft mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Guidelines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rulers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Windows											
Split screen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Edit same doc., 2 or more screens	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Edit diff doc., 2 or more screens	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

SOURCE: SOFTWARE MANUFACTURERS

Ami Professional, Version 1.1

Ami Professional is a full-featured Microsoft Windows-based word processor, with full WYSIWYG editing and extensive graphics capabilities. The strongest competitor for Microsoft Word for Windows and Word Perfect, Ami Pro sports most of the tools required for office word processing. It easily handles graphics mixed with text, imports a host of text and graphics formats effortlessly, and does other office chores such as mail merge with ease and power. It also comes in a scaled-down executive version, Ami.

Describe, Version 1.0

One of the first of the new generation of OS/2 applications, Describe comes in both a 286 and a 386 version but is currently unavailable for DOS. Describe offers superior layout and publishing capabilities combined with competent — though not outstanding — word processing capabilities. It has many elegant features, but as it lacks, for example, indexing and outlining, it does not meet the graphical word processing standards set by Samna's Ami Professional or Microsoft Word for Windows.

Displaywrite 4, Version 2

Something of a dinosaur amidst these classy powerhouses, Displaywrite continues a venerable IBM tradition in word processing with its page-oriented, character-based system, and currently ranks at the bottom of this category in performance and functionality. Nevertheless, it is a competent text engine for IBM-standardized organizations.

EDITING

Ami's search and replace can look for attributes such as boldface, italic, and whole or partial words. Tabs can be right, left, center, and decimal, inserted by pointing and clicking on a ruler. Paragraph alignment includes left, right, center, or justified. A variable puts in the time and date of last revision or today's date, and full document tracking is available. Hyphenation is effective.

Score: Excellent.

Search and replace includes several full-featured alternatives. Tabs are complete, with user-definable leaders. Paragraph formatting is comprehensive although somewhat clumsy. Date and time stamping is available and hyphenation is highly customizable. **Score: Very Good.**

Search and replace is easy to use, but you must identify the case of the word for which you're looking. Tabs can be center, left, right, and decimal, although you cannot generate leader dots (which we consider standard). Date and time stamping appears in footers and headers only. Hyphenation does not occur during editing sessions, but only as a separate operation while paginating or checking spelling. Overall, a limited set of editing features. **Score: Poor.**

SPELLING CHECKER/THESAURUS

While a little slow in operation, the spelling function is very well implemented and designed. Some of the suggested word choices are odd. The thesaurus includes good definitions. Global replacements can be made. Although not quite as good as Word Perfect's spelling checker/thesaurus combo, this is still one of the best spelling checkers we've seen. **Score: Excellent.**

Spelling checking worked very well. The checker displays hyphenation and definitions, and generates fine suggestions. Dictionaries are available in many specialized topics and foreign languages. The thesaurus is superior, with great entries. **Score: Excellent.**

Displaywrite's spelling checker suffices for most needs and allows word, page, and full-document spelling checking. Suggestions are reasonable, and there is a synonym finder. **Score: Good.**

MAIL MERGE

Ami Pro data files can include imports from many database programs. Producing merged form letters or mailing labels takes little effort with a merge to screen, merge to print, or merge to file for further editing. Programming functions are numerous. **Score: Excellent.**

Describe's simple mail merge runs by means of a macro. Though user prompting and conditional statements are available and much more complex mail merge tasks can reasonably be programmed, the shipped model is very basic. **Score: Satisfactory.**

Mail merging is one of Displaywrite's strong suits. The program lets you manage complex selection criteria, and it supports a large range of external data file types. While the system for creating data files and template documents appears clumsy, the features available are quite extensive. **Score: Very Good.**

LAYOUT

Layout tools are extensive and complex, using a frame-based system to include graphics. You have full WYSIWYG control over the document; a non-WYSIWYG mode is also available for quick text entry. Text can be wrapped around graphics and lines drawn virtually anywhere on the screen. Tables and charts (generated from a spreadsheet or other data) can be drawn on-screen and automatically laid out. You can easily create multiple columns. **Score: Excellent.**

Describe's layout tools are outstanding, with multiple columns, frames, sidebars, and other tools. Although the frames feature is extensive, it is not quite as elaborate as Legend's linked frame capabilities. **Score: Excellent.**

While layout is primitive in comparison with the other systems in this summary, Displaywrite does support column balancing. Editing changes require explicit repagination, and paragraphs have only left and full justification. **Score: Satisfactory.**

Ami Professional, Continued on Page 104

Describe, Continued on Page 104

Displaywrite, Continued on Page 104

PRODUCT SUMMARY

Ami Professional

VERSION 1.1

Company: Samna Corp., 5600 Glenridge Drive, Atlanta, GA 30342; (800) 831-9679.

List Price: \$495.

Requires: IBM PC AT or compatible; 10-megabyte hard drive; MS-DOS 3.0; 640K of RAM; mouse recommended; Microsoft Windows 2.X (run-time version included).

Pros: Powerful graphics-based program with superior WYSIWYG editing; excellent tables and charting; outstanding compatibility; strong font support; capable editing; strong mail merge and macro programming; full set of drawing tools; can manipulate TIFF files.

Cons: Considerable complexity; substantial memory/hardware requirements; slow, especially on lower-end hardware configurations.

Summary: Ami Professional is a fine, capable Windows graphical office/professional word processor, with many high-end features and capabilities.

PRODUCT SUMMARY

Describe Word Publisher

VERSION 1.0

Company: Describe Inc., 4047 N. Freeway Blvd., Sacramento, CA 95834; (916) 646-1111.

List Price: \$595.

Requires: IBM-compatible 386 or 286; OS/2 Presentation Manager 1.1 or later; 3 megabytes of RAM; 20-megabyte hard disk; recommended configuration begins at 16-MHz 386, 4 megabytes of RAM, VGA, 40-megabyte hard disk, and a mouse.

Pros: Outstanding frames management; very good dictionary and thesaurus; superior macro language; OS/2 compatibility and services available.

Cons: Missing some word processing features; limited file compatibility; limited printer support; significant hardware requirements (like Ami Pro and Word for Windows).

Summary: Describe will serve users using OS/2 well with good editing and excellent layout tools. However, its features offer little that is not available in Word for Windows or Ami Professional, and its features do not compare with Word Perfect 5.1.

PRODUCT SUMMARY

Displaywrite 4

VERSION 2

Company: IBM Corp., Displaywrite Product Support Center, 5 W. Kirkwood Blvd., Rohnoke, TX 76299; (800) IBM-2468, Ext. 126 for dealer information.

List Price: \$495.

Requires: IBM PC; PC-DOS 2.1 or later (3.3 recommended); 350K of RAM; hard drive; versions available for OS/2 Standard or Extended Edition (compatibility mode) 1.0, 1.1; works with Novell and 3Com networks; also supports IBM PC Network and Token Ring Network.

Pros: Effective mail merge; strong document assembly; good support of IBM-brand accessories; improved printer support; compatible with IBM word processors on large systems.

Cons: Less-effective editing commands; no graphics support; clumsy reformatting for page breaks.

Summary: Displaywrite 4, Version 2 is an office/professional word processor that is really only suitable for all-IBM shops with major document assembly and list processing tasks using mostly IBM brand equipment.

Legend, Version 2.01

Only in the last six months has Legend's manufacturer designated it as a word processor — before that, it rode the cusp between word processing and desktop publishing, and it could still be considered more of a "word publisher" than a word processor. This Windows product has the most sophisticated frames management (frames are on-screen boxes containing graphics or text, which can be manipulated), some of the best graphics editing tools, and perhaps the weakest word processing tools in high-end word processing. Its user interface is much like Ami Pro's, although each has variations on the Windows screen. Not the best office product, it's surely the graphics and frame-layout champ.

Search and replace allows case-sensitive searches. Tabs work through the styles, and permit a click on the ruler to establish styles. Columnar cut and paste is supported, as is table generation. There is no date and time stamping. **Score: Good.**

Legend's spelling checker is relatively easy to use but much less sophisticated than some of the competition. The context of flagged words is not visible, suggestions are often unlikely or odd, and hyphenated words or those with apostrophes are commonly tagged as misspellings. There is no thesaurus. **Score: Poor.**

Legend has a very simple mail-merge program, using formatted ASCII text files with various field and record separators but without variable selections. Legend will produce standard form letters and mailing labels, but the implementation is primitive in comparison with products like Ami Professional and Word for Windows. **Score: Satisfactory.**

Legend has superb frame linking that connects frames on different pages so that the text stream will continue across pages through linked frames (nearly identical to Pagemaker's method). Flowing text around graphics is a snap. Legend supports dynamically linked spreadsheets through DIF, easily laying out spreadsheet data in a table. Layout capabilities are on a par with or a little better than Ami Professional. **Score: Excellent.**

Legend, Continued on Page 105

PRODUCT SUMMARY

Legend

VERSION 2.01

Company: NBI Inc., 3450 Mitchell Lane, P.O. Box 9001, Boulder, CO 80301; (800) 334-4189.

List Price: \$495.

Requires: IBM PC or compatible; PC/MS-DOS 3.0 or later; 20-megabyte hard drive; mouse recommended; 380K of RAM; Windows 2.X (run-time version included).

Pros: Exceptional frames management and linking; very good tables and linking with spreadsheets; outstanding graphics tools.

Cons: Less effective editing and word processing features in general; limited mail merge; no macros; reasonably high hardware requirements, as with most Windows products.

Summary: Legend is an outstanding layout and document design tool but a much less effective word processing program. Its strongest attributes are management of complex layout tasks, but it is not recommended for offices with complex document or mail-merge requirements.

Lotus Manuscript, Version 2.1

Lotus Manuscript, the spreadsheet user's word processor, has a highly structured, outlinelike organization. It has matured and gained substantial flexibility for fonts, graphics, and mail merging. It also is a fine tool for working with outline structures and table management. It is optimized for working with complex documents; for use in financial and scientific organizations, supporting equations and tables; and for linking easily with spreadsheets such as Lotus 1-2-3.

Most cut and paste operations, as well as search and replace, work nicely. Tabs include left, right, center, and decimal; procedures for setting them are easy. "Financial" tabs, which handle trailing non-numeric signs (such as minus or parenthesis signs), are also supported, as are "comma" tabs, which are common in international documents. Date and time stamping is available. **Score: Very Good.**

There's nothing out of the ordinary about how the spelling checker operates, although its suggestions are not always the best and the number of alternatives suggested is limited. There is a thesaurus. **Score: Satisfactory.**

Mail merging is well-implemented in a standard fashion by merging a data file with a text document. The mail merge accepts conditional selections for data and will take in most file formats. **Score: Very Good.**

Manuscript includes a wide range of document formatting commands for handling blocks of text. There is a print preview, but no WYSIWYG editing. You can assign attributes to parts or all of the text with ease. Multiple columns are supported quite well, as are the inclusion of graphics. **Score: Very Good.**

Manuscript, Continued on Page 105

PRODUCT SUMMARY

Lotus Manuscript

VERSION 2.1

Company: Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (800) 343-5414, (617) 623-6572 in MA.

List Price: \$495; network versions cost extra.

Requires: IBM PC or compatible; PC/MS-DOS 2.0 or later; hard drive; graphics monitor for preview; 512K of RAM minimum, 640K recommended.

Pros: Highly structured program with excellent outlining and table management; good formatting and strong mail merge; strong links with Lotus 1-2-3; includes graphics inclusion capabilities and strong font support for laser printers; handles scientific equations well.

Cons: Relatively difficult to learn; less effective editing and formatting; limited file export and import for text; limited formatting/layout; keystroke-only macros.

Summary: Manuscript 2.1 remains a highly competent product best suited for users with a need for highly structured documents or links with Lotus 1-2-3. It is least effective in managing heavily illustrated, complex text layouts, although it does have a good formula writer.

Microsoft Word, Version 5.0

Microsoft Word 5.0, one of the finest character-based word processing programs in the business, is the closest competitor to the market leader Word Perfect, but now lags somewhat behind its Windows-based namesake in features and WYSIWYG flexibility. Overall, however, it is a fine choice for the vast majority of office word processing chores.

Word is especially adept at creating and cutting and pasting columns, and its hyphenation options are handy. Search and replace is full-featured, including support for mid-word caps. Left, right, center, and decimal tabs are easily set and time and date stamping is fully supported. You can generate leader dots with tabs. Selected text can be fully, left, right, and center justified. **Score: Excellent.**

The spelling checker offers suggestions and normally maintains capitalization and punctuation. The thesaurus works well. **Score: Good.**

Forms management and mailing-label capabilities include variables, formatting, and selection criteria. Word accepts standard ASCII files produced by many database and spreadsheet programs. **Score: Very Good.**

Word supports multiple columns and table generation, and layout tools in general cover most needs. The page preview offers a good view of final copy. You have fine control over the layout of documents, although you cannot edit in a WYSIWYG mode. **Score: Very Good.**

Microsoft Word, Continued on Page 105

PRODUCT SUMMARY

Microsoft Word

VERSION 5.0

Company: Microsoft Corp., 1 Microsoft Way, Redmond, WA 98052; (206) 882-8080.

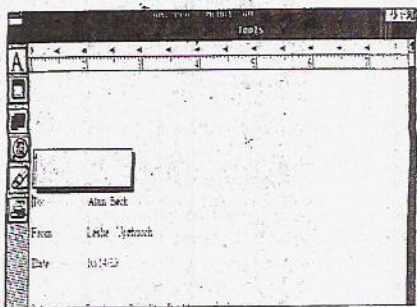
List Price: \$450.

Requires: IBM PC or compatible; PC/MS-DOS 2.0 or later; two floppy drives; mouse supported; 384K of RAM.

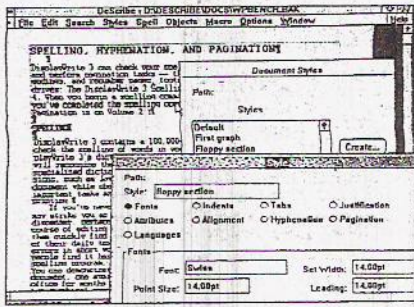
Pros: Powerful features list and fine performance; wide applicability; strong ease of use; mouse and keyboard interface; very strong laser printer support.

Cons: High power includes considerable complexity, limited page preview.

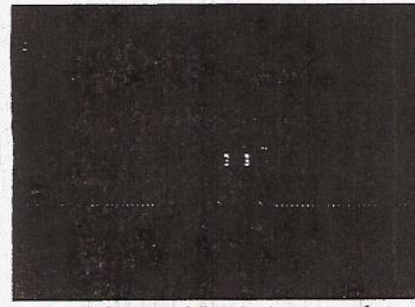
Summary: Microsoft Word 5.0 offers extensive word processing and printing tools with a host of special features for mail merges or complex documents. With its strong editing and formatting plus multiple display formats and graphics inclusion, Word is well suited for demanding environments with multiple printers. It is less effective than Word for Windows, but requires less hardware support.



WYSIWYG text and graphics can be edited on-screen in Ami Pro. Icons at left are for accessing features.



Describe runs under OS/2 and PM and has a graphical interface with extensive style-sheet capabilities.



Displaywrite's essentially simple screen features various commands and functions displayed on-screen.

GRAPHICS

Ami Professional, Continued From Page 102

One of the best of its class in working with graphics and formatting layouts that include graphic images (surpassed only by Legend), Ami Pro offers great freedom in the placement and sizing of graphic images. You can perform free-form drawing with curved lines, circles, boxes, and a set of somewhat primitive (but useful) clip-art images is included. TIFF (scanned) files can also be edited. **Score: Excellent.**

Describe, Continued From Page 102

Though Describe has superior graphics manipulation through its frames, cropping, and sizing tools, it takes in graphics only through the OS/2 clipboard, limiting its compatibility with other programs. **Score: Very Good.**

Displaywrite, Continued From Page 102

Displaywrite includes no graphics support beyond simple line drawing. **Score: Poor.**

OUTLINING

Ami Professional's paragraph numbering schemes have multiple levels but not true electronic outlining with collapsed text under headings. The style-sheet templates include a preformatted outline style. **Score: Satisfactory.**

Describe does not support outlining. **Score: N/A.**

Outlining is fast and easy with automatic definition of outline levels. You can revise the original outline and change levels, but it does not collapse or expand text. **Score: Satisfactory.**

TABLE OF CONTENTS

Tables of contents have three levels and use styles defined in the document. While somewhat less powerful than multiple-level functions, they are easy to use. Though not as feature-laden as Word for Windows' indexing feature, when you mark a word and then generate your index in Ami Pro, every page number where the word occurs is listed (Winword does not do this). Indexing is automatic but words cannot be tagged for indexing in draft mode, forcing you to use the slower layout mode for creating indexes. Also, index generation does not support words with punctuation marks. These nuisances lower the score of otherwise excellent indexing. **Score: Very Good.**

Describe does not support tables of contents or indexing. **Score: N/A.**

Displaywrite does not support indexing or tables of contents. You can purchase a separate add-on module for table-of-contents support. **Score: N/A.**

STYLE SHEETS

Styles are both easy to define and to implement; Ami Pro uses a complex system of style storage for documents as well as paragraphs. Most styles can be implemented with a click of the mouse, and you have control over all attributes, including hyphenation, margins, columns, lines, and fonts. A number of predesigned styles are included with Ami Pro. **Score: Very Good.**

Describe's powerful style sheets offer complete flexibility for formatting paragraphs and other text objects. Style sheets permit different languages in different paragraphs of the same document. **Score: Very Good.**

According to our criteria, Displaywrite does not support style sheets. **Score: N/A.**

FONTS

Font support is thorough and complete, as with most Windows products, and supports a variety of soft fonts as well as printer fonts that look great both on-screen and in print. A nicety is that you can see the various fonts and font sizes in the font selection window. In draft mode, various font styles appear in different customizable colors. In layout mode, fonts look better than in Winword. **Score: Excellent.**

Fonts are only as good as the supported printers that will print them: The printer list is quite limited for OS/2, supporting Postscript but not the HP Laserjet PCL language fully. In general, on-screen fonts are managed gracefully, much like Windows word processors, and the program will do kerning and tracking. Screen fonts are limited but basic styles are available. Describe's high font score is due to its handling of the fonts that are available. **Score: Very Good.**

A reasonable set of fonts come with Displaywrite, although you can't change font pitch in the middle of the line or use text columns with proportionally spaced text. Soft fonts are not supported. Because of the font inflexibility and lack of soft font support, we must limit the rating. **Score: Poor.**

FOOTNOTING

Footnotes can be placed at the end of the page or the end of the document, but not both. Entering and numbering is easy and effective, and styles can be applied to footnotes. **Score: Good.**

Automatic footnotes or endnotes are not available. **Score: N/A.**

Displaywrite supports footnotes or endnotes in a document (but not both in the same document), and supports a footnote library. **Score: Good.**

MACROS

An extensive macro capability includes elaborate programming constructs, but the free manual must be ordered separately. **Score: Excellent.**

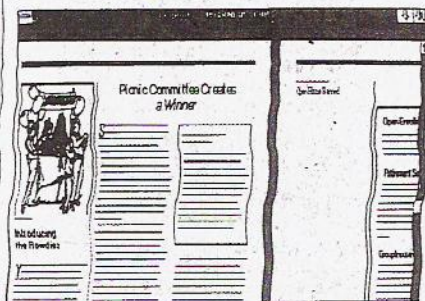
Describe has a superior macro language, although the documentation we received could only be accessed on-screen and was not final. Nevertheless, the capability easily rates a top-notch score. **Score: Excellent.**

Macros are available but support keystroke automation only. **Score: Satisfactory.**

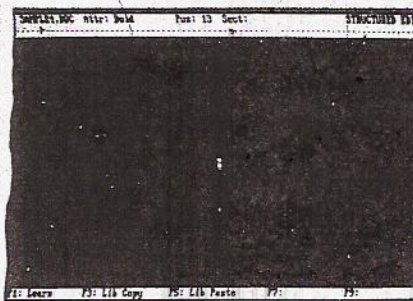
Ami Professional, Continued on Page 106

Describe, Continued on Page 106

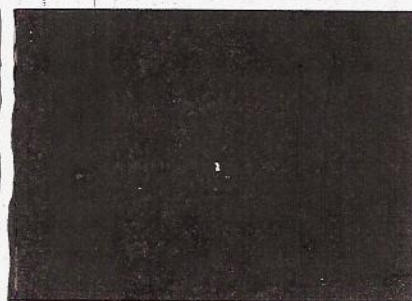
Displaywrite, Continued on Page 106



Legend's similarity to a desktop publishing package is evident in this view of a multicolumn document.



Lotus Manuscript's outline format is distinctive from other character-based word processors.



Microsoft Word's familiar screen features a full set of commands at the screen bottom.

GRAPHICS

Legend, Continued From Page 103

Legend's superb graphics manipulation capabilities, similar to Ami Pro's, let you import images from many packages. A fine graphics editor has all the tools for drawing, entering text, sizing, filling, and constructing circles, rectangles, or other objects. Graphics objects can be sized, scaled, rotated, and cropped. Unfortunately, EPS files and Windows Metafile graphics and gray-scaled TIFF images cannot be imported. **Score: Very Good.**

Manuscript, Continued From Page 103

Manuscript has a long list of compatible graphics formats. Graphics are imported into a block and can be sized to fit, though text does not flow around a graphics image. **Score: Good.**

Microsoft Word, Continued From Page 103

In Word, graphics are imported through a tag line that you insert in the text stream; it calls the illustration at print or preview time. Graphics can be placed across columns. **Score: Very Good.**

OUTLINING

Legend's outlining is basic multilevel paragraph numbering without collapsed/expanded text. **Score: Satisfactory.**

Outlining is superior, especially as the program itself is structured as an outline. Sections can be set at various levels, and text can be collapsed underneath the section heads in true electronic-outlining style. **Score: Excellent.**

The complete outlining function supports multiple levels with the option to collapse or expand text and full formatting control along with numbering options. Outlines can be sorted. **Score: Excellent.**

TABLE OF CONTENTS

Legend supports multilevel unformatted tables of contents and generates additional indexes. **Score: Good.**

Automatic generation of a table of contents from structured text is easy, but to do so in an unstructured mode is much more difficult. You can have multiple levels of an index, and you can generate a table of contents from an outline. **Score: Very Good.**

Tables of contents can be generated with invisible codes or through automatic capturing of outline levels. A good indexing facility supports additional lists; as with Word for Windows, a concordance indexing macro is available on request. **Score: Very Good.**

STYLE SHEETS

Style sheets are well-thought-out, support a variety of attributes, and are easy to define and apply to paragraphs. **Score: Very Good.**

Templates carry a set of formatting specifications from one document to another. Named blocks are analogous to style sheets in some other packages, although they are certainly not up to the standards of Microsoft Word. **Score: Good.**

Word 5.0's style sheets blazed the trail in word processing style-sheet standards, and they continue to lead the pack. These fully featured and multilevel capabilities can be maintained in glossaries and are easily applied to paragraphs. Word's style sheets are the best we've seen yet. **Score: Very Good.**

FONTS

Fonts handled through Windows are very strong, and Legend adds extensive typographical options, such as track and pair kerning. **Score: Excellent.**

Fonts are handled well by Manuscript, and a print preview shows graphics and text more or less as they will appear. Soft fonts are supported nicely. **Score: Very Good.**

Font support is extensive, including soft fonts, although the menus for selection are somewhat confusing. Word 5.0 can apply fonts to paragraphs through styles or to any selected text. **Score: Good.**

FOOTNOTING

Footnotes are supported and will run across frames and restart numbering. Endnotes are supported but are not automatic. **Score: Good.**

Manuscript supports footnotes and endnotes, though not both in the same document, as well as chapter and section notes. **Score: Good.**

Footnote/endnote support is standard, with notes printing either at the bottom of the page or at the end of the document. **Score: Good.**

MACROS

Legend does not support macros. **Score: N/A.**

Manuscript features macros for the automation of keystrokes only. **Score: Satisfactory.**

Macros are reasonably extensive and include not only keystrokes but complex programming structures; macros can be nested. **Score: Very Good.**

Legend, Continued on Page 107

Manuscript, Continued on Page 107

Microsoft Word, Continued on Page 107

PRINTER SUPPORT

Ami Professional, Continued From Page 104

Ami Professional supports all printers carried by Windows, which is an extensive list. It supports printing on most types of laser (including Postscript), dot-matrix, and ink-jet printers. **Score: Very Good.**

Describe, Continued From Page 104

OS/2 printer support is limited to few printers other than Postscript machines at this time. No HP support is included. The low score here is due mostly to the current limitations of OS/2 rather than Describe. **Score: Poor.**

Displaywrite, Continued From Page 104

This product now supports many non-IBM printers but no Postscript printers. For the non-IBM printers supported, not all printer features are implemented. **Score: Poor.**

COMPATIBILITY

This program has a wide range of common import and export formats for both text and graphics. While Ami Pro supports one-way links using DDE (dynamic data exchange), Word for Windows' hot-links are two-way. **Score: Excellent.**

Only OS/2-compatible and ASCII file formats are supported, plus a limited number of graphics file types. Describe remains isolated from the mainstream of PC document applications. **Score: Poor.**

Displaywrite imports a large number of database files and DCA-format or ASCII text files. **Score: Good.**

SPEED

Ami Pro is no speed demon. Limited by Windows somewhat, the layout mode is cumbersome for entering text; draft works much better. Manual scrolling was especially slow. A fast system with lots of memory is almost a must; on the 386 platform, Ami Pro was acceptable. Overall, its speeds are not poor, but they trail behind most in this group. **Score: Satisfactory.**

It is difficult to compare Describe's speed with DOS-based systems because the operating systems are substantially different. In comparison with other word processors on the 386 platform, Describe ran through the same tests reasonably quickly and did not feel sluggish or cumbersome in speed of operation. **Score: Good.**

Displaywrite, while acceptably fast, was one of the slower programs we tested. It was not as sluggish overall as Ami Professional, but it still was in the lower end. **Score: Satisfactory.**

DOCUMENTATION

Documentation is generally good, but the macro manual must be obtained by mail. The manuals cover the program fully, though some descriptions tend to be sketchy. There is good indexed and context-sensitive on-line help, and error messages are adequate. **Score: Good.**

The documentation, though elegant, is exceedingly sparse. New users will have a tough time learning the features of this program from the manual; a problem compounded by the additional obstacle of dealing with a new operating environment. **Score: Poor.**

The documentation you get with Displaywrite is reasonably complete, covering most features and problems you might encounter. The indexing is quite well put together. **Score: Good.**

EASE OF LEARNING

Ami Pro is very easy for Windows users, and certainly easy for users of Ami Executive, but less easy for those unfamiliar with a graphical environment. The style sheet system takes getting used to, even for word processing fans. The WYSIWYG environment eases the learning curve considerably, however, and virtually anyone can be up and running within an hour. **Score: Very Good.**

Describe is intuitive and easy to learn for simple office tasks and correspondence once the underlying operating system and the graphical interface are understood. It will take a little time to master the program but the results are worth the effort. The lack of descriptive documentation impedes learning. **Score: Good.**

This version of Displaywrite includes elaborate context-sensitive help screens that greatly enhance ease of learning. While some functions are cumbersome to operate, they are not hard to learn. **Score: Good.**

EASE OF USE

The graphical interface, customizing capability, user-selected icons, multiple editable text views, and shortcut keys contribute to ease of use. Word for Windows is just a tad easier due to the accessibility of fonts. The extensive customization and style sheet capabilities in Ami Pro also lend ease of use a hand. **Score: Very Good.**

As you become familiar with Describe's features and concepts and overcome the limitations of the manual, the program becomes quite easy to use. **Score: Very Good.**

Good menus and extensive help screens facilitate ease of use, but most functions require selection from a menu. Displaywrite does not go out of its way to make things easier for the accomplished user in search of shortcuts. **Score: Satisfactory.**

ERROR HANDLING

Most errors are captured, and with an automatic timed save and backup, it takes a real effort to lose data. A four-level undo reverses most activities. A recent bug release was just published by Samna. **Score: Very Good.**

In addition to an automatic backup capability, Describe automatically takes adjustable-timed "snapshots" that capture the document being edited to prevent a loss of data input since the last save; this is slightly different from a timed save in that it occurs in the background. **Score: Very Good.**

There is a backup file, but a power failure can leave portions of text unrecoverable; a special recovery utility may get data back. The Undo command recovers the most recent block delete only. **Score: Satisfactory.**

SUPPORT POLICIES

Samna provides a 90-day, unconditional money-back guarantee. Free technical support on a regular phone line is augmented by support available by fax and on CompuServe. **Score: Very Good.**

Describe comes with a 30-day money-back guarantee through its dealers, but there is only 90 days of free support on a non-toll-free phone line. Extended support is available, as well as fax support. **Score: Good.**

Only after the current product shipped did IBM add one year of free support on a toll-free line to its support package. As a result, you won't find a tech support number in your documentation. **Score: Good.**

TECHNICAL SUPPORT

We called technical support for help and found the technicians informed, accessible, and correct. They often provided extra information about Windows. **Score: Very Good.**

Though the staff didn't go out of its way, our calls to Describe elicited accurate, qualified information. **Score: Satisfactory.**

IBM technical support personnel knew the product very well, were helpful and friendly, and answered our questions correctly and quickly. **Score: Very Good.**

VALUE

At \$495, Ami Professional is on par in price with the competition, and offers a great deal more than most — especially in its graphics capabilities, which border on what lower-end desktop publishing packages can do. It is a superior graphical office/professional word processor. **Score: Excellent.**

At \$595, Describe is more expensive than most DOS word processors, but it is one of few word processors now available for OS/2. Describe is a good word processor and a very good publishing tool. Its word processing is about equal to Wordstar or Office Writer, but its graphics and layout tools and macros are far superior; its interface is competitive with the Windows word processors. For the limited OS/2 market, this is a good value, though not good enough to justify switching platforms from Ami Professional or Word for Windows. **Score: Good.**

For \$495, Displaywrite falls considerably short of the office/professional word processing competition, though it sells for the same price. It does not begin to match a Word Perfect or Microsoft Word, and doesn't come close to Word for Windows. If IBM standardization is required, Displaywrite is worth considering. **Score: Satisfactory.**

PRINTER SUPPORT

Legend, Continued From Page 105

Handled through Microsoft Windows, printer support is highly effective and capable. **Score: Very Good.**

Manuscript, Continued From Page 105

Manuscript's long list of supported printers includes Postscript and HP laser printers. **Score: Very Good.**

Microsoft Word, Continued From Page 105

This program offers printer support for a long list of printers and has a printer editor for creating or modifying drivers. **Score: Excellent.**

COMPATIBILITY

Indicative of its desktop publishing roots, support for text file and graphic imports is excellent, but Legend will only export to an ASCII format. **Score: Good.**

Manuscript's compatibility score is determined primarily by its great links to Lotus 1-2-3 spreadsheets. File exchanges also include import and export of ASCII files and import of DCA/RFT text. Several word processor formats, though supported, are only available optionally. **Score: Good.**

Compatibility includes ASCII and DCA/RFT plus a large number of graphics file formats. **Score: Good.**

SPEED

As a Windows product, Legend is quite fast. It was actually the fastest to reformat a document, and performed global replacements reasonably quickly. **Score: Good.**

Manuscript turned in several speed results that were quite fast, and overall, had no slow results. It was especially fast in search and replace tasks. **Score: Very Good.**

Microsoft Word was this comparison's jet-stream performer in speed. It blazed through virtually all of the tests (importing a DCA/RFT file being the one exception), meeting or beating all the other packages reviewed here. **Score: Excellent.**

DOCUMENTATION

Legend's documentation is well presented and features good explanations and examples. On-line help is extensive but not context-sensitive. The index is separate from the manuals, a bit unorthodox. **Score: Good.**

Manuscript's handsome documentation has no alphabetized reference manual; furthermore, it is organized by category rather than by function. Some explanations are not complete and include insufficient examples. **Score: Satisfactory.**

Word 5.0's manuals are full of examples and explanations, and the indexes are full and complete. **Score: Excellent.**

EASE OF LEARNING

Legend is reasonably easy to learn. Yet, for those unfamiliar with the concepts of desktop publishing or graphical user interfaces, it may take some effort to master the concepts. Tasks such as linking frames must be studied carefully before they can be used to advantage. **Score: Good.**

Lotus Manuscript is not one of the easier packages to learn due to its highly structured, unorthodox outline format. Most users will find mastering some of the concepts difficult. Nevertheless, considering the amount of power this package has, it is learnable in an acceptable amount of time. **Score: Satisfactory.**

The learning of Microsoft Word is facilitated by great documentation and a fine tutorial, although the sheer complexity of the program may take getting used to for the uninitiated. **Score: Very Good.**

EASE OF USE

Legend becomes easy to use over time, although it is much better as a layout tool than it is as a word processor. For those producing graphically intensive memos and correspondence, it is one of the easier word processors to use. **Score: Good.**

Users who need to create tables and technical documents or those who need to use formulas will find that Manuscript's special characteristics improve its ease of use. Once you're up to speed, it is convenient to use and an especially good tool if you are involved in financial operations that involve spreadsheets. **Score: Very Good.**

The complete set of speed keys, complex macros with conditionals and control statements, on-line help, and excellent manuals all combine to make Word easy to use for experienced users. **Score: Very Good.**

ERROR HANDLING

Legend maintains a one-level undo that can restore most actions; a redo is also offered. All saved files have a backup created at the same time, but there is no timed backup. **Score: Good.**

Manuscript handles errors generally easily. It maintains a backup file for files being edited, and there is a timed backup that can be turned on and off. **Score: Very Good.**

Word provides a timed backup, automatic backup on save, an audible "beep" before exiting unsaved files, and special files that accumulate editing changes. The one-level Undo command can even reverse a sort or hyphenation change. **Score: Very Good.**

SUPPORT POLICIES

Legend offers a toll-free support line, a 90-day money-back guarantee, and fax support. **Score: Very Good.**

A special six month toll-free support line is followed by unlimited technical support on a regular phone line. There is a 30-day money-back guarantee and corporate support plans are available. Phone lines are open more than 10 hours daily. **Score: Very Good.**

Microsoft provides a 30-day money-back guarantee through its dealers; there is also a product usability warranty. There is unlimited technical support on a regular phone line, as well as fax and BBS support. **Score: Very Good.**

TECHNICAL SUPPORT

We called the Legend technical support line for several questions and always received a quick response and accurate information; the staff was very knowledgeable about the product and gave us plenty of useful data. **Score: Very Good.**

Repeated calls to Manuscript's regular (not toll-free) lines produced nothing but busy signals. **Score: Unacceptable.**

Telephone technical support is very good. Our calls produced a short wait on hold and then a well-informed, competent technician provided good answers. **Score: Very Good.**

VALUE

At \$495, Legend offers superb layout and graphics capabilities but midrange word processing features. It should be considered primarily by users who really need the graphics capabilities and can do without some of the other high-end word processing bells and whistles. **Score: Satisfactory.**

At a price of \$495, Manuscript's strong outlining and mail-merge capabilities, improved management of fonts and printers, reasonable graphics, and block structured design will prove ideal for producing technical reports and manuals as well as for linking to financial tasks. As a mainstream office/professional word processor, its value lessens. **Score: Good.**

At \$450, Word 5.0's wide range of features and outstanding performance make it an excellent value. Word 5.0 is less hardware-hungry than the more graphically intensive word processors, such as Word for Windows or Ami Professional, so Word is a good choice for any office with lower-end systems installed. Its high-quality performance is exceeded in the character-based products category only by Word Perfect, and its compatibility with other products such as Word for Windows is an asset. **Score: Excellent.**

Multimate, Version 4.0

This significant upgrade to one of the word processing veterans will be very meaningful to its considerable following, but to few others. While Multimate is a strong performer when producing office correspondence and mail merge, it does not have the brilliance or capabilities of leading text-based office/professional word processors such as Word Perfect or Microsoft Word. It is somewhat more powerful than Displaywrite, and equal to OfficeWriter 6.0. Nevertheless, this word processor does its job well and is sturdy and faithful. Multimate's Wang-emulation roots continue to serve that audience well.

This new version adds some interesting features uncommon in other products, such as a full-featured grammar checker and support for electronic mail. These are very nice added values.

Office Writer, Version 6.1

Following much the same style as Multimate and Displaywrite, Office Writer 6.1 provides a reasonable selection of features within a smoothly functioning but highly structured user interface. About as powerful as Multimate, but more effective with fonts and graphics, Office Writer 6.1 is a solid office product. Office Writer is now published by Software Publishing Corp., makers of Professional Write (our highest-rated executive word processor).

Word for Windows, Version 1.0

Microsoft's Word for Windows offers an elegant user interface and a powerful set of features that do almost everything we expected of a high-end program with ease and effectiveness. Ami Professional, which also runs under Windows, is its most formidable competitor and outdoes "Winword" in graphics capabilities. Still, Word for Windows is the best overall of the new breed of graphical word processors, utilizing many of Word's advantages (such as style sheets) and boasting an interface reminiscent of the Macintosh Word screen. Discounting the interface, only Word Perfect can win in a feature-for-feature showdown.

We reviewed this same version of Word for Windows on January 15. In part, the scores here differ from those in the review because of our new criteria implemented in this comparison.

EDITING

Multimate's search and replace is somewhat minimal, finding words if you know the case they are in. Left and decimal tabs only work if you define them before you type in the text; leader dots can be created. Paragraphs can be formatted left, centered, or justified, but not right. There is good date and time stamping for documents. **Score: Satisfactory.**

Office Writer's tabs aren't as complete as we'd like, with only left and decimal stops, and existing text does not adjust to new tabs. Columns can be copied or moved. The search-and-replace function is reasonably quick. Time and date stamping are available and hyphenation is dictionary-based. **Score: Good.**

Winword's search-and-replace facility is fully featured, allowing whole word and upper/lower case matching and replacement confirmation. Tabs are excellent and simple to apply to paragraphs or the document, and columns can be cut and pasted. Date and time stamping is easy to use. Hyphenation works automatically. Editing is WYSIWYG at several levels. **Score: Excellent.**

SPELLING CHECKER/THESAURUS

Multimate's spelling checker works reasonably well, although it flags hyphenated words as misspellings and is somewhat awkward to operate. There is also a thesaurus and an excellent, elaborate grammar checker (Grammatik IV), which boosts the score. **Score: Good.**

The spelling checker works well and offers nice suggestions. You can specify global replacements, with capitalization maintained. Office Writer includes a complete thesaurus. **Score: Very Good.**

The spelling checker is easy to use but not flawless; we found some words that it missed. Also, you can't do global replacements. You can begin spelling checking from anywhere in the file, and suggestions can appear automatically. The thesaurus works well. **Score: Good.**

MAIL MERGE

As an office-oriented product, Multimate has strong merge capabilities, accepts many external data file formats, and can select records for inclusion in a merge. It creates labels with ease. **Score: Very Good.**

The facilities for document assembly and list management are handled by a traditional mail merge feature, with conditional selections, mailing labels, and a fine forms management tool called Inform. **Score: Very Good.**

Mail merging in Word for Windows has myriad programming constructs available for complex merge tasks. It can handle labels, form letters, fill-in forms, and some external files. The program can call macros in its merge function, permitting exceedingly powerful automated functions. **Score: Excellent.**

LAYOUT

Multimate offers relatively primitive layout through the insertion of format rulers. You can underline, boldface, and indent with relative ease and you can apply fonts. However, in general, formatting for anything but the most standard layouts is cumbersome. **Score: Satisfactory.**

Document formatting uses codes and a format line. Adding boldfacing, indents, margins, and spacing is relatively straightforward. Office Writer explicitly paginates to wrap columns correctly and automatically balance them. **Score: Good.**

Layout options work with great ease, in part due to the icons provided for justification, styles, margins, and spacing. Spacing is displayed on a special ruler at the top of the screen, or you can use a dialog box. Everything appears on-screen as it will in print, which makes layout a snap. As with Ami Pro, a special draft mode for entering large amounts of text will avoid any slower operations in any of the layout modes. Table generation is easy and completely WYSIWYG. **Score: Excellent.**

Multimate, Continued on Page 112

Office Writer, Continued on Page 112

Word for Windows, Continued on Page 112

PRODUCT SUMMARY

Multimate

VERSION 4.0

Company: Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502; (213) 329-9989.

List Price: \$565.

Requires: IBM PC or compatible; PC/MS-DOS 3.1 or later; hard drive; 384K or RAM, 464K recommended for use of all functions.

Pros: Wang emulation; structured organization; very strong mail merge; electronic mail for other users with the same program; good file compatibility.

Cons: Much less effective and less powerful than competitors; limited macros; minimal outlining.

Summary: Multimate 4.0 has some specialized features, such as a proprietary electronic-mail system, and others that are more traditional, such as graphics and proportional font support. However, the program is clumsy to use, does not integrate its proportional font and graphics support with other features — especially forms and merge — and is not as full-featured as many competitors. Nevertheless, what it does, it does quite well.

PRODUCT SUMMARY

Office Writer

VERSION 6.1

Company: Software Publishing Corp., 1901 Landings Drive, Mountain View, CA; 94039; (415) 962-8910.

List Price: \$495.

Requires: IBM PC or compatible; PC/MS-DOS 2.0 or later; two floppy drives, hard drive recommended; 384K of RAM.

Pros: Structured organization; good forms and mail-merge support; reasonable font and graphics management; good file compatibility.

Cons: Not as powerful or effective as others in this price class; limited macros; minimal outlining and tabs.

Summary: A standard office product, Office Writer 6.1 handles fonts with style and does a fine job with forms or merge activities. Its editing is satisfactory and formatting tools relatively primitive. Overall it is comparable to Multimate 4.0.

PRODUCT SUMMARY

Microsoft Word for Windows

VERSION 1.0

Company: Microsoft Corp., 1 Microsoft Way, Redmond, WA 98052; (206) 882-8080.

List Price: \$495.

Requires: IBM PC AT or compatible; 640K of RAM; hard disk; 1 to 2 megabytes of EMS memory recommended; Microsoft Windows/286 or /386 2.x or later (run-time version included); mouse recommended.

Pros: Great use of Windows environment; exceptional macro language; powerful formatting and style sheets; very capable word processing features overall; easy to learn and use; strong data-exchange and document-conversion capabilities; superior table-generation facility.

Cons: Very powerful features create some complexity; macro language requires separately ordered manual; some functions slow on slower (10-MHz or lower) systems.

Summary: Microsoft Word for Windows is a superior graphical office/professional word processor with finely implemented and intuitive features. It competes admirably against Ami Professional as well as text-based high-end word processors such as Word Perfect and Word for Windows' soul mate, Microsoft Word 5.0.

Word Perfect, Version 5.1

Word Perfect has built its reputation by offering an effective working environment, endless features, continuous updates, and vastly superior customer support. While still the features champion of word processors, Word Perfect's user interface cannot compete with the new Windows-based products, especially Word for Windows. The latest update to Word Perfect, Version 5.1, adds equation editing, table generation, label support, spreadsheet imports, context-sensitive help, and automation of mail merging. Furthermore, technical support hours have been expanded to 24 hours per day and weekend support has been added.

EDITING

Word Perfect's basic editing capabilities are extensive — with easy management of text columns, painless hyphenation, thorough search and replace, and a complete set of tabs (including center, left, right, and decimal). The program supports date and time stamping and revision marking. **Score: Excellent.**

SPELLING CHECKER/THESAURUS

Spelling checking takes place quickly and effectively, and the program offers many suggestions. There is also a full thesaurus. The best of the group. **Score: Excellent.**

MAIL MERGE

Mail merge includes a utility that converts data files into the Word Perfect merge format. This update also lets you set up a merge automatically. The merge permits selections and conditionals that use the same fields and functions as the macro programming language. It handles labels effortlessly. **Score: Excellent.**

LAYOUT

Word Perfect formats through codes in the text. Formatting can be applied to blocked paragraphs or sections of text. Word Perfect also features automatic table generation (done in frames), which is very useful. For a text-based product lacking WYSIWYG editing, none does layout any better. **Score: Very Good.**

Word Perfect, Continued on Page 113

PRODUCT SUMMARY

Word Perfect

VERSION 5.1

Company: Word Perfect Corp., 1555 N. Technology Way, Orem UT 84057; (801) 225-5000.

List Price: \$495.

Requires: IBM PC or compatible; PC/MS-DOS 2.0 or later; two 720K floppy drives; 384K of RAM.

Pros: Extraordinarily rich in features; powerful graphics and tables; lists and indexes; very complete formatting control and font support.

Cons: Non-WYSIWYG user interface; formidable menu structure; cannot edit in graphics preview.

Summary: Word Perfect remains the features champion of high-powered word processing, although its user interface and somewhat obsolete design struggle under the burden of managing multiple graphics elements and boxes or frames. It remains the best in its class, but only when you take into consideration its multiplicity of features. Otherwise it is exceeded by Word for Windows.

Wordstar, Version 5.5

The classic word processing program for microcomputers, Wordstar no longer represents the state of the art but certainly offers a full complement of features. Somewhat less powerful than Microsoft Word 5.0 or Word Perfect 5.1, Wordstar 5.5 ranks above Officewriter and Multimate, and easily ahead of Displaywrite.

There are a number of stand-alone modules in Wordstar, many of which were borrowed from Wordstar 2000 Plus, such as a telecommunications program, graphics, and outlining. While effective in their own right, they are not fully integrated with the basic word processor.

Search and replace offers options to prompt, auto-replace, and maintain case. Tabs are handled through embedded rulers and can be defined as left or decimal, but no right or centered tabs are permitted. Paragraph styles can be applied from predefined styles, but there is no way to center or right-justify blocks of text. Autohyphenation is the default and easy to turn off. **Score: Good.**

The Wordstar spelling checker is fast and easy to use. It performs global replacements, word counts, and offers a good list of guesses for unrecognized words. There is a useful thesaurus. **Score: Very Good.**

Wordstar's mail merge feature is reasonably powerful, with multiple selections and conditionals. It uses standard ASCII-delimited files, and complicated form letter applications are easy to produce. **Score: Very Good.**

Wordstar uses embedded codes to handle layout tasks and has added a paragraph style capability that can be applied to generate new formatting characteristics. However, the program's use of dot commands and other embedded codes is clumsy for highly formatted document designs. But the preview function is dynamite (except for the bug we found: see Error Handling below) and shows a variety of single- and multiple-page document layouts. This feature enhances the layout score. **Score: Good.**

Wordstar, Continued on Page 113

PRODUCT SUMMARY

Wordstar

VERSION 5.5

Company: Wordstar International Inc., 33 San Pablo Ave., San Rafael, CA 94903; (800) 227-5609.

List Price: \$495.

Requires: IBM PC or compatible; PC/MS-DOS 2.0 or later; two floppy drives; 384K of RAM (for preview and graphics, 512K).

Pros: Strong editing tools; fine mail merge; telecommunications module; add-on outliner; excellent page preview.

Cons: Inconsistent user interface; limited headers and footers; limited graphics integration.

Summary: Wordstar shows its age, in spite of recent enhancements. While reasonably well-provided with features and capabilities, it does not measure up to the standards of the best in this class. Wordstar 5.5 does most of what the best do, but not as easily and, in many cases, not as well.

How We Tested

Continued From Page 97

significantly enhance error handling or contain information that helps identify or solve the problem.

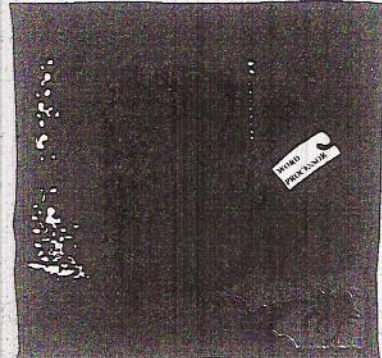
SUPPORT. Support scores are divided into two areas: support policies and technical support.

Support policies: In scoring for support policies, we begin with a satisfactory score and award bonuses for product usability warranties (a written policy that if the product does not do what the documentation says it will, the vendor will fix the problem or refund your money), money-back guarantees, a toll-free line, support hours longer than 10 hours per day, fax support, and available corporate extended support plans. We subtract points when vendors provide no technical support or limit the support to 30 or 90 days.

Technical support: Technical support scores are based on the quality of service we actually received in the course of multiple anonymous calls to the vendor and the availability of knowledgeable technicians.

VALUE. The value scores reflect the price vs. the performance and features of each package tested, taking into account the competition. Most office/professional word processors are priced at or close to \$495, so we look closely at the overall advantages and features of each to determine comparative values.

This product comparison was developed by Jeff Eckert, InfoWorld Test Center; Steve Irvin, InfoWorld Test Center; John Lombardi, Contributing Editor; Michael J. Miller, Editor; Gregory S. Smith, Test Development Specialist; and Serge Timacheff, Associate Reviews Editor.



CAROLAN STUBER

Word Processing, Desktop Publishing Use Different Tackle to Catch the Big Fish

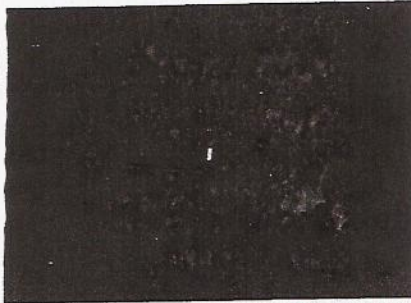
You're out to nab that trophy-size fish. Should you use the deep-sea tackle and power cruiser, or take the Lloyd Bridges stealth approach with your four-band spear gun?

The answer, of course, depends on which system is the best for you. While both methods can catch fish, the hunting styles of each and the types of fish that can be caught realistically differ greatly. The same is true of layout-capable word processors and desktop publishing programs.

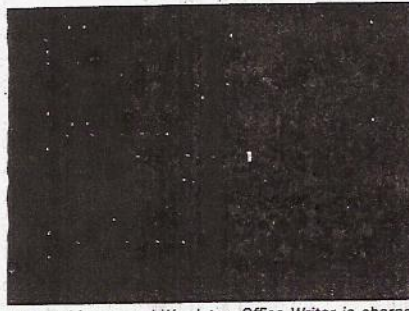
There is a temptation — one promoted by product marketing — to pick a "total solution" for a range of tasks. There is, of course, rarely such a solution. Depending on your needs, a sophisticated word processing package may be sufficient for your "publishing" needs, but perhaps you need a word processor for some tasks and a desktop publisher for others. Or maybe you need everything to be fully desktop published. To know how and when to apply which tools, consider the task you've set out to do.

Publishing has three basic editorial components: content editing, copy editing, and copy fitting. In

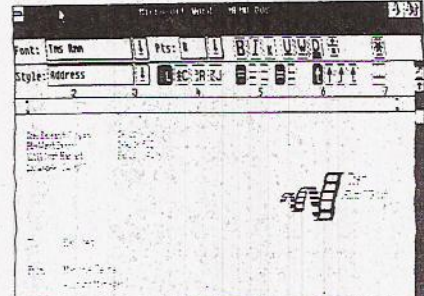
See Fish, Page 113



Multimate's character-based screen supplies needed information, but leaves plenty of room for text editing.



Like Multimate and Wordstar, Office Writer is character-based and optimized for on-screen text work.



Word for Windows displays a ribbon of accessible fonts, font attributes, and document styles on-screen.

GRAPHICS

Multimate, Continued From Page 110

Multimate supports many graphics formats. White space is created manually. Graphics, which can cross columns, can be captured from a screen and cut, rotated, expanded, and edited. **Score: Very Good.**

Office Writer, Continued From Page 110

Office Writer imports a range of graphics formats, which it will display in a preview. You can scale, crop, and resize graphics. Tags for graphics objects open up white space but do not support text wraps. **Score: Good.**

Word for Windows, Continued From Page 110

WYSIWYG graphics imported from various supported file formats can be sized, rotated, or clipped, although there are no editing tools. Ami Professional and Legend have more extensive graphics support and editing capabilities, however. **Score: Very Good.**

OUTLINING

Multimate's outlining feature involves flagging paragraphs for automatic numbering. It will not collapse or expand text or shuffle outline segments automatically. **Score: Satisfactory.**

Outlining uses outline tab markers that establish levels and permit variable numbering systems. The program does not collapse or expand different outline levels. **Score: Satisfactory.**

This program automatically generates outlines based on the structure of the style sheet for the document. You can move or change levels, and they collapse and expand in true electronic outlining form. **Score: Excellent.**

TABLE OF CONTENTS

The table of contents feature works by manually assigning tags to each heading; tabs define the various levels. Automatic indexing is supported. **Score: Good.**

Office Writer's table of contents can be generated from either outline tabs or section markers. The program will handle various indenting and leader options. Indexes are performed with concordance lists, after the document is explicitly paginated. **Score: Good.**

Word for Windows automatically creates a table of contents from a formatted document, taking the levels from the document's structure. Indexing is fully supported; concordance indexing is available in a special macro available on request. There are many indexing options. **Score: Very Good.**

STYLE SHEETS

Style sheets are not supported in Multimate. **Score: N/A.**

Style sheets are not supported in Office Writer. **Score: N/A.**

Following a Microsoft Word tradition, Word for Windows style sheets have complete flexibility, can be derived from preformatted text, and are easy to apply and change. Styles can be applied to virtually anything quickly and efficiently. This is top-notch style-sheet support. **Score: Very Good.**

FONTS

While Multimate supports soft fonts, its system for previewing and preparing documents using proportionally spaced fonts is clumsy and limited. **Score: Good.**

While generally strong in font management and the use of soft fonts, Office Writer can't automatically adjust line height for proportionally spaced fonts. **Score: Good.**

Fonts are WYSIWYG and managed by Windows. Fonts can be applied easily through styles or to selected text; you don't have to access a special menu to choose fonts (as you do with Ami Professional). **Score: Excellent.**

FOOTNOTING

Multimate supports footnotes and endnotes in documents, with automatic numbering and other options. **Score: Very Good.**

Footnotes work well and can be placed either at the bottom of the page or the end of the document. You can change a document's footnoting format. **Score: Good.**

Footnotes and endnotes, which can both be in a document simultaneously, also support cross-referencing. **Score: Excellent.**

MACROS

Macros are provided to automate keystrokes only. **Score: Satisfactory.**

While macros are available in Office Writer, they automate keystrokes only. Macros can also be used outside of Office Writer, such as for DOS commands. **Score: Satisfactory.**

Macros use a complete programming language based on Quick Basic, complete with block structures, variables, types, and other intricate programming features. Unfortunately, the excellent free macro manual must be ordered separately (although it is free, and there is an on-line chapter shipped with Winword for macro information). **Score: Excellent.**

PRINTER SUPPORT

Multimate supports a long list of printers, including laser and Postscript printers. **Score: Very Good.**

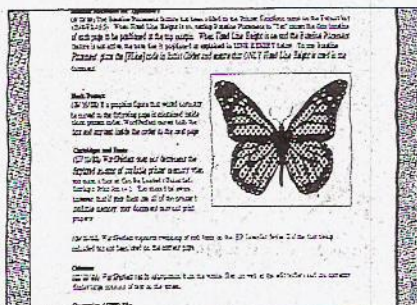
The long list of supported printers includes HP and Postscript laser printers. Office Writer also provides a printer driver editor. **Score: Excellent.**

Top-notch printer support is provided through Windows, and additional drivers are included that boost the score. **Score: Excellent.**

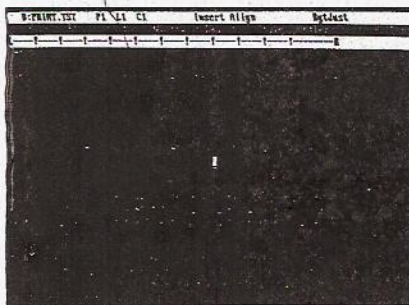
Multimate, Continued on Page 114

Office Writer, Continued on Page 114

Word for Windows, Continued on Page 114



Word Perfect's preview mode shows document components, including graphics, very realistically.



Wordstar's familiar dot commands are evident, as are its ribbon of commands at the top of the page.

GRAPHICS

Word Perfect, Continued From Page 111

Boxes serve as frames for imported graphics, which can be sized, rotated, and cropped. There is a screen-capture program and a conversion program for a wide range of graphics formats. Graphics boxes can run across columns, and the program flows text around boxes. Boxes also contain a powerful tables capability. Word Perfect's graphics support is the best available for character-based word processing. **Score: Very Good.**

Wordstar, Continued From Page 111

Wordstar's graphics are handled through Inset, an add-on screen-capture and editing program. Wordstar puts a graphic image into the text with a tag but does not create white space. This cumbersome method lags behind the current standard set by products such as Word Perfect and Microsoft Word. **Score: Poor.**

OUTLINING

Word Perfect supports up to eight levels of outlining. While sections of an outline can be moved and automatically renumbered, text cannot be collapsed or expanded. **Score: Satisfactory.**

Multiple-level true electronic outlining is supported by PC-Outline which, unfortunately, does not support Wordstar formatting (other than through an import). While the outliner is useful, the incompatibility limits the otherwise higher score. **Score: Good.**

TABLE OF CONTENTS

By marking text, you can generate a table of contents with leading characters before page numbers. The table of contents can be placed anywhere in the document and edited or formatted. WordPerfect also supports multiple indexes and lists. **Score: Excellent.**

We found the table of contents and indexing feature difficult to use with Wordstar's dot-command structure. While you can achieve multilevel tables of contents, the process is needlessly tedious. **Score: Good.**

STYLE SHEETS

Style sheets are extensive and can include a variety of information about formatting, fonts, and other information, but they are not quite as sophisticated as those in Word for Windows or Word 5.0. Still, the support is strong. **Score: Good.**

Wordstar supports simple paragraph styles, but little more. **Score: Satisfactory.**

FONTS

Word Perfect has extensive font support with automatic downloading, and handles soft fonts with ease. **Score: Very Good.**

Full font support for laser printers and complete editing of printer drivers is supported. Fonts display in preview. **Score: Very Good.**

FOOTNOTING

Footnotes, endnotes, and annotations can all be entered in the same document with separate formatting and numbering. **Score: Excellent.**

Endnotes, annotations, and footnotes can be entered in the same document. Cross-referencing is not available. **Score: Very Good.**

MACROS

The macro language is very powerful, with myriad programming constructs, variables, and block structures. **Score: Excellent.**

Wordstar has keystroke macros but no programming constructs. **Score: Satisfactory.**

PRINTER SUPPORT

The printer support for this program is extensive and endlessly expanding. **Score: Excellent.**

Wordstar printer support is superior, with the capability to customize printer tables and create new ones. **Score: Excellent.**

Fish

Continued From Page 111

content editing, copy editing, and copy fitting. In content editing, you don't pay attention to point size, typeface, leading, and other formatting, since these are irrelevant to the task at hand. You do, of course, pay attention to basic character formatting — like boldface and italics — where it's used to enhance the content (by stressing meaning). In copy editing, you check grammar, spelling, and style, and you add coding (or style-sheet tags) to indicate headlines, bylines, and other visually distinct text elements. In copy fitting, you make the text fit the space available while preserving its meaning.

Whether you have a staff of one or 100, you'll want to perform these tasks separately. If you're editing for meaning, simultaneously proofreading for spelling errors will likely result in one or both tasks being compromised.

Desktop publishing programs assume that you use a word processor for the content and copy editing. They make no pretense of being editing programs. It's after these steps are completed that you must decide whether to involve desktop publishing in your layout and production or to stay with your word processor.

What differentiates a desktop publisher from a word processor is that publishing is the merger of verbal and visual presentation. To be effective, you must merge the two forms of presentation interactively and synergistically. The crucial factors are layout type, number of elements, the need to do copy fitting, and fine typographic control. You must decide how crucial each area is — whether you are truly publishing or merely producing a document.

In a memo, basic formatting is all that's needed for layout: paragraphs, underlining, spacing — in short, what typewriters have done effectively for more than a century. In an internal newsletter, a word processor's rudimentary layout features are probably sufficient, since you just want a prettier version of what you used to do on mimeograph or copy machines. In a manual, the layout is usually sequential and straightforward, and fine typography is not a major consideration. Again, a word processor is probably fine, although large manuals would benefit from a document processor that can handle cross-references and multiple chapters. In an advertisement, annual report, subscription newsletter, or magazine, you'll want high-quality design and production.

For this last category, you must use a desktop publishing program. Layout-capable word processors, even WYSIWYG engines such as Ami Professional or Microsoft Word for Windows, simply don't have the layout and typographic controls fundamental to both the verbal and visual presentation. NBI's Legend does a reasonable job of straddling the two categories, as it was designed and sold originally as a desktop publishing program and then remarketed as a high-end word processor. But integrated packages such as Legend must sacrifice certain higher-end features or else they become so top-heavy that they are extremely complex to learn and use (see, for example, IBM Interleaf Publisher).

A desktop publishing package offers much more sophisticated multielement control. A newsletter or magazine is composed of several text and graphics elements; the capability to manage multiple threads of text and the graphics associated with each thread is crucial. Something you publish (not merely produce) is not a sequence of stories where one ends before the next begins. Instead, text begins on a page and in a position determined by both its size and relative importance to the other elements, and text jumps to a different page and position, also determined by its size and relative importance. This issue of *InfoWorld* is an example of such multiple threads and files. When you start having a half-dozen or more elements that weave throughout the publication, a desktop publisher is the only way to go.

The third area distinct to desktop publishing is copy fitting, into which come arcane features like tracking and widow control. Most magazines and newsletters must fit onto a certain number of pages.

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Word Perfect, Continued on Page 115

Wordstar, Continued on Page 115

INFOWORLD

COMPATIBILITY

Multimate, Continued From Page 112

Excellent word processor and graphics conversion routines translate numerous common formats for both import and export. (See features chart.) **Score: Excellent.**

Office Writer, Continued From Page 112

The program has a long list of file conversions and compatible graphics formats. (See features chart, Pages 98-99.) **Score: Very Good.**

Word for Windows, Continued From Page 112

Word for Windows features a slew of text file import filters and strong graphic file conversions, many of them automatic. **Score: Excellent.**

SPEED

Multimate was on the lower end of the speed results, turning in several sluggish results. Times were not out of line, however. **Score: Satisfactory.**

Office Writer was about average in speed, coming in with reasonable scores on most tests. It was especially fast in saving a file and in global searching and replacing. Yet it was slow in a few other operations, such as manually scrolling through a document. **Score: Good.**

In speed, Microsoft Word for Windows did better than its closest competitor, Ami Professional. Winword was actually remarkably fast in manually scrolling through a document, yet it was quite slow in global searching and replacing. Still, considering its Windows overhead, it was quite fast. **Score: Good.**

DOCUMENTATION

Although comprehensive and well-written in general, the documentation is difficult to follow when explaining fonts and proportionally spaced printing. **Score: Good.**

The training and reference manuals are both necessary for a clear understanding of the program. The useful printer manual describes how to edit printer files. **Score: Good.**

The six manuals are well-written, have clear explanations, and sport good examples. The main manual is in hardback — a bit unusual but effective. The macro programming reference manual, while a fine work, is only available separately. **Score: Very Good.**

EASE OF LEARNING

Multimate is easy to learn for simple documents, but more difficult for complex ones and those using fonts on laser printers. Allow a few hours to get up and running. **Score: Good.**

Learning Office Writer is easy for simple office correspondence. More complicated applications using Inform or the mail merge are more difficult to learn. The help system, book tutorial, and other learning aids help significantly. **Score: Good.**

Winword is very easy to learn for standard office documents, but mastery of all the program's features will take considerably longer. Learning will be easier for those accustomed to a graphical interface, but the operation is surprisingly intuitive for the novice, especially with niceties such as font selection placed directly on-screen. Tackling the sheer complexity and wealth of features can be a formidable undertaking, but Winword does everything in its power to ease the task. **Score: Very Good.**

EASE OF USE

Multimate is reasonably easy to use once you're up to speed, but its clumsy structure, need to repaginate under some circumstances, and limitations on using the preview feature and proportionally spaced fonts complicate the management of complex tasks. **Score: Good.**

Because of the need to explicitly paginate documents, the clumsy operation of some menus, and the highly structured and inflexible format, Office Writer does not get substantially easier to use with experience. Yet it is basically easy to use, and most accomplished users are quite comfortable with its interface. **Score: Good.**

As you learn the product and the graphical environment, Word for Windows becomes extremely easy to use thanks to the multiple views, speed keys, on-line help, and the graphical environment. Winword can be substantially customized, to the point of changing the menus. This interface is a remarkable hybrid of PC Word and Mac Word, in many cases exploiting the best of both worlds. **Score: Excellent.**

ERROR HANDLING

Multimate handles errors easily with a one-level undo for all deletions. There is a built-in undelete for files, but no timed backup. Error messages are sufficiently informative. **Score: Good.**

Office Writer has a one-level undo that must be implemented right after the error occurs. There is a timed backup and there are multiple warnings when destructive changes or editing changes might be lost. **Score: Good.**

There is no timed backup, but rather a timed reminder to save. A one-level undo reverses actions such as formatting and sorting immediately after the action. There is also a Redo feature. **Score: Good.**

SUPPORT POLICIES

A free, regular technical support line is available, and special support is available at various levels and special prices. In addition, there is support on CompuServe and a recorded set of answers to common questions on a toll-free line. There is a 90-day product usability warranty. **Score: Very Good.**

Telephone support is free but on a toll line; fax support is also offered. There is a 90-day product usability warranty. **Score: Good.**

Winword support includes a 30-day money-back guarantee; you must return the product to your dealer for the refund. There is also a 90-day product usability warranty, which guarantees that the product will meet the specifications in the documentation. Microsoft operates a regular phone technical assistance line and offers fax support. **Score: Very Good.**

TECHNICAL SUPPORT

While on occasion the Multimate phone lines were interminably busy, the several times we did reach the technical support team, the help was plentiful and knowledgeable. **Score: Satisfactory.**

The friendly and knowledgeable technicians who manned the Office Writer support line answered our questions quickly and correctly. **Score: Very Good.**

Support from the technicians on the Microsoft support line was good. They answered quickly, were informed about the product, and could respond to a range of issues. **Score: Very Good.**

VALUE

At \$565, Multimate 4.0 costs more than programs with far superior capabilities. If your office is set up on Multimate, or if you do extensive mail merges but little else, this upgrade is certainly worth consideration. The addition of the grammar checker and support for electronic mail are benefits that will enhance word processing and, consequently, its otherwise satisfactory value. **Score: Good.**

At \$495, Office Writer represents a reasonable value, about on a par with Multimate but better than Displaywrite. We prefer Office Writer to Multimate because of its better preview and font management, its graceful forms management, and consistent interface. **Score: Good.**

Word for Windows is less sophisticated as a layout tool or graphics editor than Ami Pro or Legend, but a much better word processing program overall, with nevertheless fine layout and good graphic capabilities. At \$495, it meets most and exceeds some standards set by Word Perfect 5.1 and will serve any office very well, as long as you have the hardware to handle it. **Score: Excellent.**

COMPATIBILITY

Word Perfect, Continued From Page 113

With its conversion program for most major text, spreadsheet, and graphics file formats, Word Perfect has quite good support for software programs. (See features chart.)
Score: Very Good.

Wordstar, Continued From Page 113

Text file imports and exports cover most common word processing formats and a few graphics formats.
Score: Very Good.

SPEED

Word Perfect was very fast in most tests, and the only faster package overall was Microsoft Word. You won't experience any sluggishness with this product.
Score: Very Good.

Wordstar speed results were mixed, with several very fast scores (exporting an ASCII document, loading a document, and appending a file), but with some slower scores on other procedures (importing a DCA/RFT file, jumping from the top to the bottom of a document). Overall, Wordstar was quick. **Score: Good.**

DOCUMENTATION

The main alphabetical reference manual features every command with examples, hints, and other information needed to understand its use. Documentation is plentiful, and includes a generous quantity of tutorial help.
Score: Excellent.

Wordstar's documentation includes separately presented material for the add-on packages, but a common index. Most of the documentation is well-written. **Score: Good.**

EASE OF LEARNING

The drop-down menus, mouse support, and indexed and context-sensitive on-line help will permit most users to produce standard office correspondence quickly, although more complicated tasks will take longer. While Word Perfect's blank opening screen can be a little intimidating — as can its complexity and huge features list — almost as soon as you dive into the program you realize that it is very intuitive, and learning to use it is actually quite easy. **Score: Very Good.**

Wordstar is somewhat hard to learn because of its user interface. It has a "touch-typing" orientation, optimized for the fast typist. While the commands are not necessarily intuitive at first, they quickly become innate. The good tutorial helps. **Score: Good.**

EASE OF USE

Word Perfect's flexibility makes the program very easy to use. The page preview, menuing, instantly accessible help, and the reveal-codes screen all contribute to ease of use. It is also customizable, so advanced users will be able to tweak and streamline the program to their liking.
Score: Very Good.

With experience, Wordstar gets much easier to use, and those with an enthusiasm for touch typing will appreciate the control key approach to managing the various functions. For secretaries who spend a majority of their time typing massive documents and correspondence, Wordstar is really worth considering from an ease-of-use standpoint. **Score: Good.**

ERROR HANDLING

Word Perfect features plenty of document protection, including a timed backup, prompting before exits, and a very effective three-level undo. **Score: Excellent.**

Wordstar has a single-level undo, backup files created automatically when you save, and a timed backup. We found that the page preview function could be unstable sometimes: When you hit Escape while in page preview, the program can lock instead of displaying an error message; the technical support department led us through a debugging routine that worked, however. This bug detracts from the overall error handling score.
Score: Good.

SUPPORT POLICIES

Word Perfect's support policies are without a doubt the best in the industry. Literally half of this 1,000-plus employee firm works in technical support. The product includes a money-back guarantee, a product usability warranty, extended support, toll-free support (except at night), fax support, weekend support, phone lines open 24 hours, and BBS support. An excellent score understates the generosity of Word Perfect's support policies. **Score: Excellent.**

Support includes toll-free technical support open more than 10 hours daily, seven days a week, in addition to BBS support on Compuserve and extended support plans available. **Score: Very Good.**

TECHNICAL SUPPORT

Highly accessible, toll-free telephone lines specialized by product and function are manned by technicians who know all about the product and its peculiarities. They go out of their way to help with your problem.
Score: Excellent.

Wordstar support has been notoriously difficult to reach, with a nearly constant busy signal being the standard fare. We did get through one time after four tries, and the support we received was helpful and friendly, and successfully solved our bug problem. However, the inaccessibility overall lowers the score. **Score: Poor.**

VALUE

At \$495, Word Perfect represents a fine value. Its extensive features are exceeded by none, and only Microsoft Word and Word for Windows come close to equalling them. Ami Professional and Microsoft Word for Windows outdo Word Perfect with a graphical interface, but for true powerhouse word processing, Word Perfect retains its world championship title.
Score: Excellent.

At \$495, Wordstar 5.5 competes at the price level of other heavy-duty products. In this league, Wordstar falls somewhere ahead of OfficeWriter 6.0, just barely, but well behind the likes of Word Perfect and Microsoft Word. For the touch typist, it is worth a look.
Score: Good.

Fish

Continued From Page 113

based on press, design, and budget requirements. You can't have a 33-page magazine — it must be in multiples of at least four pages, and typically in multiples of eight. And you probably have ads to fit your text around (you can't shorten or lengthen an ad to make your layout work); and you can't leave parts of pages blank because your copy is too short or just drop text because it's too long.

One of the first things you do is scroll through your layout and start killing widows and tails. A widow is the last line of a paragraph that appears at the top of a column. It is considered unsightly because it is shorter than the other lines in the column and creates unwanted white space in an area that should have none. Some people accept widows if they are at least half the width of the column. A tail is the last line of any paragraph whose length is only a few characters — "few" is a subjective decision. It is both unsightly and wastes a precious line.

You eliminate widows and tails by rewording text more concisely and by tightening the spacing selectively (tightly tracking) in preceding lines in the hope of getting the tail text to move up to previous lines. Tails and widows can easily occupy 5 percent of an article's length, which can be enough to get your text to fit. You can also add widows and tails by loosely tracking text if your article is a tad short for the space, although this is less common. If the copy is much too long to fit with these techniques, you must go back to the word processor and re-edit it to make it smaller.

This copy fitting requires typographic controls available only in high-end desktop publishing packages such as Xerox Ventura Publisher or Quark Xpress (for the Macintosh). It also requires *editable* WYSIWYG capabilities (not just a full page view that can be seen but not changed), since it's crucial to see the effects of your copy fitting as you do it. The only packages with *editable* WYSIWYG modes in this comparison are Ami Professional, Legend, Describe, and Word for Windows.

Copy fitting is both an editorial and a design task. An editor must be involved in rewording text, and a designer (or typographer) must be involved in ensuring that the text's appearance is not marred by excessive tracking.

The last area is the art of typography, which only desktop publishing programs truly provide. Unfortunately, this important publishing component is usually the first to be ignored by newcomers to desktop publishing. If you look closely at a magazine, whether *Scientific American*, *Vanity Fair*, *Time*, or *InfoWorld*, you won't notice how well the spacing between letters and words help carry you along from paragraph to paragraph. You also won't observe how the typography reinforces both the overall feel of the publication and the feel of the content. The fact that you *don't* notice these things during normal reading is a tribute to the typography, just as not getting confused or bored while reading an article is a tribute to the writer and editor, and not finding grammatical or typographic errors is a tribute to the copy editor.

The crux of this discussion is that a word processor is not a desktop publisher, and a desktop publisher is not a word processor — and there is virtually no need for either of them to be the other. Perhaps some day someone will offer a program that lets you tackle content editing, copy editing, layout, typography, and copy fitting adroitly. But even then, the tasks will be done separately, whether by different people or by one person performing each task in turn. Layout is a component of publishing, but it by itself is *not* publishing. Whether you choose to solo on a word processor or to bring in desktop publishing power depends on which publishing components you need for the job at hand.

— Galen Gruman

Galen Gruman has set up an electronic publishing system for a bimonthly trade magazine and a quarterly national association newsletter. He has evaluated MS-DOS desktop publishing and graphics programs for InfoWorld for several years.