PRODUCT COMPARISON

INFOWORLD TEST CENTER

Professional Word Processors

Windows illuminates new features but traditional programs stay competitive.

Each time we review the current crop of high-power professional word processing programs, we marvel at the ingenuity and creativity that continues to be invested in these relatively prosaic products. Despite the simple charter of word processing programs, with every advance in computer technology we see the software advancing as well. Unlike the first versions of Volkswriter and Wordstar, which could run on an IBM PC with 64K of memory and a 360K floppy drive, the latest powerhouse programs, like Word for Windows and Legacy, are best served by 386 PCs with many megabytes of RAM and huge hard disks.

This group of programs neatly illustrates the state of the art and the direction of word processing development. The programs fall into two main groups.

On one side are programs with roots in the distant past of Volkswriter or Wordstar, character-based programs that translate the model of the typewriter to the computer screen. Although they are enhanced with features and capabilities, these character-based programs remain irrevocably tied to that past.

The best of these, Word Perfect 5.1, remains exceptionally powerful and effective. The worst of these, Multimate 4.0, remains bogged down by its obsolete design. In between these two, the programs range from the high performance of Microsoft Word 5.5, through the solid competence of Wordstar 6.0, to the clumsy Displaywrite 5 with its add-on graphical Composer.

On the other side are the three graphical user interface programs for Windows 3.0. These have very similar user interfaces, drawing as they do on the underlying model of the Windows operating system and approaching text much more from the typesetting vantage than the typewriter metaphor.

Windows programs let graphics and text interact as objects with equal claims on the paper's white space, while character-based programs see graphics as intruders. The Windows programs think in proportionally spaced text, they print to laser printers naturally, and they work the text and graphics on paper as if for a printed book, not a typed page.

The Windows products range from the powerful and effective Word for Windows to the somewhat limited but wonderfully structured Legacy with its elegant frames for text and graphics elements. In the middle of this pack lies Ami Professional, with graphical controls like Legacy

but with better ease of use.

NEW POWER, NEW FEATURES. Among the new features that manufacturers use to provide product differentiation, grammar checkers stand out. Offering self-confidence to the executive or secretary unsure of the quality or readability of their prose, these programs find simple grammatical errors, flag obviously poor word choices, and in some cases offer readability indexes and comparisons with user selected text styles.

Whether this feature will take hold as a major element in top-of-the-line word processors remains to be seen, but *InfoWorld* readers have indicated on surveys that they value this tool. Multimate is the only program in this review that offers a grammar checker.

Graphics support continues to be an area of considerable competition. Some programs experiment with color printing, and others with elaborate graphics editing. Many offer table editors with spreadsheetlike facilities included within the programs, and one can translate table data into simple charts. Other programs include hot links to a variety of products, particularly to those that support Windows' Dynamic Data Exchange (DDE), a standard that permits live links between data or text in different applications.

The key determinant in the acceptance and spread of high-power features will be the availability and pricing of more advanced hardware. As memory, disk, display, and printer prices have come down and capabilities have gone up, word processing software has been right in step with features requiring the new hardware. Graphical interfaces depend on heavy duty hardware, graphics on exceptional printers, and so forth.

Finally, because the word processing market is so large and because the hardware platforms required for the best word processing are so expensive, we can expect many different word processing products to survive in the marketplace for a long time. Products based on character-oriented DOS — such as Multimate, Total Word, Displaywrite 5, or Wordstar — will keep large user bases simply because you don't have to spend a fortune

Products Reviewed

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to get the hardware to support these applications. Consequently, the high-end products will have an ever greater need to import and export many different document and graphic formats. Further, because graphical word processing works much the same for every program, people will find it easier to switch back and forth among Windows-based word processors. This adds to the emphasis on strong import/export procedures to move files from one Windows system to another. This trend is evident in the current crop of Windows products, all of which have superior import/export facilities.

Beyond Windows, there are two powerful word processors available for OS/2. Microsoft just started shipping Word for OS/2, which is a complete transfer of Word for Windows. Describe is another word processor that has been available for OS/2 for quite some time. This is a strong product for people who need sophisticated layout capabilities. (See product comparison, January 29, 1990, Page 89.)

In short, the word processing evolution proceeds rapidly, with the contenders constantly offering new features and capabilities. However, this is the first comparison in which a graphical program has surpassed the word processing standard-bearer, Word Perfect.

Executive Summary

The products compared here fall easily into two groups: the continuing contenders and the declining standards. The continuing contenders are Ami, Legacy, Word for Windows, Word, and Word Perfect. The declining standards are Displaywrite 5, Wordstar and Multimate. The Windows products have a distinct advantage over the character-based products; however, Word and Word Perfect are still strong because of the features they offer. Displaywrite 5, Wordstar, and Multimate represent technology from another computing context that is characterized by limited memory, character-based screen displays, and mono-spaced printing requirements. These three products speak to the word processing office environment for which graphics and complex layout requirements are rarely needed.

Microsoft Word for Windows is the strongest product in our roundup. The program's basic editing features are especially robust, and its layout features are solid and include WYSIWYG preview and editing. Word for Windows has powerful basic features as well as advanced style sheets and macro capabilities, and it is amazingly easy to learn and use.

Word Perfect is the champion of the character-based programs. Although the user interface isn't as friendly as the Windows products, Word Perfect still sports strong layout capabilities including WYSIWYG page preview and graphics preview. Basic editing and reference tools are especially strong, and Word Perfect's support policies are hard to beat.

Ami Professional is an overall strong performer, and its strengths lie in its layout and graphics capabilities. Ami's reference tools are the product's weakest point, as the product lacks an outliner and supports only one table of contents and a single-level index.

Word 5.5, Microsoft's latest version of its strong DOS program, is outstanding in its editing capabilities. It was the quickest program in our benchmark tests as well. Word 5.5's proofing tools are not as strong as products such as Multimate and

Word Perfect, but the program's capabilities and ease of learning make it a solid choice for many applications.

Wordstar, while it no longer competes with products such as Word Perfect, is still holding its own in the market. The program has superior mail-merge capabilities, but its layout features are weak.

Legacy is a solid Windows product, although its proofing tools and mail-merge capabilities are not as strong as its outstanding layout features. The product also does not support macros, nor does it work well on networks.

Displaywrite 5 is an odd program: It works in conjunction with but is very separate from its Composer counterpart. Displaywrite on its own is not overly strong in any area, although its proofing tools and mail-merge facilities are suitable for most office uses.

Multimate is the weakest product in the bunch. Although it is the only program with a grammar checker, this does not make up for other editing features it lacks.

REPORT CARD

INFO WORLD

Professional Word Processors

	(InfoWorld (Your weighting) weighting)	Ami Professional Version 1.2B	Displaywrite 5 Modification 01	Legacy Version 1.1	Multimate Version 4.0	Microsoft Word Version 5.5	Microsoft Word for Windows Version 1.1	Word Perfect Version 5.1	Wordstar Version 6.0
Price		$495	$495	$495	$495	$450	$495	$495	$495
Performance									
Basic editing	(80) ( )	Very Good	Satisfactory	Very Good	Poor	Excellent	Excellent	Very Good	Very Good
Proofing tools	(80) ( )	Very Good	Good	Satisfactory	Very Good	Good	Satisfactory	Very Good	Good
Mail merge	(50) ( )	Very Good	Good	Satisfactory	Good	Good	Good	Very Good	Excellent
Layout	(50) ( )	Excellent	Poor	Excellent	Satisfactory	Good	Very Good	Very Good	Satisfactory
Style sheets	(50) ( )	Excellent	N/A	Very Good	N/A	Very Good	Very Good	Satisfactory	Satisfactory
Font/Printer support	(50) ( )	Very Good	Satisfactory	Excellent	Poor	Good	Excellent	Excellent	Good
Reference tools	(50) ( )	Satisfactory	Good	Satisfactory	Poor	Very Good	Very Good	Very Good	Very Good
Import/Export	(50) ( )	Excellent	Good	Excellent	Excellent	Good	Excellent	Excellent	Satisfactory
Networking	(50) ( )	Very Good	Poor	Poor	Satisfactory	Satisfactory	Very Good	Very Good	Satisfactory
Speed	(50) ( )	Very Good	Good	Satisfactory	Satisfactory	Excellent	Very Good	Excellent	Excellent
Macros	(30) ( )	Excellent	Satisfactory	N/A	Satisfactory	Very Good	Excellent	Very Good	Satisfactory
Documentation	(75) ( )	Good	Satisfactory	Very Good	Satisfactory	Very Good	Very Good	Very Good	Very Good
Ease of learning	(75) ( )	Very Good	Satisfactory	Very Good	Satisfactory	Very Good	Excellent	Very Good	Good
Ease of use	(130) ( )	Very Good	Satisfactory	Satisfactory	Satisfactory	Very Good	Excellent	Very Good	Good
Error handling	(40) ( )	Very Good	Good	Good	Satisfactory	Good	Good	Excellent	Good
Support									
Support policies	(20) ( )	Very Good	Satisfactory	Good	Satisfactory	Very Good	Very Good	Excellent	Good
Technical support	(20) ( )	Very Good	Satisfactory	Good	Satisfactory	Very Good	Very Good	Very Good	Very Good
Value	(50) ( )	Excellent	Poor	Good	Poor	Very Good	Excellent	Excellent	Good
Final score		**7.8**	**4.7**	**6.3**	**4.6**	**7.3**	**8.3**	**8.0**	**6.6**

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) of 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.

Ami Professional
Version 1.2B

Among the high-power graphical word processors, Ami Pro 1.2B offers an extremely effective editing environment. Although Ami does not do outlining and offers no tables of authorities, it offers very strong layout capabilities, similar in some regards to Legacy. For users who need a strong graphical word processing system for general office work, Ami Pro is hard to beat.

Displaywrite 5
Modification 01

Displaywrite 5 has a large installed base of IBM users and fits well into offices that use Displaywrite technology. Displaywrite 5 is available with a module called Composer that adds some desktop publishing and layout capabilities. Like Multimate, Displaywrite offers solid production of office correspondence, mail merge, and document assembly. In this comparison we score Displaywrite 5 for the most part, but we consider the Composer program as well where it is indispensable for a particular task (such as layout).

Legacy
Version 1.1

Legacy, a reincarnation of a previous NBI product called Legend, resembles other Windows word processing products while it emphasizes the desktop publishing concept of frames. These rectangular boxes hold text, graphics, and any other separate document object. Each frame can be treated as a separate document, and frames can be linked as well as contain other frames. Working like desktop publishing programs, it is an added feature that offers word processor users greater flexibility in layout and document design.

Multimate
Version 4.0

Once a major force in office word processing, Multimate has fallen behind the leaders of professional word processing software. Still an effective character-based program for many standard office tasks, Multimate's editing and layout capabilities prohibit the product from competing at the top of the market.

PERFORMANCE: BASIC EDITING

Ami performs columnar cut and paste in tables but not in free-form text. The product has a strong search-and-replace capability, which maintains capitalization. The program also offers redefinable tabs as well as three different tab-leader characters. Automatic hyphenation and paragraph justification also allow Ami to handle basic editing well. Like Legacy, the program can't open multiple documents — you need to run the program separately for each file. **Score: Very Good.**

Although Displaywrite 5 is a standard character-based application, the product supports a mouse. The product's basic editing features include the capability to center and fully justify paragraphs. There is also automatic hyphenation and there are redefinable tabs. Displaywrite 5's search-and-replace tools will maintain capitalization. The program also offers windowing and time-stamping capabilities. Lacking is facilities for generating tab leaders, and columnar cut and paste. **Score: Satisfactory.**

Basic editing is strong with all of the required cut and paste elements. Legacy offers flexible searching that maintains capitalization, redefinable tabs with leaders, complete paragraph justification options, and automatic hyphenation. Search tools are particularly strong, although the program will not let you edit two or more documents in separate windows. To accomplish this you must run multiple versions of Legacy under Windows and use Windows facilities to cut and paste between documents. **Score: Very Good.**

Multimate has far fewer and less effective editing tools than any of the products we review. The product can cut and copy rectangular columns. Search and replace is minimal and does not maintain capitalization in the replaced word. Centering and justification can only be done on an entire document. The only kind of tab leader you can use is the dot character. There are no windowing capabilities and pagination options are very clumsy. **Score: Poor.**

PERFORMANCE: PROOFING TOOLS

Ami's thesaurus is robust. The product also has user dictionaries and maintains capitalization when replacing misspellings. However, the product cannot backtrack during spelling checks. Ami will capture double words and unusual punctuation, but it does not check spelling while entering text. There is no grammar checker. **Score: Very Good.**

Displaywrite 5's user dictionary maintains capitalization on replaced words, and the program will also perform global replace. The program will look up a word that you enter as a correction. There is a thesaurus that includes synonyms with parts of speech. On the down side, the spelling checker does not check header and footer text. **Score: Good.**

Legacy has a fine dictionary that offers parts of speech or definitions, and an exceptionally complete thesaurus. Although it cannot backtrack during a spelling check, Legacy maintains capitalizations and can do global replace as well as check headers and footers. Legacy has exception lists, as opposed to user dictionaries — an awkward way to manage the list of words not in the default dictionary. **Score: Satisfactory.**

Multimate has a strong spelling checker that checks throughout the document, including headers, footers, and footnotes. It also alerts you to double words and unusual punctuation. The thesaurus offers parts of speech and definitions, and the program includes an elaborate grammar checker with multiple readability and style tools. **Score: Very Good.**

PERFORMANCE: MAIL MERGE

Ami's merge will skip bad records and reorder fields. You can have user prompts; make conditional selection of records; merge from Dbase, 1-2-3, and some other data files; and use the ready-made label facility. However, there is no included flat-file manager. **Score: Very Good.**

Displaywrite 5's sophisticated merge facility will handle quite complex document assembly tasks including selection criteria, form letters, address labels, and other documents. Displaywrite 5 supports conditionals, and there is an effective method of using data from foreign data files as ASCII information. There is no flat-file manager, but there is a methodology where a data file description can be created as an ASCII file. **Score: Good.**

Legacy's merge capabilities let you handle routine mailings and labels, but without record selection or prompted user entry. Legacy will skip bad records and reorder fields. However, the program does not have the capability to handle conditionals. There are no special arrangements for three-up mailing labels. The program will merge from ASCII delimited data files as well as it's own text format. **Score: Satisfactory.**

With a useful information handler template system, which is similar to a miniature flat-file database, Multimate works well for merge tasks, although the information handler system is limited to only 250 records. In contrast, Wordstar's database can store more information. The merge commands permit conditional selection of records but no user-prompted merging. The merge will take Dbase and ASCII. **Score: Good.**

PERFORMANCE: LAYOUT

A strongly graphical product running under Windows, Ami Pro's layout tools permit multiple columns, margin control, and editing in WYSIWYG with various levels of magnification. The product can use frames, like Legacy, to change formatting on a page. You can even change page orientation (portrait and landscape) in the same document. Graphics include free-form drawing and advanced shape creation. Ami Pro will also create a chart (bar or pie, for example) from a table in the text. The program also imports a wide range of graphics formats. **Score: Excellent.**

Using it's own tools, Displaywrite 5 supports multiple columns, page preview, line draw, and graphics preview. There is no graphics editor. The program offers only minimal widow and orphan control. Displaywrite 5 Composer, an extra-cost add-on to Displaywrite 5, has a graphics-oriented page layout facility that is reasonably sophisticated, although its editing and document tools are minimal. It is possible to do elaborate layouts with Composer, using files built into Displaywrite, but the solution is clumsy and requires much patience. Our score reflects Displaywrite 5's capabilities upgraded to reflect Composer's capabilities. **Score: Poor.**

Legacy's layout tools are very strong. The program supports multiple columns and it allows you to control column balancing in addition to inside and outside margins. There is WYSIWYG page preview and editing as well. Legacy's frames permit construction of complex documents with multiple text streams, which are easily moved throughout the document. Text can flow from one frame to another, unlike in Ami. Legacy supports graphics preview and editing, and includes line-drawing tools. There is also a table editor. **Score: Excellent.**

Multimate's age shows in its layout tools. It has multiple columns, both snaking and parallel, but its page preview is primitive and works very clumsily for proportionally spaced text and postscript output. Although it can import, scale, and crop graphics, it does not have styles nor does it show true line endings on-screen for proportionally spaced text. There is simple math capability, but it only supports decimal tab numbers and cannot cross page boundaries. Only one format line per document, which is similar to a ruler, controls centering, tabs, and justification. Multimate uses a design of format line for proportionally spaced text that requires hand calculation of formulas to approximate line endings and positioning. **Score: Satisfactory.**

Word for DOS
Version 5.5

Microsoft Word 5.5 offers enhancements to an already-strong character-based product, Word 5.0. Word 5.5 includes drop-down menus, dialog boxes, and buttons. Word 5.0, while included with the 5.5 package, is a separate product. The new system is far better and moves Word 5.5 close to the operating style of Word for Windows.

Word for Windows
Version 1.1

Word for Windows sets the standard among Windows word processors. Effective at most word processing chores, its feature list is rich and its integration into the Windows environment is seamless. Now in a slightly enhanced version, Word for Windows 1.1 remains the product to beat in the Windows environment.

Word Perfect
Version 5.1

Clearly the current market leader, Word Perfect's dominance is now being challenged by the Windows word processors. Nonetheless, in spite of its character-based format, Word Perfect 5.1 remains the feature and power champ, with more features and facilities than any of the products in this comparison. Word Perfect Corp. is hard at work on a Windows-based product.

Wordstar
Version 6.0

Once the classic microcomputer word processing program, Wordstar has struggled to keep up with today's market. The current version, 6.0, offers powerful editing and printing in the basic program, plus a variety of enhancements through add-on programs that work with the basic Wordstar engine, including a telecommunications module. The result is a program that remains competitive but, because of some limited features, is no longer near the top of the heap due to weaker graphics and layout capabilities.

PERFORMANCE: BASIC EDITING

Word's strong editing tools include column cut and paste, redefinable tabs, and automatic hyphenation. Its solid search and replace tools include search and replace of formatting as well. The program also offers tab leaders and time-stamping. There are extensive windowing capabilities, including the capability to edit in multiple windows simultaneously. The program also shows font characteristics such as bold and italic, however, it is not truly WYSIWYG. **Score: Excellent.**

Word for Windows handles columnar selection, rectangular cut and paste, and complex search and replace. The program also offers hyphenation options, windowing, and time-stamping. You can choose from four different tab leader characters. Its basic editing tools handle most any task. **Score: Excellent.**

Word Perfect cuts and pastes in columns, searches and replaces while maintaining capitals, and centers and justifies paragraphs and blocks. The program also hyphenates automatically. Its search tools are comprehensive and flexible, allowing you to search for simple or limited wild cards, as well as formatting codes. Word Perfect has multiple windows, which are not sizable. There are also multiple forms of time-stamping. However, the program only supports dot tab leaders. **Score: Very Good.**

Wordstar's strong editing features include column cut and paste, and solid search and replace options that maintain capitalization. The program also offers redefinable tabs, resizable windows, and basic time stamping. The program offers only dot-tab leaders. Wordstar's basic features include the essential elements and some extras. **Score: Very Good.**

PERFORMANCE: PROOFING TOOLS

Word offers user dictionaries, the capability to maintain capitalization, and global replace features. Word's spelling checker catches doubled words and unusual capitalization but not unusual punctuation, such as a double period. There is a thesaurus with parts of speech identified. Word does not include a grammar checker but can backtrack one step during a spelling check. **Score: Good.**

Word for Windows' proofing utilities include a strong basic dictionary and user dictionaries. The program's thesaurus also includes parts of speech. The spelling checker alerts the writer to double words and unusual capitalization. It does not backtrack during spell-checking. On the downside you cannot turn off global replace of spell-corrected words, nor does the program automatically check headers or footers. **Score: Satisfactory.**

With user dictionaries, capitalization control, global replace, spell-checking in headers and footers, checking of corrections, and a thesaurus that offers parts of speech, Word Perfect's proofing tools are effective. Although it doesn't have a grammar checker, the Word Perfect spelling checker appears to do the best job of guessing correct words based on misspellings, and it misses the fewest words of any product in this group. **Score: Very Good.**

Wordstar's spelling checker and thesaurus are solid and offer parts of speech, global changes, maintained capitalization, and rechecking of corrected words. Wordstar has user dictionaries and can check spelling in headers and footers. However, the program lacks a grammar checker, and it cannot backtrack during a spelling check. **Score: Good.**

PERFORMANCE: MAIL MERGE

Word's mail merge includes the capability to skip bad records and reorder fields. In addition, Word has user-prompted merging and conditional selection of records. However, it can only merge data from ASCII database or spreadsheet files. **Score: Good.**

Word for Windows' mail merge capabilities include user-prompted fields, conditionals, and templates for printing three labels across a page. It is less effective for producing lists from data files, because more steps are required for each entry item, and it can only import Excel data directly into a data document. Word for Windows can read any tab-delimited information directly; the user just needs to give the field names of the tab-delimited information. There is no flat file manager, but the program skips bad records and can reorder fields. **Score: Good.**

There is no flat file manager with Word Perfect, and the program handles merge tasks with user-prompted fields and conditional record selection. There is also a ready-made template for printing three labels across a page via a macro. The program also offers superb sorting, as well as data links to various stand-alone applications. **Score: Very Good.**

Wordstar's mail merge handles mass mailings and mailing labels. In addition to basic merging from a data file, Wordstar will select records with conditionals and include user-prompted variables. The program also includes Filelist, which is an add-on flat file manager. Wordstar reads Dbase and Lotus files directly, and it also uses standard ASCII delimited files. **Score: Excellent.**

PERFORMANCE: LAYOUT

Word's layout capabilities are extensive, and they include multiple columns as well as page preview. There is also the capability to preview graphics, and there is a line draw feature. There is no table editor, nor does Word 5.5 allow WYSIWYG editing. **Score: Good.**

Word for Windows' layout capabilities include multiple columns, graphics import and editing, strong styles and document formatting, and superb table facilities. The program also has WYSIWYG page preview and editing, and the capability to preview graphics. In addition, it has scaling and cropping capabilities. Word for Windows offers a strong environment for complex documents, although it does not provide the extraordinary flexibility of the frame-based products Ami and Legacy. **Score: Very Good.**

Word Perfect has a host of layout tools, including multiple columns and page preview. There are also stored styles and graphics with scaling and cropping. Word Perfect has a table editor, an equation composer, and it can handle simple math. There is widow and orphan control. The program also offers WYSIWYG page preview and the capability to preview graphics, among a host of other facilities. However, the Windows products do offer an easier avenue to complex layout tasks. **Score: Very Good.**
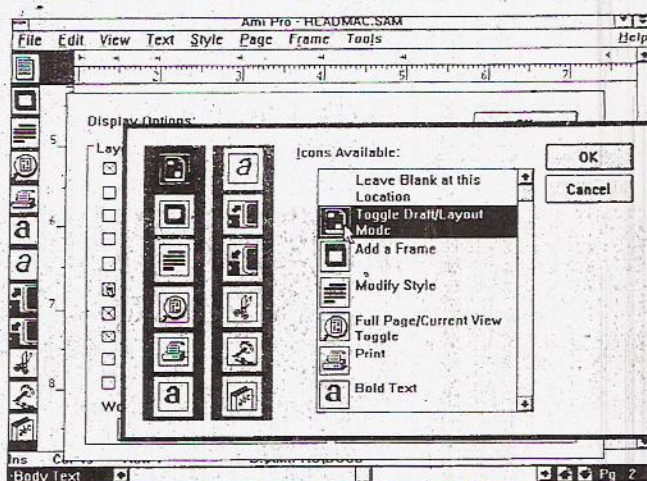
Though Wordstar supports the basic layout requirements of multiple columns, page preview, stored rulers and fonts, scaled and cropped graphics, and a minimal line draw, it has no table editor. With Wordstar, you cannot edit in the WYSIWYG mode. Wordstar also has 14 math functions. Inset, an included program, can capture graphic images from other programs. **Score: Satisfactory.**
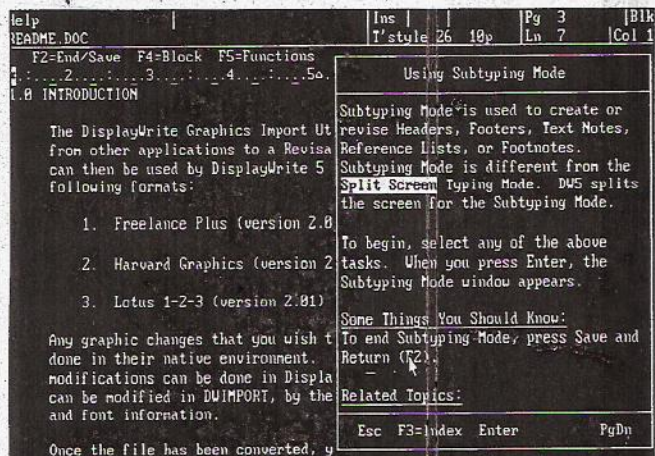

Ami Professional lets you set your preferences to choose which icons will appear in the icon bar at the left of your document.

Legacy has a page preview option for both text and graphics that allows you to see how your document will look when you print it.

Displaywrite 5 offers extensive on-line help, for example, to describe its subtyping mode.

Multimate offers a proportionally spaced output feature, and you can view a proportionally spaced page before you print.

Ami Pro	**Displaywrite 5** (Continued)	**Legacy** (Continued)	**Multimate** (Continued)

PERFORMANCE: STYLE SHEETS

Ami handles style sheets gracefully. The program supports automatic style sheets, and it also lets you have names styles as well as styles based on other styles. You can transfer styles from one document to another, or they can be stored independently from a document. Ami has the capability to record styles by example, and you can have changes to the style previewed before they are committed. You can also have a "global" style sheet. **Score: Excellent.**

Displaywrite 5 does not support style sheets independent from the Composer program. **Score: N/A.**

Legacy supports automatic style sheets for the creation of indexes and tables of contents. You can create a library of styles for each document that can contain up to 250 styles. Styles also can be recorded by example. You can transfer the libraries from one document to another, and Legacy also offers style preview. **Score: Very Good.**

Multimate does not support style sheets or recorded styles. **Score: N/A.**
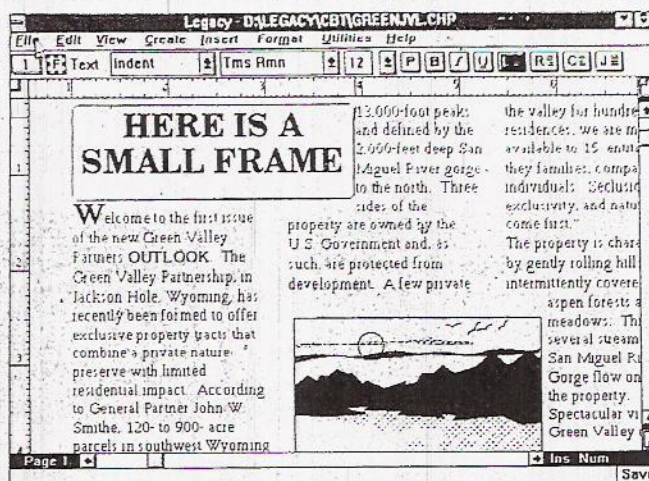
PERFORMANCE: FONT/PRINTER SUPPORT

Basic printing through Windows drivers works fine with Hewlett-Packard fonts and Postscript. Because Ami edits in WYSIWYG, previewing simply involves selecting the desired magnification. The print drivers will handle text tightness on a paragraph basis, pair kerning, and adjust line spacing. **Score: Very Good.**
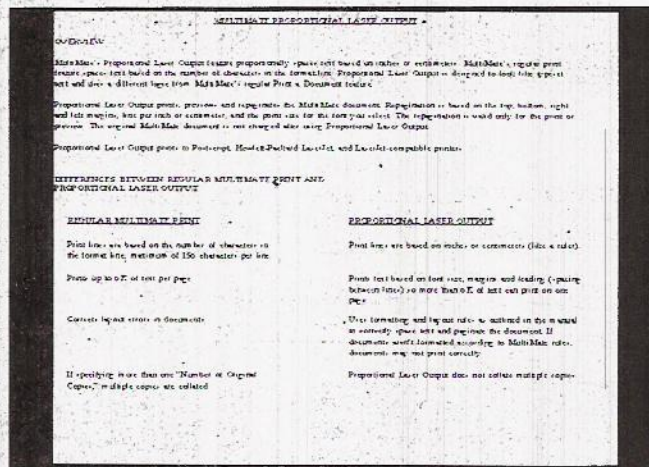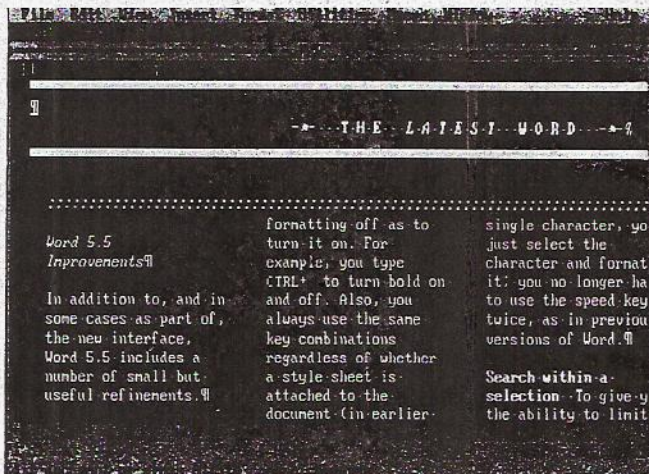
Font support is basic. The program handles a variety of printers from many manufacturers, including IBM and HP laser printers. The program can select scalable Postscript fonts. There are no kerning or tracking facilities in Displaywrite, but Composer does offer kerning and several levels of tracking. **Score: Satisfactory.**

Legacy supports all HP and scalable Postscript fonts. Legacy can also handle bold, underline, and superscript or subscript. The program supports kerning and tracking. **Score: Excellent.**
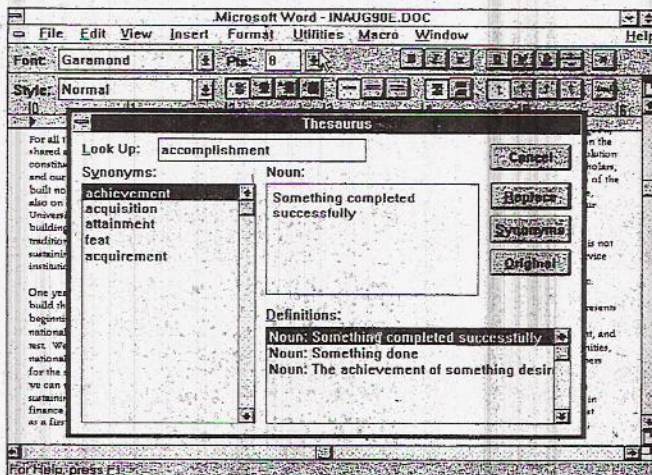
We found font and printer support to be fine for fixed pitch fonts. However, Multimate does not handle graphics and Postscript well; in order to resize fonts, you must change the pitch setting. The program has a module tacked on that handles these fonts and printers, but this is outside the normal editing and formatting system of the word processor. We found this to be slow and temperamental. **Score: Poor.**
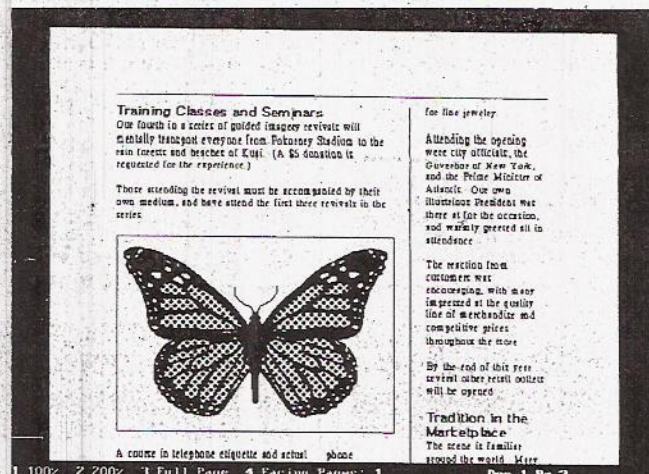
Word 5.5, while not completely WYSIWYG, does allow you to see some formatting on screen, such as bold and italics.

Word Perfect lets you magnify a page preview to 100 percent, and you can view a section of the page, a full page, or two facing pages.

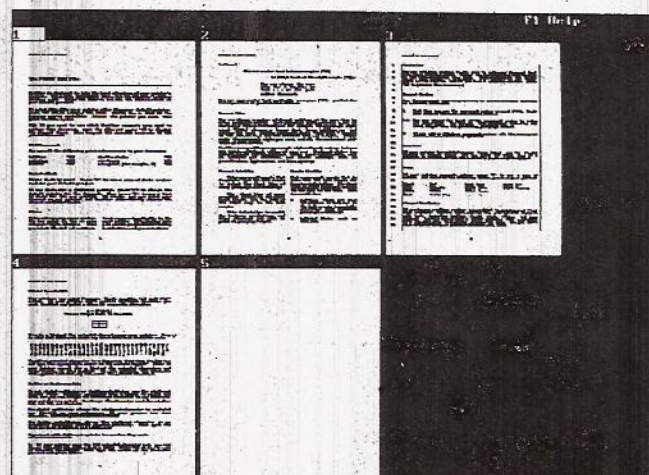*Word for Windows has an extensive thesaurus that offers parts of speech, in addition to definitions of a selected word.*

With Wordstar 6.0, you have an option to preview multiple pages of a document before you print.

Word for DOS (Continued)	**Word for Windows** (Continued)	**Word Perfect** (Continued)	**Wordstar** (Continued)

PERFORMANCE: STYLE SHEETS

Word 5.5's style sheets are the most sophisticated of the character-based programs. You can have named styles and record styles by example. Word's style sheets are independent from each document. You can also have one style sheet to which you can attach multiple documents, similar to Ami. Word also offers automatic style sheets for tables of contents and indexes, for example. **Score: Very Good.**

Word for Windows provides automatic style sheets that you can use to generate footnotes or table of contents entries, for example. Word for Windows supports named styles, and you can also have styles based on other styles. Style sheets are attached to each document. **Score: Very Good.**

Word Perfect allows you to have named styles; however, these cannot be attached to a document. Word Perfect lets you record by example in an awkward way by copying block codes to your style document. However, some generation codes cannot be copied in this manner. Word Perfect offers some library styles with the program, but there are no true automatic style sheets. **Score: Satisfactory.**

Wordstar doesn't support style sheets, although you can keep a style library that you can access from any document. You can also record styles by example. There are no automatic style sheets included with Wordstar. **Score: Satisfactory.**

PERFORMANCE: FONT/PRINTER SUPPORT

Word 5.5 supports all Hewlett-Packard and Postscript fonts. Soft fonts and cartridges are supported. The program does not, however, control kerning and tracking. **Score: Good.**

Word for Windows handles all Hewlett-Packard fonts and Postscript printers with ease. You have the capability to select bold, underline, and super or subscript, as well as landscape printing for laser printers. Word for Windows also offers kerning and tracking control. **Score: Excellent.**

Font and printer support includes all HP and Postscript fonts plus a host of other printers. There is a printer driver editor, kerning, and tracking, as well as a landscape printing capability. **Score: Excellent.**

All basic font and printer categories are covered, including complete Hewlett-Packard and Postscript printer and font support. There is also some capability to kern text in pairs. Wordstar allows you to select bold, underline, and super or subscript. The program also offers landscape printing on laser printers. **Score: Good.**

Ami Professional (Continued)	Displaywrite 5 (Continued)	Legacy (Continued)	Multimate (Continued)

PERFORMANCE: REFERENCE TOOLS

Ami Professional's reference tools are the weakest part of the product; they are much less effective than in Microsoft Word for Windows or Word Perfect. Ami supports only one table of contents and one index. The program also lacks a true outliner, although there is the capability to number entries automatically. Footnotes can be gathered at the end of the document where they are automatically numbered, but you cannot have concurrent endnotes and footnotes. **Score: Satisfactory.**

Displaywrite 5's reference tools include standard numbering capabilities, as well as various levels for indexes and tables of contents. The program cannot index across multiple documents. The program also supports endnotes and footnotes, although you cannot have both in the same document. Numbers are updated when repagination occurs and footnotes can be customized. **Score: Good.**

Legacy has solid indexing with cross references and a reasonable table of contents facility. However, its notes system, in spite of superior capabilities for the footnotes themselves, lacks the capability to produce endnotes easily. The outliner uses variable number schemes but does not collapse or expand outline sections on-screen. **Score: Satisfactory.**

Multimate's reference tools are primitive. There is no outlining, although the program does have some numbering capability. The program will index and can make the index serve as a table of authorities, but the table of contents feature is not very flexible. You can have footnotes or endnotes but not both in the same document. Sorting can only be done by line and only on one page. **Score: Poor.**

PERFORMANCE: IMPORT/EXPORT

The range of compatible text and graphic formats is large and includes the standard ASCII formats. There are also numerous word processing formats such as Word for Windows, Word Perfect, Wordstar, and Word. Ami also supports the graphic formats from Lotus PIC files as well as EPS, TIFF, HPGL, and Windows Metafile. There is a helpful table that describes what will be translated between formats. **Score: Excellent.**

ASCII and DCA/RFT are the only text formats supported by Displaywrite 5, although it will take in a range of data files for mail merge. In addition, a separate graphics convert program can import Lotus 1-2-3 PIC, Freelance GMF, and Harvard Graphics CGM into Displaywrite documents. Composer has a much wider range of graphic import tools that cover most popular graphics formats including scanners. **Score: Good.**

Legacy supports a large range of text and graphic formats including DCA/RFT, PCX, Microsoft Word 4.0 and 5.0, Word Perfect 4.2 and 5.0, Wordstar 4.0 and 5.X, and a host of others. Although Legacy does not yet support Lotus PIC, the program has one of the most complete import/export systems we have seen. **Score: Excellent.**

A comprehensive import/export capability covers a wide range of text formats, including DCA/RFT, Word Perfect, Wordstar, Microsoft Word, Office Writer, and PFS: First Choice. For graphics, Multimate can import and export PCX, Lotus PIC, and other formats such as CGM, TIFF, PCL, and more. **Score: Excellent.**

PERFORMANCE: NETWORK

If a network user attempts to open an Ami document that somebody else is already editing, Ami will automatically open the file in read-only mode. The file may be edited, but changes can only be saved if the file is given a new name. Ami handles style sheets in a similar fashion. Spelling checker user dictionaries can be either private or shared.

Ami, a Windows program, presented no difficulties with network configuration — all preferences are saved in users' WIN.INI files, independent of the Ami program itself. **Score: Very Good.**

Displaywrite 5 does not allow any access to an already open document file.

The program stores user preferences and user dictionaries in private directories. Printer drivers remain with the main program files but can be configured in users' preferences files. **Score: Poor.**

Legacy is networkable, although NBI does not recommend it. The program will not allow multiple users to open the same file, even in read-only mode.

Configuration is Windows-based; we had no problems managing multiple users' preferences. **Score: Poor.**

Multimate does not support multiple user access to document files.

User preferences are stored, by default, in users' private directories, as are user dictionaries.

Multimate comes with an MHS-compatible E-mail system, which is integrated into the main application. **Score: Satisfactory.**

PERFORMANCE: SPEED

Ami Professional performed well in our complex document speed tests; it is comparable in speed to Word for Windows. In our simple document benchmarks, Ami was a solid performer and just a step behind the speedy Word for DOS. **Score: Very Good.**

Displaywrite 5 was a solid performer in our on-screen speed tests, competing with Legacy. It was a fair amount behind Word 5.5, Word Perfect, and Wordstar. Displaywrite 5's print times are especially strong. **Score: Good.**

Legacy was in the middle of the pack in our speed tests. It was slower than Ami Professional and Word for Windows in both the simple and the complex document tests, but it was a bit quicker than Displaywrite 5's Composer. Legacy's print times, however, were especially slow. **Score: Satisfactory.**

Multimate performed well in areas of our simple file speed tests, including opening and saving files. The product did, however, have some problems with our complex file in that it cannot handle proportional spaced output. We were unable to benchmark output to a Postscript printer. **Score: Satisfactory.**

PERFORMANCE: MACROS

Ami has a full macro language with control statements, programming constructs, and the like, as well as a keystroke recorder. The macro manual is on disk, although you can ask for a free printed copy with registration. **Score: Excellent.**

Displaywrite 5 will record keystroke macros and assign them to a function key, but there is no macro programming language. **Score: Satisfactory.**

Legacy does not support macros, except through the macro capability of Windows. **Score: N/A.**

Keystroke macros and a macro recorder are included, but there is no macro programming language or other macro commands. **Score: Satisfactory.**

DOCUMENTATION

Ami's documentation is reasonably complete except for the missing macro manual, which is available on-line and printed by special request. Unfortunately, it is necessary to refer to both the users' manual and reference manual to have a complete reference to the product's features. Ami also has solid on-line help, which is similar to the other Windows products. **Score: Good.**

Nine manuals and booklets make up comprehensive and clear documentation. Although the information is clear, there are too many different booklets, and the indexes are marginal. **Score: Satisfactory.**

With a getting-started booklet, reference manual, and a special book on document design, Legacy's documentation covers most user needs. We would have preferred an alphabetically arranged reference manual but the topical organization works well and the indexes are fine. The on-line help is very complete and effective. **Score: Very Good.**

Multimate documentation is clear and well indexed, but there are very few examples. For example, the documentation is not clear about explaining the process for previewing and using proportionally spaced text capabilities. **Score: Satisfactory.**

Word for DOS (Continued)	Word for Windows (Continued)	Word Perfect (Continued)	Wordstar (Continued)

PERFORMANCE: REFERENCE TOOLS

Word has a true outliner that collapses and expands sections on-screen. You can have nested index entries, and tables of contents can be built from the document's outline. Footnotes can be at the end of the document or the bottom of the page. However, you cannot produce concurrent endnotes and footnotes. **Score: Very Good.**	Reference tools include a powerful outliner with collapsible sections, table of contents and indexing, additional lists and tables, and many numbering schemes for outlining. In addition, there are complete revision-marking facilities as well as document histories, such as the date a document was created or who was the last person to edit it. However, Word for Windows does not do endnotes and footnotes concurrently within the same document. **Score: Very Good.**	The program offers multiple numbering options, multiple lists, many indexes, and many tables of contents. The outliner won't collapse text under headings, but the program has tables of authorities and multiple cross-reference options. Word Perfect is the only application in this comparison that can have footnotes and endnotes in the same document. You will also find line numbering, revision marking, superior sorting capabilities, and a comprehensive math system. **Score: Very Good.**	Wordstar can automatically number text entries, set up outline formats, and support more than three outline numbering schemes. An add-on program called PC-Outline offers sophisticated outlining but with marginal integration into Wordstar documents. There are multiple-level indexes and tables of contents. Wordstar offers concurrent endnotes and footnotes and changing from one to the other is relatively simple. **Score: Very Good.**

PERFORMANCE: IMPORT/EXPORT

Import and export options include the basic ASCII and DCA/RFT text formats and PCX and Lotus PIC graphics formats. Word also can handle a number of other graphic formats such as TIFF and HPGL; however, its limited text importing lowers its score here. **Score: Good.**	Word for Windows imports and exports a large number of text formats, such as Displaywrite 5, Multimate, Word for DOS, Word for Macintosh, and Word Perfect. Word for Windows also imports and exports graphics formats including PCX, Lotus PIC, TIFF, Multifile, CGM, and Micrographics. The conversion method for text is very simple and works easily and well. **Score: Excellent.**	In the main program and through the included convert utilities, Word Perfect can import and export most text formats, such as Wordstar, Multimate, Word, and Displaywrite. Its graphics formats include PCX, Lotus PIC, CGM, TIFF, HPGL, DXF, and Mac Paint. **Score: Excellent.**	Some text file formats can be brought into Wordstar directly, including several varieties of ASCII in several varieties and DCA/RFT. A sophisticated text conversion add-on that offers nine other text formats, called Star Exchange, is included. However, it does not handle graphics formats other than those that can be captured by Inset, Wordstar's graphics add-on. **Score: Satisfactory.**

PERFORMANCE: NETWORK

Word 5.5 will not allow access, even read-only, to an already-open file. However, multiple users can open the same file if they all check the "read-only" box when opening the document. (A file opened this way can be saved under a new name.) Spelling dictionaries and printer drivers can be stored in private directories. To set up multiple users' preferences, you have to run the included setup program for each user, which is a potentially time-consuming process. **Score: Satisfactory.**	If you attempt to open a file that is being edited by another user, Word for Windows will automatically open it in read-only mode, and let you save changes after you give the document a new name. Configuration is handled through Windows, and all preferences are stored in individuals' private files. **Score: Very Good.**	Word Perfect will access an already-open file by loading it in read-only mode. Changes can be saved under a new name. Word Perfect will also allow you to share a master style library. User spelling dictionaries can be kept private. Word Perfect stores all users' configuration settings in a master file on the network. New users get the program's standard configuration (as defined by the network administrator upon installation) by default, but can then modify their own configuration. **Score: Very Good.**	Wordstar will let you read a file that another user is editing, but you won't be able to save your changes. Spelling dictionaries are stored in user directories. The program also keeps configuration information and printer driver files in user directories. **Score: Satisfactory.**

PERFORMANCE: SPEED

Word was the quickest product in nearly all of our benchmark tests, for both simple and complex file tests. Its times were less than a second in eight categories, and it also clocked the fastest print times. **Score: Excellent.**	Word for Windows is a quick Windows product, and its benchmark times were comparable to Ami Professional's. It is not as fast as its DOS counterpart, but it is a solid overall performer. **Score: Very Good.**	Word Perfect is an overall quick product. Its benchmark times were just a notch behind Word 5.5, which was the fastest performer in this comparison. Word Perfect was especially quick in our global search and replace for the simple file, and its print times were fast as well. **Score: Excellent.**	Wordstar's speed is competitive with Word for Windows and Ami Professional. Though it is slower than Word for DOS, it is quicker than other character programs such as Displaywrite and Multimate. **Score: Excellent.**

PERFORMANCE: MACROS

Word's macro capabilities include a macro recorder and programming constructs that permit sophisticated macro construction. However, Word 5.5's macros are completely incompatible with Word 5.0. **Score: Very Good.**	A macro language called Word Basic includes a complete set of programming constructs plus special hooks into Word for Windows' word processing engine. There is a macro recorder and editor. There are also custom dialog boxes, as well as full support of Dynamic Data Exchange. **Score: Excellent.**	A complete macro language includes programming constructs and Word Perfect functions. A mini macro editor facilitates macro preparation as does a macro recorder. Although Word Perfect's macro facility is strong, it is not quite as powerful as Word for Windows'. **Score: Very Good.**	Wordstar supports recorded keystroke macros but not programmable macros. The keystroke macros are an effective implementation, although there are no programming constructs such as "if" or "while." **Score: Satisfactory.**

DOCUMENTATION

Word's documentation is well presented and complete with solid indexes and on-line help. You can reference on-line help when you receive error messages. Word also has a fine on-line tutorial. **Score: Very Good.**	Documentation is clear and of high quality, but sometimes it is necessary to look in several places to get a complete picture. An on-disk macro manual is included, although a printed macro manual is not provided with the program; a printed manual is free on request. The program also includes an on-line tutorial. **Score: Very Good.**	Word Perfect has one reference manual with everything arranged alphabetically. This, coupled with a good index, provides an effective reference source. There is also context-sensitive help, as well as an on-line tutorial for the beginner. **Score: Very Good.**	Wordstar's documentation has improved in this version. There are clear instructions in the various booklets, as well as solid indexes. The program also offers a tutorial, and there are on-line help messages. **Score: Very Good.**

	Displaywrite 5 *(Continued)*	**Legacy** *(Continued)*	**Multimate** *(Continued)*

EASE OF LEARNING

Ami's graphical user interface will be easy to learn for users familiar with Windows products, although less so for users new to computers. The Windows interface contributes to the ease of learning. On a simple level, Ami is extremely easy to learn. Powerful features, however, always require time and attention to use properly. **Score: Very Good.**

The clumsy modular structure and the difficulty of understanding the relationship of Displaywrite 5 to Composer reduce ease of learning considerably. Users have to return to the main menu to change functions, and Composer uses a different menu structure, which can confuse new users. **Score: Satisfactory.**

Taking its complexity into account, Legacy proves remarkably easy to learn. A strong tutorial, solid documentation, and intuitive user interface all combine to facilitate learning. Obviously, those new to Windows will have more to learn than Windows veterans. **Score: Very Good.**

Multimate is especially easy to learn for users familiar with the now-obsolete Wang dedicated word processing system. Multimate also has a modular system that is helped some by drop-down menus. Online help is minimal. **Score: Satisfactory.**

EASE OF USE

Once you have been introduced to Ami's procedures and conventions, the program is quite easy to use. It has pull-down menus, ribbons, and rulers. The program is fairly customizable via its sophisticated macro language and various other ease of use features. **Score: Very Good.**

Fairly easy to use for standard text and general office correspondence, Displaywrite 5 with Composer becomes quite clumsy for complicated formatting chores or complex layouts. The keystroke-function-key macros are good, but the product is not very customizable or adaptable. **Score: Satisfactory.**

While relatively easy to use, the absence of a sophisticated macro capability will frustrate advanced users. The program also has a clumsy process for endnotes, and the lack of true windowing detracts from an experienced user's effectiveness. However, Legacy does handle many complex layout features gracefully. **Score: Satisfactory.**

Easy to use for standard text and general office correspondence, Multimate becomes very difficult to use with complex, proportionally spaced documents. **Score: Satisfactory.**

ERROR HANDLING

Normal errors cause no difficulty, and Ami protects text well with automatic timed backup and a multilevel undo. It creates temporary files on the disk that it doesn't erase automatically, but it cannot undo a sort. **Score: Very Good.**

Normal errors cause Displaywrite 5 minimal problems. There is no timed backup, but the program will make an automatic backup of the original when you begin an edit. Sorts can be undone. There is a useful recovery operation for power failures. You can also recall the last deleted block. **Score: Good.**

Legacy traps common errors easily, has backup options, and prompts before exiting unsaved text. There is a one-level undo and a redo. The undo/redo will handle backspace and delete as well as frame graphic changes. However, there is no timed backup. **Score: Good.**

Multimate has a backup procedure that preserves a copy of the document before editing, and the program writes pages to disk frequently. The undo is multilevel with a last in/first out delete buffer that captures deletes and backspaces. However, the buffer is flushed when the document is repaginated. There is no timed backup. **Score: Satisfactory.**

SUPPORT POLICIES

Lotus offers a 90-day money-back guarantee if the product fails to perform as specified. There is phone support via a toll line from 8 a.m. to 7 p.m. Eastern time, as well as support on Compuserve. There is also fax support, and corporate extended policies are available. **Score: Very Good.**

Toll-free telephone support is available through December 31, 1992, and this date may be extended. Support hours are Monday through Friday, 8 a.m. to 6 p.m. Central time. IBM does not offer fax support, though they will be on Compuserve in January. **Score: Satisfactory.**

NBI offers unlimited toll-free support from 7 a.m. to 5 p.m. Mountain time, Monday through Friday. The company also offers a BBS on Compuserve, and fax support. There is a document makeover service. NBI will revise your faxed-in document and advise as to which Legacy features could be used. **Score: Good.**

Paid support is available at different levels for different annual fees. There is free, but not toll-free phone support from 6 a.m. to 4:30 p.m. Monday through Wednesday and Friday, and on Thursday from 6 a.m. to 4 p.m. There is also BBS support via Compuserve and fax support. **Score: Satisfactory.**

PRODUCT SUMMARY

Ami Professional

VERSION 1.2B

Company: Lotus Development Corp., Word Processing Division, 5600 Glenridge Drive, Suite 300, Atlanta, GA 30342; (800) 831-9679.
List Price: $495; $199 for network nodes.
Requires: IBM AT or compatible; 640K of RAM minimum; EGA, Hercules, or better display supported by Windows; mouse; DOS 3.X or higher; Windows 2.X or higher; uses 4-megabyte disk.
Pros: Strong graphics, WYSIWYG editing, solid compatibility with other file and graphic formats, full macro language.
Cons: Lacks cross references, redlining, strikeout, equation generator, multiple indexes, or table of authorities.
Summary: Ami Professional is a strong product in the Windows tradition. Solid editing and strong graphics capabilities combined with capable mail merge make this product a wise choice for general-purpose office work, especially if your office needs multiple file formats and considerable graphics integration.

PRODUCT SUMMARY

Displaywrite 5

MODIFICATION 01

Company: IBM Corp., P.O. Box 2150, Atlanta, GA 30301; (800) IBM-7699.
List Price: $495; $595 with Composer.
Requires: IBM PC/XT with 286 processor, AT PS/2 or compatible computer; 528K of RAM for Composer without EMS, 428K for Displaywrite 5; Uses LIM/EMS 3.2 or higher; scanners; network; voice support; standard IBM graphics displays or equivalent; DOS 3.3 or 4.01; a 20-megabyte hard drive; minimum of 1- to 1.2-megabyte floppy.
Pros: Upgrades Displaywrite installations; Composer adds layout capabilities; mail merge features remain strong.
Cons: Weak compared to other programs in class, expensive, clumsy to use, poor integration between Composer and Displaywrite 5 editor, minimal macros, sorts only by page.
Summary: Only recommended for offices committed to Displaywrite with minimal complex layout chores. Less effective than all but Multimate. More expensive than Windows products, but requires memory and disk equivalent to Windows products. We do not recommend Displaywrite 5 for most users.

PRODUCT SUMMARY

Legacy

VERSION 1.1

Company: NBI Inc., 3375 Mitchell Lane, P.O. Box 9001, Boulder, CO 80301; (800) NBI-1111.
List Price: $495.
Requires: IBM AT or compatible 286 or 386 computer; 1 megabyte of RAM minimum, 2 megabytes recommended plus 1 megabyte for network; EGA, Hercules, or better display supported by Windows; mouse; DOS 3.2 or later; Windows 3.0.
Pros: Superior frame and layout tools; solid thesaurus; strong graphics editing with extensive file conversion and compatibility.
Cons: No macros; no true windowing; basic mail merge only; no user dictionaries.
Summary: Because of its elaborate frames capabilities, Legacy is best suited to offices with complex layouts such as newsletter and brochures. Works well for standard correspondence and reports. It lacks strong merge features to make the product effective for offices with extensive and complex mail-merge tasks and for legal offices.

PRODUCT SUMMARY

Multimate

VERSION 4.0

Company: Ashton-Tate Corp., 20101 Hamilton Ave., Torrance, CA 90509-9972; (213) 329-9989.
List Price: $495.
Requires: IBM PC/XT AT or compatible; 384K RAM; CGA or better display for preview; DOS 3.1 or higher; hard disk with 6.7 megabytes free.
Pros: Good for ordinary office correspondence with mono-spaced printing, handles simple mail merge well, imports and exports multiple file formats, grammar checker, bonus electronic mail system.
Cons: Weak support of proportional fonts on laser printers, minimal layout tools, poor document tools, no frames for graphics, no kerning or leading, minimal macros, clumsy pagination, sorting and math limited to page at a time, weak format line/style control, limited tab options.
Summary: Recommended only for offices with Wang dedicated word processing. Less effective in almost every category than Microsoft Word and Word Perfect, we cannot recommend this product for most users.

Word for DOS (Continued)	**Word for Windows** (Continued)	**Word Perfect** (Continued)	**Wordstar** (Continued)

EASE OF LEARNING

Word is reasonably easy to learn, especially with the improved interface. The program now has pull-down menus and speed keys, which will help novices adapt more quickly than with the old interface. Word has a graphics format that shows italics and bold on the screen, which may be helpful to some users, but it is not equivalent to WYSIWYG. **Score: Very Good.**	New users, particularly if they have had Windows experience, learn Word for Windows quickly. Considering the program's capabilities, it is extremely easy to master. Ribbons, rulers, WYSIWYG editing, and a very effective on-line help system contribute to ease of learning. **Score: Excellent.**	With an on-screen tutorial, a learning manual, a complete on-line help system, and now pull-down menus, Word Perfect is relatively easy to use. Its high complexity and great power, however, cause some difficulties. Because of its user interface, the product is not quite as easy to learn as the graphical word processors in this group. **Score: Very Good.**	Wordstar, using its traditional control-key commands, is relatively easy to learn. However, the complexity of the program and the inconsistencies with some of the add-on programs that require different keystrokes and menu structures may intimidate a new user. **Score: Good.**

EASE OF USE

Word's macros and multiple methods of accessing functions makes work relatively easy for experienced users. Word has a draft mode and a graphics mode that shows more detail for editing. The improved interface over Version 5.0 also enhances Word's ease of use. **Score: Very Good.**	With experience, Word for Windows becomes very easy to use thanks to effective macros, speed keys, multiple ways to access commands, multiple views of text, snappy response, and customizable screen and command displays. **Score: Excellent.**	The structure, menus, and customization options such as the ability to see double or single columns on-screen, or to change the way the text color is displayed, all contribute to its ease of use. The program's capability to display all codes, preview results, and construct macros also combine into an easy to use environment. **Score: Very Good.**	The ability to choose control key, function key, or drop-down menus and the keystroke macros enhance Wordstar's ease of use. However, the program's natural effectiveness is hampered by the inconsistencies in keystrokes and interface among the various add-on programs. **Score: Good.**

ERROR HANDLING

Word 5.5 has automatic timed backup and messages that prompt you before exiting a document without saving. One-level undo captures deletes, backspaces, and formatting. **Score: Good.**	Word for Windows captures errors effortlessly, handles undo and redo effectively, and it allows you to redo and undo deletes and backspaces as well as formatting and many other procedures. While there is no auto-backup as in Word 5.5, Word for Windows can be set to remind you to save a document after a period of editing. **Score: Good.**	Word Perfect offers multiple saving options such as various automatic timed saves, as well as a three-level undelete that will restore backspaced or deleted text. There is also timed automatic saving, thus allowing Word Perfect to handle most errors well. **Score: Excellent.**	Wordstar always maintains a backup file and prompts before exiting without saving. There is a one-level undo. **Score: Good.**

SUPPORT POLICIES

Microsoft offers a 30-day money-back guarantee and a 90-day guarantee that the product will perform properly. There is unlimited free, although not toll-free, phone support from 6 a.m. to 6 p.m. Pacific time. Microsoft also offers BBS support and corporate extended support policies. **Score: Very Good.**	There is a 30-day money-back guarantee of satisfaction and a 90-day guarantee that the product will work as described. There is free, but not toll-free support from 8 a.m. to 6 p.m. Pacific time, Monday through Friday. Fax and BBS support, and corporate extended policies are available. **Score: Very Good.**	Word Perfect support remains the best in the industry with 24-hour phone support. Phone support is toll free from 7 a.m. to 6 p.m. Pacific time (not toll free after 6 p.m.). There is a bulletin board on Compuserve, a money-back guarantee, fax support and extended support policies. **Score: Excellent.**	Wordstar International offers a 30-day warranty. There is free, but not toll-free phone support from 7 a.m. to 4 p.m. Pacific time, Monday through Friday. Wordstar also offers fax support. BBS support via Compuserve, and corporate extended support. **Score: Good.**

PRODUCT SUMMARY

Microsoft Word

VERSION 5.5

Company: Microsoft Corp., 1 Microsoft Way, Redmond, WA 98052-6399; (800) 426-9400.
List Price: $450; $50 for upgrade from 5.0; $75 for upgrade from 1.X or 2.X.
Requires: IBM PC to PS/2 or compatible; 384K of RAM, minimum 512K recommended; graphics card for preview; two floppy disks or hard disk; mouse is optional; DOS 2.0 or higher.
Pros: Best basic editor, strong performance and features, much improved interface, powerful macros, solid spelling checker.
Cons: Lacks equation generator, limited file import, no forms, no kerning.
Summary: A robust character-based program that has most professional features. A strong program for users who will switch between Word for Windows and Microsoft Word, which share user interface characteristics.

PRODUCT SUMMARY

Microsoft Word for Windows

VERSION 1.1

Company: Microsoft Corp., 1 Microsoft Way, Redmond, WA 98052-6399; (800) 426-9400.
List Price: $495.
Requires: IBM AT or compatible; 640K of RAM; hard disk; 1 to 2 megabytes of EMS memory recommended; Microsoft Windows (3.0 recommended); mouse recommended; graphics display.
Pros: Outstanding use of Windows, strong editing and layout, exceptional macro language, capable graphics and tables, adequate sorting, capable merge; outstanding all-around performer.
Cons: Somewhat slow response in WYSIWYG editing, especially with tables; spelling checker less effective at guessing words.
Summary: The best all-around Windows word processor. Word for Windows offers strong tools in almost every area. Unless complex layouts are required with individual text streams or very complex graphics, it is likely to be the program of choice.

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; 384K of RAM minimum; DOS 2.0 or higher; graphics display for preview; two 720K drives minimum; hard disk recommended.
Pros: Best in class for features and power, strong graphics, footnotes and endnotes, revision marking, tables of authorities, macro language, solid font and printer support, superior support from company.
Cons: Character-based interface does not allow editing in WYSIWYG; complexity can hinder ease of learning.
Summary: Less elegant than the graphically based programs such as Word for Windows or Ami, it nonetheless has more flexible features than those programs; recommended for high-volume complex documents, graphics, and mail-merge tasks in professional offices.

PRODUCT SUMMARY

Wordstar

VERSION 6.0

Company: Wordstar International, 201 Alameda del Prado, Novato, CA 94949; (800) 227-5609.
List Price: $495.
Requires: IBM PC or compatible; 384K of RAM minimum, 512K for full function; two floppy disks minimum, hard disk for full function; graphics card required for page preview; DOS 2.0 or higher.
Pros: Strong editing tools, solid speller, thesaurus, and document tools. Includes sophisticated outliner and a solid telecommunications package. Main program user interface especially suited to touch typists.
Cons: Inconsistent user interface with add-on programs, limitations on layout tools, macros include keystroke only, limited headers and footers, limited graphics integration.
Summary: Wordstar remains the nostalgic program of choice for touch typists. Wordstar has all of the basics, and it offers many features with its add-on programs. However, in the end, it is not as strong as Microsoft Word. Its features and price no longer compete with the newer products.

	Displaywrite 5 (Continued)	**Legacy** (Continued)	**Multimate** (Continued)

EASE OF LEARNING

Ami's graphical user interface will be easy to learn for users familiar with Windows products, although less so for users new to computers. The Windows interface contributes to the ease of learning. On a simple level, Ami is extremely easy to learn. Powerful features, however, always require time and attention to use properly. **Score: Very Good.**

The clumsy modular structure and the difficulty of understanding the relationship of Displaywrite 5 to Composer reduce ease of learning considerably. Users have to return to the main menu to change functions, and Composer uses a different menu structure, which can confuse new users. **Score: Satisfactory.**

Taking its complexity into account, Legacy, proves remarkably easy to learn. A strong tutorial, solid documentation, and intuitive user interface all combine to facilitate learning. Obviously, those new to Windows will have more to learn than Windows veterans. **Score: Very Good.**

Multimate is especially easy to learn for users familiar with the now-obsolete Wang dedicated word processing system. Multimate also has a modular system that is helped some by drop-down menus. Online help is minimal. **Score: Satisfactory.**

EASE OF USE

Once you have been introduced to Ami's procedures and conventions, the program is quite easy to use. It has pull-down menus, ribbons, and rulers. The program is fairly customizable via its sophisticated macro language and various other ease of use features. **Score: Very Good.**

Fairly easy to use for standard text and general office correspondence. Displaywrite 5 with Composer becomes quite clumsy for complicated formatting chores or complex documents. The keystroke-function-key macros are good, but the product is not very customizable or adaptable. **Score: Satisfactory.**

While relatively easy to use, the absence of a sophisticated macro capability will frustrate advanced users. The program also has a clumsy process for endnotes, and the lack of true windowing detracts from an experienced user's effectiveness. However, Legacy does handle many complex layout features gracefully. **Score: Satisfactory.**

Easy to use for standard text and general office correspondence, Multimate becomes very difficult to use with complex, proportionally spaced documents. **Score: Satisfactory.**

ERROR HANDLING

Normal errors cause no difficulty, and Ami protects text well with automatic timed backup and a multilevel undo. It creates temporary files on the disk that it doesn't erase automatically, but it cannot undo a sort. **Score: Very Good.**

Normal errors cause Displaywrite 5 minimal problems. There is no timed backup, but the program will make an automatic backup of the original when you begin an edit. Sorts can be undone. There is a useful recovery operation for power failures. You can also recall the last deleted block. **Score: Good.**

Legacy traps common errors easily, has backup options, and prompts before exiting unsaved text. There is a one-level undo and a redo. The undo/redo will handle backspace and delete as well as frame graphic changes. However, there is no timed backup. **Score: Good.**

Multimate has a backup procedure that preserves a copy of the document before editing, and the program writes pages to disk frequently. The undo is multilevel with a last in/first out delete buffer that captures deletes and backspaces. However, the buffer is flushed when the document is repaginated. There is no timed backup. **Score: Satisfactory.**

SUPPORT POLICIES

Lotus offers a 90-day money-back guarantee if the product fails to perform as specified. There is phone support via a toll line from 8 a.m. to 7 p.m. Eastern time, as well as support on Compuserve. There is also fax support, and corporate extended policies are available.
Score: Very Good.

Toll-free telephone support is available through December 31, 1992, and this date may be extended. Support hours are Monday through Friday, 8 a.m. to 6 p.m. Central time. IBM does not offer fax support, though they will be on Compuserve in January. **Score: Satisfactory.**

NBI offers unlimited toll-free support from 7 a.m. to 5 p.m. Mountain time, Monday through Friday. The company also offers a BBS on Compuserve, and fax support. There is a document makeover service. NBI will revise your faxed-in document and advise as to which Legacy features could be used. **Score: Good.**

Paid support is available at different levels for different annual fees. There is free, but not toll-free phone support from 6 a.m. to 4:30 p.m. Monday through Wednesday and Friday, and on Thursday from 6 a.m. to 4 p.m. There is also BBS support via Compuserve and fax support. **Score: Satisfactory.**

PRODUCT SUMMARY

Ami Professional

VERSION 1.2B

Company: Lotus Development Corp., Word Processing Division, 5600 Glenridge Drive, Suite 300, Atlanta, GA 30342; (800) 831-9679.
List Price: $495; $199 for network nodes.
Requires: IBM AT or compatible; 640K of RAM minimum; EGA, Hercules, or better display supported by Windows; mouse; DOS 3.X or higher; Windows 2.X or higher; uses 4-megabyte disk.
Pros: Strong graphics, WYSIWYG editing, solid compatibility with other file and graphic formats, full macro language.
Cons: Lacks cross references, redlining, strikeout, equation generator, multiple indexes, or table of authorities.
Summary: Ami Professional is a strong product in the Windows tradition. Solid editing and strong graphics capabilities combined with capable mail merge make this product a wise choice for general-purpose office work, especially if your office needs multiple file formats and considerable graphics integration.

PRODUCT SUMMARY

Displaywrite 5

MODIFICATION 01

Company: IBM Corp., P.O. Box 2150, Atlanta, GA 30301; (800) IBM-7699.
List Price: $495; $595 with Composer.
Requires: IBM PC/XT with 286 processor, AT PS/2 or compatible computer; 528K of RAM for Composer without EMS, 428K for Displaywrite 5; Uses LIM/EMS 3.2 or higher; scanners; network; voice support; standard IBM graphics displays or equivalent; DOS 3.3 or 4.01; a 20-megabyte hard drive; minimum of 1- to 1.2-megabyte floppy.
Pros: Upgrades Displaywrite installations; Composer adds layout capabilities; mail merge features remain strong.
Cons: Weak compared to other programs in class, expensive, clumsy to use, poor integration between Composer and Displaywrite 5 editor, minimal macros, sorts only by page.
Summary: Only recommended for offices committed to Displaywrite with minimal complex layout chores. Less effective than all but Multimate. More expensive than Windows products, but requires memory and disk equivalent to Windows products. We do not recommend Displaywrite 5 for most users.

PRODUCT SUMMARY

Legacy

VERSION 1.1

Company: NBI Inc., 3375 Mitchell Lane, P.O. Box 9001, Boulder, CO 80301; (800) NBI-1111.
List Price: $495.
Requires: IBM AT or compatible 286 or 386 computer; 1 megabyte of RAM minimum, 2 megabytes recommended plus 1 megabyte for network; EGA, Hercules, or better display supported by Windows; mouse; DOS 3.2 or later; Windows 3.0.
Pros: Superior frame and layout tools; solid thesaurus; strong graphics editing with extensive file conversion and compatibility.
Cons: No macros; no true windowing; basic mail merge only; no user dictionaries.
Summary: Because of its elaborate frames capabilities, Legacy is best suited to offices with complex layouts such as newsletter and brochures. Works well for standard correspondence and reports. It lacks strong merge features to make the product effective for offices with extensive and complex mail-merge tasks and for legal offices.

PRODUCT SUMMARY

Multimate

VERSION 4.0

Company: Ashton-Tate Corp., 20101 Hamilton Ave., Torrance, CA 90509-9972; (213) 329-9989.
List Price: $495.
Requires: IBM PC/XT AT or compatible; 384K RAM; CGA or better display for preview; DOS 3.1 or higher; hard disk with 6.7 megabytes free.
Pros: Good for ordinary office correspondence with mono-spaced printing, handles simple mail merge well, imports and exports multiple file formats, grammar checker, bonus electronic mail system.
Cons: Weak support of proportional fonts on laser printers, minimal layout tools, poor document tools, no frames for graphics, no kerning or leading, minimal macros, clumsy pagination, sorting and math limited to page at a time, weak format line/style control, limited tab options.
Summary: Recommended only for offices with Wang dedicated word processing. Less effective in almost every category than Microsoft Word and Word Perfect, we cannot recommend this product for most users.

Word for DOS (Continued)	**Word for Windows** (Continued)	**Word Perfect** (Continued)	**Wordstar** (Continued)

EASE OF LEARNING

Word is reasonably easy to learn, especially with the improved interface. The program now has pull-down menus and speed keys, which will help novices adapt more quickly than with the old interface. Word has a graphics format that shows italics and bold on the screen, which may be helpful to some users, but it is not equivalent to WYSIWYG. **Score: Very Good.**

New users, particularly if they have had Windows experience, learn Word for Windows quickly. Considering the program's capabilities, it is extremely easy to master. Ribbons, rulers, WYSIWYG editing, and a very effective on-line help system contribute to ease of learning. **Score: Excellent.**

With an on-screen tutorial, a learning manual, a complete on-line help system, and now pull-down menus, Word Perfect is relatively easy to use. Its high complexity and great power, however, cause some difficulties. Because of its user interface, the product is not quite as easy to learn as the graphical word processors in this group. **Score: Very Good.**

Wordstar, using its traditional control-key commands, is relatively easy to learn. However, the complexity of the program and the inconsistencies with some of the add-on programs that require different keystrokes and menu structures may intimidate a new user. **Score: Good.**

EASE OF USE

Word's macros and multiple methods of accessing functions makes work relatively easy for experienced users. Word has a draft mode and a graphics mode that shows more detail for editing. The improved interface over Version 5.0 also enhances Word's ease of use. **Score: Very Good.**

With experience, Word for Windows becomes very easy to use thanks to effective macros, speed keys, multiple ways to access commands, multiple views of text, snappy response, and customizable screen and command displays. **Score: Excellent.**

The structure, menus, and customization options such as the ability to see double or single columns on-screen, or to change the way the text color is displayed, all contribute to its ease of use. The program's capability to display all codes, preview results, and construct macros also combine into an easy to use environment. **Score: Very Good.**

The ability to choose control key, function key, or drop-down menus and the keystroke macros enhance Wordstar's ease of use. However, the program's natural effectiveness is hampered by the inconsistencies in keystrokes and interface among the various add-on programs. **Score: Good.**

ERROR HANDLING

Word 5.5 has automatic timed backup and messages that prompt you before exiting a document without saving. One-level undo captures deletes, backspaces, and formatting. **Score: Good.**

Word for Windows captures errors effortlessly, handles undo and redo effectively, and it allows you to redo and undo deletes and backspaces as well as formatting and many other procedures. While there is no auto-backup as in Word 5.5, Word for Windows can be set to remind you to save a document after a period of editing. **Score: Good.**

Word Perfect offers multiple saving options such as various automatic timed saves, as well as a three-level undelete that will restore backspaced or deleted text. There is also timed automatic saving, thus allowing Word Perfect to handle most errors well. **Score: Excellent.**

Wordstar always maintains a backup file and prompts before exiting without saving. There is a one-level undo. **Score: Good.**

SUPPORT POLICIES

Microsoft offers a 30-day money-back guarantee and a 90-day guarantee that the product will perform properly. There is unlimited free, although not toll-free, phone support from 6 a.m. to 6 p.m. Pacific time. Microsoft also offers BBS support and corporate extended support policies. **Score: Very Good.**

There is a 30-day money-back guarantee of satisfaction and a 90-day guarantee that the product will work as described. There is free, but not toll-free support from 8 a.m. to 6 p.m. Pacific time, Monday through Friday. Fax and BBS support, and corporate extended policies are available. **Score: Very Good.**

Word Perfect support remains the best in the industry with 24-hour phone support. Phone support is toll free from 7 a.m. to 6 p.m. Pacific time (not toll free after 6 p.m.). There is a bulletin board on Compuserve, a money-back guarantee, fax support and extended support policies. **Score: Excellent.**

Wordstar International offers a 30-day warranty. There is free, but not toll-free phone support from 7 a.m. to 4 p.m. Pacific time, Monday through Friday. Wordstar also offers fax support. BBS support via Compuserve, and corporate extended support. **Score: Good.**

PRODUCT SUMMARY

Microsoft Word

VERSION 5.5

Company: Microsoft Corp., 1 Microsoft Way, Redmond, WA 98052-6399; (800) 426-9400.
List Price: $450; $50 for upgrade from 5.0; $75 for upgrade from 1.X or 2.X.
Requires: IBM PC to PS/2 or compatible; 384K of RAM, minimum 512K recommended; graphics card for preview; two floppy disks or hard disk; mouse is optional; DOS 2.0 or higher.
Pros: Best basic editor, strong performance and features, much improved interface, powerful macros, solid spelling checker.
Cons: Lacks equation generator, limited file import, no forms, no kerning.
Summary: A robust character-based program that has most professional features. A strong program for users who will switch between Word for Windows and Microsoft Word, which share user interface characteristics.

PRODUCT SUMMARY

Microsoft Word for Windows

VERSION 1.1

Company: Microsoft Corp., 1 Microsoft Way, Redmond, WA 98052-6399; (800) 426-9400.
List Price: $495.
Requires: IBM AT or compatible; 640K of RAM; hard disk; 1 to 2 megabytes of EMS memory recommended; Microsoft Windows (3.0 recommended); mouse recommended; graphics display.
Pros: Outstanding use of Windows, strong editing and layout, exceptional macro language, capable graphics and tables, adequate sorting, capable merge; outstanding all-around performer.
Cons: Somewhat slow response in WYSIWYG editing, especially with tables; spelling checker less effective at guessing words.
Summary: The best all-around Windows word processor. Word for Windows offers strong tools in almost every area. Unless complex layouts are required with individual text streams or very complex graphics, it is likely to be the program of choice.

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; 384K of RAM minimum; DOS 2.0 or higher; graphics display for preview; two 720K drives minimum; hard disk recommended.
Pros: Best in class for features and power, strong graphics, footnotes and endnotes, revision-marking, tables of authorities, macro language, solid font and printer support, superior support from company.
Cons: Character-based interface does not allow editing in WYSIWYG; complexity can hinder ease of learning.
Summary: Less elegant than the graphically based programs such as Word for Windows or Ami, it nonetheless has more flexible features than those programs; recommended for high-volume complex documents, graphics, and mail-merge tasks in professional offices.

PRODUCT SUMMARY

Wordstar

VERSION 6.0

Company: Wordstar International, 201 Alameda del Prado, Novato, CA 94949; (800) 227-5609.
List Price: $495.
Requires: IBM PC or compatible; 384K of RAM minimum, 512K for full function; two floppy disks minimum; hard disk for full function; graphics card required for page preview; DOS 2.0 or higher.
Pros: Strong editing tools, solid speller, thesaurus, and document tools. Includes sophisticated outliner and a solid tele communications package. Main program user interface especially suited to touch typists.
Cons: Inconsistent user interface with add-on programs, limitations on layout tools, macros include keystroke only, limited headers and footers, limited graphics integration.
Summary: Wordstar remains the nostalgic program of choice for touch typists. Wordstar has all of the basics, and it offers many features with its add-on programs. However, in the end, it is not as strong as Microsoft Word. Its features and price no longer compete with the newer products.

Ami Professional (Continued)	Displaywrite 5 (Continued)	Legacy (Continued)	Multimate (Continued)

TECHNICAL SUPPORT

We found technical support by telephone for this product to be competent and effective. **Score: Very Good.**	Displaywrite 5's technical support staff was adequate for most questions. **Score: Satisfactory.**	Legacy's technical support provided correct and helpful answers to various problems. **Score: Good.**	Multimate's technical support produced competent answers to technical questions with minimal delays. **Score: Satisfactory.**

VALUE

At $495, this product fits right into the top of the market with the high-power products in this summary. Ami's graphical strengths and competent performance in practically every area make it a strong value. If you have special needs other products may serve better, but as an all-around performer that is robust on graphics, Ami is a solid contender. **Score: Excellent.**	At $495 for Displaywrite 5 and $595 bundled with Composer, IBM offers quite a bit less than most of the programs in this market. Although fine for general office correspondence, for which Composer is not required, Displaywrite 5 with Composer is a weak value at best. We do not recommend this program for any but the most committed IBM Displaywrite installations. **Score: Poor.**	Legacy, priced at $495, offers strong features for offices with modest mail-merge tasks and complicated layout and graphics applications. The program is weaker in its legal or research-paper capabilities. However, Legacy has an outstanding capability to produce newsletters and brochures, as well as to handle ordinary correspondence and reports. **Score: Good.**	At $495, Multimate offers considerably less than other programs in this category. Multimate cannot compete with Word Perfect or other top-notch character-based word processing programs. **Score: Poor.**

Testing Procedures for Word Processing Change With the New Year

PROFESSIONAL WORD PROCESSORS

BY JOHN LOMBARDI REVIEW BOARD

Our PC-compatible word processing tests are run on one of two hardware platforms. Products for Windows 3.0 are run on a Compaq Deskpro 386/20e with 2 megabytes of RAM, a 110-megabyte hard disk, and a Microsoft mouse. We run all Windows tests in standard mode. We also run non-Windows tests on this platform and use Quarterdeck's QEMM 5.11 to convert 1 megabyte of extended RAM into expanded memory specification.

For character-based DOS applications, we also test on an IBM PC AT Model 339 (an 8-MHz 80286 PC), with a 30-megabyte hard disk and a Paradise Basic EGA card. An Intel Above Board backfills the 512K memory to 640K.

We use a Hewlett-Packard Laserjet Series II with 2½ megabytes of RAM and the QMS PS 810+ Postscript printer to judge output speed and product quality.

Each word processing program is installed as the only application on the computer and tested using two documents. The first file, our "simple" document, is a 19-page manuscript that we use to test the products' general capabilities. The second document, our "complex" file, is a 4½-page document that includes subheads, a Lotus 1-2-3 Version 2.2 worksheet table, a monochrome PCX image, and a Lotus PIC graph.

New to the 1991 test plan is network testing. We use Novel Advanced Netware 286 2.15c and the product's LAN package, if one is available.

Evaluating the efficacy of features takes up the bulk of our testing time. Points are added or subtracted for features that are or are not present, and the sum of the points determines a product's score in each category. We currently test the following categories:

Basic editing covers the tools every word processing program needs to aid in the entering and editing of text. Programs must have cut-and-paste features; we award additional points for rectangular selection of text. We look for strong search-and-replace functions that will take wild cards and maintain the capitalization of the found text when entering the replaced text. We also look for redefinable tab stops that can be left, center, right, or decimal justified. We like tabs to have leader characters. Word processors should be capable of merging different documents into one, center and justify documents and paragraphs, and hyphenate either automatically or with user prompting. Windowing capabilities are a bonus. Finally, we look for time stamping and a function to insert the day's date or time with a keystroke.

Proofing utilities include spelling checkers, thesauri, and grammar modules. A spelling checker, as a minimum, should maintain capitalization when it replaces a misspelled word, and should

BENCHMARKS

INFO WORLD

Professional Word Processors: 286 Benchmarks

	Displaywrite 5 Modification 01	Multimate Version 4.0	Microsoft Word Version 5.5	Word Perfect Version 5.1	Wordstar Version 6.0
File operations/simple file					
Open	00:05	00:03	00:02	00:02	00:01
Save	00:03	00:02	00:04	00:01	00:08
Print	03:32	03:00	02:37	02:43	03:53
Export ASCII	N/A	01:04	00:02	00:10	00:32
Import ASCII	00:15	00:30	00:02	00:14	0:02
Import Word Perfect 5.0	N/A	00:26	N/A	00:02	01:00
File operations/complex file					
Open	00:42[1]	N/A[2]	00:02[3]	00:12	00:02
Save	00:11[1]	N/A[2]	00:03	00:03	00:03
Print	09:10[1]	N/A[2]	03:09	07:36	04:28
Search tools/simple file					
Search	00:15	00:11	00:06	00:04	00:08
Global search/replace	00:23	00:09	00:04	00:05	00:13
Search tools/complex file					
Search	00:25[1]	N/A[2]	00:01	00:05	00:03
Global search/replace	00:37[1]	N/A[2]	00:03	00:10	00:04
Editing tasks/simple file					
Reformat	00:44	00:49	00:03	00:04	<1
Jump to end	00:02	<1	<1	00:03	00:03
Editing tasks/complex file					
Reformat	00:09[1]	N/A[2]	00:05	00:12	00:01
Jump to end	00:32[1]	N/A[2]	<1	00:04	00:02

Times are in minutes:seconds, unless otherwise noted.
[1]The times for the complex file use Displaywrite 5 Composer, as Displaywrite could not handle our complex document speed tests.
[2]Multimate had problems with our complex document, as the program cannot handle proportionally spaced text.

[3]Word 5.5 offers two views: a default galley view and a layout view. The times for the layout view are 00:04 for open, 00:03 for save, 00:05 for search, 00:04 for global search and replace, 00:04 for reformat, and 00:04 for jump to end.

Word for DOS (Continued)	**Word for Windows** (Continued)	**Word Perfect** (Continued)	**Wordstar** (Continued)

TECHNICAL SUPPORT

Microsoft's product support was technically correct and efficient. Waiting times were relatively short. **Score: Very Good.**

Calls to Microsoft technical support for Word for Windows produced competent and effective help on a variety of technical problems. **Score: Very Good.**

By means of product support specialists, Word Perfect technical support continues its tradition of quality with competent technicians who take considerable pains to resolve problems and answer questions. **Score: Very Good.**

Our experience with technical support was positive. Answers to technical questions were correct and helpful. Wordstar's Compuserve forum also has user comments and suggestions as well as occasional participation by Wordstar personnel. **Score: Very Good.**

VALUE

At $450, Microsoft Word 5.5 represents a reasonable value for users who do not have the hardware to support Word for Windows. It is a powerful product that offers extremely sophisticated editing capabilities. **Score: Very Good.**

At $495, Word for Windows provides close to state-of-the-art functions in most areas of professional word processing. Although not as powerful in some ways as Word Perfect and somewhat less effective as a layout tool than Legacy, Word for Windows remains the strongest overall of the Windows word processors. **Score: Excellent.**

The standard $495 price represents a fine value for this product, which has withstood some formidable competition. Currently at the top of the heap for power and features, Word Perfect will find it necessary to transfer its product with all of its capabilities to a graphical environment to stay competitive with Word for Windows. **Score: Excellent.**

At $495, Wordstar 6.0 offers solid features and performance as a character-based product in this group. In comparison to Microsoft Word 5.5, Wordstar is just a notch below with its features and capabilities. However, it is a superior product to Multimate 4.0. **Score: Good.**

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allow you to backtrack when you make a mistake in selecting a replacement word. We prefer a thesaurus that defines parts of speech when providing synonyms. Grammar checking is a new enhancement that we also look for in a word processor.

For *mail merge* we require a product to skip a bad data record without ruining the run, and the product also should let you use the record's fields in any order in

the final document.

For *layout* we require the word processors to do multiple columns that snake text from one page to the next, with user-definable margins. Layout should permit different left and right margins on alternating pages, and there must be a WYSIWYG preview mode. Some products will let you edit in WYSIWYG, which is a bonus feature. We require

programs to scale and crop graphics and preview them as they will appear when printed. Graphic editing should at least include line drawing, and an extra bonus goes to powerful graphics drawing and editing tools as well as image control. A table editor is a bonus.

Widow and orphan control should be available, as should control over vertical justification to change the place of a

paragraph on the page. We give credit to products that have special equation composers that offer complex multiline equation symbols, and to products that offer basic mathematical calculation capabilities.

For *style sheets*, we expect products to provide basic predefined styles for headers and footers, footnotes, and table of contents entries. We score a product's

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BENCHMARKS   **INFO WORLD**

Professional Word Processors: 386 Benchmarks

	Ami Professional Version 1.2B	Displaywrite 5 Modification 01	Legacy Version 1.0	Multimate Version 4.0	Microsoft Word Version 5.5	Word for Windows Version 1.1	Word Perfect Version 5.1	Wordstar Version 6.0
File operations/simple file[1]								
Open	00:02	00:02	00:06	00:01	<00:01	00:02	<00:01	00:01
Save	00:03	00:02	00:04	<00:01	00:01	00:02	<00:01	00:02
Print[2]	02:41	02:44	05:52	02:45	02:36	02:39	02:38	02:51
Export ASCII	00:03	N/A	00:04	00:23	<00:01	00:03	00:03	00:24
Import ASCII	00:03	00:06	00:08	00:11	<00:01	00:02	00:05	00:01
Import Word Perfect 5.0	00:04	00:N/A	00:13	00:11	N/A	00:17	00:01	00:20
File operations/complex file[3]								
Open	00:02/00:06	00:15/N/A[4]	00:09/N/A	N/A[5]	<00:01/00:01	00:03/00:04[6]	00:04/N/A	00:01
Save	00:01/00:02	00:05/N/A	00:08/N/A	N/A[5]	00:01/00:01	00:02/00:02	00:01/N/A	00:01
Print[7]	06:07	04:07	10:22	N/A[5]	03:02	06:11	03:05	03:19
Search tools/simple file								
Search	00:05	00:04	00:05	00:04	00:02	00:01	00:01	00:03
Global search/replace	00:03	00:08	00:04	00:05	00:01	00:03	00:02	00:05
Search tools/complex file								
Search	00:01/00:06	00:11	00:03/N/A	N/A[5]	<00:01/00:02	<00:01/00:02	00:01/N/A	00:01
Global search/replace	00:01/00:06	00:14	00:04/N/A	N/A[5]	<00:01/<00:01	00:02/00:03	00:04/N/A	00:01
Editing tasks/simple file								
Reformat	00:05	00:16	00:01	00:20	00:03	00:06	00:01	<00:01
Jump to end	<00:01	<00:01	00:03	<00:01	<00:01	<00:01	<00:01	00:01
Editing tasks/complex file								
Reformat	<00:01/00:03	00:04	00:04/N/A	N/A[5]	00:02/00:02	00:04/<00:01	00:04/N/A	00:01
Jump to end	<00:01/00:04[7]	00:11	00:03/N/A	N/A[5]	<00:01/00:01	<00:01/00:01	00:01/N/A	00:01

Times are in minutes:seconds, unless otherwise noted.
[1]Simple file is an approximately 17-page text document imported from Word Perfect.
[2]Print to a LaserJet Series II printer.
[3]Complex file is an approximately five-page document containing graphics. For some products, there is a default working view and an alternate layout view. The first time listed is the default view, the second is the alternate.
[4]The complex file times are for Displaywrite 5 Composer, as Displaywrite 5 is not capable on its own of

producing the complex file.
[5]Multimate had problems with our complex document.
[6]Word for Windows also offers a third alternate view. The times above are Gallery and Page, the times for the Draft mode option off the View menu are: 00:02 for open, 00:01 for save, <00:01 for search, 00:02 for global search and replace, 00:04 for reformat, and <00:01 for jump to end.
[7]Print to a Postscript printer.

capability to preview changes to a style before the style is applied to text. We award points to programs that let you transfer style information from one document to another, or that allow styles to exist independent of the documents themselves.

Font and printer support includes a minimum support for HP fonts in the documents. For Postscript support, products must allow the user access to all 11 font families that are supported by standard Postscript printers. We award bonus points for products that offer

additional type styles (such as outlined or shadowed), and for the capability to handle kerning and tracking.

Reference tools include table of contents, index, and footnote capabilities as well as organizational aids such as integrated outliners. We expect either footnotes or endnotes to be available in a document, and we give extra points if both can be created in the same document. We also award bonuses if footnote numbers are visible on-screen and not just represented by a code. We expect an outliner to be capable of rearranging text

when the outline is modified and to keep section numbers up to date. We also give bonus points for a true outline capability that will collapse text under headings.

The *import/export* category reflects the number of different text and graphics formats that the program can read and write directly. We require support of basic ASCII files, DCA/RFT, and Microsoft's Rich Text Format (RTF). We award bonus points for support of other formats. For graphics we require PCX and Lotus 1-2-3's PIC format. Bonus points are awarded for other formats.

We tested each product for its functionality in *networking*. Programs that would not let multiple users open the same file in read-only mode were penalized in this category. Programs that automatically give read-only access to already open files were given points. We also looked for easy network installation: Configuration files created automatically, and the capability to store printer drivers and spelling dictionaries in users' private directories boosted the score. We awarded bonus points for other features.

For our *speed* tests, we compared the products' performance on a Deskpro 386/20e with VGA. The results are shown in the benchmark charts that accompany this comparison. We also include a chart of the character-based applications with tests completed on an IBM AT (an 8-MHz 80286) with EGA; however, these tests did not affect the scoring.

For *macros*, we look first for keystroke macros that can record any sequence of word processing keystrokes, including commands. We add bonus points for macro languages that include control statements and programming constructs.

We evaluate each program's *documentation* by looking first for completeness. We also look at clarity, sufficiency of examples, adequacy of index, and quality of production. In this category we also include on-line documentation, which should be context-sensitive and indexed, as well as substantially complete.

Ease of learning reflects the complexity of the menu structure and the clarity of the program's organization. Effective learning aids or tutorials help enhance ease of learning, especially for users who may be new to word processing.

Ease of use measures the effectiveness of the program for a user once the basics have been mastered. Shortcut keys, customized menus, macros, the capability to turn off unnecessary prompts, and efficient access to document tools can all help make a program easier to use.

For *error handling*, we require products to prompt before leaving text that has been changed but not saved. We also look for some form of undo that reverses deletions of blocks of text.
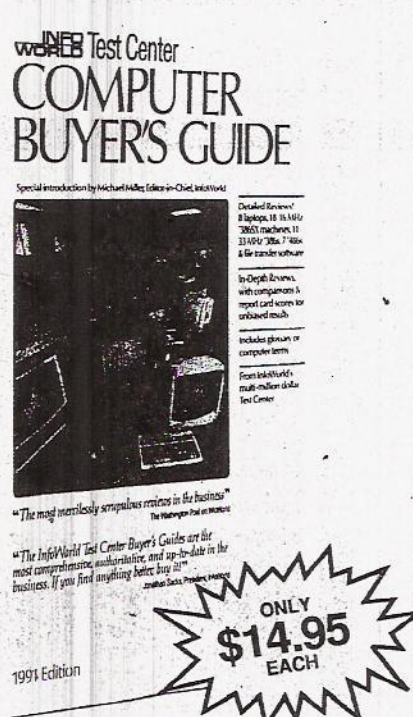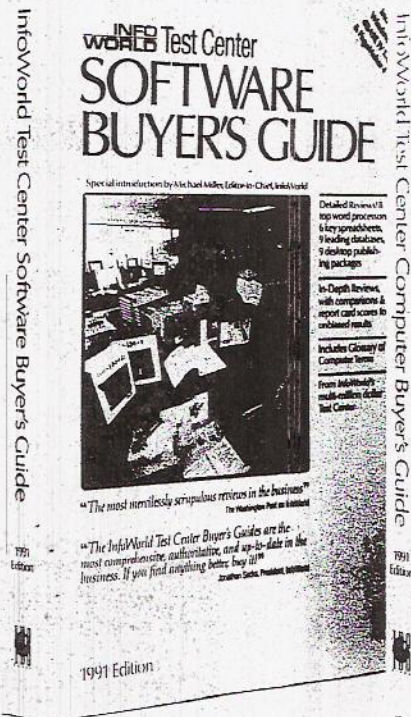
For a satisfactory score in *support policies*, we expect unlimited free (but not toll-free) telephone support. We add points for a product usability warranty, a money-back guarantee, BBS support, fax support, extended support hours (more than 10 hours on weekdays), toll-free phone support, or corporate extended support. Points are subtracted for dealer-only support, limited-period vendor support, or short support hours.

Technical support measures the results we get when we call for help and information. We make at least two calls to each product's telephone support line with different technical questions. Scores are based on the quality of service and the availability of knowledgeable technicians.

In scoring *value*, we look at the price vs. the performance and features of each package tested, taking into account the competition.

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