

showed that the Telcor modem transmitted 956 cps, whereas the Microcom AX/2400C was able to transmit only 576 cps with identical data under the same conditions. In the rest of the tests, however, the Telcor modem's performance dropped far below that of its competitors. It held its own in our worst-case test largely because V.22 bis signaling tolerates certain line impairments better than either V.29 or V.32 does. On an average telephone line, though, the Telcor modem was completely outclassed by the others we tested.

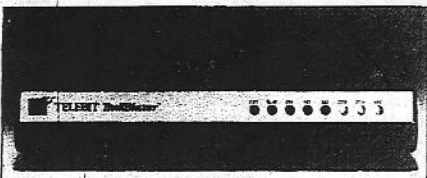
The Accelerator 24 modem communicates asynchronously only. You can set up the modem's options from the front panel, and you can also operate through the panel to place or answer calls as well as switch back and forth between voice and data modes.

The basic AT command set controls the connection, while options depend on proprietary commands (extensions of the Hayes command set) or an instruction from the front panel. Besides the usual RS-232 indicators on the front of the unit, a two-digit LED display shows diagnostics codes and other system status information.

Testing is limited to local analog loopback and remote digital loopback. All test functions are initiated from the front panel. There is no built-in data generator/checker; you have to supply and check data from the attached terminal or computer.

The Telcor modem carries a three-year warranty. Service is provided in Massachusetts.

Telcor Accelerator 24, \$995; Telcor Systems Corporation, 12 Michigan Drive, Natick, MA 01760; (617) 653-3995.



The Trailblazer stands out as a radically different modem.

Telebit Trailblazer

The only radically different modem in this evaluation is the Telebit Trailblazer. In 1985, the company decided to abandon widely recognized signaling methods in favor of developing a completely new technique. Its Packetized Ensemble Protocol (PEP) sends data on a large number (up to 512) of narrow-band carriers instead of on one wideband one. If one or more bands cannot transfer data accurately, then information is carried on the remaining useful bands, yielding throughput as high as 14,400 bps.

To simulate full-duplex operation, Telebit implements a protocol that manages the resulting half-duplex link. The only problem is that PEP's slow turnaround time — about one second — makes interactive operation almost impossible. You hit a key, and the echo doesn't appear on the screen until two seconds later. (Telebit president Jim Jordan says that the latest modem firmware reduces turnaround time to approximately 150 ms. Upgrades are available for \$99.)

You can also use this modem to communicate with existing 300-, 1,200-, and 2,400-bps modems without problems; however, the Trailblazer provides no support for synchronous operation.

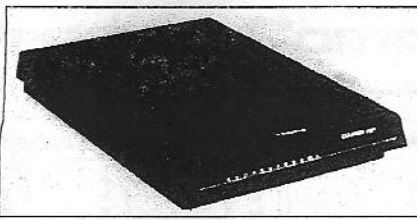
The test bench was where the Trailblazer showed its stuff. As indicated in the table, the modem maintained respectable throughput rates up through our worst-case test.

There is no manual way to switch back and forth between voice and data modes, although you can do it through the terminal or PC.

The command set is compatible with the basic AT industry standard command set. However, extensions to the Telebit command set conflict with Hayes 2400 commands, so your sophisticated communications software has to be set up specifically with the Trailblazer in mind. Most options are set using the modem's S-registers rather than with commands; earlier this month, however, Telebit began shipping a menu-driven setup package with the Trailblazer.

The modem carries a one-year warranty with a unit exchange policy, extendable for two years for \$195. Service is performed in Cupertino, California.

Telebit Trailblazer, \$1,345; Telebit Corp., 10440 Bubb Road, P.O. Box 4040, Cupertino, CA 95014; (408) 996-8000.



The Courier HST supports only asynchronous operations.

US Robotics Courier HST

Our last modem is definitely not the least. The US Robotics Courier HST uses a high-speed forward channel (using V.32 signaling) and a low-speed (300-bps) reverse channel to optimize interactive functions while file transfers take place at full speed.

The Courier HST is fully compatible with MNP modems at 2,400 and 1,200 bps, and with non-MNP modems at 2,400, 1,200, and 300 bps.

The performance table shows an interesting quirk in the Courier HST. Our test setup inserts impairments in only one side of the telephone connection, simulating one bad link on a 4-wire trunk while the other link is clean. Under any significant amount of impairment in our long-distance tests, the Courier HST was unable to make a connection in answer mode, even after several attempts.

The US Robotics modems only support asynchronous operations. If you have a micro-to-mainframe application, you'll need a modem other than the Courier HST to perform it. The HST does not allow direct manual call origination or voice/data switching, although you can accomplish both through a terminal or PC controlling the modem.

The command set is very similar to the Hayes 1200 command set, which means the Courier HST modem is easy to use with software that can set up and control a Hayes 1200 modem.

The HST provides analog loopback testing using either manual mode or the built-in data generator/checker. (It has no remote loopback or local digital loopback capability.)

US Robotics offers a two-year warranty for the Courier HST modem, extendable for \$20.50 per year. Service is performed in the company's factory.

US Robotics HST, \$995; US Robotics Inc., 8100 N. McCormick Blvd., Skokie, IL 60076; (312) 982-5001.

Executive Summary

This evaluation focused on file transfers between two widely separated personal computers. The critical factors were cost, the error-free transfer rate, and the ease of placing and/or receiving calls once the modems were set up properly.

The modem that meets all our criteria is the \$1,099 Fastcomm 2496, which transmitted data even through our worst-case connection conditions. The Fastcomm 2496 would lead our list even if price weren't a consideration.

The US Robotics modem, with its asymmetric modulation technique and its \$995 price tag, would be attractive if its long-distance performance were better. This low-cost modem is our choice for local operations.

Hayes has put all its 9,600-bps functionality into the same "classic" chassis the company has used for all of its modems since the 300-bps model. As a major player in the modem field, Hayes can certainly affect buyers' perceptions of what a "standard" modem does; however, it remains to be seen how much weight the company will swing in the high-speed marketplace, especially with regard to international standards. For the moment, the Smartmodem 9600 provides average performance at a reasonable price.

Although priced way outside the PC-modem class, the Cermetek and Codex modems do an outstanding job of long-distance transmission, especially over clean lines. They'd be our choice for communications over leased lines between geographically distant stations in a local area network.

Word Processing Features Chart

Errors Corrected

A technical error in electronic transmission surpassed several marks in our word processing features chart in "Office Word Processing: The Current Crop," which appeared in the July 13 issue of *InfoWorld*. As a result, some word processing systems were credited with features they do not have and others were denied features they do have.

In this issue we publish the correct chart, with our apologies for the confusion caused by the transpositions.

Several readers identified features we indicated as not present, saying they believe these features are available in several of the products. The difficulty here lies in the definitions we used for these features and in the differing approaches of the word processing programs we included in our summary. Some products provide specific key combinations that will accomplish particular functions, while other products offer a general-purpose method of achieving the same result.

The best example of this may be the delete function. Some systems (Word Perfect for example) offer specific Delete Word Right and Delete Word Left functions (Ctrl-Backspace, Home-Backspace). Other systems, Samna IV for example, provide only a generic delete function in which you signal a delete, shade the text to be deleted (be it several characters, a word, or a large passage), and then execute the deletion.

While both achieve the same results, we do not consider the second method to be equivalent to the first. Programs that have specific key combinations for single-word deletions typically have generic block-delete functions as well as the specialized procedures. Hence, when the chart indicates that Samna IV, for example, does not have a Delete Word function, it does not mean such an obviously important operation is impossible under this word processing system, only that there is no single keystroke or combination that has been designated to specifically perform that function.

Whether the availability of a special keystroke is an important distinction depends greatly on personal preference, but we think readers need to know which systems have them.

Features comparisons, like benchmarks for computer performance, always need to be interpreted with caution. As we indicated in the summary, these systems are so powerful and feature-laden that unless a particular feature is essential for your office, other factors, such as style, ease of use, and compatibility with existing equipment and software, may be much more important than specific comparative features when it comes time to choose between products.

— Editors

READERS RESPOND

We currently use Samna Plus IV on a Novell network as the stock in trade of our consulting business. How an office word processing package is implemented on a network is an absolutely critical question in modern PC word processing environments. This aspect of word processing was completely ignored in your review.

Cameron Patterson

Loretta L. Gross

Recon Regional Environmental Consultants

San Diego, CA

You are of course correct about the growing significance of software performance on networks. However, since much of application software performance on microcomputer networks is heavily dependent on the network's hardware capabilities and network software, meaningful comparisons based on the word processing software alone are difficult to make.

While some of the word processing packages included here claim network capabilities, we have not tested them for performance under those conditions.

— Editors

■ = More
☑ = Feat
☒ = Less
□ = Feat

Cursor Mo

Beginning

Character

End of Line

Page Up/ff

Screen Up

Top of Scr

Word Right

Delete

Block

Character

Character

Cursor to l

Line

Word

Insert/Typ

Move Tex

Block

Column/Re

On-Screen

Bold

Center Lin

Decimal C

Delete Fon

Hanging in

Hard Page

Justify/No

Line Spaci

Auto Refor

Set Tabs

Set LPI 6, E

Set Margir

Set CFI 10

Show Form

Super/Sub

Underline

Word Wra

Print Time

Change to

Change Fo

Header/Fo

HMI/VMI S

Include Tex

Many Print

Margins: Tr

Microspaci

Page Offis

Page Numk

Proportion

Set Startin

Single She

Start/Stop F

Miscellane

Dictionary c

File and Din

Find/Replac

Floppy Disk

Mailing List

Import/Exp

Insert File fr

Non-docum

Beyond Sin

Align Chars

Advance Lin

Append Blo

Auto Hyph

Case Chang

Center Block

Center Page

Color Month

Concordanc

Conditional

Conditional

Selected Features of Office Word Processing Programs

	Wordperfect 4.2	Samna Word IV	Multimate Advantage II	Office Writer 5.0	Wordstar 2000 Plus	Microsoft Word 3.11	Displaywrite 4		Wordperfect 4.2	Samna Word IV	Multimate Advantage II	Office Writer 5.0	Wordstar 2000 Plus	Microsoft Word 3.11	Displaywrite 4
■ = More powerful than others								■ = More powerful than others							
☑ = Feature exists								☑ = Feature exists							
☒ = Less powerful than others								☒ = Less powerful than others							
□ = Feature does not exist								□ = Feature does not exist							
Cursor Movement															
Beginning of File/End of File	☑	☑	☑	☑	☑	☑	☑	Create Directory	☑	☑	☑	☑	☑	☑	☑
Character Right/Left	☑	☑	☑	☑	☑	☑	☑	DCA/RFT File Conversion	☑	☑	☑	☑	☑	☑	☑
End of Line/Beginning of Line	☑	☑	☑	☑	☑	☑	☑	Delete from Cursor to End of Page	☑	☑	☑	☑	☑	☑	☑
Page Up/Page Down	☑	☑	☑	☑	☑	☑	☑	Delete from Cursor to Start of Line	☑	☑	☑	☑	☑	☑	☑
Screen Up/Screen Down	☑	☑	☑	☑	☑	☑	☑	Delete from Cursor to Word Boundary L/R	☑	☑	☑	☑	☑	☑	☑
Top of Screen/Bottom of Screen	☑	☑	☑	☑	☑	☑	☑	Document Descriptions	☑	☑	☑	☑	☑	☑	☑
Word Right/Left	☑	☑	☑	☑	☑	☑	☑	Document Comments (text, not printed)	☑	☑	☑	☑	☑	☑	☑
Delete															
Block	☑	☑	☑	☑	☑	☑	☑	Edit while Printing	☑	☑	☑	☑	☑	☑	☑
Character at Cursor	☑	☑	☑	☑	☑	☑	☑	Endnotes separate from Footnotes	☑	☑	☑	☑	☑	☑	☑
Character Left of Cursor	☑	☑	☑	☑	☑	☑	☑	Find, Backwards (Reverse Find)	☑	☑	☑	☑	☑	☑	☑
Cursor to End of Line	☑	☑	☑	☑	☑	☑	☑	Flush Right/Ragged Left	☑	☑	☑	☑	☑	☑	☑
Line	☑	☑	☑	☑	☑	☑	☑	Footnotes/Back or Bottom of Page	☑	☑	☑	☑	☑	☑	☑
Word	☑	☑	☑	☑	☑	☑	☑	Foreign Alphabets	☑	☑	☑	☑	☑	☑	☑
Insert/Typeover Toggle	☑	☑	☑	☑	☑	☑	☑	Go to DOS	☑	☑	☑	☑	☑	☑	☑
Move Text (Cut or Copy)															
Block	☑	☑	☑	☑	☑	☑	☑	Go to Page Number	☑	☑	☑	☑	☑	☑	☑
Column/Rectangle	☑	☑	☑	☑	☑	☑	☑	Hard Space	☑	☑	☑	☑	☑	☑	☑
On-Screen Formatting															
Bold	☑	☑	☑	☑	☑	☑	☑	Help (full on-line screens)	☑	☑	☑	☑	☑	☑	☑
Center Line	☑	☑	☑	☑	☑	☑	☑	Hyphenation (Auto/Manual)	☑	☑	☑	☑	☑	☑	☑
Decimal Columns	☑	☑	☑	☑	☑	☑	☑	Hyphenation (Dictionary)	☑	☑	☑	☑	☑	☑	☑
Delete Formatting Codes	☑	☑	☑	☑	☑	☑	☑	Import 1-2-3	☑	☑	☑	☑	☑	☑	☑
Hanging Indent	☑	☑	☑	☑	☑	☑	☑	Include Graphics	☑	☑	☑	☑	☑	☑	☑
Hard Page-end	☑	☑	☑	☑	☑	☑	☑	Indent Left/Right Margin (Temporary)	☑	☑	☑	☑	☑	☑	☑
Justify/Non-justify	☑	☑	☑	☑	☑	☑	☑	Index	☑	☑	☑	☑	☑	☑	☑
Line Spacing, 1-3	☑	☑	☑	☑	☑	☑	☑	Insert Text of System Date/Time	☑	☑	☑	☑	☑	☑	☑
Auto Reformat All Text to New Margins	☑	☑	☑	☑	☑	☑	☑	Insert Code to Print Date/Time	☑	☑	☑	☑	☑	☑	☑
Set Tabs	☑	☑	☑	☑	☑	☑	☑	Justify Proportionally Spaced Text	☑	☑	☑	☑	☑	☑	☑
Set LPI 6, 8	☑	☑	☑	☑	☑	☑	☑	Keyboard, Define keys to other chars	☑	☑	☑	☑	☑	☑	☑
Set Margins Left/Right	☑	☑	☑	☑	☑	☑	☑	Keyboard Macros	☑	☑	☑	☑	☑	☑	☑
Set CPI 10, 12, 17 (or condensed)	☑	☑	☑	☑	☑	☑	☑	Line Draw	☑	☑	☑	☑	☑	☑	☑
Show Formatting Codes	☑	☑	☑	☑	☑	☑	☑	Line Numbering	☑	☑	☑	☑	☑	☑	☑
Super/Subscript	☑	☑	☑	☑	☑	☑	☑	List Generation (Illustrations, Etc.)	☑	☑	☑	☑	☑	☑	☑
Underline	☑	☑	☑	☑	☑	☑	☑	Lock Documents (Password)	☑	☑	☑	☑	☑	☑	☑
Word Wrap at End of Line	☑	☑	☑	☑	☑	☑	☑	Margins in Inches	☑	☑	☑	☑	☑	☑	☑
Print Time Formatting															
Change to New Page Number	☑	☑	☑	☑	☑	☑	☑	Margin Release, Left	☑	☑	☑	☑	☑	☑	☑
Change Font/Print Wheel	☑	☑	☑	☑	☑	☑	☑	Math (Columns, Calculator)	☑	☑	☑	☑	☑	☑	☑
Header/Footer	☑	☑	☑	☑	☑	☑	☑	Other File Conversion	☑	☑	☑	☑	☑	☑	☑
HMI/VMI Support	☑	☑	☑	☑	☑	☑	☑	Outline Numbering	☑	☑	☑	☑	☑	☑	☑
Include Text with Page Number	☑	☑	☑	☑	☑	☑	☑	Overstrike	☑	☑	☑	☑	☑	☑	☑
Many Printers Supported	☑	☑	☑	☑	☑	☑	☑	Paragraph Numbering	☑	☑	☑	☑	☑	☑	☑
Margins: Top, Bottom, Page Length	☑	☑	☑	☑	☑	☑	☑	Preview Document (as printed)	☑	☑	☑	☑	☑	☑	☑
Microspacing	☑	☑	☑	☑	☑	☑	☑	Print from Screen	☑	☑	☑	☑	☑	☑	☑
Page Offset	☑	☑	☑	☑	☑	☑	☑	Print Block	☑	☑	☑	☑	☑	☑	☑
Page Number Placement	☑	☑	☑	☑	☑	☑	☑	Print Multiple Documents	☑	☑	☑	☑	☑	☑	☑
Proportional Spacing	☑	☑	☑	☑	☑	☑	☑	Printer Command, Insert	☑	☑	☑	☑	☑	☑	☑
Set Starting Page Number	☑	☑	☑	☑	☑	☑	☑	Protect Block (from Page Break)	☑	☑	☑	☑	☑	☑	☑
Single Sheet/Continuous Paper	☑	☑	☑	☑	☑	☑	☑	Rectangle (cut/copy)	☑	☑	☑	☑	☑	☑	☑
Start/Stop Print Any Page	☑	☑	☑	☑	☑	☑	☑	Redline	☑	☑	☑	☑	☑	☑	☑
Miscellaneous Features															
Dictionary of about 65,000 Words	☑	☑	☑	☑	☑	☑	☑	Remove Redline/Strikeout Text	☑	☑	☑	☑	☑	☑	☑
File and Directory Management	☑	☑	☑	☑	☑	☑	☑	Repeat Command	☑	☑	☑	☑	☑	☑	☑
Find/Replace (Forward)	☑	☑	☑	☑	☑	☑	☑	Sheet Feeder Support	☑	☑	☑	☑	☑	☑	☑
Floppy Disk Operation Reasonable	☑	☑	☑	☑	☑	☑	☑	Sorting	☑	☑	☑	☑	☑	☑	☑
Mailing List/Form Letter (Mail-Merge)	☑	☑	☑	☑	☑	☑	☑	Strikeout	☑	☑	☑	☑	☑	☑	☑
Import/Export ASCII	☑	☑	☑	☑	☑	☑	☑	Style Sheets	☑	☑	☑	☑	☑	☑	☑
Insert File from Disk	☑	☑	☑	☑	☑	☑	☑	Table of Contents	☑	☑	☑	☑	☑	☑	☑
Non-document Mode	☑	☑	☑	☑	☑	☑	☑	Table of Authorities	☑	☑	☑	☑	☑	☑	☑
Beyond Simple Word Processing															
Align Chars for Decimal Cols (change)	☑	☑	☑	☑	☑	☑	☑	Telecom Module	☑	☑	☑	☑	☑	☑	☑
Advance Line 1/2 (up/down)	☑	☑	☑	☑	☑	☑	☑	Thesaurus	☑	☑	☑	☑	☑	☑	☑
Append Block to Disk File	☑	☑	☑	☑	☑	☑	☑	Typewriter Mode	☑	☑	☑	☑	☑	☑	☑
Auto Hyphenation (Non-dictionary)	☑	☑	☑	☑	☑	☑	☑	Underline Tab Spaces On/Off	☑	☑	☑	☑	☑	☑	☑
Case Change	☑	☑	☑	☑	☑	☑	☑	Underline Style, Double/Single	☑	☑	☑	☑	☑	☑	☑
Center Block	☑	☑	☑	☑	☑	☑	☑	Undo Deletions	☑	☑	☑	☑	☑	☑	☑
Center Page Top/Bottom	☑	☑	☑	☑	☑	☑	☑	Widow/Orphan Control	☑	☑	☑	☑	☑	☑	☑
Color Monitor Support	☑	☑	☑	☑	☑	☑	☑	Windows/Split Screen (Different Docs.)	☑	☑	☑	☑	☑	☑	☑
Concordance List for Indexing	☑	☑	☑	☑	☑	☑	☑	Windows/Split Screen (Same Document)	☑	☑	☑	☑	☑	☑	☑
Conditional End of Page	☑	☑	☑	☑	☑	☑	☑	Word Count	☑	☑	☑	☑	☑	☑	☑
Conditional Form Letter/Mail Merge	☑	☑	☑	☑	☑	☑	☑	Wordstar File Conversion	☑	☑	☑	☑	☑	☑	☑

NOTE: The presence of a feature does not indicate that each program's implementation of it is as comprehensive, flexible, or effective, only that some version of the feature exists.