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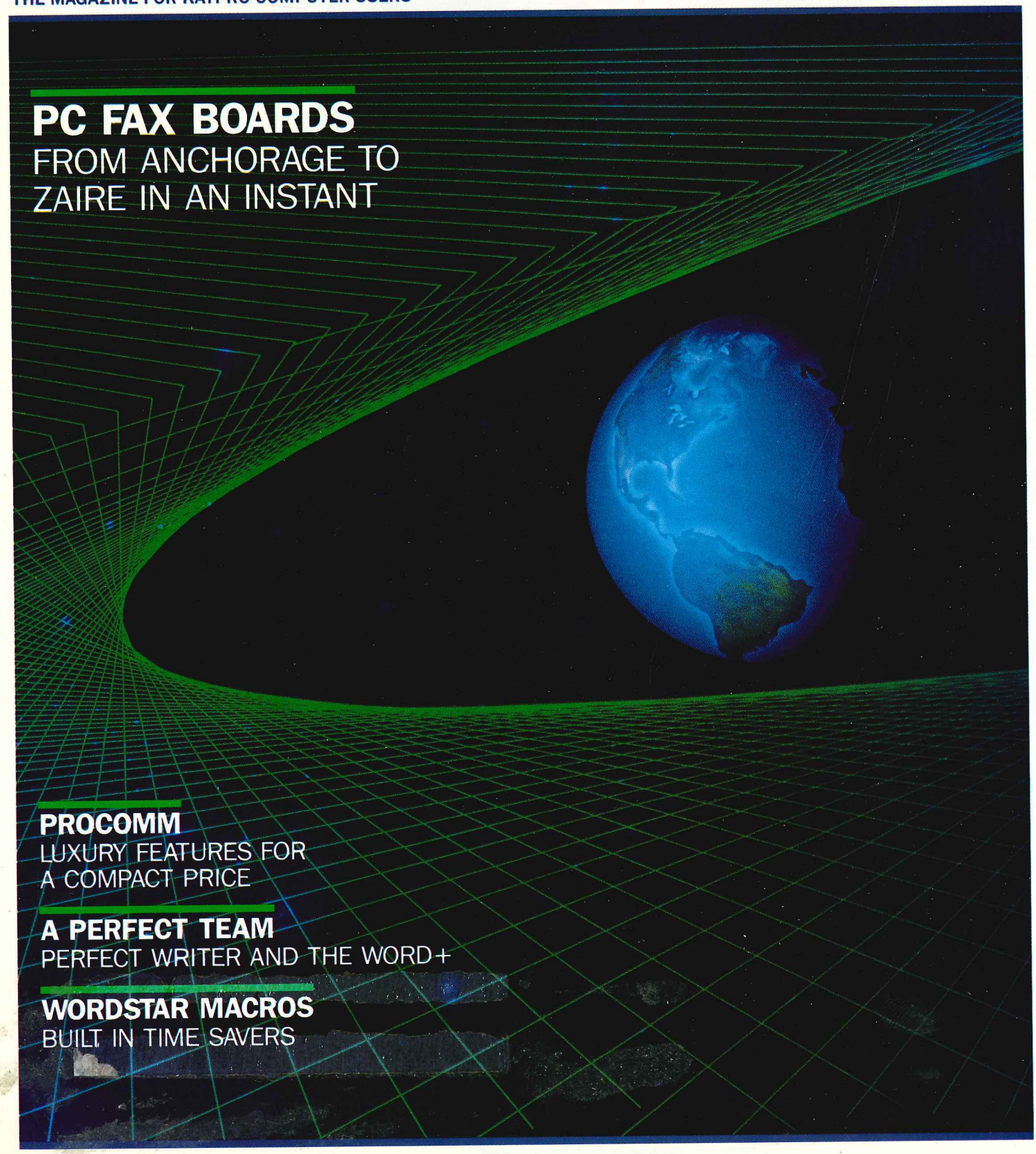
PROFILES

THE MAGAZINE FOR KAYPRO COMPUTER USERS

FEBRUARY 1988



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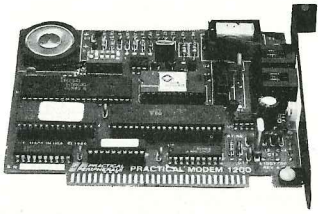

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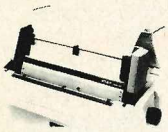

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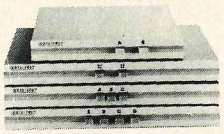

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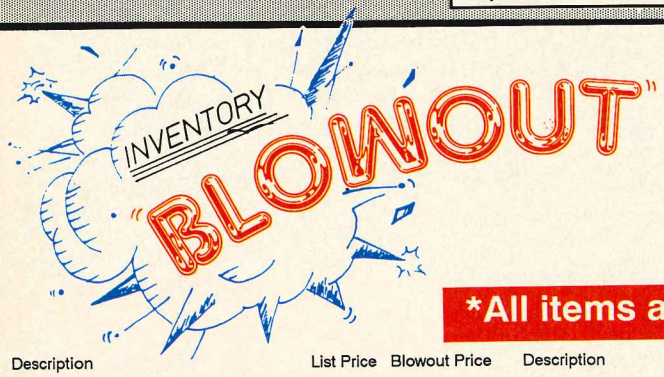

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Accounting Partner Integrated (1)	$599.	$299.
Sorcim Superwriter (4)	$295.	$99.
ATI Wordstar (3)	$69.	$39.
ATI Multiplan (3)	$69.	$49.
ATI Supercalc (3)	$69.	$39.
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ATI Basic (2)	$42.	$29.
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Versapayables (1)	$79.50	$49.
Versapayroll (1)	$79.50	$49.
MagicBind WS (3)	$199.	$125.
MagicBind ASCII (1)	$199.	$135.
• CP/M Hardware/Accessories:		
Osborne WS/MM Templates (2)	$17.95	$5.
Osborne Personal Pearl Templates (2)	$17.95	$5.
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Osborne SuperCalc Templates (5)	$17.95	$5.
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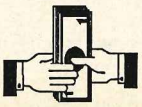

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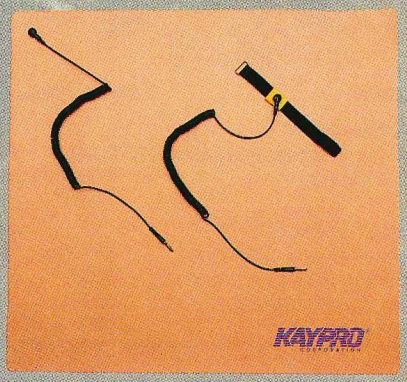

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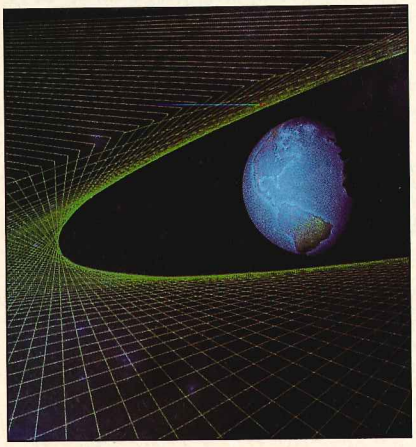

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PUBLISHER'S NOTES

KEEPING UP WITH CHANGE

One of the things that fascinates me most about the microcomputer industry is the lightning pace at which change occurs. Each and every day there are new hardware developments, new versions of software are released, and products that had set standards become obsolete. You think you're one step ahead, and you're actually two steps behind.

Take, for example, the announcement of OS/2 last April. It was a good month or so before industry observers could explain to end users what it meant. Six months later, industry analysts are still trying to decide what it will do to the marketing and sales efforts of hardware and software companies, as well as what effect it will have on the end user, now and another six months down the road.

Though it takes a lot of time to investigate these new products, as business people and end users we must keep abreast of systems and products on the cutting edge of technology. But that doesn't necessarily mean new is better, and it doesn't mean you have to replace a product that has done the job for you so far. It's when your *requirements* change that your system and components must change.

With these thoughts in mind, this month we offer both articles on new technology and new looks at old standbys and updated favorites.

In "PC FAX Boards," Brock Meeks gives us a look at what's new in telecommunications, taking us one step beyond the modem and the stand-alone facsimile machine. Check out the advantages and disadvantages of these boards and see whether they might fit into your office automation plans.

Next, take a look at the new, "user-supported" version of Procomm. Reviewer Jack Nimersheim explains why this telecommunications program has replaced his long-standing favorite. With new features and greater ease of use, this former shareware product might well give higher-priced competitors a run for their money.

Just when you thought you'd discovered all of WordStar's secrets, MicroPro released Version 4.0 for both MS-DOS and CP/M, and both versions get a lot of attention this month. Steve Gilliland offers a hands-on guide to the new WordStar's Shorthand feature, demonstrating how to create handy macros "on the fly" from within a WordStar file. Ted Silveira concludes his two-part review of the CP/M version in our "At A Glance" department and suggests tips and tricks for the CP/M WordStar 4 user in his "CP/M Only" column.

For those of you with a bent for programming, Jim Spickard explains how to "Bulletproof Your Programs" in Turbo Pascal and avoid costly errors.

And although you may have thought we had done all there was to do with that old standby, Perfect Writer, in this issue Robert Stein explains how to run The Word Plus from Perfect Writer's menu.

At *PROFILES* we are always searching for ways to help you make the most of your Kaypro investment. We hope this month's selection will enable you to increase your productivity and enhance your computer's usefulness.

Gwyn Price

Our basic one-year subscription rate is $25 for 12 issues. If your first issue does not arrive within eight weeks after ordering, or you miss an issue, please write to us: PROFILES Magazine, P.O. Box 2889, Del Mar, CA 92014. We'll extend your subscription or send the issue. To direct PROFILES to a new address, attach a recent mailing label plus your old and new addresses. Allow eight weeks for processing. International subscriptions are available directly through PROFILES Magazine only. Our regular yearly international rate is USD $40 (includes postage). Checks MUST be drawn on a U.S. bank in U.S. dollars only.

HELP FOR NOVICES

Bring back the "Beginner's Luck" column! When you changed [the magazine's] format, I felt assured that that column would remain—and it hasn't. I feel you are doing a disservice to those of us who love our Kaypros, but are not at a level where we feel comfortable with patching and other maneuvers.

A slick cover is nice, but what really counts is the information you impart to your readers.

Barbara Conner
Alexandria, Virginia

We're well aware that many of our readers are novices who need lots of basic information about their hardware and software—and that, believe it or not, is exactly why we dropped "Beginner's Luck." We felt we would serve novices better by not restricting material for them to one short column each month. Instead, we decided to give such articles more space by making them full features labeled "Beginner." Articles that get readers "up and running" are a key part of the magazine, and we hope you find the "Beginner" features at least as valuable as "Beginner's Luck."

WHAT GIVES?

Hey, what's going on?

As a long-time subscriber and the owner of both CP/M and MS-DOS machines, I've always looked forward to *PROFILES* for its diversified and reasonably objective editorial content, in which I almost always found something of value.

But your December issue is something else again—primarily, the four major articles not too subtly touting a single piece of software (Microsoft Windows), wrapped around a gift catalog.

Yes, it's nice to learn a little about Windows, even though I don't have it and see absolutely no need for getting it, given my reasons for using computers—and one article would have done that. But devoting virtually your entire editorial feature budget to it? Come on, now! Many more issues like this, and there's no way I'll renew my subscription. I'm afraid that what your magazine may have gained in slick appearance in your December issue it more than lost in editorial integrity.

James Ullman
Park Ridge, Illinois

Although PROFILES has never been a computer "news" magazine, we felt that the Windows environment was one timely subject our readers might need and want to see covered in some depth, and that its importance justified a "Windows issue."

This environment will play a key role in Microsoft's soon-to-be-released OS/2, and a substantial amount of software is being written or rewritten specifically to be compatible with it. Some even predict that it will become the standard user interface for a wide variety of programs. In light of this, we figured many of our readers (and a huge number of computer users in general) would want to find out just what this new environment had to offer—both good and bad.

We do not feel that our editorial integrity was compromised by devoting so much space to this particular subject. However, future issues will be more in line with what you are used to in PROFILES—articles selected with a variety of readers' interests and applications in mind.

TIPS FROM A KAYPRO DEALER

I just noticed letters from two readers in the August issue of *PROFILES* thanking you for the tip I passed on a while ago regarding a problem with degrading solder joints on the power supply board in the CP/M Kaypros. I have also received five or six letters of thanks from people who saw a similar letter published in the now-defunct KUGRAM from Malverne, New York.

I reckon I should therefore mention a similar problem I've been seeing with Kaypro 16s, and I hope you will print it also. I'm sure that many will benefit from it, as roughly one-third of the 16s (pre-enhanced) that we've sold require it.

CONTINUED ON PAGE 6

CONTINUED FROM PAGE 5

Readers with older Kaypro 16s may well be aware that the video sections of their machines are rather easily excited by the presence of static electricity (the squiggly-green-line-down-the-center effect). Effective remedies for this problem range from purchasing static mats to moving to Arizona.

Video blinkouts on 16s may well be due to something else entirely, however, especially in the case of a screen that blanks completely (not even a squiggle) and then mysteriously restores itself (maybe) after a few minutes, or after a keystroke.

On the power supply board, deep within the bowels of this computer, is a pin dedicated to supplying +12 volts to the video controller board. The solder joint attaching that pin to a trace on the board is under some considerable stress because of all the current it is passing. It tends to respond by falling apart, creating a loose connection that comes and goes in an erratic way, making for a vagabond screen image.

The pin in question is the fourth one down from the top, right after the three lines for the 120 volts AC power coming in. This pin may well be marked "+12V," but it's always the fourth one in.

If you suspect that your Kaypro 16 is suffering from this malady, take this description to your dealer and let *him* apply the elbow grease and solder, as an almost complete dismantling of the machine is necessary. He'll find the fix time-consuming but easy. You'll have a machine that will be ready for anything again.

Warren Allen
NesTech Corporation (Kaypro dealer)
Bennington, Vermont

On behalf of those who may have this annoying problem, thanks for the helpful advice. PROFILES *will continue to publish technical tips from Kaypro dealers as we receive them.*

BASIC CP/M HELP

With the dilemma of gathering material for your CP/M system users, I'm sure you

will appreciate input for that system, however small it may be, so enclosed is a little MBASIC program that I have devised to reverse my printer. It is handy for column printing.

My system consists of a Kaypro 2 with an Epson FX-80 printer. The reverse line feed was the primary motive for buying the FX-80, and it was my desire to write a program to use in that area. The program that will do this for me is as follows:

```
10 FOR X = 0 to 27
20 LPRINT CHR$(27)"j" CHR$(121)
30 NEXT X
```

By using XtraKey I am enabled to cut corners further.

Frank L. Moon
Honolulu, Hawaii

SUBSCRIPTION HANGUPS

One would think a major computer user magazine publishing technical and how-to articles for users could get someone to update the subscriber lists in the database once in a while, maybe before mailing out magazines each month. Every time I renew my subscription to *PROFILES* or buy another Kaypro, I get two copies of the magazine every month thereafter.

Isn't it possible for someone to simply add six months (after a purchase of a computer) or 12 months (after a subscription purchase) to the subscriber's data field for subscription ending date, before each month's mailout? Surely one of you could write a command file for the database (or are you using MailMerge?) to list duplicated names, then browse through the database to eliminate the duplicates and add the new months to the subscriber's field in the remaining record. Could you get the appropriate folks to straighten this out for me again?

T. Dave Gowan
Erskine College
Due West, South Carolina

Imagine, if you will, a database that

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holds approximately 70,000 records, with each record holding over 40 fields. Several subscription monitoring agencies (including the U.S. Postal Service) require an incredible amount of concise information. Subscription fulfillment, in this case, requires more than a simple database running on a Kaypro 286i. We're talking mainframes here.

PROFILES, *like most other magazines, enlists the services of an outside fulfillment agency to take care of our data processing needs. Subscription information (changes of address, renewals, invoices, etc.) is entered during a 30-day period and updated once a month prior to mailing our magazine. Customer concerns and complaints are handled at our offices to ensure the best service possible. Our service must have improved over the years—complaint mail and phone calls have been drastically reduced.*

However, no magazine that we know of is without its share of subscription headaches. One unique to PROFILES *is that readers receive six additional issues when they purchase a second computer. Our system automatically enters a second subscription because many subscribers—which are often businesses—wish to receive additional copies of* PROFILES *for a new user for whom the second machine was purchased. Anyone who wants to add six issues to an existing subscription should simply write his or her account number (the number beginning with "PF" on the mailing label) on the warranty card before sending it in. We'll take care of the rest. Please call (619) 481-3934 or (619) 481-4353 with any subscription problems. We will fix the problem and get any missed issues to you promptly.*

PROFILES AND KAYPRO LEND A HAND

Last September I decided to resume my college education, which was rudely interrupted by a stroke suffered in my senior year. The two remaining courses, requiring independent papers of frightening proportions, became amazingly manageable once I mastered the intricacies of my Kaypro and WordStar.

For the first paper, on "Alternatives to

Incarceration," I would set up the desired page format each time I opened the file, a tiresome and (as I discovered later) unnecessary process. Control OS 2, ^OL1, ^OR70, etc. all became automatic by the time I reached page 25.

When I began my next paper, an undergraduate thesis on the same subject, but greatly expanded, I had already received the issue of *PROFILES* (May 1987) that detailed creating a WordStar disk for letters, articles, business letters, etc. by customizing the program. Now whenever I opened the file "THESIS," a string of commands took the place of the original controls I had to set before.

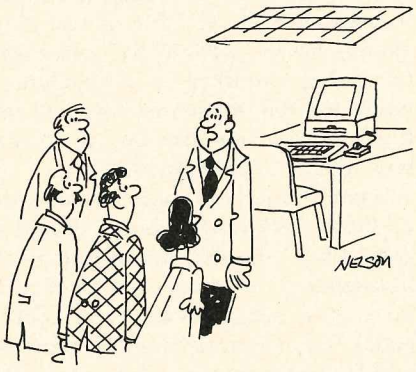
This computer came in handy when I was told I had two and a half months to complete the thesis (35 to 50 pages) instead of the three and a half months I had originally planned on. I wrote 72 pages in three and a half weeks; it took another half week to edit and print the final copy.

My Kaypro is also helpful in my career as a freelance writer; another disk containing WordStar has been customized to the format I use for articles.

So, I thank you for helping me graduate (with honors) and continue with my freelance writing.

Lisa Mancher
Scarsdale, New York

Thank you, Lisa, for the great story... and congrats on your graduation.



SOMEONE BROKE INTO OUR COMPUTER AND ALL YOUR PAYCHECKS HAVE BEEN DIVERTED TO THE CONTRAS.

Q&A

BY MARSHALL L. MOSELEY

Recently the screen on my Kaypro 4'84 has behaved strangely. Sometimes I turn it on and all I see are weird characters—blocks, lines, and scrambled letters and numbers. After I reset it a couple of times the video returns to normal. What is causing this?

As CP/M Kaypros age, this problem occurs more and more frequently. The scrambled video is caused by a problem with the integrated circuits (ICs) on the computer's mainboard that control video. This happens to chips that are socketed, rather than soldered.

With socketed chips, a plastic receptacle called a socket is soldered into place on the board, and the IC is plugged into the socket. Chips in sockets can be swapped fairly easily. Defective ones can be removed and new chips plugged in to replace them.

Daily thermal expansion and contraction can cause chips to work their way out of their sockets.

Sockets, however, are a mixed blessing. Whenever a computer is turned on, the internal components heat up and expand slightly; when it's turned off they cool and contract. After a few years of daily thermal expansion and contraction, chips can actually work part way out of their sockets. When this happens to video chips you get intermittent video problems—weird characters, scrambled video, and the like.

The solution is simple: open up the computer and push the chips back into place. This works with all but the earliest Kaypro 2'83 computers. Their chips are soldered in place, so you must take the computer to your dealer for repair. You can tell what type of 2'83 you have by the location of the keyboard connector. If it is in the center of the rear panel, then you do have an early one, and the following instructions don't apply to you. Otherwise, follow the steps listed below.

Begin by making sure that the computer is unplugged and the power switch is off. Place your computer on a sturdy table. Using a Phillips-head screwdriver, remove the screws that hold the computer cover in place. There are two on top and four on each side. Place the cover out of the way and look at the mainboard.

First get rid of any dust that may have collected there. Blow it off if you have a canister of compressed air, or gently wipe it off with a soft brush.

The video chips are not the only ones that can loosen over time. Every socketed chip on the board has the potential to cause trouble that can show up in many ways—as memory errors, for example, or disk read and write errors. Make sure that *all* the socketed chips are firmly in place.

Before reseating a chip, look at how it is set in the socket. If one end is higher than the other, gently push down on the high end. Once the chip is parallel to the circuit board, place your thumb in its center and press down firmly. Do this for every socketed chip on the board.

Replace the computer cover, plug in the machine, and turn it on. If the problem still exists or recurs, see your Kaypro dealer for repair.

I have a Kaypro PC with a monochrome monitor and the new 102 keyboard [102 keys as opposed to the previous 84, with separate numeric and cursor control keypads]. Sometimes, for no apparent reason, my keyboard will malfunction. The cursor control keys will send numbers, while the numeric pad controls cursor movement. Why is this happening, and how do I fix it?

The problem stems from software that sends the wrong signals to the 102 keyboard. Some programs assume that they are running on a computer with an old 84-key keyboard, and the signals they send and expect to receive are based upon that assumption.

The solution involves getting the computer and the software to understand each other. They need to adhere to the same standards for communicating with the keyboard. They need to "speak the same language."

Fortunately, just such a language exists: the ANSI standard. ANSI is the American National Standards Institute, a national organization for the establishment of standards in industry. ANSI has described how keyboard and video screens should function. The ANSI standard specifies what character sequence clears the screen and, most importantly, how signals from the keyboard are interpreted by the operating system and by application software.

Your computer and software need to adhere to the same standards for keyboard communication.

You can implement the ANSI standard by placing the line **DEVICE = ANSI.SYS** in your CONFIG.SYS file. If you don't already have a CONFIG.SYS file, create one using WordStar in non-document mode. Also be certain that the ANSI.SYS file is in your root directory or on your boot disk with CONFIG.SYS.

When you re-boot your computer, the problems with your keyboard should be gone. I say "should" because there are thousands of programs out there, and there is no way to cover every contingency. Implementing the ANSI standard will help in most cases, however.

CONTINUED ON PAGE 12

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We know that floppy disk users don't appreciate shuffling four or five disks in and out per application. We know that no users like to abort in the middle of an application to change printer pitch. We know that users don't like copy protection and complex licensing agreements. We don't believe that any systems with these 'features' can be considered easy to use so we left them all out of CPI Business Systems.

Fancy packaging and expensive type set manuals add greatly to the cost of most application packages but have little lasting value. Once your system/s are up and running for a week or so their real worth is their day-to-day productivity and responsiveness; the other materials gather dust. CPI Business Systems include **comprehensive manuals, sample data files, tutorial sessions, etc.—everything you need is included.**

No system is perfect; CPI Business Systems are not exceptions. That's why users are entitled to support when they need it and that's why CPI continues to enhance each system regularly based on user's suggestions.

Most users need a little support when getting started so we include 45 days of FREE support with each application. Others charge hundreds of dollars extra. Users of CPI Business Systems can extend support for a full year for less than ten cents per day per application.

CP/M users may become MS-DOS users in the years ahead; CPI has planned ahead for this possibility and we provide data file conversion service to any user. CPI will, however, continue to support and enhance these fine systems for CP/M users for years to come. Your investments today will not be obsoleted by tomorrow's technology.

These powerful systems are described briefly below. If you don't feel confident yet ask for our 30+ page overview or try an application demo system at half price (demo prices apply to future system orders).

There are no extra charges for shipping, COD, etc. American Express, Mastercard, VISA card orders welcome. We ship in 48 hours. Please tell us what format you want (11/2X/4/10/16), etc. Demo systems in KAYPRO formats only.

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CAPACITIES of 600 Customers (CP/M) 2000 (MS-DOS) – no limit on transactions, multiple customer disks OK.

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ACCOUNTS PAYABLE

$100.00 CP//M — $100.00 MS-DOS

Improve your cash management with this fine system. You'll get the up to date accurate picture of accounts to be paid, cash requirements for the data on file. Payments and notes vouchered automatically insuring timely payments. Complete check writing included. The system reports include Vendor File Lists, Open Vouchers, Ageing By Due Date, Discount Date Ageing, Cash Requirements, Check Registers, G/L Transaction List, Query Vendor Status, Credit Vouchers, Deleted Vouchers.

CAPACITIES – 600 Vendors, (CP/M), 2000 Vendors (MS-DOS) – no limit on transactions.

HARDWARE REQUIREMENTS

CP/M:	64K (53K TPA) & CP/M 2.0 or higher.
MS-DOS:	128K (or more) & MS-DOS/PC-DOS 2.0 or higher – ANSI.SYS.
Printer:	132 columns (compressed pitch supported), continuous forms.
Disk/s:	Dual Floppies/Hard Disk/Both – 191K recommended, less works.
CRT:	80/24 with Clear, Home, Clear to EOL, Up, Down, Left, Right.

CURRENT UPDATE:

WE ARE PLEASED TO ANNOUNCE OUR CONTINUING SUPPORT FOR CP/M USERS IN 1988

In 1988 CPI will begin releasing a new line of professional accounting systems for MS-DOS users (512K and hard disk required). These advanced systems provide context sensitive help, full screen displays (monochrome/ CGA/EGA), color and laser printer support, print spooling, full screen reporting, keyboard macros, application templates, automatic installation, etc. Each application will retail for $250 and includes 6 months of system updates and telephone support. More on the professional series in the next issue...

CONTINUED FROM PAGE 10

As a brand-new owner of a previously used Kaypro computer, I am sure that I have much to learn. One thing that puzzles me is the term "patching." I gather that means to change a program somehow, but exactly how does one accomplish this? Why would I want to?

You are correct in assuming that the term "patching" means to make changes to an executable program. To make these changes, you'll need to use a "debugger" or a disk editor.

Patching is a useful skill; you can customize programs and even change their operating speed.

Patching is a useful skill because its applications are so varied. By patching you can customize programs for your printer or video display, suppress menus or annoying messages within programs, and even change the speed at which some programs operate.

For editing disks, CP/M users have DDT.COM, and MS-DOS users have DEBUG.EXE. They are utility programs that are included with their respective operating systems. These programs are not actually disk editors, though each can function as one. DEBUG and DDT help assembly language programmers find errors (bugs) in their programs. This is called debugging, and logically enough, DEBUG and DDT are called debuggers (DDT stands for Dynamic Debugging Tool).

For an excellent introduction to patching with DDT and DEBUG, see "WordStar Deluxe," by Ted Silveira, in the May 1987 issue of *PROFILES*. The main article tells CP/M owners how to use DDT, and there is an accompanying article that will get MS-DOS users started with DEBUG.

In the same issue, see "Pinning Down Patch Points," by Joseph I. Mortensen. It is a good introduction to the logic of patching. It tells you how to search for patch points and what to do once you have found them.

Far more useful for patching than DDT or DEBUG are the public domain disk editing programs. Two well-known ones are SuperZap for CP/M and MasterKey for MS-DOS. The best way to get public domain programs is to use a modem and telecommunications software to download them from a public bulletin board or from Kaypro's own board, Kaypro Online (call 619/259-4437 at 2400, 1200, or 300 baud, using 8 data bits, 1 stop bit, and no parity).

If you don't have access to telecommunications equipment, you can get public domain software through your local Kaypro User's Group (KUG). KUGs are organizations of Kaypro computer users that meet weekly or monthly to discuss computer use and trade public domain software. To find the KUG nearest you call (800) 4-KAYPRO and be ready to tell the operator your zip code. He or she will tell you how to contact the KUG in your area.

Is there a faster way to copy files than typing out each filename? When I have more than two files to copy, hitting all those keys can get pretty tedious.

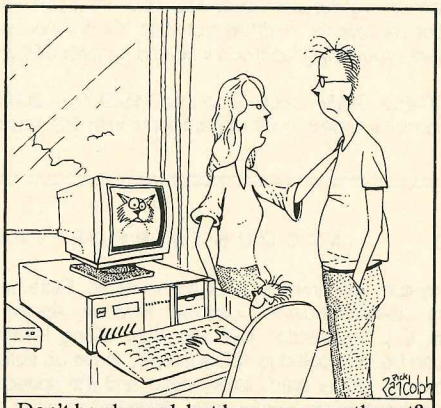
Many MS-DOS commands, including the COPY command, use *wildcard* characters. These are symbols that replace characters or groups of characters in a filename.

The wildcard that replaces single characters is the question mark (?). Suppose you had three files named TEXT1, TEXT2, and TEXT3. To copy all of them from the current drive to the B drive, for example, you would type **COPY TEXT? B:**. All files whose names were TEXT followed by one character—which could be a number or a letter—would be copied. In other words, files named TEXTQ or TEXTP, as well as TEXT1 or TEXT2, would be copied if they existed.

The second wildcard is the asterisk (*). It replaces the character in its position and every character to the right of it. It stops when it encounters the filename delimiter (a period) or the end of the filename. For example, you could copy the files TEXT.BAK, DATA.BAK, and STUFF.BAK to the A drive with **COPY *.BAK A:**. You could also copy all files that begin with P from the A drive to the current drive with **COPY A:P*.***.

An asterisk, a period, and a second asterisk (*.*) would stand for every file in the current directory. When these characters are used with ERASE or DEL, every file in the directory can be erased. MS-DOS will stop and ask "Are you sure?" before it will erase an entire directory, but you should still think carefully before deleting every file.

Other commands that use wildcards are ATTRIB, BACKUP, CHKDSK, COPY, DEL, DIR, ERASE, PRINT, REPLACE, SORT, and XCOPY. (XCOPY is not available in MS-DOS version 2.11). For more information, see your MS-DOS user's guide.



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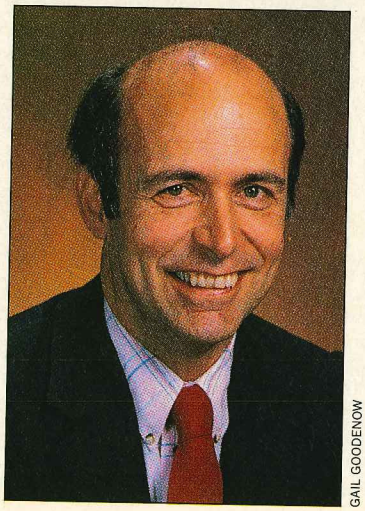
THE WORD ON VENTURA PUBLISHER



GAIL GOODENOW

BY TED SILVEIRA

Though Aldus' PageMaker gets a lot of press, partly because it's one of the few programs to run on both Macintosh and MS-DOS computers, the top page layout program for MS-DOS is really Ventura Publisher. Each program has its own strengths—PageMaker is best at short, freeform layouts (such as ads and short newsletters), and Ventura Publisher is best at long book-style layouts (manuals, reports, long newsletters). However, Ventura Publisher is much better at PageMaker's job (freeform layouts) than PageMaker is at Ventura's (book-style layouts)—that's what makes it a winner. And in Version 1.1, which has been out for some months now, Ventura increases its lead by adding a number of valuable new features.

In my original review (*PROFILES*, June 1987), I complained that Ventura Publisher couldn't crop line art, only bit-mapped art. Now it can crop both. It can also now import graphics from a number of new sources. Most important, Ventura can now import both Macintosh PICT format graphics (that's line art, like MacDraw) and MacPaint format graphics (that's bit-mapped art), opening up the immense store of Macintosh graphics to Ventura users (though you still have the problem of transferring the files to your computer from the Macintosh in the first place).

Ventura Publisher can also now import *encapsulated PostScript* (EPS) files, which are emerging as a major new graphics standard. Like all PostScript files, they can be scaled to any size and printed on any PostScript output device—laser printer or typesetter—and they will always print at the highest resolution available. So far, PostScript drawing programs like Adobe Illustrator are available only on the Macintosh, but the resulting files are transferable, and you'll soon see Illustrator and similar programs appearing in MS-DOS. Ventura has added several other graphics formats, too, including Video Show and Freelance, Computergraphics CGM, and HPGL.

In my original review, I also complained that Ventura Publisher lacked some useful tools on its work screen. Version 1.1 now has hairline markers on each ruler that follow the cursor so you can position things precisely. As in PageMaker, you can now reset the ruler zero point (very useful in some layouts) and automatically print crop marks on the pages. You can also set separate units of measure for the vertical and horizontal rulers—picas and points for width and inches for length, for example.

When you zoom in on the page, Ventura now automatically focuses on the area where the cursor is (which is the way it always should have been). And you can *anchor* frames (containing graphics, boxed text, captions, or whatever) to a certain section of text. If you move that text, all the anchored frames will move with it.

Though Ventura always handled text well, it has improved in that area, too. It can now handle both IBM's DCA (Document Content Architecture) format and the XyWrite format. It allows "hidden" text that will appear in the word processor but not in Ventura. It has introduced an improved hyphenation routine, *and* it now allows simultaneous hyphenation in two languages (a neat trick).

Ventura has also improved its typography. It now offers automatic kerning for fonts that contain kerning information. (So far, that means PostScript fonts almost exclusively.) It can handle letterspacing and tracking, it includes standard typographic spaces (em, en, figure, and thin), and it can automatically highlight loose lines. Ventura can now handle hundreds of fonts instead of only eight at a time, use the entire PostScript font library without having to load new width tables, download PostScript fonts automatically when needed, and scale PostScript fonts to any whole point size from 1 to 254. It can also now use matching screen fonts, if they're available, instead of its usual generic fonts.

And those are only the highlights. Ventura Publisher 1.1 allows you to change part of your installation without redoing the whole thing (about time, too). It has expanded the maximum chapter size, added extra printing options and printer support, and on and on. In my estimation, Ventura Publisher has pulled well ahead of PageMaker PC.

MORE WORDS ON VENTURA PUBLISHER

It's standard procedure these days that as soon as a major piece of software is

released, third-party books appear to tell you how to use it. No one, it seems, assumes that the software manual will be enough, and considering the power and complexity of today's MS-DOS programs, I think they're probably right. A software manual, after all, has to cover *everything* about the program, so it's nice to have a second guide that focuses on using the product for some practical purpose.

In this battle of the books, PageMaker got a big jump on Ventura because the PC version of PageMaker was so similar to the Macintosh version, about which a number of books had already been written. In fact, the first book on PageMaker PC appeared on bookstore shelves before the program itself hit the dealers' shelves. By contrast, no books on Ventura Publisher appeared until Version 1.1 was released. Now, however, there are two to choose from, both written by experienced and capable Ventura users.

Ventura Tips and Tricks, by Ted Nace, doesn't waste time. Instead of opening up with an explanation of desktop publishing in general and Ventura Publisher in particular, as you might expect, it plunges right into three short but useful tutorials—a business report, a newsletter, and a form—that guide you through three different approaches to using Ventura. This "do first, explain later" approach is refreshing and, I think, very useful for overcoming the mental paralysis that often affects people facing a complex new program for the first time. The tutorials are brief but probably complete enough for people who are familiar with DOS but new to Ventura.

The book then backs up a step, moving to a section that includes a chapter on the concepts and foundations of Ventura, a chapter on desktop publishing hardware, and a chapter on managing files. The concepts chapter is mildly useful, and the file management chapter is very useful (desktop publishing programs breed files like chinchillas). The hardware chapter seems out of place, though, as most people (certainly those who have worked through the tutorials to get to this chapter) will have already bought their hardware. This information really belongs in a general book on desktop publishing instead.

The third and fourth sections are the heart of the book. The third section, on using Ventura Publisher, has chapters on text, typography, fonts, pagination, graphics, and layout strategies in successive chapters. The fourth section covers various special topics, including chapters on adding fonts, working with Lotus worksheets and graphics, hyphenation, and speed tips, among others. Most chapters end with several pages of tips and answers to common questions.

In general, *Ventura Tips and Tricks* does a good job of explaining Ventura Publisher. In some places, the explanations are a bit thin, but a normal user with the program at hand won't have any trouble figuring them out. The writing is clear and straightforward, and the many tips scattered through the book are invaluable.

In fact, for me, the tips really make the book. For example, when you load a word processor file into Ventura and tag it, you'll find Ventura's text tags (like @ **Subhead** =) in the file the next time you load it into your word processor. If you need to do some heavy revisions or to use the file elsewhere, and you want to remove the tags, you can do so easily by loading the file into Ventura again, selecting DEFAULT.STY (which has no tags), and then saving it again. I could easily have wasted a couple of hours deleting text tags before I figured that one out.

Another tip that many might overlook: Ventura can do more than just read files in different word processor formats. It can also *translate* files, reading a WordStar file, for example, and then saving it as a Microsoft Word file. (Don't expect a complete translation of all formatting here.)

Ventura Tips and Tricks is worth its $15.95 price for the tips alone.

Next month, I'll cover the other Ventura book, *Inside Xerox Ventura Publisher*, by James Cavuouto and Jesse Berst. ■

'INTERCONNECTIVITY' A STEP AHEAD OF THE EMAIL SERVICES

RICHARD STARKMAN

BY BROCK N. MEEKS

Is the "global village" finally a reality? A study that appeared in *Electronic Mail and Microsystems*, published by a company called International Resource Development, reported that there are 1.237 million electronic mailboxes held by users of commercial Email services in North America and Canada. Mike Cavanagh, executive director of the Electronic Mail Association (EMA) states that there are an additional four million users of corporate (private) electronic mail systems.

Email's impressive growth rate furthers the vision of a "global village" originated by Marshall McLuhan and built upon by Alvin Toffler in his ground-breaking work, *The Third Wave*. There's just one problem: few of these Email systems can talk to each other.

Consider your own situation. Chances are you can electronically communicate only with those who subscribe to the same service you use. The inability of most Email services to communicate with each other raised a cry from users for "interconnectivity"—the ability to "get there from here" without having to maintain several different electronic mailboxes (as I do—I have no fewer than 10 different electronic addresses.)

Answering this cry for help, the Comité Consultatif Internationale Telephonique et Telegraphique (CCITT) developed an international standard known as X.400 for message services.

The X.400 standard has several parts and describes the way connections among systems can be accommodated, but there's a catch. The standard is a long way from universal implementation. Will we have to wait until the next century for a true global village to emerge? Not if a service known as DASnet has its way.

ELECTRONIC PONY EXPRESS

In July 1987, DA Systems, Inc. (Campbell, California; 408/559-7434) announced the opening of DASnet, a kind of pony express for the information age. It's Email with its shirt sleeves rolled up.

"Without DASnet, a major frustration faced by Email users has been their inability to communicate with people using other systems," says Russell Briggs, president of DA Systems. "In other words, knowing someone's electronic address doesn't do you any good if you can't exchange mail with the system that he or she uses. With a DASnet subscription and an account on one of the systems linked via DASnet, you can reach almost everyone who has an account on a public or fee-based system."

Briggs' statements may sound like so much marketing hype, but he isn't boasting. DASnet is the most efficient means of communicating electronically available today.

In the absence of a universally accepted X.400 standard, DASnet is taking up the slack. It's a classic case of "finding a need and filling it," says Anne Lange, DA Systems' marketing director.

The concept is deceptively simple: "A subscriber addresses a message to a user on a different service and sends that message through DASnet. We take care of the rest," said Lange. It's like addressing an envelope, dropping it in the nearest mailbox, and forgetting about it. The DASnet computers take care of all the appropriate routing and transmission. In a matter of hours your electronic message is waiting in your addressee's mailbox. Better still, addressees can return messages via DASnet even if they themselves are not DASnet subscribers. (However, you—not the sender—pay the cost, if any, of the return message.)

DASnet accomplishes this through a sophisticated network of accounts and privileges. You don't maintain several different mailboxes—DASnet does. And it can communicate with a dizzying array of Email services, including some Wide Area Networks (WANs). Sometimes referred to as "research networks," these include ARPAnet, UUCP, and Bitnet. (A WAN is usually a mainframe or minicomputer that runs an electronic mail system. There are literally millions of people connected to WANs throughout the world, most of them at universities and research laboratories.)

According to Lange, DASnet maintains mailboxes on several commercial services and has obtained special privileges to interconnect through several WANs. DASnet currently links the following electronic mail systems, conferencing systems and networks: ARPAnet, ATT Mail, Bit-

net, DCMETA, Dialcom, EIES, Western Union's EasyLink, MCI Mail, NWI, PeaceNet/EcoNet, Portal Communications, The Source, Telex, TWICS, UNISON, UUCP, The WELL, and Telenet's Telemail.

Lange adds: "International communications are crucial. Businesses of every size often work with suppliers, customers, and colleges abroad. Using the DASnet system, you can reach a customer in Japan via TWICS, a research associate in London via Dialcom, or a customs agent in Finland via Telex."

Suddenly the global village begins to look like a reality.

MAKING IT WORK

DASnet's main hub consists of several IBM PC XTs running under DA Systems' own QNX multi-tasking operating system. Each of these XTs is connected to a Local Area Network.

"There is a pool of modems kept busy by the various systems downloading messages, sorting the incoming mail, and putting it into various queues for upload destinations," Lange explained. "DASnet then dials into the destination systems and forwards the messages."

In addition to the XT network, there is a supermicro, running under UNIX, that connects with various WANs.

Here's a practical example:

I have a friend at Carnegie-Mellon University (CMU) in Pittsburgh, PA. We often exchange ideas online. He uses Bitnet, available to him on the CMU campus, to correspond with his colleagues throughout the country. However, he can't reach me because I have no access to Bitnet. DASnet solves the problem because it allows me to route a message to him via my MCI Mail account.

I simply insert his address on the subject line of a message I send to DASnet's MCI Mail account. His Bitnet address looks like this: **irjp@cmu.edu**. This is known as "domain addressing" and is a standard format for addressing Email on a WAN.

When DASnet dials into its MCI Mail account, it likely finds hundreds of messages stacked up in its "in box." DASnet downloads all these messages, reads the subject lines—which contain addresses like my friend's—sorts the messages, and assigns each one a specific time to be delivered. In a few hours my friend finds my message waiting for him. If he wants to send a reply, he uses his Bitnet Email system just as he normally would, specifying my DASnet domain address (brock@dcmci.DAS.NET). Bitnet then routes his message to the DASnet supermicro, which knows that the message must be forwarded to my MCI Mail account. The next time I log onto MCI Mail, his message is waiting for me. And my electronic world grows a bit smaller.

WHAT IF...

For now, DASnet is leading a charmed life. As long as the Email industry occupies itself with minor turf battles (who can connect with whom, and at what price), DASnet reaps the rewards. Make no mistake, though; according to EMA's Cavanaugh, the turf battles will subside. What will happen to DASnet when global interconnectivity becomes a reality?

Using DASnet, you can reach a customer in Japan via TWICS or a customs agent in Finland via Telex.

"DASnet shouldn't be judged on whether X.400 is coming now or later," says Cavanaugh. "I don't think you can say that DASnet is a good or bad investment based on whether X.400 is going to happen now or later.

"Interconnection is coming; it will be a reality. DASnet is certainly a kind of stop-gap answer to incompatible systems; but the stop-gap is certainly going to be necessary for more than a few years. So, in the sense of linking people together and extending their reach (electronically) circa 1987, DASnet will be around for some time to come."

Some industry watchers think it's in DASnet's best interests to downplay the future of interconnectivity, but Lange doesn't agree.

"We think interconnectivity will be a good thing (for the Email industry). But in talking to a lot of people, we've found that there will still be a tremendous need for the ability to connect with some of the smaller Email systems," she said. "And certainly, businesses will want to continue using DASnet to insure the broadest possible coverage for their people and clients. And we're ready-made for those types of applications."

THE BOTTOM LINE

So what's the price of all this global access? In a word: *Affordable*. DASnet costs only $4.50 per month for users of U.S.-based systems (compare that to $1,000 per month to maintain a mailbox on Telemail), plus any charges for inter-system mail (such as MCI Mail, where every message sent costs something). For those who use systems outside the U.S., the monthly fee jumps a mere dollar to $5.50. There's no special hardware or software required.

If that all sounds too good to be true, then there must be some kind of tradeoff, right? If there is, I haven't found one. I put DASnet through some stringent testing, routing messages across three or four different systems, and each message was delivered swiftly and intact.

Like the original Pony Express, DASnet is filling a desperate need. Likewise, it's racing against the clock of progress.

The coming of the Iron Horse relegated the Pony Express to a few paragraphs in high school history texts; there may be an Iron Horse in DASnet's future, too, but for now it's riding tall in the saddle.

A KAYPRO JOINS A HAZARDOUS MATERIALS RESPONSE TEAM

BY MICHAEL CAHLIN

The newest member of Captain G. E. Richards' hazardous materials response team in Ft. Worth, Texas, is a Kaypro 16. The computer is part of an experimental program that, if successful, will forever change the way hazardous waste materials are dealt with in this country.

In the past, when an incident involving hazardous materials was reported, response teams like Richards' were called on the scene. Then, relying strictly on memory, or what could be cross referenced through research books, the hazardous materials response team (HMRT) had to identify the hazardous waste materials, remember the correct safety procedures, and begin dealing with the situation. At best, this procedure took hours; at worst, days.

Now, with the use of a Kaypro computer and two new hazardous materials databases, this procedure can take as little as 45 minutes—saving time, money and lives.

THE SCOPE OF THE PROBLEM

Hazardous materials are chemicals that are transported by car, rail, boat or plane. These chemicals can range from common gasoline, oil, ammonia, and chlorine to uncommon radioactive materials, nerve gas, and worse. What's left of these chemicals after an accidental spill is considered hazardous waste.

More than 30 such accidents (or "incidents," as they are referred to in the trade) were reported in the October 1987 *Hazardous Materials Newsletter*. They included the derailment of a tank car loaded with chlorine in Randolph, New Hampshire, and a butadiene leak from a tank car in New Orleans, Louisiana.

Luckily, no chlorine gas escaped in Randolph, but the incident in New Orleans forced the evacuation of an estimated 800 people and the closing of nine schools.

These incidents are increasing by an average of 25 percent a year. They can happen at any time, anywhere in the country.

Richards' department handles around 300 incidents a year.

"Hazardous incidents are now a way of life in this country," said Richards, "and the situation is only going to get worse."

HIGH-TECH RESPONSE TEAM

There are 32 fire stations in Ft. Worth, but only one, Fire Station 11, has a team trained for hazardous waste clean-ups.

FIRSTsystem publishes fire service software, including two hazardous materials databases.

Like regular fire-fighters, the 17 team members never know what they're going to be up against, and a wrong decision can have catastrophic results.

Richards, a 28-year veteran, is very experienced in dealing with hazardous materials and stocks his department with state-of-the-art equipment. After seeing a demonstration of the Environmental Protection Agency's Oil and Hazardous Materials Technical Assistance Database (OHM/TADS), Richards went to the City of Ft. Worth Data Processing Section and requested that this experimental program be looked into.

This IBM PC software is only available from FIRSTsystem in Great Neck, New York. The company publishes a full line of fire service software, including OHM/TADS and the Coast Guard's Chemical Hazard Response Information System (CHRIS).

FIRSTsystems, along with Fein-Marquart Associates of Baltimore, converted the OHM/TADS program, which was once an EPA program for mainframes, for use on microcomputers.

FIRSTSystem's executive vice president, Rodney Nenner, saw the need for the broad applications of these programs in the public and private sectors.

"These programs are an information

resource for people dealing in hazardous materials,'' said Nenner. ''Immediate access to information is vital to controlling these dangers.''

Both programs are designed to give HMRTs instant access to information on more than 1,400 of the most common chemicals in the United States.

Hazardous materials databases can run on portable computers installed in emergency vehicles.

OHM/TADS is a fully relational database that can identify these chemicals using fields containing 15,000 entries—brand and trade names, the type of container used to house the chemical, color, smell, etc.—and can search through any combination of fields, using words, numerical values, and more.

The program also supplies information about personal safety precautions, hazard levels, fire protection, explosiveness, handling and storage procedures, disposal information, effects on humans, air, soil, and water, and procedures for notifying the proper authorities.

Both databases can run on portable computers that can be installed in emergency vehicles and taken directly to the accident site.

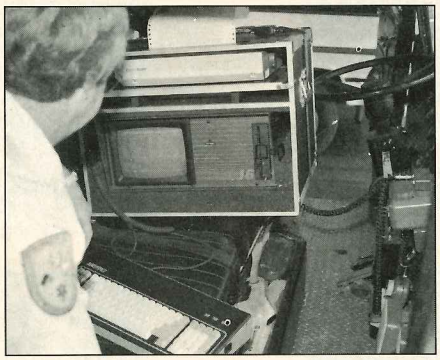
ONLINE AT FIRE STATION 11

This was exactly what Richards wanted to do when he first saw the OHM/TADS program demonstrated in May 1987.

He wanted to know if it was possible to put a portable computer aboard an emergency vehicle, then kluge a modem system whereby the computer could tie into a cellular network that would then communicate with the Chemical Manufacturers Association main CHEMTREC database in Washington, D.C. That database is used as a backup to the OHM/TADS programs and contains information on all known hazardous chemicals.

The city contacted Ronnie Franklin, owner of Logical Data Systems & Services in Granbury, Texas. Franklin has been a Kaypro dealer since 1982 and has been supplying the city of Ft. Worth with hardware and software since late 1984. Franklin's job was to turn Richards' request into reality.

The problems he faced were myriad. The computer needed at least 10 megabytes in order to store the 31 diskettes that comprise the OHM/TADS database. A special modem that could communicate over a cellular telephone system had to be created, as all modems work over regular telephone lines. The final system—



including computer, printer, modem, cooling system, and power supply—had to fit into a 17 by 23-inch space in the front seat of the emergency vehicle, and all the equipment had to be securely mounted so it wouldn't interfere with the safety of the emergency response team.

It wasn't easy, but Franklin did it.

The Span Modem was designed by Spectrum Technology in Dallas. It is a Hayes-compatible modem with error-correction capabilities for cellular communications.

The custom case was manufactured by The Cal Zone Case Company in Dallas. The case is surrounded by thick foam and has a fan built in to cool the system, as on-site temperatures can reach 105 degrees or more.

After the city gave Franklin the go-ahead, it took him less than 30 days to deliver an operational system. The cost was about $10,000—pretty cheap when you consider that one HMRT protection suit costs $6,500.

THE SYSTEM AT WORK

Here's how the new system works:

Fire Station 11 receives an incident call. The HMRT rolls to the scene of an unknown toxic spill. Team members gather intelligence from the people involved—the truck driver, police, eyewitnesses, etc. Meanwhile, other team members gather information about the hazardous material, such as the type of container, color, label ingredients, etc.

The HMRT feeds this information into the OHM/TADS program. If the hazardous material is one of the 1,402 compounds found in the database, the program identifies the materials, recommends a way to control and store the chemical, and gives procedures for dealing with the contaminated area, which may include evacuation of people.

If the chemical is not found in the OHMS/TADS program, the response team calls CHEMTREC in Washington, D.C., and explains what the known factors are. Then CHEMTREC researches its main database and modems the correct response through the cellular telephone back to the Kaypro computer.

''In the past, we couldn't get good data fast,'' said Richards. ''Hazardous materials must be handled quickly and accurately, but you have to have the correct information to make a proper decision.''

The City of Ft. Worth is now testing two interchangeable computer systems. One is in the HMRT fire truck; the other is in Richards' vehicle. Both give the HMRT instant access to valuable information that will aid in life-and-death decisions.

Today, fewer than five HMRTs in the country use mobile computers. If the Ft. Worth experiment is successful, similar computer systems will be aiding HMRTs in every community in the country. ■

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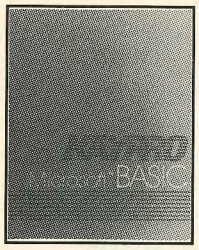

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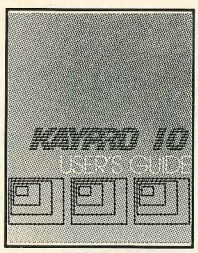

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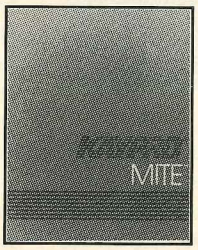

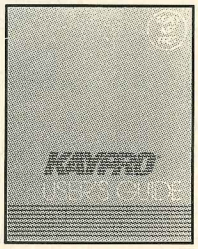

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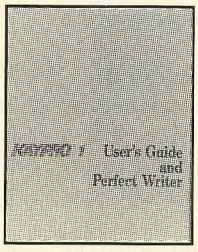

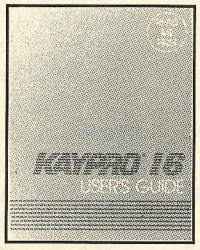

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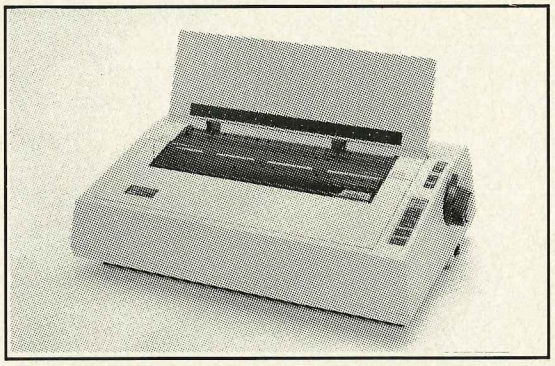

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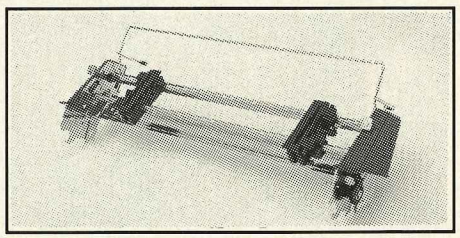

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PC FAX BOARDS GLOBAL DOCUMENTATION IN AN INSTANT

Facsimile (FAX) machines are to the telecommunications world what Geraldo Rivera is to journalism: much maligned, but always working. The acknowledged office draft horse, a FAX combines the functions of a scanner, modem, and printer to send and receive bit-mapped text and graphics over voice-grade telephone lines. ("Bit-mapped" simply means that each character is converted into a graphic image that you can manipulate with a graphics editor. A scanner takes a hard-copy image and turns it into computer-readable data—in this case, a bit-mapped image.)

With a stand-alone FAX machine, the user feeds in a sheet of paper containing text and/or graphics to be scanned, dials a phone number, and pushes a button. With a FAX card installed in a personal computer—the latest rage in computer add-ons—

CONTINUED ON PAGE 24

BY BROCK N. MEEKS

PHOTOGRAPHY BY MICHEL TCHEREVKOFF

Document: 07 pages
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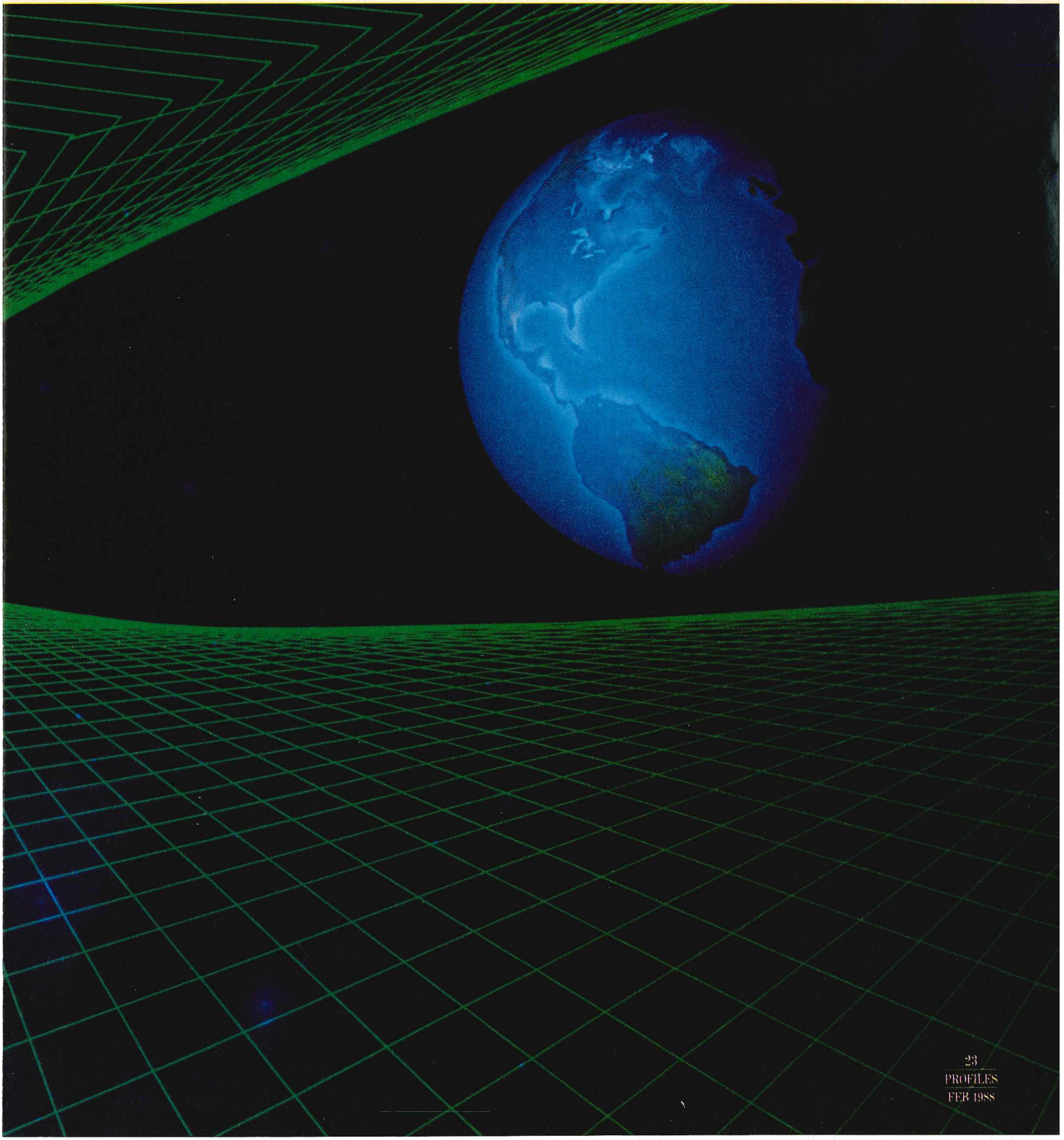

CONTINUED FROM PAGE 22

the user dials a phone number using supplied software, types a file name, and hits Enter. In either case, a duplicate image (facsimile) is printed by the receiving FAX machine at the other end of the phone line.

If the last FAX you used was in some dusty corner of the mail room, look again. The FAX machines of a few years ago—unwieldy beasts, both expensive and slow—have romped into the information age at 9,600 bits per second (bps). FAX machines used to take up to six minutes to send a single-page document; the FAX of today can send that same document—to Tibet—in about 15 seconds.

The PC-FAX card emulates a stand-alone FAX machine while putting the power of a FAX literally at your fingertips. Two years ago you couldn't find a PC-FAX card; today there are several PC-FAX card manufacturers.

Typically these PC-FAX cards come with a 9,600-bps modem and special software. The software is needed to convert ASCII files and graphics into the bit-mapped format that a FAX machine uses. (PC-FAX cards can communicate with any other PC-FAX card or stand-alone FAX.) The 9,600-bps data transfer rate is possible because files are compressed during transmission and decompressed by the receiving machine.

The received file is a bit-mapped graphic image of the original. Most PC-FAX boards create a file that can be read and edited by graphics editors like PC-Paintbrush, EGA PAINT, or other DOS-based programs. FAX boards also come with built-in editing facilities to manipulate the files. Alternatively, optical character recognition (OCR) software (which may be either included or extra-cost) can convert the bit-mapped image to an ASCII file that you can edit with your favorite word processor. If the received file is a mix of text and graphics, most of the OCR conversion software makes a "best guess" as to what is text and what is graphics and eliminates graphics from the converted file.

JUST THE FAX, PLEASE

The FAX, an office Clydesdale-turned-Thoroughbred, is racing up the sales forecasts. According to Scott McCready, senior market analyst with Cap International, Inc., a Massachusetts-based market research firm, there are over 540,000 FAX machines in the United States.

"Because FAX machines are lighter, faster, and less expensive, people are moving them out of the mail room and into the office," McCready said. "And in growing numbers people are installing a FAX in their desktop PC."

McCready notes that manufacturers contend that a PC-FAX system is more cost effective than a stand-alone FAX. (A PC-FAX card costs around $1,000; a stand-alone FAX typically costs $2,000 and up.) However, McCready points out that a stand-alone FAX is a shared resource, unlike a PC-FAX card installed in a desktop PC.

"An office manager faced with buying a single $2,000 FAX or six $1,000 PC-FAX cards is almost surely going to opt for the stand-alone (FAX)," said McCready.

George Mount, product manager at GammaLink, the manufacturer of the first PC-FAX card, Gammafax, goes a bit further. "The PC-FAX card should not be thought of as a replacement for the stand-alone facsimile, but as something that adds to the versatility of FAX. It's something that brings facsimile into PC-based networks."

Mount contends that the PC-FAX card allows the FAX to be used as a peripheral for a PC.

James McNaul, vice president of Datacopy Corporation, maker of the MicroFax card, says there are many reasons for adding a PC-FAX card to a PC.

"A stand-alone FAX is bought and put in the mail room for everyone to use. When you put the FAX into a PC, it becomes a one-person device; you don't put a PC in the middle of the room and say 'use it.' But a FAX card in a PC expands capability tremendously. These products are great for power users who want a self-contained office automation system on the desktop."

McNaul notes that the ability to send a FAX directly from a PC—without first having to scan a document—is a seductive feature. "The majority of information in the corporate world today is generated on some sort of PC," he said. "If I have to send that information in hard copy, I have to print it out, walk to the facsimile in the mail room, and send it. That's a two-step process: generating the data and sending it. With the PC-FAX card, I can send it directly from my desk. These cards bring the two-step process together in one logical solution."

SLOW RIDE ON A FAST TRACK

Although today's FAX machines can zap a document to the other side of the world in less than 15 seconds, the technology was a long time coming.

In 1924, AT&T developed the ancestor of today's FAX, but there were no standards. The technology limped along until manufacturers decided to get together and agree on a set of international standards.

These standards were set by the Comite' Consultatif International Telephonique et Telegraphique (CCITT). Currently there are four standards—referred to as groups 1 through 4—for FAX machines. To its credit, the FAX industry made sure that all upgraded standards would have downward compatibility—that is, all FAX machines are compatible with each other (which is more than can be said about microcomputer-based telecommunications and electronic mail systems.)

FAX STANDARDS

The Group 1 standard—the oldest—was set up to transfer a single-page document via an analog signal that took some six minutes to deliver. According to McNaul, these machines are antiques, and few are in use today.

Group 2 standards—implemented in the 1970s—reduced delivery time to three minutes (with a digital signal).

Most of today's machines use the Group 3 standard, which was established in the early 1980s. Group 3-standard machines have 200-dots-per-inch (dpi) printing capability, which offers fairly good resolution, and use 9,600-bps modems. Group 3 machines can transfer a single-page document in 10 to 60 seconds, depending on the complexity of the document. All of the PC-FAX cards use the Group 3 standard.

The Group 4 standard is a bit too esoteric for the small user. To use a Group 4 FAX, you must have a leased phone line or use a packet-switched network. Group 4 machines are high priced, but you do get a dramatic increase in performance: 30 pages per minute at 400 dpi. McNaul says that because the Group 4 standard requires an Integrated Services Digital Network (ISDN), "it could be 20 years before the Group 4 standard is in use worldwide."

THE FIGHTING FAX

The FAX is gaining popularity, analysts say, because using a FAX is more "natural" for many people.

* *

FAX transmissions can compete with electronic mail, overnight mail, and courier services.

* *

Instead of dealing with binary file transfers and data bits, a FAX sends *pages*. And instead of hassling with communications protocols and modem settings, using a FAX requires only the insertion of a single page and the push of a button.

Using a PC-FAX card is even easier because you don't have to bother with the intermediate steps of printing a document and carrying it to the nearest FAX. With a card in your PC, the entire process is handled from the keyboard.

Industry analysts believe FAX transmissions can compete with services such as electronic mail, overnight mail, and courier services. The main advantage of a FAX is that transmission is immediate and complete. You just slide in a piece of paper (or specify a file) and press a button.

In contrast, an electronic mail system requires that you know at least two sets of commands (one for the Email system and another for your communications software), have your communications parameters and modem set correctly, and so on. And after all that, you still can't transmit graphics on an Email system with any degree of certainty.

For international communications, many companies have found it far easier to rely on FAX transfers. According to

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McCready, FAX use in the Far East and Europe outstrips electronic mail by a wide margin. The Japanese, for example, use FAX in order to transmit the complex kanji alphabet, something that can't be done with Email. McCready says that 70 percent of Japanese office workers have access to FAX machines, compared to just 15 percent of U.S. office workers.

THE GREAT DEBATE: EMAIL VS. FAX

McNaul notes that cheaper stand-alone FAX machines and PC-FAX cards make facsimile communications a very good alternative to Email.

GammaLink's Mount says the reason FAX communications provide competition to Email services is that "using a FAX is more natural; it is a simpler concept to grasp. I can teach someone to use a FAX machine in two minutes."

While FAX machines can be used by anyone who "can feed a piece of paper into a machine and press a button," Mount said, teaching someone to use a PC is altogether different. "It can take someone months to get used to using a modem and communications software."

The simplicity of FAX machines contrasts sharply with the telecommunications world, which is beleaguered by incompatible protocols and electronic services that cannot communicate with each other. (Few Email systems, for example, are interconnected, which means users of one service cannot send messages to someone using a different service.) FAX machines bypass the confusion of transfer protocols, transfer speeds, and error-checking and, thanks to industry-wide standardization, eliminate a lot of confusion.

Facsimile communication does use a different kind of error-checking, one that contributes to its reliability: it checks the quality of the phone line, not the quality of the actual transmission.

When two FAX machines connect, they send a data burst to each other at 9,600 bps. If this data is filled with too many errors, it means that particular telephone line is not capable of handling a 9,600-bps transfer. Each FAX then "falls back" to the next slowest speed. When the two machines find a "clean" transmission speed, they start transmitting. There is no further error-checking.

Mount explains: "If a FAX transmission takes some hits (errors) in the data, it really doesn't degrade the quality of the image. A few missing pixels isn't a big concern because the image is still readable."

THE FAX AT WORK

For David Darrow, the letters "F-A-X" spell survival. Darrow is a freelance illustrator in a competitive, pressure-cooker market that includes the glitz and glamour of Hollywood and Los Angeles County's high-tech triangle. Darrow's FAX gives him an edge when getting the job done means needing to be literally in two places at one time.

I watched Darrow as he scrambled to meet an important deadline. He was finishing up a series of sketches for a poster on a new Lorimar Pictures movie. He was running out of time. Moreover, he was at least an hour's drive from where he had to drop off the sketches. "No sweat," he said. "I'll just FAX the drawings."

Darrow explained that formerly he used a courier service when on a tight deadline. That saved him driving time (and he could remain at his drawing board), but the deadline was still in jeopardy because the courier still had to fight the infamous L.A. traffic.

"Using a FAX, these sketches go right from my studio to the art director's desk," Darrow said. This allows the art director to review the sketches and quickly indicate any changes. "The art director then sends the marked up drawings right back to my FAX. That simple process used to take all day, sometimes more.

"Now I can get work approved much quicker. Using a FAX is almost like being there in person. In fact, I can actually send and receive drawings all day long without leaving my studio."

****

Using supplied custom software, you can use your PC-FAX card as a telemarketing tool.

****

Another way to use the FAX is to take advantage of the custom software supplied with the various PC-FAX cards.

For example, the GammaFax card from GammaLink and the MicroFax card from Datacopy Corporation let you use the PC-Fax card as a telemarketing tool. This is done using the "store and forward" capability of the software that drives these products.

With this software, you can have your FAX send out hundreds of messages—at a predetermined time—to FAX machines across the country or throughout the world. By specifying delivery during late-night hours, you can take advantage of the lowest telephone rates, thereby reducing your costs to about five cents a page.

When you arrive at the office in the morning, you can scan the "receive log" to see just how many machines were reached during the night. (If the software fails to make a connection, it simply dials the next number on its call list.) And when owners of those remote machines arrive at their offices, your message is waiting for them.

In addition, the software for these PC-FAX cards allows your FAX to run "in the background." This means that your FAX is always online, as long as your computer is turned on. Your

PC-FAX can either send or receive a FAX while you're busy with a spreadsheet or writing a budget proposal with your word processor.

You can even incorporate a PC-FAX card into a mainframe environment. In New York, the investment banking firm Morgan Stanley & Company uses custom software that incorporates a GammaFax board into its IBM SNA-networked mainframe for overseas communications. According to Mel Sable, a Morgan Stanley manager, this combination turns every IBM 3270 terminal into a FAX machine. This application allows anyone to send a FAX right from the terminal; the process is totally masked from the user. According to Sable, Morgan Stanley even uses this custom application in place of telex communications. It has saved the company some $100,000 in communications costs.

If you use a PC-FAX card in desktop publishing (DTP), some interesting applications are possible. You can create a publication with DTP and send it out for screening with a PC-FAX card. The MicroFax card allows you to include Postscript codes with the FAX transmission for output to a laser printer. And if the receiving FAX doesn't have a laser printer output option, the 200-dots-per-inch resolution of a FAX still creates a readable image.

CHOOSE YOUR WEAPON

In deciding between FAX and modem data transfer, there are two factors to consider. If you need to send a binary, executable program or other file that cannot have any errors, the modem is your only choice. But when it comes to sending images or hard copy, a FAX deserves serious consideration. There is simply no substitute for sending hard copy quickly and efficiently. (Just try sending a *signed* contract to Peru in 15 seconds with your modem sometime.) And the installed user base is not something to dismiss lightly—there are millions of FAX machines online worldwide.

The PC-FAX card may combine the best of both worlds. Some PC-FAX cards are adding a 1200-bps, Hayes-compatible modem option. This means your PC-based communications can now encompass both modem and FAX transfers. For "power users," that is an intoxicating possibility.

If you're running both a background communications program (for receiving Email) and a background FAX card, your desk virtually becomes a worldwide communications center, and anyone, anywhere, can reach you there.

CUTTING THROUGH THE HYPE

PC-FAX cards are surrounded by hype that falls just shy of hyperbole. Their price and convenience certainly make these cards a tempting candidate for a slot in your PC, but like any new device, the PC-FAX card faces stiff competition from the established standard: the stand-alone FAX machine.

As stand-alone FAX machines shrink—both in price and

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FAX Boards for Your PC

As the PC-FAX card market expands, the technology will be upgraded to include more options and better image handling. The PC-FAX cards listed here are in production or have been formally announced. Each has its own set of options and features.

All these products use the Rockwell V.29 chip set, which allows them to operate at 9,600 bps. This chip set uses the modified Huffman compression scheme. At the very least, each of these cards can transmit captured screen images and ASCII files. Each one is capable of sending a FAX in "broadcast" mode (one FAX to multiple machines).

Other features include Hayes-compatible, 1200-bps modems, background operation, and unattended operation.

In September 1987, Rockwell announced the availability of the R9696DP, a compact, CMOS low-power, full-duplex V.32 9,600-bps modem board. Essentially a "modem on a chip," this board is sure to change the complexion of PC-FAX cards, as well as the market for 9,600-bps modems. The board's availability should drive the consumer market for 9,600-bps modems in much the same way that the Rockwell chip set created a boom in 2,400-bps modems. Bill Baker, Rockwell's executive vice president, said, "PC-FAX card makers now have the ability to provide not only 9,600-bps FAX transmission, but 9,600-bps data transmissions, as well."

Product: Mfax
Manufacturer: Microtek
16901 S. Western Ave.
Gardena, CA 90247
Phone: (213) 321-1212
Requirements: 512K, graphics board and display
List Price: $995

Product: GammaFax
Manufacturer: GammaLink
2452 Embarcadero Way
Palo Alto, CA 94303
Phone: (415) 856-7451
Requirements: 256K, graphics board and display
List Price: $995

Product: pc-FAX
Manufacturer: Electronic Information Technology
25 Just Rd.
Fairfield, NJ 07006
Phone: (201) 227-1447
Requirements: 512K, graphics board and display
List Price: $1,095; optical character reader with font-learning software, $595

Product: MicroFax
Manufacturer: Datacopy Corp.
1215 Terra Bella Ave.
Mountain View, CA 94043
Phone: (415) 965-7900
Requirements: 512K, Hercules Graphics Card
List Price: $1,195

Product: SmartFax
Manufacturer: American Data Technology, Inc.
44 W. Bellevue Dr. #6
Pasadena, CA 91105
Phone: (818) 578-1339
Requirements: 640K, graphics board and display
List Price: $1,195

Product: The Complete FAX (CFAX)
Manufacturer: The Complete PC
521 Cottonwood Dr.
Milpitas, CA 95035
Phone: (408) 434-1048
Requirements: 512K, graphics board and display
List Price: $499; optional Complete Hand Scanner with Soft Stationary software, $249 **—Brock N. Meeks**

size—analysts confidently predict they will continue to dominate the FAX market. This projection is borne out by the market research firm Dataquest, which figures that close to 300,000 FAX machines were purchased in 1987 alone. Compare that figure with Cap International's forecast that by 1990 the installed base for PC-FAX cards will stand at only 150,000 units.

"You must realize it's awfully hard to forecast a market with no historical reference," says Cap International analyst McCready. "The future (of the PC-FAX market) is an open book."

At least one manufacturer of stand-alone FAX machines thinks the PC-FAX card is here to stay.

"Someday, everybody who has a PC in their home may have a FAX, too," says Joe Cosgrove, a product manager for Sharp Electronics, maker of a briefcase-size FAX machine. But a few things will have to happen if Cosgrove's prophesy is to come true.

First, prices for PC-FAX cards will have to drop. Considering the steady decline in prices for modems, printers, and other equipment, this seems assured. Also, PC-FAX cards must continue to keep up with advances in graphics technologies while maintaining a reputation for easy use. That accomplished, PC-FAX products could become a highlight in the evolution of communications technology and office automation, instead of an obscure footnote on the time line of the information age. ■

Brock Meeks is a PROFILES *columnist and a regular contributor of articles that provide overviews of emerging computer products.*

The Future's Built In... In America

The KAYPRO PC
EGA Video Card Now Standard

Here's the American-made computer that makes sense now – with flexibility for the future. Thanks to its non-obsolete design, the KAYPRO PC is a snap to update. Card-based system components – including the microprocessor – can be upgraded, tested, or exchanged easily, in seconds.

The KAYPRO PC delivers the most advanced standard features – plus some you simply will not find together in any other top-rated computer. Its new universal EGA video card provides enhanced graphics on most any monitor. Free namebrand software includes the WordStar Professional Release 4. And, the KAYPRO PC also features 768 KB of RAM and the enhanced 101 keyboard with high security keyswitch to prevent system interruption or tampering.

And for the convenience of a 30-MB hard drive, look into the KAYPRO PC-30. Get the same standard Kaypro features (less monitor and video card) for hundreds of dollars less than you'd expect.

In the world of rapidly changing technology, get the only computer system with the future built in – the American-made KAYPRO PC.

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COMPUTERS
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Suggested Retail Price: $1595

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Trademarks: EGA, International Business Machines, Inc.; WordStar Professional Release 4.0, MicroPro International.

Color monitor and 3.5-inch drive, optional.

U·S·A

'user, PROCOMM supported'

faster

easier to use

more features

For years, the mainstay of public domain software has been telecommunications programs. In many instances, these free programs have outperformed their commercial cousins. Among them, PC-Talk was for a long time my program of choice: Its command structure made sense to me, the menus were intuitive, and all the commercial programs I looked at seemed clunky and overly complex by comparison.

Recently, however, ProComm replaced PC-Talk as the workhorse of my telecomputing activities. It's faster, easier to use, and has more capabilities than PC-TALK. ProComm has edged out PC-TALK as my favorite modem program and seems likely to retain that status for the foreseeable future.

SHAREWARE ROOTS

Both PC-Talk and ProComm originally surfaced as "shareware" programs—software packages distributed informally through users' groups and public bulletin boards. Payment was strictly voluntary, and the amount was left to the buyer's discretion.

Both programs use virtually the same mnemonic keystrokes to invoke basic functions such as changing communications parameters (Alt-P), accessing a dialing directory (Alt-D), viewing disk files (Alt-V), clearing the screen (Alt-C), and so forth. Switching from PC-Talk to ProComm requires only minor adjustments to previously learned commands.

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BY JACK NIMERSHEIM

ILLUSTRATION BY DAVID DARROW

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However, ProComm's latest release (Version 2.4.2) incorporates a number of improvements over the shareware version. It has many of the features found in packages that would set you back five or six times ProComm's $25 purchase price.

FROM SHAREWARE TO 'USER SUPPORTED'

Recently, ProComm moved away from its shareware roots and into a newly emerging category called "user-supported" software. Datastorm Technologies has taken over distribution duties for ProComm, and an introductory screen now proclaims that ProComm "*is not public domain, and it is not free software.*" Rather, a new user is granted "limited license" to experiment with the program on a trial basis only. You are expected to forward a registration fee after this trial period if you decide to keep using ProComm on a regular basis. It's a subtle policy modification, but one that many believe heralds the beginning of the end for the shareware concept.

But so long as my $25 yields a return on investment comparable to the power and ease of use of ProComm, you won't hear any complaints from me. Several major improvements over earlier releases of ProComm more than justify upgrading to this latest, non-shareware version. As just one example, the status line, which once merely identified ⟨ALT-F10⟩ as the Help key, has been embellished to include display of the active terminal mode—ten modes are available, including ANSI-BBS, DEC VT-100, and IBM 3101—the current communication parameters, printer status, and any Carriage Return/Line Feed translations in effect for uploads, downloads, and screen display.

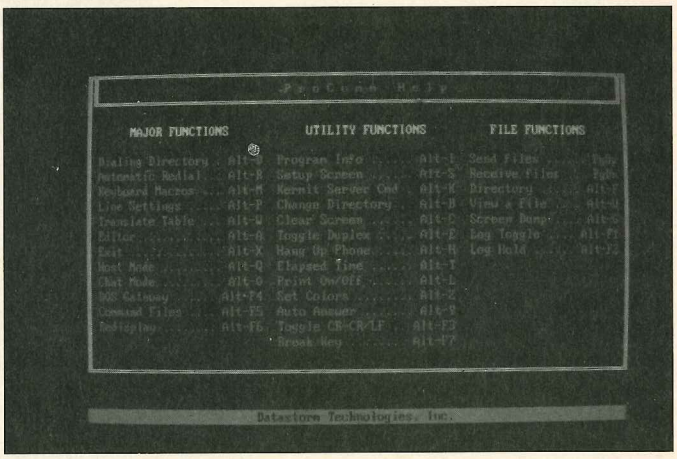
A DIMENSION OF FUN

Totally menu-driven, ProComm adds a dimension of fun to the normally mundane task of telecommunications. In the program's default mode, messages and operation windows zoom in and out of sight like bellhops in a busy hotel lobby, all accompanied by electronically generated sound effects that blur the boundaries between play and productivity. Once the novelty wears off, this feature could become tedious, but like most ProComm operations these functions (literally, buzzers and bells) can be easily adjusted to the user's preference.

In most cases, ProComm's 32 special functions (see Screen 1) are available at the touch of a single, easily remembered ⟨Alt⟩-keystroke combination. These functions can all be accessed—and adjusted—on the fly, so you don't have to disrupt a communications session already in progress.

In an amazing display of programming panache, Datastorm even included a remote access function in this latest release. Set to Host mode, ProComm automatically answers incoming calls (provided your modem supports auto-answer) and then redirects all console I/O operations to the active COM port.

In this way, a remote PC can actually gain limited control over the ProComm host computer. If a program is well-behaved—that is, it doesn't bypass the ROM BIOS for such activities as screen writes, keyboard interrupts, etc.—you can run that program across the phone lines from a remote terminal, using ProComm's Host mode capabilities. The potential in this combination (the power of your desktop unit and the portability of a laptop) makes for nice synergy.



SCREEN #1 ProComm's Help Menu

While ProComm's Host mode should be used cautiously—it provides only minimal protection against mischievous callers—its inclusion in such a low-priced package is a pleasant surprise.

STANDING ON PROTOCOL

ProComm is especially hard to beat when it comes to actually moving data across the phone lines. Nine separate communication protocols are supported for uploading and downloading files in an easy, three-step operation:

1) Press the ⟨Pg Up⟩ or ⟨Pg Dn⟩ key—Upload or Download, respectively.

2) Select your preference from the list of nine available transfer protocols (see Screen 2).

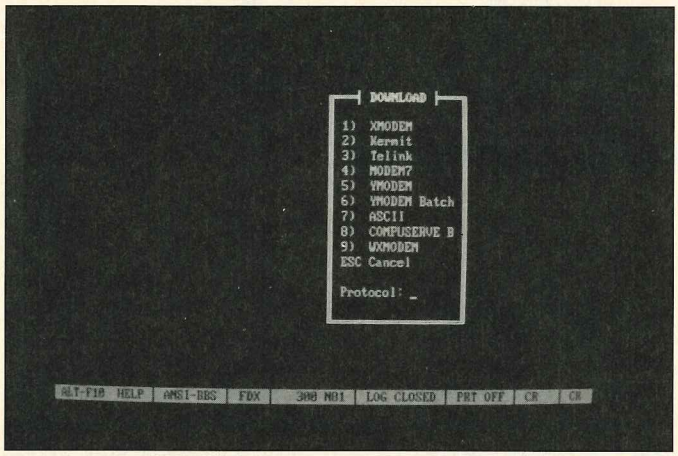
3) Enter the name of the file you wish to send or receive.

File status, including any errors encountered during transmission, is continuously monitored and updated with an on-screen window throughout the transfer process. That such a potentially confusing task as file transfers can be so simplified reveals a lot about Datastorm's attention to detail.

Procomm supports a variety of communication settings, ranging from the original Bell 103, 300-baud standard (very slow) all the way up to a meteoric 19,000 bps transfer rate. The latter setting is tailor-made for high-speed file transfer, assuming you know how to connect two computers through their serial ports using a null-modem cable.

ProComm has one particularly impressive nuance: it joins a small handful of telecommunication programs that can be con-

figured to utilize the COM3 or COM4 serial ports. (IBM PC hardware supports four serial ports; DOS supports only two.) With the proliferation of add-on boards, your COM1 and COM2 ports can be eaten up by anything from a mouse to a letter-quality printer or a network interface, so this "extra"



SCREEN #2 ProComm's Transfer Protocols

should qualify as a necessity. (And yet it's an enhancement that DOS isn't scheduled to support until early 1988.)

JUST LIKE THE BIG GUYS

Following in the footsteps of more expensive packages like Crosstalk and Microsoft Access, ProComm includes a script language, a feature that allows you to group multiple commands together in a single file, called a "script." You then run that script by entering a simple keystroke, key combination, or keyword—to dial and sign on to your favorite bulletin board or on-line information service, for example. You could program a script to call an information service (the Source, Compuserve, GEnie, etc.), enter your User ID and Password, check to see if you've received any messages since the last time you signed on, retrieve and download those that exist, and then log off—all automatically.

ProComm includes a utility called the Timed Execution Facility (TEF) that allows you to run this script unattended at a specified time—say the middle of the night, when access rates are low. If the line is busy, and if your modem is one of the so-called "smart" models that recognizes busy signals, the script will automatically reset itself and try again as many times as it takes to make a successful connection.

ProComm even lets you attach script files to specific dialing-directory entries, so that they automatically run whenever a given number is called. A script file can also be executed automatically by including its name in the command line that opens and runs ProComm.

A major improvement to Version 2.4.2 of ProComm is that Datastorm has completely redesigned its once-clumsy script language to use commands written in plain English. For example, "Clear" replaces the previously required (and very ambiguous) "%U1" script code for clearing your screen. As a convenience to current ProComm owners, Version 2.4.2 includes a conversion utility for translating your old scripts into the new, simplified code.

THE PRICE IS RIGHT

One holdover from ProComm's shareware days is its multi-tiered registration policy. A $25 fee qualifies you as a registered owner, licensed to use the program and print a copy of its documentation directly from a disk file that most bulletin boards include when you download the ProComm package. Send $35 dollars to Datastorm and they'll automatically register you and send a disk containing the latest version of ProComm and the documentation file, which you'll still have to print yourself. Finally, $50 nets you the program disk, a printed manual, registration, and access to information on future enhancements or updates. If you register at either of the latter two rates, Datastorm includes a money-back guarantee. ■

Jack Nimersheim is an independent computer consultant and freelance writer living in Covington, Kentucky. His reviews and articles have previously appeared in several computer publications, including Business Software, InfoWorld, *and* Creative Computing.

QUICK REFERENCE SUMMARY

Product: Procomm 2.4.2
Manufacturer: Datastorm Technologies, Inc.
P.O. Box 1471
Columbus, MO 65205
Phone: (314) 449-7012 (voice); (314) 449-9401 (bulletin board support)
List Price: $25 (registration only); $35 (registration and disk); $50 (registration, disk, and printed manual)
Requirements: 130k RAM, DOS 2.x or higher, serial port and modem (Hayes-compatible recommended)

As this article went to press, Datastorm Technologies released a commercial version of Procomm, called Procomm+, version 1.0.

"It's really a brand new product," says Steve Monaco of Datastorm. "Though it shares some key commands with the shareware version of Procomm, it has new ones as well. It also has a new command language, new terminal emulations, and several new protocols that support high speed, error correcting modems."

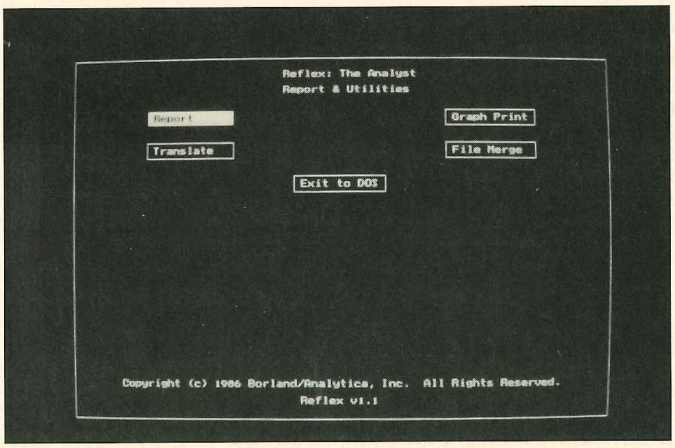
Procomm+ is available commercially for $75.00. For more information contact Datastorm Technologies at (314) 474-8461.

AN INTRODUCTION TO REFLEX, PART 2

THE REPORT GENERATOR AND UTILITIES

BY DANIEL SCHUSTER AND TOM ENRIGHT

This article is the second part of a two-part introduction to "Reflex, the Analyst," Borland International's database analysis program. Last month we introduced some basic functions of Reflex—we explained how to define a database by creating its data entry form and, using sales information for an imaginary company, how to enter information into the database. We then explained how to look at the database through the Form, List, Graph, and Xtab (crosstab) Views.



SCREEN #1: Reflex2 main menu.

This month, using the database we created last time, we'll look at Reflex's Report View and utilities, which are grouped in a program separate from the rest of Reflex. The main program, which is composed of the functions we examined last month, is called Reflex; the report and utilities program is Reflex2.

When you run Reflex2, you are presented with a menu (see Screen 1) that contains five options: Report, Graph Print, Translate, File Merge, and Exit to DOS. (You can choose your option by using the arrow keys to move a highlighted bar to the one you want and pressing Enter. Alternatively, you can simply press the first letter of the option you want, and then press Enter.)

The Report option calls up Reflex's report generator. Graph Print is for printing graphs you have created and saved in the main program. Translate is for reading data files created by other programs. File Merge is for creating one file from two or more other files.

Most of this article will be devoted to the report generator, as it offers the most powerful, flexible, and useful method of looking at data. We'll provide an exercise that will introduce many, but by no means all, of Reflex's report generation capabilities. The utilities will also be covered, but in less detail. Finally, we'll offer some suggestions for learning more about the capabilities of this powerful program. As in last month's article, we will assume that you are familiar with database terms and components.

THE REPORT VIEW

While the List, Form, and Xtab views allow you to print simple reports that basically reflect the contents of your screen, the Report View lets you design much more sophisticated reports. Designing a Reflex report is a matter of putting field names and labels on a report form where you want them to appear, previewing the report onscreen, and refining the design until you are satisfied with the results. We'll cover all these steps in this exercise.

If you have not already run Reflex2, type **REFLEX2** and press Enter. Notice that the main menu comes up with Reports already highlighted, so simply press Enter to get into the report generator.

The next screen you see is labeled Report Design. The first step is to select the database that will supply the data for your report. Press / **P R** (Print/File, Retrieve). Pressing F10 will display the Reflex databases available. Choose VERYBEST (the name of the database you created last month) and press Enter twice to load the database.

The Report Design screen is permanently split into two parts—a narrow left-hand column and a wide section to its right. Tags entered in the left-hand column designate when each line in the right-hand section will be printed—i.e., whether the lines will be headings, introductory material, part of the body of the report, or concluding material.) The rest of the screen is where you enter the elements of your report. Note that at the bottom left of the screen, Reflex2 displays the line and column number that your cursor is on. We will be using this information later.

Your cursor should be in the design area on line one, column one. If it isn't, move it there with the arrow keys. Now you can create the *primary line* of your report. Press F10 and Reflex2 will open a box displaying the names of all the fields in the database. Choose Agent and press Enter. Move the cursor a couple of spaces to the right (using the arrow keys only, not the space bar), press F10, and select Product. Continue this process, choosing as the other report fields Quantity, Cost Each, and Total Cost.

The line you've just entered is the primary line of the report *body*. Notice that the word "body" appeared automatically in the left-hand column on your screen. This indicates that this line is tagged as part of the body of your report, rather than as an introductory or concluding line. The field names on this line will be replaced by the data in the selected fields when you preview the report, and the line will be repeated once for each record in the database. Unless you specifically change the tag in the left column, all lines will be part of the report body. (Changing tags will be explained in a moment.)

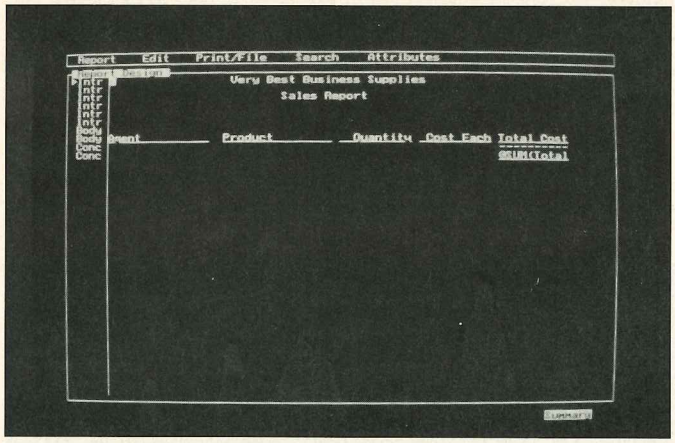
Preview your report on the screen by pressing / **R P** (Report, Preview on Screen). The information from each of the selected fields is printed in a columnar format. So far, however, this is just a group of names, items, and amounts. If you didn't already know what the information was, the report wouldn't mean very much. To identify the information in the report, you need to add labels: the company name, the type of information shown, and what each column represents. Also, it would be nice to have a cumulative sales total at the end. The steps for doing each of these things are explained below.

Adding Introductions and Headers. The two types of labels you'll add to the report are introductions and headers. An introduction is text that is not part of the database and appears only at the top of the first page. A header is text that is not part of the database but appears on each page, usually below the introduction and before the body. Reflex allows both types of labels to be inserted easily.

With the cursor on row one, press **F3** (Row select). The row is highlighted and the cursor moves to the left-hand column. Make sure that the Num Lock light on your keyboard is off and press **INS** seven times. This inserts seven blank lines and moves the body line (with the field names) to line eight.

Your cursor should still be on line one, with the entire line highlighted. Press **F10**, select Intro from the choices presented, and press Enter. This tags the first line as an introductory line, places the word "Intro" in the left column, and moves the highlighting to line two. Continue the same steps for lines two through five. At line six, select Header instead of Intro, and do the same for line seven. The left column should now list Intro for lines one through five, Head for lines six and seven, and Body for line eight.

Now we can insert the necessary labels at the top of the report. Press **Esc** to return to the report design section of your screen. Use the arrow keys to move to line one, column 19,



SCREEN #2: Final report definition.

and type **'Very Best Business Supplies** and press Enter. (The leading quote, as explained in detail last month, signals that you are entering a text label rather than a field name.) Move to line three, column 27, and type **'Sales Report**. Now you can enter the header lines. Move to line six, column one, and enter **'Agent**. The other labels on line six are: **'Product** at column 17; **'Quan** at column 39; **'Each** at column 50; and **'Total** at column 60. Next, drop to line seven, column one, and enter a leading quote and 65 dashes. That finishes the introductory and header labels for this report. Next you'll enter the running total.

Summing a Column. Adding a cumulative total for the Total Cost field is a matter of summing all the entries for that column. First, the summary should print only at the end of the report, so you must tag two lines as "conclusion" lines. Move your cursor to line nine and press **F3** and then **F10**. When the choice of tags appears, choose Conclusion. Repeat this proce-

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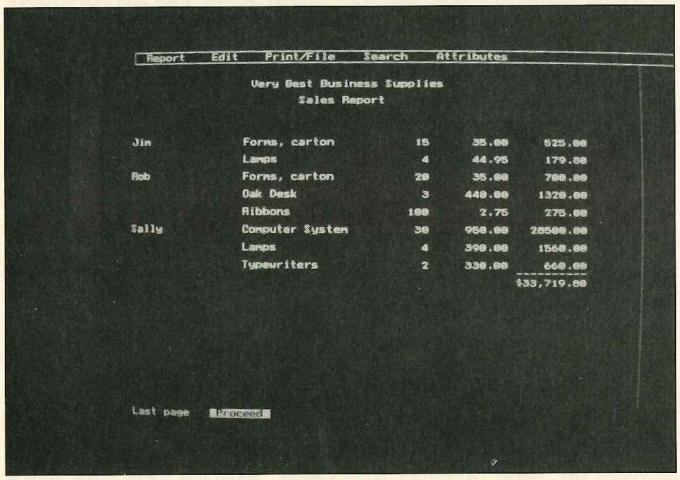
dure for line ten and then press **Esc** to return to the report design screen. Now move your cursor to line nine, column 55 and enter '-----. Then move your cursor to line ten, column 55, press **F10**, and select Total Cost. Now to specify that you want a summary of this field, press / **A S** (Attribute, Summary), press **F10**, and select @SUM from the choices presented. Your report definition should now look like Screen 2. Next, since this is the sum of all the records, you need to allow for more width in this position, so press / **A V** (Attributes, Variable Width), press **F10**, and select "Wide as Needed" from the choices presented.

If you view your report on the screen at this point (/ R P), you'll see that it is almost finished. Note that the decimal points in the Cost Each, Total Cost, and sum of Total Cost fields are not lined up. You'll want to have each of these fields displayed to two decimal places since they represent dollars and cents. Put your cursor on the Cost Each field and press / **A F** (Attribute, Format), then press **F10** and select Fixed from the choices presented. When you select fixed format for a number, it defaults to two decimal places, which is what you want. Do precisely the same for Total Cost and @SUM(Total Cost).

Control Breaks. There is only one more change to make to your report design. Currently, the name of the sales agent appears on each line. Professional reports use what are called



SCREEN #3: Final report output.

"control breaks" to print a key field such as agent name only when it changes. In order to make this change in your report, you must designate Agent as a sort field and then tag it to print only when the name changes. Move your cursor to Agent and press / **R C** (Report, Change Sort Setting). When the sort window opens, enter the number one in the Sort # column next to Agent. With your cursor still on Agent, press / **A O** (Attribute, On Change), press **F10** and select "Only on Change" from the choices presented, and press Enter twice. That completes your report design.

Finally, your report format can be saved by pressing / **R S** (Report, Save), whereupon Reflex will ask you to enter the name of the report. Enter **BESTSALE**, press return, and Reflex will save the report format to disk so it can be used again. To send the report to your printer, enter / **P P** (Print/File, Print). Your final output should look like Screen 3.

There are many other options available with Reflex reports in addition to those presented in the exercise above, but we don't have the space to go into them in this article. Using Reflex's report generator takes practice, but it is a powerful tool.

THE REFLEX2 UTILITIES

Pressing / **R Q** will take you back to the main Reflex2 menu so you can take a look at the utilities, whose capabilities are briefly summarized below.

File Translation. The file translation capability of Reflex2 allows you to import data files created by other programs. This ability to read foreign files makes Reflex very useful strictly for its analysis power, even if you already use other programs for database management or accounting. Reflex can read files created by Lotus 1-2-3 (versions 1A and 2), dBASE II or III, and the PFS series. Reflex will also read DIF and ASCII format files. (DIF is a file format common to many spreadsheets and is meant to allow exchange of data between programs from different manufacturers.) The ASCII (text) format has several variations and is used by many database and accounting program.

Selecting Translation from the Reflex2 menu takes you to the file translation screen. Here you are asked for the type and name of the source file and the name under which you want to save the translated data. With dBASE and PFS files, each field retains the field name and data type that it had under the program that originated the file. With Lotus, DIF, and ASCII files (which Reflex calls text files), you must create a translation table. This translation table lets you specify field names and data types for each field in the record, as well as what separates one field and record from another. Once you create a translation table, you should save it on disk for future use. When translating spreadsheet files, only text and numbers can be translated into a Reflex file—no formulas.

ASCII files deserve some special explanation. Record format in an ASCII file can take many forms. Normally a record will end with a carriage return and a line feed, but sometimes other record delineation characters are used. Fields within the record also take many forms. Fields can be fixed length, and they can be separated by commas, quotation marks, and sometimes even by carriage returns. Reflex is flexible enough to handle all of these variations. It does so by insisting that you specify the field and record separators in the file. At times you'll have to consult a programmer to create your translation table, but that's the price of power. Once the translation table has been

BULLETPROOF YOUR PROGRAMS

BY JIM SPICKARD

It's happened to every programmer. You spend hours perfecting a program, only to have your kid brother—or boss—crash it with a single keystroke. A letter instead of an integer or a function key in the wrong place will bring the most complicated program to a screeching halt.

It's not surprising: computers are pretty dumb. They do exactly what we tell them to—whether or not that's what we intended. We'd fire any human servant that simple-minded.

But people don't fire computers, they fire programmers! It's our job to protect our programs from the naive and the maniacal. Remember Murphy's Law: If something can go wrong, it will—and at the worst possible moment.

Bulletproofing programs takes perennial vigilance. I want to share some of the better techniques I've found to bulletproof Turbo Pascal, and unless otherwise stated, these methods work with both CP/M and DOS versions of Turbo Pascal. If you prefer a different language, you should have little trouble converting these procedures to work with it.

SIMPLE CRASHES

Let's start with something easy.

Have you ever typed a letter where your program expects a number? Turbo Pascal has a special term for this: I/O error 10. Unless you have the {$I-} compiler option set, it's fatal. Your program stops right away. (If you've set {$I-} the program runs, but won't accept further input—also an inconvenience.)

If you don't put ⟨NUMLOCK⟩ down on the Kaypro PC, for example, and try to enter numbers from the keypad, your program will abort—a common error, but no fun.

Fortunately the solution is simple. You enter the numbers as *characters*, then check for bad values with Turbo's Val statement. Simply substitute the following code segment for every Read statement for entering numerical input:

```
repeat
  Read(NumberBuffer);
  Val(NumberBuffer,Number,Code);
until Code = 0;
```

NumberBuffer is of type String, Number is either Real or Integer (depending on what you need), and Code is Integer. If you want to get tricky, you can add:

```
if NumberBuffer = '' then NumberBuffer := '0';
```

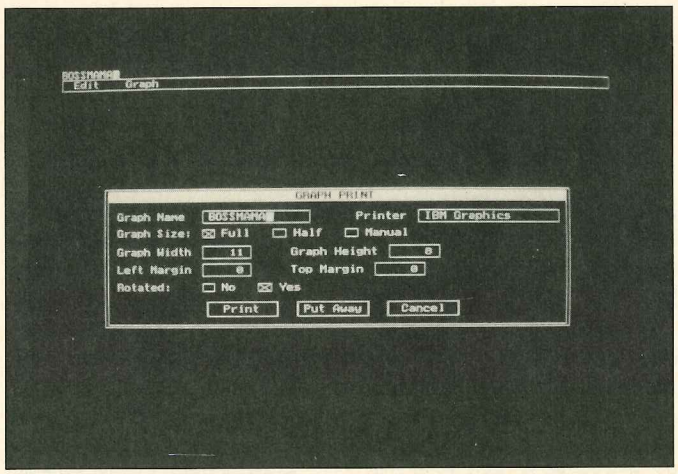
ERROR-TRAPPING IN TURBO PASCAL

created, you can save it to be reused as often as needed.

File Merging. Reflex's file merge utility allows you to merge two or more Reflex files into one large file. Databases frequently use the same file format for data separated on a regional, time period, or other basis. Once these files are imported into Reflex, they can be combined into one file holding all the data.

Files to be merged must have the same format—all fields must be of the same type, in the same order, and have the same name. If field order or type must be altered in any of the files, it can be done in the main program (REFLEX) under the "Field & Sort Settings" selection on the RECORDS menu. Once all files are prepared, they can be merged easily.

The file merge screen asks you for the name of the input files and a name for the output file. The output filename must be unique—you cannot overwrite an existing file with the new one. The first filename entered as an input file will be the "master" file. The order of fields, data type for each field, search conditions, and formulas for calculated fields in the other files must match the master file.



SCREEN #4: Graph print screen.

Graph Printing. While you create your graph from the Graph View in the main program (Reflex), you cannot send it to a printer or plotter from there. Pressing **/ G P** (Graph, Print) while your graph is on the screen saves it in a PIC file for later printing. Graphs must be printed in Reflex2 from the Graph Print utility.

Selecting Graph Print from the main menu takes you to the graph printing screen. This submenu lets you fill in the name of the graph and which printer or plotter you are using, and lets you alter the size or orientation of the graph on the paper. Screen #4 shows the Reflex graph printing menu.

The first thing you must enter is the name of the graph. Pressing F10 will display all graph files for you to choose from. Once you have chosen the graph to print, the next option is which printer or plotter to use. Pressing F10 displays a list of the printers and plotters that Reflex recognizes. If you have chosen one of the plotters as the output device, another command, / G C (Graph, Colors), allows you to specify which colors will be used for which parts of your graph. Reflex supports a variety of Epson, IBM, Okidata, and C.Itoh printers, along with Hewlett Packard and Six Shooter plotters.

The remaining options on the graph print menu let you change the size and orientation of the graph when it is printed. The default is to print the graph full size, filling the entire page. You can also choose to print the graph half-size or specify the size of the graph. Another option tells Reflex whether to print the graph normally—the long way on the paper—or to rotate it 90 degrees. Be certain that if you rotate the graph, you have specified half-size or entered a height and width that fit on your paper.

Finally, at the bottom of the screen are boxes to tell Reflex to print the graph, save the setup for later use, or cancel the graph printing entirely. Simply move the highlighted bar to the box you want and press Enter.

DIGGING BELOW THE SURFACE

In these two articles we've only managed to scratch the surface of this powerful program. Space constraints have kept our examples fairly simplistic, but you should have gained some idea of what Reflex is capable of doing. Future articles will detail some of the more advanced aspects of Reflex. Also, the Reflex manual has excellent tutorials to help you learn this program. Borland's companion product, Reflex Toolbox (reviewed in "Editor's Choice," *PROFILES*, October 1987) is full of database and report formats that you can adapt to your needs. It also contains advanced tutorials on Reflex. Borland International also supports an active special interest group (SIG) on CompuServe that's full of tips and solutions for all of its products, including REFLEX.

In addition to Borland's excellent support for its program, third-party books are available to help you use Reflex to its full capacity. Any bookstore that carries a decent selection of computer titles should either have them or be able to get them for you.

Daniel L. Schuster teaches mathematics and computer science at the College of Eastern Utah. Tom Enright is Technical Editor of PROFILES.

Quick Reference Summary

Product: Reflex: The Analyst
Manufacturer: Borland International
4585 Scotts Valley Drive
Scotts Valley, CA 95066
Phone: (800) 255-8008
Sugg. List Price: $149.95

between the Read and Val statements. Then a {CR} automatically enters a zero.

Speaking of zero, can you guess what happens when you try to divide by it? That's Run-time error 02—also fatal. You can avoid this by adding the following line just before every potential division:

```
if Number = 0 then Number := 0.0001;
```

(Number must be of type Real.) The results may be weird, but at least the program won't crash.

SURVIVING BAD DATES

Everyone knows it's important to get your data right. If one value is out of bounds, it can screw up all your calculations. Most error-trapping involves nothing more than checking to be certain that your data is within the desired range.

Listing 1 on page 55 illustrates a simple data-checking exercise—in this case verifying dates for accuracy.

Let's look at the listing. DATECHECK is a boolean function: it returns "true" if the date is good and "false" if it is not. Dates are passed as integer records—which assumes you've first made sure the integers are good (with the Val procedure as outlined in the example shown above).

DATECHECK first checks Month to see whether it is within range. Then it looks at Day to see whether the month allows that number: 31 for January, March, May, etc.; 30 for April, June, and so on. The only hard one is February, which every four years has an extra day. Turbo's built-in Frac function returns the remainder after dividing Year by 4. Leap years give a remainder of zero and make February 29 a valid date.

This doesn't work for century-years, however: only every fourth century-year is leap (the next is 2000). Another Frac statement solves this problem, though I might have chosen to only allow years between 1901 and 2099 with the same result.

Why do I wait to the end of the function to eliminate Day values below one? So my test of the upper limits won't override them! If the "if Day < 1" statement were placed first and the Month were legal, DATECHECK would falsely return "true."

This is just a sample. Other range checking routines work similarly—just adapt your algorithm to this basic model.

INTERACTIVE DATA ENTRY

Now you can check data for validity—but only after the fact. Wouldn't it be nicer to catch bad entries when they occur, to make changing them easier?

Listing 2 on page 55 contains a procedure for entering integers from the keyboard and validating the entry while it is being entered.

Read(Kbd,Ch); is the statement that the entire procedure is based upon.

"Kbd" is one of Turbo's logical devices. It tells the program to take keyboard input directly, rather than sending it to a buffer—as is normally done. This allows you to check each character or numeral immediately and reject it if you need to. Unlike "Trm"—another logical device—"Kbd" does not echo input to the screen. This allows you to display only the keystrokes that pass your validation check.

INTCHECK reads integers one character at a time, checking each character and adding it to a buffer for later processing. To the user, it acts like a normal Read statement—ending data entry with a ⟨CR⟩ and allowing corrections with a backspace. But it instantly rejects wrong values.

It treats different entries differently, as outlined in the Case statement. I'll discuss the possibilities in reverse order.

The "else" branch of the Case statement handles most of the input, using Turbo's Val procedure to separate legal from illegal values. A "1" passes, for example, but "A" does not. If a character does not pass, it does not appear on the screen and is not appended to the buffer. The user immediately detects that something is wrong and enters another value.

(You could have the computer beep, too, but that might be overkill.)

After checking the most recently entered character, INTCHECK adds it to the currently accepted string (IntString). Using Val on that string weeds out integers above 32767 or below −32768. Turbo can't handle integers that large.

The "−" is allowed only as a leading character (for negative numbers); otherwise it is rejected. The "+" is not allowed at all—it confuses Val, giving unpredictable results. (The dummy "begin end" satisfies the syntax requirements of the CASE structure, but discards the "+" character.)

To correct an entry, the user enters a backspace. and INTCHECK erases the previously accepted character and alters the screen accordingly. The Copy function deletes the last character from the buffer. You can erase your entire entry and then build a new one as many times as you like.

Finally, a ⟨CR⟩ ends input, terminating the "repeat until" loop. INTCHECK evaluates the input and passes the integer back to the main program.

The procedure is simple to use. You just insert it into your program wherever you want keyboard input. For example:

```
Write('Enter an integer: ');
INTCHECK(Variable);
```

"Variable" must be of type integer, of course. A similar procedure can be constructed to handle real numbers. The primary difference is that it must allow the entry of a single decimal point in the number.

FILE NAMES

So much for integers—how about something hard, like file names?

CONTINUED ON PAGE 40

CONTINUED FROM PAGE 39

Listing 3 page 56 contains a routine to enter file names. This only allows names acceptable to both CP/M and MS-DOS. (Some characters allowed on one system are not allowed on the other.) It does not allow drive, path, or user area specification. Adventurous souls are welcome to add enhancements particular to their operating system and needs.

READFILENAME's main procedure is quite similar in structure to INTCHECK, so I won't discuss it in detail. Work through either routine and the other becomes clear.

Let's start with the main part of the procedure. Once again, **Read(Kbd,Ch);** is the key statement. READFILENAME accepts up to eight characters in its buffer (FName) unless the user enters a period, in which case it accepts a maximum of three more. "Counter" keeps track of how much space you're allowed. "Period" flags whether a period has been entered, in which case another one will not be allowed.

Backspace deletes characters, and a ⟨CR⟩ ends the "repeat until" loop. You can enter and erase as much as you like before pressing ⟨CR⟩; the procedure only accepts well-constructed names of the proper length.

In place of Val—which only works with numbers—READFILENAME uses the nested function CHECK. CHECK okays the allowable characters; bad values are screened out. Control characters and Escape sequences are particular no-nos, though you could edit CHECK to accept them if you really wanted to.

HOW TO ⟨ESCAPE⟩

A small modification can make procedures like this really useful. Wouldn't it be nice to end data entry in *two* ways—one to accept the data and a second to abort data entry and move to another part of the program? Often you discover you're in the wrong place. Wouldn't you like to be able to back up?

If you discover you're in the wrong place in a program, it would be nice to be able to back up.

Programs written for the Apple II series typically enter data with ⟨CR⟩ and back up with ⟨ESC⟩. ⟨CR⟩ moves you forward; ⟨ESC⟩ takes you back to the previous data point or menu. Such options are easy to use—one reason that Apples are so popular in grade schools.

Listing 4 illustrates this on page 56. READCHARACTERS reads string input with the same flexibility as READFILENAME—though without some of the latter's complications. (Strings are not as fussy as file names).

Characters are checked instantly. Only letters, numbers, spaces, and punctuation are allowed. Backspace to make corrections to your data. All other input is rejected.

Well, almost all. READCHARACTERS is a boolean function, so it returns either "true" or "false" to the main program, in addition to passing the entered string. If the user types ⟨CR⟩, READCHARACTERS assumes the value "true." If ⟨ESC⟩ is typed, READCHARACTERS becomes "false." In both cases the string is returned, but you needn't do anything with it. ⟨ESC⟩ can abandon your current activity, taking you anywhere you want to go. The following shows you one possibility:

```
MENU: {display choices — 1 or 2}
      {input CHOICE}
Case CHOICE of
  1   : begin
          READCHARACTERS;
          if READCHARACTERS = false
            then GOTO MENU;
        end;
  2   : begin
          ANOTHERFUNCTION;
          if ANOTHERFUNCTION = false
            then GOTO MENU;
        end;
end; {case}
```

Pressing ⟨ESC⟩ during either READCHARACTERS or ANOTHERFUNCTION takes you back to the menu, letting you make another choice. The people who use your programs will love you for it!

If you are clever, you can avoid the GoTo statements—usually considered bad practice in Pascal. The usefulness of ⟨ESCAPE⟩ routines is unquestionable, though—even if you resort to GoTo to make them work.

HANDLING FUNCTION KEYS

MS-DOS users have a special problem with ⟨ESCAPE⟩ routines, one not encountered under CP/M. Some keys on the IBM keyboard—notably the function keys and the cursor pad—send two-character sequences. Those sequences begin with ⟨ESC⟩.

The ⟨Home⟩ key, for example, really enters ⟨ESC⟩ G. ⟨F1⟩ enters ⟨ESC⟩ ;, ⟨F2⟩ enters ⟨ESC⟩), and so on.

⟨ALT⟩ key combinations also send ⟨ESC⟩ plus another character. ⟨ALT⟩ V, for example, sends ⟨ESC⟩ /, and ⟨ALT⟩ M sends ⟨ESC⟩ 2.

If the user types one of these keys by mistake, won't READCHARACTERS interpret the ⟨ESC⟩ as a signal to abort? A short section of code traps this error as follows: CONTINUED ON PAGE 54

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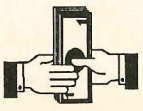

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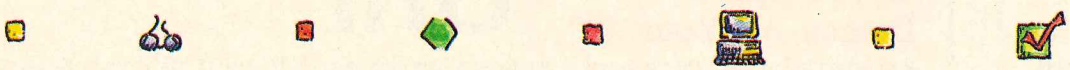


Despite the fact that Kaypro replaced Perfect Writer with WordStar some time in 1983, there is still a substantial number of aficionados who remain true to Perfect Writer. On the other hand, Perfect Speller is less than perfect, so most Perfect Writer devotees now use The Word Plus as their spelling checker.

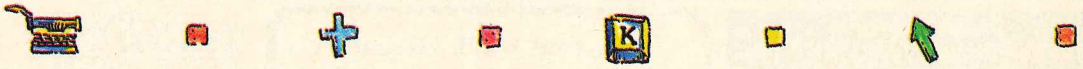
If you are one of the faithful and have been using The Word Plus to check your spelling, you have had to exit Perfect Writer, load The Word Plus, and then reload Perfect Writer—slightly inconvenient. However, if you have a Kaypro with double-sided drives or a Kaypro 10, I'll tell you how to access The Word Plus directly from Perfect Writer's menu, check your spelling, and return automatically to the menu—all without any additional file loading or disk swapping. In addition, you will be using a new, faster menu and a key-redefinition program. Best of all, this enhancement even works with Plu*Perfect Writer.

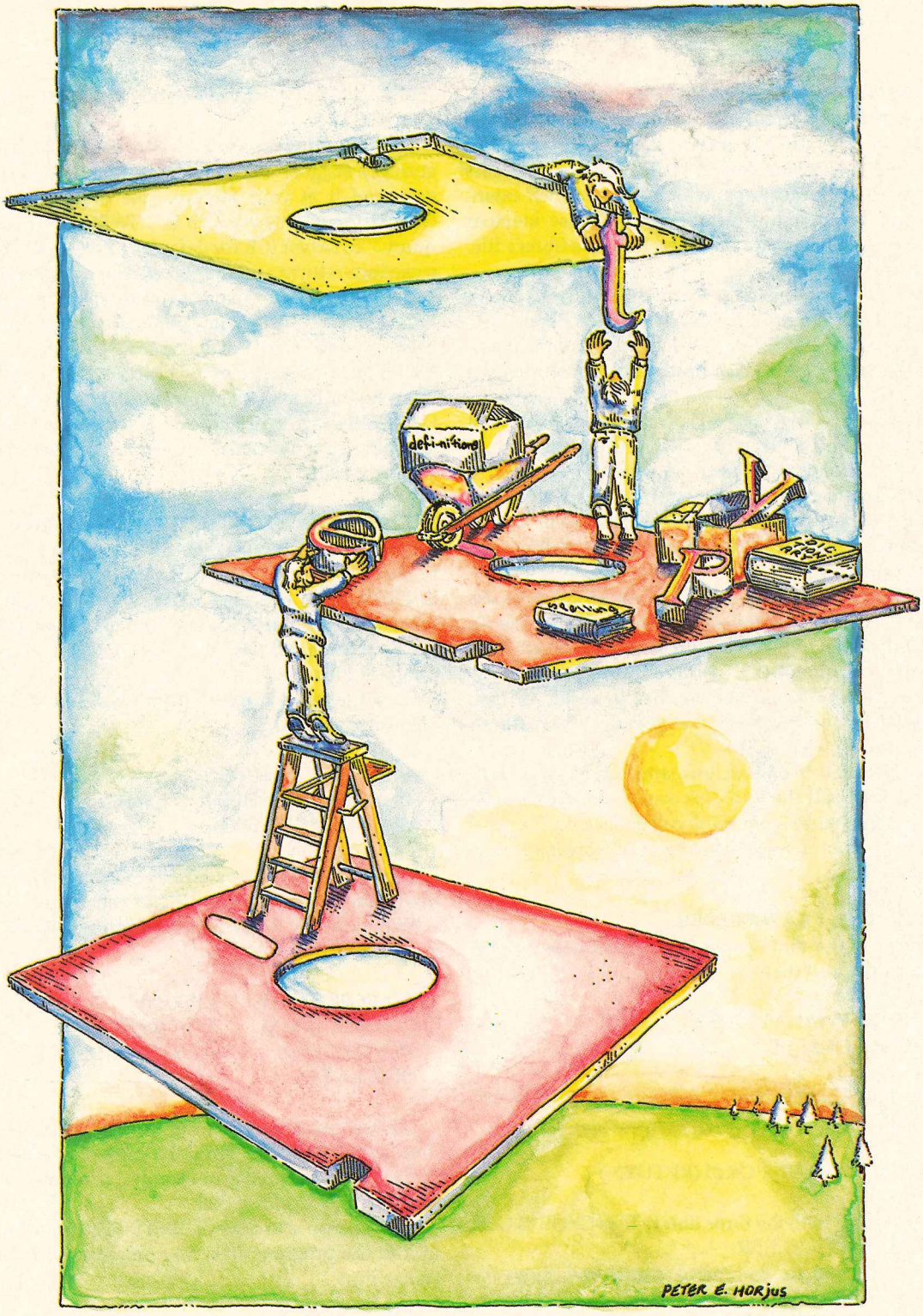
All of the software required to accomplish this exists in the public domain or as "shareware" and can be downloaded from many RBBS and RCPM systems. I will assume that you are familiar with Perfect Writer and CP/M and that you know how to copy and rename files using PIP and REN or a file-management utility such as DISK, SWEEP, NSWEEP or WASH.

CONTINUED ON PAGE 44

BY ROBERT S. STEIN

ILLUSTRATION BY PETER E. HORJUS





How to run the Word Plus from Perfect Writer's menu

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GATHERING THE SOFTWARE

As with any project, the first thing to do is assemble your tools and materials—in this case, the public domain software and shareware needed to enhance Perfect Writer. Nearly all of this software shows up in library files, which have an LBR extension and contain two or more member files. These member files cannot be run until they are extracted from the library file. More about this later.

Three files you will need, in addition to those supplied with your Kaypro, are GSUB20.LBR, a batch processor library file; LSWEEP13.COM or LSWEEP.COM, which extracts LBR member files; and PWMENU2.LBR, the library file containing the new Perfect Writer menu.

You will also need a key-redefinition program. Two such programs in the public domain are QwikKey, found in QK21.LBR, and KStrokes, the latest version of which is in KSTRO40.LBR. However, you can use any other public domain program or a commercial program such as XtraKey or SmartKey. The enhancement described in this article requires the redefinition of only one key.

QwikKey (abbreviated to QK) is the easiest program to use and is the one I will use in the instructions in this article. In any case, you must know how to assign a string to a key. This is covered in the document (DOC) file supplied in the key-redefinition library file. If you use another program, all you need do is replace the single QK command I use with its equivalent from your program.

Finally, you will need two blank formatted and "sysgened" disks, which we will call the tool disk and the program disk. (Kaypro 10 users can employ an empty user area on the hard disk for all files and can disregard further mention of separate tool and program disks.)

EXTRACTING LIBRARY FILE MEMBERS

Once you have all of the tools mentioned above, copy the following files onto the tool disk:

GSUB20.LBR	PWMENU2.LBR
LSWEEP13.COM	QK21.LBR

Now rename LSWEEP13.COM to LSWEEP.COM just to simplify things. Then type:

LSWEEP GSUB20 PWMENU2 QK21 ⟨RETURN⟩

This will load LSWEEP with the three library files GSUB20.LBR, PWMENU2.LBR, and QK21.LBR.

LSWEEP will display its command menu and show the name of the first member file in GSUB20.LBR, the first library file entered in the LSWEEP command line. Some of the member files may have been compressed or "squeezed"; LSWEEP will expand or "unsqueeze" them automatically when you extract the file. A squeezed file will have the letter Q as the middle letter of the file extension. Thus GSUB.DOC will appear as GSUB.DQC.

For now, all you need to extract is GSUB20.COM, although I strongly suggest that you also extract GSUB.DOC so that you can read it at your leisure. Use the space bar to scroll to GSUB20.COM and type an **E**. LSWEEP will respond with the query "To Drive? (CR for default)." Press **RETURN** (CR denotes a carriage return) and the file will be extracted from the library file onto your disk. Next, use the space bar to find GSUB.DQC—the "squeezed" DOC file—and extract it in the same manner.

Next type **X** to have LSWEEP select the next library, PWMENU2.LBR, and extract MENU.DOC and MENU21.COM. Then type **X** again and extract QK21.COM and QK21.DOC from QK21.LBR. When you have done this, type **X** to return to CP/M. You have now extracted all of the files you need to enhance Perfect Writer.

THE NEW PERFECT WRITER PLUS PROGRAM DISK

The next step is to copy the necessary files from the tool disk to the blank program disk. The ones you must copy are GSUB20.COM, MENU21.COM, and either QK21.COM or the key-redefinition program that you use. Now rename these files to GSUB.COM, MENU.COM and QK.COM, respectively, on the program disk.

Copy the following files from your Perfect Writer disk to the new program disk:

PF.COM	PW.COM
PF.DAT	PW.HLP (optional)
PP.COM	PW.SWP

Caution: Do not copy MENU.COM from your Perfect Writer disk; doing so will overwrite the new menu.

Next, copy the following files from The Word Plus disk to the program disk:

MAINDICT.CMP	TW.COM
MARKFIX.COM	TWDFAULT.CMP
REVIEW.COM	UPDICT.CMP
SPELL.COM	

The last two files will only exist if you have used The Word Plus previously, have saved the program defaults, and have an update dictionary. Also copy any special dictionaries you may have on your working disk.

The last step is to copy SUBMIT.COM from your CP/M system disk to the program disk. You are now ready to create Perfect Writer Plus.

ASSIGNING THE ALL-IMPORTANT MACRO

As I stated earlier in the article, only one key must be assigned a string or macro. This key, of course, should be one that is not normally used in text files. Therefore, using whichever key

redefinition program you prefer, assign the following string of commands to the tilde (~) key:

X⟨RETURN⟩A:GSUB =?;A:TW;A:MENU;{ }⟨RETURN⟩

Be sure to leave one space between GSUB and the equals sign and another between the braces. Kaypro 10 users should omit the drive designator "A:" wherever it appears in the macro.

Now every time the (shifted) tilde key is pressed while the key-redefinition program is active, it will generate the above string. Its function will be made clear shortly.

If you are using QwikKey, refer to QK21.DOC for instructions; they are concise and clear. Use the program disk to implement the key definition, then save it with the command **QK S**. This will save the definition in a file, QWIKKEY.DEF, which will be written to the program disk.

Regardless of the program you are using, the applicable key-redefinition program files must always be on the new program disk.

EXPLORING THE NEW MENU

This is as good a time as any to become familiar with the new Perfect Writer menu, so put your program disk in drive A and one of your existing data-file disks (those are the ones that contain your letters, articles, etc.) in drive B. Log onto drive B as usual and type **A:MENU⟨RETURN⟩**, also as usual. (On the Kaypro 10, simply type **MENU⟨RETURN⟩**.) Lo and behold, PW's menu now loads much faster. That's because the new menu is only an 8K file, whereas the old menu took 22K on the disk. You have gained 14K of disk space for other files.

(Notice that to the right of the new menu is an author's message stating that this program is not in the public domain and requesting a $10 fee. Every time you use the new menu you'll see this message. If you use the program, please send $10 to Douglas Sears at the address shown; it's well worth it. This is the method he has chosen for distributing his software. He is relying on those of you who like the program to send the money.)

In the meantime, use the new menu in exactly the same manner as the old one. You'll find that it is much faster, that it alphabetizes the directory and shows the size of each file, and that it lists all the printer devices if you select the "Device" option when formatting a file.

On the negative side, it does require an extra keystroke before you actually get to the menu. When the program loads it stops and asks you to press "'X' to exit, any other key to continue" to the menu. If I didn't want to go directly to the menu I wouldn't have run the program in the first place. This bothered me, so I fixed it with a simple batch file, which I will now show you how to build.

CREATING THE BATCH FILE

A batch file is an ASCII text file that contains operating system

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CONTINUED FROM PAGE 45

commands, has an extension of SUB, and when called with a batch processor executes each of the commands in sequence. While you have Perfect Writer loaded, create a batch file that will load Perfect Writer and the key-redefinition program. Log onto drive A and create a file titled PW.SUB. This file should consist of the lines shown below. (Kaypro 10 users should omit the second line and the drive designator "A:" wherever it appears in the third line.)

```
QK L
B:
A:GSUB =?;ERA ERRWORDS.*;A:MENU;{ }
```

The first line loads QwikKey; if you are using another program, use the command that will load your program and the macro described above. On the last line, be sure to leave a space between GSUB and the equals sign and a space between the two braces at the end. You must also type a carriage return after the last line. Then save the file on drive A.

When you type SUBMIT PW, the commands in PW.SUB will be executed sequentially. First, QK L will load QwikKey with its saved key definitions. Second, it will log onto drive B (except in the case of a Kaypro 10). And last, it will call GSUB from drive A and assign another series of commands to that batch processor, using GSUB's command-line mode.

The question mark in the GSUB command line suppresses CCP commands and reduces clutter on your screen. ERA ERRWORDS.* erases any existing ERRWORDS files generated by The Word Plus. Then the menu on drive A is loaded. The braces at the end of the line enclose the internal command sent while MENU is loaded. In this case, it is a space, which is the additional keystroke needed to go directly to the menu.

Now let's go back to our macro. When you are ready to use the spelling checker, you will be back at Perfect Writer's new menu. If you press S, as the menu indicates, the program will search for PS.COM (Perfect Speller), which is not on the disk. So instead, type a tilde, which will generate the command string

```
X⟨RETURN⟩A:GSUB=?;A:TW;A:MENU;{ }⟨RETURN⟩
```

(or the equivalent string without the drive A designators on a Kaypro 10).

The X is a menu command that exits to the operating system. (The carriage return after the X was used because the macro would not work without it!) Then GSUB executes the commands that follow the equals sign. Once again, the question mark suppresses the CCP commands. A:TW loads The Word Plus from drive A and allows you to use it in a normal manner. When you are returned to the operating system, MENU is loaded automatically, and the space between the braces on the last line again provides the keystroke needed to display the menu immediately.

USING THE BATCH FILE AND MACRO

Now comes the easy part. With the new program disk in drive A and a data-file disk in drive B, cold-boot your computer. At the A-prompt, type **SUBMIT PW ⟨RETURN⟩** After some gyrations, QwikKey (or whatever key-redefinition program you have chosen) will have been loaded and the new menu will appear.

To check the spelling of a file, simply type a tilde when the menu appears. The Word Plus should come up in all its glory. When it asks for the name of the file to check, you do not even have to enter the drive designator B: ahead of the file name; you are logged onto drive B. When the spelling check is completed, you return to the Perfect Writer menu.

THE LAST ENHANCEMENT

Although you and I could both live with a menu that assigns S to call the spelling checker (even though we know that we must now use a tilde), it is relatively simple to change the S to a tilde on the menu.

Place the new Perfect Writer Plus program disk in drive A and your CP/M system disk in drive B. Log onto drive A and rename MENU.COM back to MENU21.COM. Now type the commands shown below and note the computer response to each command.

Type	*Computer Response*
B:DDT MENU21.COM ⟨RETURN⟩	DDT VERS 2.2 NEXT PC 1F00 0100 –
S0934⟨RETURN⟩	0934 53
7E⟨RETURN⟩	0934 53 7E 0935 20
.⟨RETURN⟩	0935 20 . –
Ctrl-C	Warm Boot A⟩

SAVE 30 MENU.COM⟨RETURN⟩

When you type SAVE 30 MENU.COM, a new copy of the menu file with the S changed to a tilde will be saved on disk. Run MENU; it should have a tilde (~) instead of an S as the command for Check Spelling. If it does, erase MENU21.COM and you are done. Otherwise, erase MENU.COM and try again.

We changed the byte at address 0934 from 53 (the hexadecimal value of S) to 7E (the hexadecimal value of a tilde).

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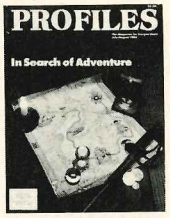

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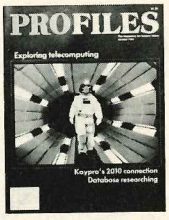

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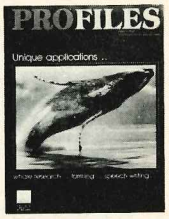

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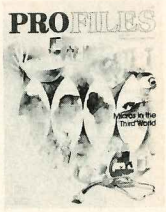

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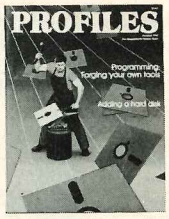

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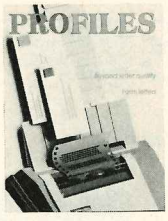

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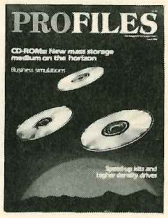

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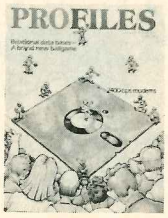

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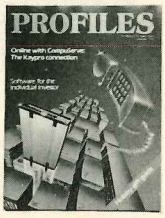

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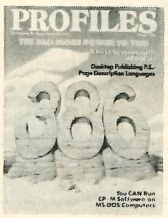

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You can, of course, change the menu line to anything you want if you understand a little about DDT. The line in question appears at addresses 0934 through 0945. *Do not, under any circumstances, change any values outside this range.*

WHY BOTH SUBMIT AND GSUB?

Those of you who are familiar with batch files may have wondered why we've used both SUBMIT and GSUB. The explanation is simple; the solution was not. GSUB alone would have been the obvious choice, since it writes its commands to memory and is much faster than SUBMIT. But because it writes to memory, it does some strange things if you try to load some of the key-redefinition programs from within the batch file. These range from dumping the redefinition program out of memory at the conclusion of the batch file to hanging up the computer because GSUB and the key-redefinition program want to occupy the same section of memory.

On the other hand, SUBMIT (or SUPERSUB or EX, for that matter) is unable to pass internal commands to a program and thus cannot generate the keystroke required to go directly to the menu. But it can call another batch processor—GSUB, in this case—that has a command-line mode. The combination of the two batch processors seems to have solved all of the problems at the cost of a little disk space and a little speed.

SOME FINAL COMMENTS

You will find that your new program disk has enough free space to let you add additional files. Just make sure that you leave a minimum of 2K free. SUBMIT writes a 2K temporary disk file ($$$.SUB), which is erased automatically at the completion of the batch file. You must leave room for this file.

You need only use SUBMIT PW once until you cold-boot or reset your computer. As long as your key-redefinition program remains active, you can always access The Word Plus from the Perfect Writer Plus menu. You can also continue to use the commands MENU, PF, PP, PW, and TW as you did before.

Finally, now that you have everything working, make a backup of the new Perfect Writer Plus program disk. Then, in case anything happens to your working copy, you won't have to go through all of this again. ■

Bob Stein retired in 1985 after nearly 40 years in the technical publications and engineering services field. He has been a contributor to Ham Radio Magazine *and* Popular Electronics *and wrote the User's Guide and the Reference Manual for PERTMASTER, a PERT/critical path-method analysis program.*

WORDSTAR 4.0 MACROS

Imagine a succession of WordStar commands executing in perfect order, carrying out your every wish—all with two keystrokes. Imagine being able to enter frequently used text almost instantaneously, again with just two keystrokes. Imagine being able to configure 36 different keys to execute commands

A string of commands in just two keystrokes.

or enter text, all without leaving WordStar. You've just imagined Shorthand, the new keyboard macro feature present in both CP/M and MS-DOS versions of WordStar 4.0.

For those not familiar with them, macros can generally be described as keyboard shortcuts in which one or two keystrokes do the work of many. Shorthand macros allow you to string several WordStar commands together to perform a specific task or tasks or enter text automatically just by pressing ESCape followed by one other key. Once familiar with the feature, you can quickly build macros to perform all sorts of laborious and time-consuming tasks.

In earlier versions of WordStar for MS-DOS, only the ten programmable function keys could be used for macros, and the functions assigned to these keys could not be changed within WordStar. CP/M users were out of luck unless they used a keyboard redefinition program or

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BY STEPHEN R. GILLILAND

PHOTOGRAPHY BY GLENN STEINER

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redefined the numeric pad keys with Kaypro's CONFIG program. Either way you had to exit WordStar and change the assignments with WINSTALL, DEBUG, or your favorite key redefinition program. In both the MS-DOS and CP/M versions of WordStar 4.0, macro keys are defined, tested, and used without ever leaving WordStar. The net result is more efficiency; WordStar and the computer do more of the work.

This article will explain, step by step, how to create macros with Shorthand. It is intended primarily for those familiar with the WordStar command structure, but a careful beginner should be able to follow it. Advanced users will have more ideas for using Shorthand, but everyone will find macros immediately helpful.

In explaining macros we will use some familiar conventions. First, a caret (^) in a command means to hold down the CTRL key while pressing the next key. For instance, ^QC is typed by holding the CTRL key down while pressing Q, then releasing both keys and pressing C. Second, examples in boldface are typed exactly as you see them. Finally **ESC** means press ESCape and **⟨ENTER⟩** means press Enter.

Any or all of the 36 alphabetical and numeric keys can be defined as macros.

Any or all of the 36 alphabetical and numeric keys can be defined as macros. Definitions are restricted to 64 spaces each, but WordStar's nesting (calling a macro from inside another macro), chaining (ending one macro by starting another), and file reading capabilities neatly circumvent the 64-character limitation. This allows you to combine long command strings, enter prewritten sections of "boilerplate" text, or mix commands and text.

GETTING STARTED

If you haven't already done so, install WordStar 4.0 for your system, following instructions beginning on the first page of the manual. Next, one modification must be made to your WS file in order to create and save the macros discussed here. WordStar holds macro strings and descriptive names in a memory buffer and saves them in a file called WSSHORT.OVR, making the macros available whenever WordStar is run. The default size of both buffer and file is 500 characters (four "pages" of 125 characters each). We want to enlarge the macro buffer and file to 1,250 characters (ten pages). To do this, exit WordStar and run WSCHANGE by typing the following:

WSCHANGE WS ⟨ENTER⟩
D C D B 10 ⟨ENTER⟩ X X X X Y

Once you've done this, re-enter WordStar and open the PRINT.TST file from your program disk to use as an example (use backup copies, never the masters).

Enter the Shorthand menu by pressing **ESC**. The next key you press (after ESC) determines what happens next. The choices inside the box on the menu are non-alphanumeric default macro keys WordStar provides for you. The **?** is used to define macros. More on that in a moment. Typing **^J** provides a limited help screen. Pressing **=** after ESC puts the result of the last WordStar math calculation into your file at the point where you left the cursor; **$** gives the same result in dollars-and-cents format; **#** provides the entire equation from the last **^QM** math operation; **@** inserts the date, and **!** delivers time of day (assuming the date and time were correctly set when starting the computer). Press **ESC** again and the menu disappears. Pressing **^U** will cancel the macro process at any time.

The non-alphanumeric default macros cannot be changed, but below the box are sample macros MicroPro has provided. These can be used as they are, changed to whatever you wish them to be, or discarded. To see how a macro works, press **ESC** to return to your file, move the cursor to anywhere within a paragraph and press **ESC P**. The cursor moves to the beginning of the paragraph. Now let's create some new macros.

CREATING MACROS

Shorthand macros are created in three steps:

1. Make an exact list of commands or keystrokes to be used in the macro. Write it out if necessary.
2. Select the key to be defined and enter a descriptive name and definition.
3. Save and test the macro.

Press **ESC ?** to bring up the definition screen. You're shown a list of the descriptive names and definitions of existing macros, and you're asked to enter the key you wish to define. Let's start by making a simple macro to open a file from the Opening Menu, using the file PRINT.TST for practice. The commands to open this file from the opening menu are D, PRINT.TST, ENTER. To create this macro, type the following boldface items exactly:

1. **ESC ?** (takes you to the macro definition screen)
2. **O** (arbitrarily selected key to hold the definition)
3. **OPEN PRINT.TST** (descriptive name for this macro)
4. **⟨ENTER⟩** (End the descriptive name.)
5. **DPRINT.TST^P⟨ENTER⟩** (the command sequence, or definition)

If you make a mistake in typing the command sequence, use

Ctrl
Alt
Shift
Esc
Enter

the left and right arrow keys to move to your mistake and Backspace or DEL to correct it. When the characters are entered correctly, stop. When this macro is run (by pressing ESC O), it will execute the 11-keystroke string "D PRINT.TST ⟨ENTER⟩."

Note that you end the command sequence with a ^P⟨ENTER⟩. When defining macros, all CTRL-character keystrokes must begin with ^P. This tells WordStar that the next character is a CTRL-command to be executed when the macro is run, rather than text to be inserted in the file. You enter ^P before each CTRL-character that must be executed.

For example, you can enter the command ^D into a macro by typing either ^P^D or ^PD. It's a good idea to omit the second CTRL, since the "^" takes up one of the 64 allowable spaces in your definition. Text not part of a command needs no ^P, which is why PRINT.TST, the file name, has no ^P.

Note also that when you pressed ENTER following ^P, ^M appeared—what you typed should look like **DPRINT.TST^M** on the screen. (The ^P you typed to begin each command keystroke doesn't show, but it's there.) ^M is the control sequence for ENTER. (Control sequences are industry-standard "synonyms" for control commands.) This means that pressing ^M has the same effect as pressing ENTER, and vice versa. As you continue with the tutorial, you will see that macros show ENTER onscreen as ^M, ESC as ^[, right arrow key as ^D, and so on. (Control sequences are listed in Appendix F in the WordStar 4.0 manual, if you wish to see what they are.)

Now press ENTER. You're back at the "Character to be defined?" question, which indicates that you could now define another macro. For now press ENTER again and answer the "Store changes onto disk?" question by pressing Y for "yes." If you don't save your macros they disappear when you exit WordStar.

The cursor is back in the file right where it was when you pressed "ESC ?." To test the new macro, you must first return to the Opening Menu. If you run it while a file is open, "DPRINT.TST" will be inserted in the file as text because "D" is an Opening Menu command not recognized when a file is open. Shorthand macros must be run where they are intended to be used. Now abandon PRINT.TST (**^KQ** and **Y** to abandon the changes) and, at the Opening Menu, type **ESC O**. The file is reopened automatically.

EDITING A MACRO

If a macro doesn't work as expected, or you want to add something to it, press **ESC ?**, followed by the letter or number of the macro to be edited, and press **^R** in answer to the questions about descriptive name and definition. When you do, the information already stored in that definition will appear. You can edit either the descriptive name or the definition using the left and right arrows and DEL and BACKSPACE keys. One caution: Even if you wish to change only a descriptive name, you still must answer ^R to the definition query before pressing ENTER. If you don't, WordStar will assume you are redefining the macro and the old definition will be lost when you save the macro.

NESTING AND CHAINING MACROS

Now let's write a macro using another macro as part of the definition ("nesting"). The macro will block mark a paragraph of text. The new macro will use the "ESC P" example macro to move the cursor to the beginning of a paragraph. This macro uses these commands:

ESC ?	Go to macro definition screen
B	Character to hold macro
MARK PARAGRAPH	Descriptive name
^[P	Call "previous paragraph" macro
^KH	Hide old block markers, if any
^KB	Mark beginning of block
^QG	Find next character typed
^M	Tell ^QG to find next hard return
^QD	Cursor to end of paragraph
^D	Move cursor to beginning of next line
^KK	Mark end of block
⟨ENTER⟩	End the macro
⟨ENTER⟩	Save macro and return to file

Remember, you must enter ^P before you enter the [in ^[P when typing the macro. This is because the command to execute another macro from within a macro is treated just like any other WordStar command. Your definition should look like this onscreen: ^[P^KH^KB^QG^M^QD^D^KK. If it does, press ENTER twice and test the macro by typing **ESC B**. You have just created a nested macro—one macro within another.

One of the handiest uses for macros is inserting often-used text.

"Chaining" macros means ending one macro by starting another. Any number of macros can be chained together, and a macro can even call itself by ending the definition with its own ESC character. Such a macro will repeat endlessly until ^U is pressed to stop it.

INSERTING BOILERPLATE TEXT

One of the handiest and easiest uses for macros is inserting often-used text, saving you the trouble of retyping the material each time. You can use macros to accomplish this in two ways:

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by simply typing the text into a macro or several chained macros, or by creating a macro to read a file into the current text. To do the latter, first put the material to be read into its own file, which we'll call BP1. Then write a macro using the ^KR (read file) command. A macro that reads the file BP1 and puts the cursor at the end of the imported text can be entered as:

^P^X^P^K0^P^E^P^K^PRBP1^P⟨ENTER⟩^P^Q0

The command sequence that you see on the screen is **^X^K0^E^KRBP1^M^Q0**. If you have several different blocks of text that are used often, you can create several boilerplate files, each with a different number (BP2, BP3, etc.) and a file-reading macro for each. Keep them straight by giving each one a distinctive descriptive name for the macro menu.

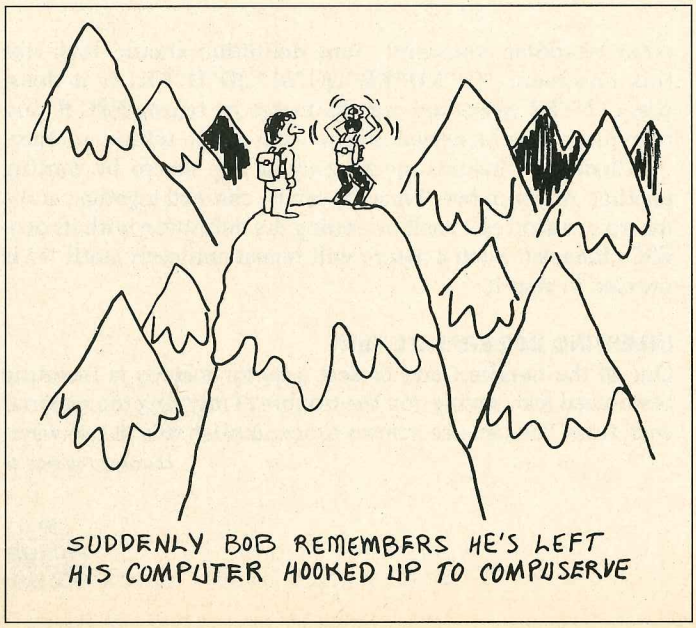
LIMITATIONS

Shorthand macros are good, but not perfect. There is no provision to pause for data entry and resume the macro. And if a macro contains a command that prints a file, whether to a printer or another file, the macro effectively ends where the printing starts. But even with these limitations, Shorthand is useful.

ON YOUR OWN

By now you should be able to formulate and write your own macros. Your biggest problem may be remembering to use them. If you're stuck for ideas, you might try creating macros to protect a file when you save it; unprotect a protected file when it's re-opened; copy a file to a backup floppy disk; read into your text a specific set of dot commands for different formats, business letters, memos or whatever; or print a file to PRVIEW.WS so you can check everything before committing to paper.

Steve Gilliland is a microcomputer educator, writer, and consultant living in Lake Havasu City, Arizona.



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```
Read(Kbd,Ch);
if Ch = ^[ then
begin
  if KeyPressed then Read(Kbd,Ch)
  else begin
    READCHARACTERS := false;
    Ch := ^M;
  end;
end; {if Ch = ^[}
```

If READCHARACTERS sees an ⟨ESC⟩, it uses Turbo's KeyPressed routine to see whether another key has been pressed—indicating the second part of the two-character sequence. If KeyPressed is true, it clears that second character by Reading it; otherwise the procedure correctly surmises that the user meant ⟨ESC⟩ and aborts data entry.

I originally wrote READCHARACTERS for CP/M without this error-trap and was quite surprised when I moved it to my DOS machine. Fortunately, the fix works well.

Fixing errors is like that. I haven't avoided all the bullets directed my way, but I've managed to dodge some of them. I hope this article helps you dodge a few, too.

Jim Spickard teaches the sociology of religion and plays with small computers.

LISTINGS FOR ERROR TRAPPING ARTICLE

Listing #1

```
    {You must include the following type declaration
        in the main program:
              date = record
                       Day: integer;
                       Month : integer;
                       Year : integer;
                     end;}

function DATECHECK(DateToCheck : date) : boolean;
    {Checks dates for valid values: leap years, etc.}
    {Treats all years as if they were on the current calendar.}

begin
  with DateToCheck do begin
    if Month > 12 then DateCheck := false;
    if Month < 1 then DateCheck := false;
    if Month in [1,3,5,7,8,10,12] then
      if Day > 31 then DateCheck := false
      else DateCheck := true;
    if Month in [4,6,9,11] then
      if Day > 30 then DateCheck := false
      else DateCheck := true;
    if Month = 2 then begin
      if Day > 29 then DateCheck := false;
      if Day < 29 then DateCheck := true;
      if Day = 29 then
        if Frac(Year/4) <> 0 then
          DateCheck := false
        else begin
          if Frac(Year/100) <> 0 then
            DateCheck := true
          else begin
            if Frac(Year/400) = 0 then
              DateCheck := true
            else
              DateCheck := false;
          end;
        end;
    end;  {if Month = 2}
    if Day < 1 then DateCheck := false;
  end;  {with DateToCheck}
end;  {function DATECHECK}
```

Listing #2

```
procedure INTCHECK(var Result : integer);
          {Reads integers one number at a time, rejecting non-
           numerical input but allowing corrections by means of
           backspace.  Input ends with <CR>.  An integer is
           returned to the main program.}

var Ch        : char;
    Code      : integer;
    IntString : string[6];

begin
  IntString := '';
  repeat  {until Ch = ^M}
    Read(Kbd,Ch);
    case Ch of
      ^M  : begin end;
      ^H  : begin
              if Length(IntString) > 0 then begin
                Write(Ch);
                Write(' ');
                Write(Ch);
                IntString := Copy(IntString,1,(Length(IntString)-1));
              end;
            end; {case ^H}
      '+' : begin end;
      '-' : begin
              if IntString = '' then begin
                IntString := IntString + Ch;
                Write(Ch);
              end;
            end; {case '-'}
     else   begin
              Val(Ch,Result,Code);
              if Code = 0 then begin
                IntString := IntString + Ch;
                Val(IntString,Result,Code);
                if Code = 0 then
                  Write(Ch)
                else
                  IntString := Copy(IntString,1,(Length(IntString)-1));
              end;
            end; {case else}
    end;  {Case statement}
  until Ch = ^M;
  Result := 0;
  Val(IntString,Result,Code);
end; {procedure INTCHECK}
```

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Listing #3

```
{You must include the following type declaration in
the main program: string12 = string[12];}

procedure READFILENAME(var FName : string12);
          {Reads and checks filenames for proper format and
           characters.  Only letters, numbers and symbols allowed
           by BOTH MS-DOS and CP/M are allowed.  NOTE: this
           procedure does not allow path or drive specification.
           It does Allow for correction by backspacing and
           retyping.  Input ends with <CR>.}

var Ch      : char;
    Period  : boolean;
    Counter : integer;

function CHECK(var Ch: char) : boolean;
begin
  Check := false;
  if Ch = ^H then CHECK := true;
  if Ch in ['0'..'9'] then CHECK := true;
  if Ch in ['A'..'Z'] then CHECK := true;
  if Ch in ['a'..'z'] then begin
    CHECK := true;
    Ch := UpCase(Ch);
  end;
  if Ch in ['.','!','-','@','#','$','&','(',')'] then
    CHECK := true;
end; {function CHECK}

begin {main procedure}
  Counter := 8;
  FName := '';
  Period := false;
  repeat  {until Ch = ^M}
    Read(Kbd,Ch);
    if Ch = '.' then Counter := 9;
    if CHECK(Ch) then if Length(FName) <= Counter then
    case Ch of
     ^H  : begin
             if Length(FName) > 0 then begin
               Write(Ch);
               Write(' ');
               Write(Ch);
               if Pos('.',FName) = Length(FName) then begin
                 Period := false;
                 Counter := 8;
               end;
               FName := Copy(FName,1,(Length(FName)-1));
             end; {if Length > 0}
           end; {case ^H}
     '.' : begin
             if not Period then begin
               Period := true;
                 Write(Ch);
                 FName := FName + Ch;
                 Counter := 12;
               end;
             end; {case '.'}
       else  begin
               if Period then
                 if Length(Copy(FName,(Pos('.',FName)+1),12)) < 3 then
                 begin
                   Write(Ch);
                   FName := FName + Ch;
                 end;
               if not Period then begin
                 if Length(FName) < Counter then begin
                   Write(Ch);
                   FName := FName + Ch;
                 end;
               end;
             end; {case else}
    end;  {case statement}
  until Ch = ^M;
end;  {of procedure READFILENAME}
```

Listing #4

```
{You must define type "line" as a string type in the main program.}

function READCHARACTERS(var Word : line; Buffer : integer) : boolean;
         {Function reads input consisting of letters, numbers,
         spaces and punctuation only, rejecting other input but
         allowing corrections by means of backspace.  Input ends
         with <CR> or with <ESC>; function returns "true" with
         former and "false" with latter.  Only accepts input
         string of indicated length ("Buffer" must be less than
         or equal to the length of type "line").}

var Ch : char;

function CHECK : boolean;
begin
  Check := false;
  if Ch in ['A'..'Z'] then CHECK := true;
  if Ch in ['a'..'z'] then CHECK := true;
  if Ch in [' ',',','.',':',';','?','!','(',')','-','/'] then
     CHECK := true;
  if Ch in ['0'..'9'] then CHECK := true;
end;

begin  {main function}
  Word := '';
  READCHARACTERS := true;
  repeat {until Ch = ^M}
    Read(Kbd,Ch);
    if Ch = ^[ then begin
      if KeyPressed then
        Read(Kbd,Ch)
      else begin
        READCHARACTERS := false;
        Ch := ^M;
      end; {if keypressed }
    end {if Ch = ^[}
    else begin
      if Check then if Length(Word) < Buffer then begin
        Write(Ch);
        Word := Word + Ch;
      end;
      if Ch = ^H then begin
        if Length(Word) > 0 then begin
          Write(Ch); Write(' '); Write(Ch);
          Word := Copy(Word,1,(Length(Word)-1));
        end;
      end; {if Ch = ^H}
    end; {else: if Ch not ^[}
  until Ch = ^M;
end;  {procedure READCHARACTERS}
```

TIPS AND TRICKS FOR WORDSTAR 4.0

BY TED SILVEIRA

While I was reviewing the CP/M edition of WordStar 4.0, I picked up some useful tips and cautions that didn't make it into the review. They do, however, make perfect column fodder, so here are the first of them.

ACCESS TO SPECIAL CHARACTERS

WordStar 4.0 now offers much better support for modern dot matrix printers. With most, it can switch between letter quality and draft printing, print real italics, subscripts, and superscripts, change line height and character width, and so on. But that still doesn't tap all the resources of these printers. Specifically, many dot matrix printers can also print a variety of special characters, usually either foreign language characters or simple box-drawing graphics characters. If you could enter these special characters into your text (using ^P), WordStar would happily send them to the printer. But, unfortunately, there's no direct way to enter them from the keyboard.

Let me digress a moment. Computers don't understand characters like **A** or **z**, only numbers in the form of *bits* and *bytes*. A bit is a single binary number with a value of either 1 or 0. A byte, the basic unit of information for computers, is a group of eight bits, and it can have a value from 0 to 255. To deal with text characters, most computers use a convention or code called *ASCII* (American Standard Code for Information Interchange). The ASCII code simply assigns a value to each character, saying that a byte with a decimal value of 32 represents a space, a byte with a value of 65 represents the uppercase letter **A**, a byte with a value of 66 represents the lowercase letter **B**, and so on. You can find a chart of the ASCII characters and their values in the back of your *Kaypro User's Guide* (page 57 in mine).

If you take a look at that ASCII chart, you'll see that it only covers values from 0 to 127—0 to 31 being the unprintable control characters (including carriage return, line feed, and tab), and the rest being the upper and lowercase letters, numbers, and punctuation marks. That's the original ASCII standard, the keys you see on your keyboard. However, that left all the values from 128 to 255 unassigned, and dot matrix printer manufacturers quickly began to use those for foreign language characters, graphics characters, and so on, as mentioned above.

That was fine, except that no one added any corresponding keys to the keyboard so that you could type in these characters. In MS-DOS, you can enter any of these characters by holding down the **Alt** key and typing in the three-digit decimal value on the numeric keypad (216, for example), but CP/M doesn't offer any such option.

Back to WordStar 4.0: How, then, can you enter one of these "upper ASCII" characters (values 128 to 255) in the CP/M version of WordStar 4.0? I got the answer in a letter from a friend in Miami, Julie Rosenberg, who figured out that you can use WordStar 4.0's *custom print controls* (^PQ, ^PW, ^PE, ^PR) to insert the special characters in your text. Earlier versions of WordStar also had these four custom print controls, but you had to patch WordStar with the values you wanted for each, so you were stuck with only four options.

But with WordStar 4.0, you can use the four new dot commands—XQ, XW, XE, XR—to redefine the four custom print controls at any time. So, you can define four special characters with dot commands at the start of your text, and if you need more special characters later on in the text, you can just redefine the print controls with the appropriate dot commands at that point in your text. The only tricky thing is that when you use the dot commands to define the custom print controls, you have to specify the character you want printed in *hexadecimal* instead of ordinary decimal numbers. Fortunately, any decent printer manual will have a full ASCII chart to show you what the printer's special characters are, and all the charts I've seen show both the decimal and hexadecimal values for each character—just make sure you use the right one.

For a brief description of the custom print control dot commands, see the WordStar 4.0 manual, pages 143 and 156. For a longer explanation of hexadecimal numbers, see *PROFILES*, May 1987, page 39. (And thanks, Julie.)

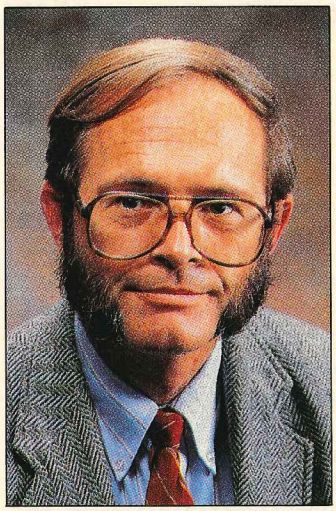
SEARCH/REPLACE BUG

Pete Shanks, another friend who has a talent for stumbling across bugs in supposedly clean programs, uncovered the following problem in WordStar 4.0's search/replace command (^QA):

Suppose you have a single-spaced document that has two carriage returns at the end of every paragraph (producing a blank line between paragraphs). If you start at the beginning of the file and try to replace (globally) every carriage return/linefeed combination (^M^J) with *two* carriage return/linefeeds (^M^J^M^J), you run into problems. WordStar will replace every single carriage return/linefeed pair with two such pairs, as it should. But when it comes to the double carriage return/linefeed at the end of each paragraph, it replaces it with only three pairs instead of four.

However, if you search *backward* instead of forward, the search/replace works correctly. (This bug is also present in the MS-DOS version of WordStar 4.0.) WordStar doesn't have any problem with the opposite replacement—locating two carriage return/linefeed pairs and replacing them with one.

That's one major tip and one very minor bug. More later.



RICHARD STARKMAN

BY TOM ENRIGHT

THREE STANDOUTS FROM COMDEX

Every fall, there's a show in Las Vegas that completely eclipses anything at The Dunes or the MGM Grand, stars and showgirls notwithstanding. It's the fall COMDEX (Computer Dealer Expo), the biggest, glitziest trade show in the computer industry.

As this issue goes to press, COMDEX has just ended, and like everyone else who attended, I'm still trying to catch my breath, clear my head, and sort out my impressions.

This fall's show was spread out over five hotels and a convention center, and it was estimated that 95,000 people attended. (You couldn't have gotten a room anywhere in Las Vegas during COMDEX if your life depended on it.)

COMDEX week is a week of extravagant manufacturer-hosted parties and attention-grabbing gimmicks. Manufacturers race the calendar to be able to debut their new products at COMDEX, and everyone tries to outdo the competition with elaborate display booths that grab your attention and give booth staffers a chance to go into their sales pitches.

So what were the really hot new products at COMDEX? It's surprisingly hard to come up with a list. For one thing, with everyone clamoring for your attention, it gets difficult to sift through the hype to find the really good products. For another, the show is so big, it's difficult—maybe impossible—to see everything. And finally, the show is somewhat predictable: Printers do more and cost less; disk storage is getting cheaper; video boards have higher resolution and more colors; monitors are getting larger. (I lost track of how many 19-inch VGA and multi-frequency monitors I saw.) And most manufacturers are jumping on the IBM PS/2 and OS/2 bandwagon. None of this should really suprise anyone very much.

For a product to really impress me, it must not only be truly useful, it must be innovative or extremely well done. Three products from COMDEX made enough of an impression on me that I would like to tell you about them. They are the Clarity 1 video board from Sefco Computer Products, the Pepper series of graphics boards from Number Nine Computer Corporation, and the LaserMaster printer interface from LaserMaster Corporation.

CLARITY 1

The Clarity 1 is a plug-in circuit board that works with a normal EGA adapter to produce up to 10,000 simultaneous colors on a multi-scanning monitor. It doesn't improve video resolution, but it does give you a nearly unlimited color palette. As a matter of fact, the Clarity 1 and your EGA video board can produce images approaching, or in some cases surpassing, those of a color TV.

A color TV has a resolution of about 450 by 525 pixels. The color of each pixel can be chosen from a huge pallete of colors. An EGA board can produce images of 640 by 350 pixels (some go up to 800 by 600). Add to that the 10,000 simultaneous colors from a 16 million color pallete provided by the Clarity 1 and you get some interesting possibilities.

The Clarity 1 has its own stand-alone image processing and image database software. It also comes with a library of software routines that meet calling conventions for the C language. It works with digitizers from Epix and Chorus Data Systems. Also, Sefco will be introducing its own digitizer sometime this year.

Although the Clarity 1 could be used in almost any graphics application, Sefco is selling to the image database market. An image database includes a picture as one element of each record. Uses for computerized image databases include the real estate, security, and medical fields. In the future it could become usual for personnel records, insurance claim photographs, modeling agency photos, police mug shots, and many other things to be routinely stored in image databases. Virtually any image that would normally be stored as a photograph is adaptable to an image database.

NUMBER NINE GRAPHICS

The Pepper Series graphics coprocessor boards from Number Nine Computer Corporation cover the spectrum from desktop publishing to business to high-end computer-aided design. There are three boards in the Pepper series: the SGT, the 1600, and the Pro1280. Each of these boards has its own graphics processor(s), program memory, video memory, and

even an extensible proprietary graphics operating system in ROM.

The common thread among all of the Pepper boards is the Number Nine Intelligent Operating System (NNIOS). The NNIOS is a multitasking operating system that executes programs written for it, allocates and manages memory on the board, and can upload operating system extensions from MS-DOS. MS-DOS can pass a set of drawing commands (or an entire program) to NNIOS and continue calculating the next set of commands while NNIOS is displaying the first set.

The power of NNIOS is realized through the use of dedicated graphics processors on all Pepper boards. The Pro1280 uses a Texas Instruments TMS34010, while the 1600 and SGT use both the TMS34010 and an Intel 82786. These are both full 32-bit graphics processors and represent unprecedented graphics power. For example, the Pepper 1600 runs the Intel chip at 20 MHz and the TI chip at 40 MHz.

Other common attributes across the Pepper line are hardware scroll, pan, zoom, and windowing. Implementing these features in the hardware rather than in software is more expensive, but results in significantly improved performance.

The Pepper 1600 is a monochrome board designed primarily for the desktop publishing market. It has a viewable resolution of 1600 by 1200 pixels. It comes with one megabyte of memory and is expandable to four megabytes. Video memory may be set up as several video pages or as one large page (up to 8192 by 4096) with a 1600 by 1200 visible window.

The Pepper SGT is a color graphics board with resolutions of 640 by 480 in 256 colors, 800 by 600 in 16 colors, and 1,280 by 480 in 16 colors. The "TrueColor 16" upgrade allows up to 32,768 simultaneous colors. It may also be expanded from the standard one megabyte to four megabytes of memory as a factory option. It features unlimited downloadable fonts and a drawing speed of up to 12.5 megapixels per second.

Last in the Pepper series is the Pepper Pro1280. It uses the TMS34010 as its only processor and delivers 1280 by 1024 noninterlaced resolution with 256 colors out of a palette of 4,096 colors. An optional upgrade delivers a palette of 16.7 million colors. It comes with 1.25 megabytes of video RAM and draws at up to 12.5 megapixels per second.

All that hyper-performance isn't worth too much if your software won't work with the board. Software that already runs with Pepper boards includes MS-WINDOWS, GEM, HALO packages, Lotus products, AutoCAD, VersaCAD, Ashton-Tate products, Pagemaker, Ventura Publisher, Publisher's Paintbrush, and many more.

No fewer than 20 other graphics software and monitor producers at COMDEX were using Pepper boards to showcase their products. I'd say that was a pretty good recommendation.

LASERMASTER

Laser printers are pretty fast when everything is in the same type size and no graphics are included. But if you toss in several type sizes and some graphics, things slow down in a hurry. LaserMaster, a plug-in interface card for your computer, speeds them up again.

LaserMaster replaces the controller in the printer with a card that plugs into your expansion bus. It comes with one and a half megabytes of memory (two megabytes optional) and has its own coprocessor to speed up printing, font changes, and graphics. A cable from the card bypasses the controller in your printer and gives the LaserMaster direct control.

Since the new controller is plugged into the expansion bus of your computer, it can respond faster than a normal serial or parallel printer. Also, the new controller has more memory than a laser printer so it can hold more fonts and do full-page graphics. Few laser printers have enough memory to do full-page graphics, and even when they have the memory, the serial or parallel interface slows throughput down considerably.

LaserMaster's nearest competitor is the JLaser interface from Tall Tree Systems. (We have used a JLaser card at *PROFILES* for the last year and have found it to be an excellent product.) The folks at LaserMaster claim that their product is faster and more flexible than the JLaser board.

LaserMaster appears to be very flexible when it comes to fonts. (JLaser does not address fonts with any of its utilities.) Two optional utilities allow you to use outline fonts, as opposed to bit-image fonts, from BitStream with Ventura Publisher. One utility takes a BitStream outline, scales it to whatever point size you specify and saves the new font in a bit-image file. Another utility allows Ventura to scale BitStream fonts "on the fly."

According to tests run by LaserMaster, their board makes Ventura Publisher print three to five times faster than with a JLaser board. For example, Ventura Publisher comes with a number of sample files. One of these files is called BOOK__P1. A normal HP LaserJet + prints the file in 32 seconds. Add a JLaser board and the time shrinks to 20 seconds. LaserMaster claims to print the same file in five seconds flat.

The LaserMaster is available for a wide variety of laser printers. The device driver for Ventura Publisher is included at no extra charge. An optional device driver is available for Pagemaker.

Quick Reference Summary

Product: Clarity 1
Manufacturer: Sefco Computer Products
7037 Laurel Canyon Blvd.
North Hollywood, CA 91605
Phone: (818) 765-8882
Sugg. list price: $895

Product: Pepper Graphics Boards
Manufacturer: Number Nine Computer Corporation
725 Concord Avenue
Cambridge, MA 02138
Phone: (800) GET-NINE
Sugg. list price: Pepper SGT, $1495; Pepper 1600, $1595; Pepper Pro1280, $2995.

Product: LaserMaster
Manufacturer: LaserMaster Corporation
P.O. Box 1439
Minnetonka, MN 55345
Phone: (612) 944-6069
Sugg. list price: $995

CLEARING THE DESK

BY TED SILVEIRA

Every few months, I have to take a day to clear off my desk and sort through the piles of letters, disks, scribbled notes, and other bits that seem to accumulate. Every time I do this, I turn up at least one or two programs I meant to include in earlier columns but couldn't find the room.

This month, having just cleaned my desk, I've got three such programs to pass on. Though only one is shareware, all three are under $100 (which is cheap, these days), and each is interesting in its own way.

AVSCRIPTER

If you write audio-visual scripts of any kind, you'll be interested in AVScripter by Tom Schroeppel (shareware, $20). AVScripter is a script-formatting program that will read a text file and, by interpreting some simple dot commands, turn it into a nicely formatted two-column script with visuals on one side and audio on the other.

AVScripter can also break pages (inserting "continued" where necessary), number or renumber scenes and pages, print headers and centered titles, print selected pages and multiple copies, and chain-print files if you need to break a long script into manageable parts. With AVScripter, you can double- or single-space lines, include non-printing comments (notes to yourself), force page breaks, and adjust the page length, starting page number, and starting scene number.

The program expects to work with a plain ASCII text file, so for WordStar users, Schroeppel includes a small program to "filter" WordStar files into plain ASCII. When you run your file through AVScripter, you can route it to the printer, to a disk file (for later printing or viewing through a different program), or to the screen for previewing.

Note that AVScripter is what's called a post-processor—you can't use it to edit text in two columns. Instead, you write your script in a single wide column using your normal word processor, insert the proper dot commands, and then feed it to AVScripter, which then reformats the file into two columns according to your instructions.

If you don't write two-column scripts like these, AVScripter will be worthless to you. But if you do, it will save you lots of tedious (and decidedly uncreative) work massaging your script into the proper form.

If you write two-column scripts, AVScripter will save you lots of tedious work.

Schroeppel also publishes *The Bare Bones Camera Course for Film and Video*—a cameraperson's guide to composition, sequence, lighting, and other arts—and *Video Goals: Getting Results with Pictures and Sound*—a guide to the concepts and practicalities of the whole production process ($6.95 each). Neither one will make you a pro by itself, but both are clearly written and full of useful information (information I wish I'd had 18 years ago when I was making a muddled graduate school documentary about Mongolian Bhuddist monks in New Jersey).

KAMAS

I love outline processors, and I've used just about every one ever written. For a long time, my favorite outline processor has been the quirky but powerful MaxThink, simply because no other program equaled its variety of commands and sheer organizing power.

Now MaxThink has a serious competitor. Kamasoft, creator of the Kamas and OutThink outliners for CP/M, quietly released an MS-DOS outliner, also called Kamas, some time ago. Though it's much more powerful, the MS-DOS Kamas is clearly patterned after the CP/M OutThink, which is not a bad model. In fact, this version of Kamas not only adds new features but also overcomes the various deficiencies I found in the commands and interface of OutThink (see *PROFILES*, July 1986, page 21 for a review of OutThink).

For those of you who are familiar with outliners, Kamas has the usual commands for creating, editing, and navigating outlines. In addition, it has a number of "advanced" outlining commands, including mark-and-gather, hoist and dehoist, sort, prioritize, and binsort. Both the outline editor and the text editor are very complete and easy to use, and Kamas retains the unique ability of its CP/M predecessors to rapidly search or jump to other outline files that you've put on its active list.

My one complaint is that Kamas, like ThinkTank, only lets you enter a heading one line long—if you want to add more text, you attach a separate block of text of up to 32K to the heading. By contrast, MaxThink lets you make a heading as long as you want and gives you the option of seeing the full text of each heading or the first line only.

Don't let my comparison of Kamas to its CP/M cousins make you think this is a warmed-over clunker, transported to MS-DOS to make a little extra money. It's not. The similarities are in the concept of what an outliner should do and the inter-

face design, and both the concept and the design have bloomed in the MS-DOS environment. The MS-DOS Kamas was coded from scratch, in *assembly language*, making it both small and fast. The program is very responsive in all its operations, including loading and saving files, and it takes up only 50K on disk, plus a 93K help file (MaxThink weighs in at 203K plus a 67K help file).

If you like outliners, Kamas is a bargain at $69.95.

MCI MAIL AND LOTUS EXPRESS

MCI Mail is one of the best and most popular of the electronic mail services. It's easy to use, has lots of subscribers, and even has a link with CompuServe, the largest of the electronic information utilities (350,000 subscribers) so that users on the two services can send mail to each other. MCI Mail can also send telexes, and if your correspondent doesn't have an MCI account, a modem, or even a computer, MCI Mail can laser print your message at one of its regional centers and land-mail the printed version (or even send it by overnight courier). In fact, you can have MCI Mail digitize your letterhead *and* your signature for laser-printed mail.

But as easy as MCI Mail is to use, it always had two drawbacks. First, you had to superintend the whole process of sending and receiving mail, even though there's not much for you to do most of the time. And second, you couldn't send programs, graphics, or other non-text files.

To overcome these problems, Lotus and MCI Mail teamed up to create Lotus Express, a memory-resident communications program created especially to work with MCI Mail. With Express, you can automate the whole process of calling MCI Mail, checking for messages, receiving any messages for you, sending any new messages you've written, logging off, and then reading and answering your mail. You can compose your messages with Express' built-in editor, and you can have Express check your mail regularly without any intervention at all from you (it beeps when you have mail). If your recipient also has Lotus Express, you can attach non-text files (including programs) to any message, something you can't do on MCI Mail with a normal communications program.

When I finish an article for a magazine, I often send it by modem instead of by land mail. Before I subscribed to MCI Mail, I would have to make several voice calls to the magazine office, first to locate someone who could run the communications software at their end and then to arrange a time to transfer the file. Now, as long as the magazine has an MCI Mail account, I don't worry about any of that. I just send my article to the magazine's MCI Mail mailbox and forget about it. My article will be safely stored there until someone at the magazine calls MCI Mail and collects it—tomorrow, the next day, it doesn't matter.

I use MCI Mail a lot, so I'm glad there's a program that automates the whole job.

So I like MCI Mail and use it a lot. I'm glad there's now an MS-DOS program that not only automates the whole job but also makes it possible for me to send programs, graphics, and other non-text files through MCI Mail, too.

But before you rush out to buy Lotus Express, I also have to say that this program has one of the *worst* user interfaces I have ever encountered in either MS-DOS or CP/M. I'm not a communications novice—I spend hours every week using a variety of communications programs on at least a dozen different information services and bulletin boards. And yet, when I first tackled Lotus Express, I was so frustrated I almost threw it away.

For example, suppose you want to write an MCI Mail letter. So you call up Express, and you're faced with a menu that gives you these options: *Help, Kaleidoscope, Reader, Terminal, Viewer, Comm_Manager.* Hmm... None of those looks right (and what's the difference between a reader and a viewer, anyway?). Not being too proud to admit you don't know everything, you select *Help*, which offers you help on several topics. You try *Help Commands*, and you get brief explanations of *Kaleidoscope, Reader, Terminal, Viewer,* and *Comm_Manager,* none of which mentions anything about writing or creating letters. You try the other help topics offered but get no information there, either. Then you notice that nowhere on the screen does it tell you how to get out of the help system and back to Express...

I can't remember when I've encountered a more unfriendly program. Lotus ought to be embarrassed.

(By the way, the correct answer to the puzzle above is *Reader.*)

AVScripter, $20
The Bare Bones Camera Course for Film and Video, $6.95
Video Goals: Getting Results with Pictures and Sound, $6.95
Tom Schroeppel
4705 Bay View Avenue
Tampa, FL 33611

Kamas, $69.95
Kamasoft
2525 S.W. 224th Ave., Box 5549
Aloha, OR 97007
(503) 649-3765

Lotus Express, $100 (includes a one-year subscription to MCI Mail)
Lotus Development Corp.
55 Cambridge Parkway
Cambridge, MA 02142

WORDSTAR 4.0 FOR CP/M, PART TWO

BY TED SILVEIRA

Last month, in the first part of this review of WordStar 4.0 CP/M Edition, I covered the new WordStar's editing and screen-handling features. This month, I'll look at its formatting, printing, file-handling, and customizing features, all areas where the program shows major improvements.

FORMATTING WITH WORDSTAR 4.0

WordStar 4.0 has several new formatting features that most users will love. For example, you can now create multi-line headers and footers, up to three lines each. (When I remember the contortions it took to fake WordStar 3.3 into printing a two-line header...) In addition, using the ^PK command, you can have a header or footer appear on the right side for an odd-numbered page and on the left side for an even-numbered one. You can't, however, specify different headers or footers for odd and even pages. Too bad—that would be useful (along with the ability to specify a different page offset for odd and even pages).

Certain dot commands now take immediate effect on the screen—RM (right margin), LM (left margin), PM (paragraph margin), OJ (justification), and others. And perhaps most important, you can now insert multiple ruler lines—with different margins and tabs—in a single document. Used together, these new features enable you to set different formats within the same document easily. For example, you can have a ruler that sets the beginning of your document to double-spaced, justified, left margin 0, right margin 65. Then, if you need to put in a long quotation, you can insert a new ruler line that sets the format to single-spaced, unjustified, left margin 10, right margin 55. When you finish the quotation, you can insert a copy of the original ruler to return to your double-spaced format. Once you've set up these ruler lines, you can add or delete words, shuffle paragraphs, even do a global reformat, and each section will retain its format—*that's* wonderful.

Note: The new paragraph margin (PM) dot command determines the indentation of the first line of a paragraph, independent of the left margin setting. By setting the paragraph margin to 1 (.PM1), for example, and the left margin to 5 (.LM5), you can easily create hanging indents.

WordStar 4.0 also gives you easier access to the four *user-defined* print controls—^PQ, ^PW, ^PE, ^PR. These four print controls are available in earlier versions of WordStar, but you have to patch WordStar itself to insert the print codes you want. In WordStar 4.0, you can define these print controls on the fly, through four special dot commands—XQ, XW, XE, XR. You can define these four print controls at any point in a document and even redefine them later in the same document. For people who want to get the most out of their fancy dot matrix printers, this feature will be a real bonanza.

PRINTERS AND MORE PRINTERS

WordStar 4.0 has made great advances in printing. For a start, the printer selection has grown enormously. You now have about 70 printers to choose from when you install the program, including the Hewlett-Packard Laserjet laser printer (and thereby, any printer that emulates the popular Laserjet). The new printer drivers also take full advantage of modern dot matrix printers—you can even use the CW (character width) and LH (line height) dot commands with a properly installed dot matrix printer. And better yet, you no longer have to define just one printer. Though you install one printer as the default printer, you can now select another printer—any one in the printer library—when it's time to print.

Taken together, these improvements mean that your humble CP/M machine can now put out great-looking letters and documents, complete with real italics and other special effects if you have a laser printer or letter-quality dot matrix printer.

Among the printer drivers, WordStar 4.0 offers three special ones that will print a document to a disk file instead of to the printer. The ASCII driver produces a clean ASCII-only text file with all of WordStar's notorious dot commands, control characters, and high bits removed. The PRVIEW driver produces a fully formatted copy of the document, complete with headers, footers, and page breaks (something like the print-to-disk feature in older WordStars). And the XTRACT driver is something like the PRVIEW file but without headers, footers, etc. You could use this driver, for example, to extract a simple list of names from a MailMerge name-and-address file.

The program offers two other longed-for features, too—continuous underlining (including spaces) and proportional spacing (for printers that support it). People have used truly heroic measures in an attempt to get these two features in earlier versions of WordStar, but in WordStar 4.0, they're simple commands. And the new WordStar comes with built-in merge-print, index, and table-of-contents functions. Progress!

I don't have a lot of experience with the new library of printer drivers (do *you* have 70 printers?), but the results have been excellent. Some people have encountered bugs, most of them minor, in a few of the printer drivers (like the driver for the Silver Reed printer), but MicroPro has already uploaded a revised printer driver to CompuServe. (The same thing happened with the MS-DOS version of WordStar 4.0—printers are an immense headache for programmers as well as for users.)

DISKS AND USER AREAS

Wonder of wonders, WordStar 4.0 can now handle CP/M's user areas (which are like subdivisions of a disk). You can now log into a new user area as well as a new drive and can specify both the drive and

the user area when you call up a file. You can even use the drive/user specification when you do a block read or write. In addition, you can now keep WordStar and its overlay files in any drive/user area you want—as long as you install the program properly, it will find the files when it needs them. These features won't matter much to people who use only floppies, but to hard disk users, who use drive/user areas to organize their files on the hard disk, they make a welcome change. On a hard disk, you can now store WordStar anywhere and edit files anywhere.

In a surprising move, WordStar 4.0 now supports ZCPR3, the very sophisticated replacement for the CP/M operating system. Those of you who use ZCPR3 will be happy to know that WordStar can now find its overlay files simply by following the ZCPR3 path. It will also let you specify ZCPR3 named directories instead of the usual drive/user area, so you can tell WordStar to log into LETTERS: instead of C3:.

I did find one small bug in this feature, though. ZCPR3 allows directory names up to eight letters long, but when I tried to get WordStar 4.0 to log into my CURRENTS: directory, it pretended it didn't understand what I was talking about. However, when I told it to log into CURRENT:, it correctly moved to the CURRENTS: directory.

CUSTOMIZING WORDSTAR 4.0

MicroPro has made major changes in the WordStar customization procedures, and most people will probably never need to use DDT or look at a cryptic list of hexadecimal patches again (great sighs of relief from users around the country). Through WSCHANGE, the new customization program, you can now change all of WordStar's most commonly altered settings through a series of menu selections. If you want to make direct patches in hex, however, you still can, and MicroPro has also wisely retained the custom patching areas (MORPAT *et al*). I really congratulate MicroPro for continuing to offer these facilities for users who want to tinker. It

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is definitely *not* standard industry practice, though it should be (it certainly helped to keep WordStar alive through its long dry spell).

Those of you who have become expert in patching older versions of WordStar will need to discard much of what you know. The patch addresses are now different (though many mnemonic labels remain the same), and there are now some new variables to take into account. For example, through WSCHANGE, you can now alter the size of the various buffers (storage areas in memory) that WordStar 4.0 uses, which include buffers for the unerase command, dot command expansion, directory and printer menu displays, and text editing. Because the new WordStar is bigger than previous versions, it needs more memory to run in and yet has a smaller text buffer (which determines the amount of text it can hold in memory without going to the disk). Depending on what features of WordStar 4.0 you use most heavily, you'll be able to maximize performance by adjusting the size of these buffers, but it's going to take some experimenting to learn which combinations work best in various situations.

WSCHANGE also has a new *autopatcher* feature that can read a text file of patches from disk and automatically apply them to your copy of WordStar. This feature can also write all your current patches into a disk file that other people can use to patch their copies of WordStar with your settings. In other words, we now have an easy way to pass complicated sets of patches from one person to another. Neither the person who creates the patch file or the person who uses it needs to know anything about DDT or hexadecimal numbers, yet they can be confident that they'll end up with identically patched versions of WordStar 4.0.

There is already a patch file (in WS4KP4.LBR) available on CompuServe and CP/M bulletin boards that patches WordStar 4.0 to use the same combination of bright, half-intensity, and reverse video that the Kaypro versions of WordStar 3.3 use. (I prefer the new combination, with normal text in half-intensity, so I haven't used the patch myself.)

WSCHANGE is a bit maze-like—it uses a hierarchical system of menus several levels deep—but in general, most people will find that it makes patching WordStar much easier. Those who prefer working with DDT and similar tools can still do so if they really want to.

DOCUMENTATION

The WordStar 4.0 manual has been completely rewritten and is much improved. It could hardly be worse than the earlier manuals, which were notorious, but in fact it's now quite good, both in terms of organization and clarity. Not perfect, mind you, but quite good. There is a great deal of information buried in the manual (and in the READ.ME and other supplementary files on the program disks), so it's worth your while to spend some time reading.

There are some errors in the manual (there always are in a manual this long). For example, the index has an entry for "Running a program (R or ^KF)." Since ^KF is a command you can issue from within a document, this one really got me excited because it implied that I could run an external program from inside a document. No luck, though—there's no such option. Again, the manual mentions a word count command and even lists a page number for it, but there's no word count command there, only a character count command.

WHAT'S IT WORTH?

As I mentioned last month, WordStar 4.0 is a *major* upgrade, not just a cosmetic touch-up. But the question remains, is it worth $89 to *you* to upgrade to this new version?

If you use WordStar mainly for writing and editing, and you don't have to do complicated formatting or print out fancy documents, the question is a tough one. On the one hand, WordStar 4.0 adds some useful new features—an unerase command, built-in macros, new movement and column commands, in-text math, a pop-up calculator, the ability to search for ^S and other control characters, the ASCII file driver, support for drive/user areas and ZCPR3, and other things that will make your life easier. On the other hand, you'll find some drawbacks, too: no more concurrent print and edit, slower block deletes, constant screen updating that slows down macro execution, and other problems I mentioned last month.

So if you use WordStar almost exclusively for writing and editing, you'll find WordStar 4.0 to be a mixed bag—you gain some useful features, but you may also lose some editing speed (depending on how you work).

However, if you work with complex formats or do lots of fancy printing, there's no question about what you should do. WordStar 4.0 isn't perfect, but it has a string of major printing and formatting enhancements that you won't want to miss—laser printer support, massive dot matrix printer support, proportional spacing, multiple ruler lines, multi-line headers and footers, new dot commands, index and table of contents generation, onscreen boldface and underlining, and on and on. Buy it.

CORRECTION

Last month I suggested that it should be possible to create a macro that would save a file, run a word count, and then open the file again. That particular trick doesn't work, I'm afraid, but WordStar 4.0 does allow chained macros, as described.

Ted Silveira is a columnist and remote editor for PROFILES.

QUICK REFERENCE SUMMARY

Product: WordStar 4.0 CP/M Edition
Manufacturer: MicroPro International Corp.
33 San Pablo Ave.
San Rafael, CA 94903
Phone: (415) 492-8600
Sugg. List Price: $495; upgrade price for owners of earlier versions is $89

INSIDE THE KAYPRO 16

BY MARSHALL L. MOSELEY

Expansion boards are wonderful things—they give you the ability to add more memory, add a modem, and otherwise soup up your system. But if you have a Kaypro 16 or 16/2, installing an expansion board may be more than you bargained for. Kaypro 16s are put together oddly. The need for packing an XT-compatible computer into Kaypro's original transportable case gave rise to a great deal of creative design—some of the internal components are mounted upside down, some sideways. Because of this, installing an expansion board in a Kaypro 16 or 16/2 can be a trying experience. This article may help make it easier.

The Kaypro 16s built during and after December 1986 don't have a free expansion slot (all 16/2s have one). If you have a 10-megabyte drive or the front of your computer says "10 MB," you definitely have an available slot; if you have a 20-megabyte drive, you probably don't—though you might. The only way to know for sure is to look, which I'll explain how to do.

But first, be warned: Removing the cover of your computer *voids your warranty*. If yours has not expired yet, you should think carefully before installing an expansion board yourself. To keep your warranty intact, you must have any work done by a trained technician at an authorized Kaypro dealer.

WHAT YOU NEED

To begin the installation, you need a large, flat, sturdy surface on which to work. You will also need a Phillips-head screwdriver, a small dish to hold screws, and access to a power outlet. If all you want to do is check to see if you have an expansion slot, skip now to the section titled "Getting started."

Because installing or removing and replacing an expansion board in a Kaypro 16 is a time consuming, tedious process, make sure that the board is ready to be installed. Read the documentation for your new board carefully and make any necessary adjustments. For example, if you are installing a memory board, you must set its switches to reflect the amount of memory on the board and in your system. If you're installing an internal modem, it should be adjusted to be the secondary serial port (COM2:), as the 16 already has a COM1:.

Installing or removing and replacing an expansion board is tedious, so be sure the board is ready.

Whatever the type of board, make sure it is fully prepared before installation. The last thing you want to do is disassemble the computer again because you mistakenly left one little switch in the OFF position.

GETTING STARTED

First make sure that the computer is unplugged and that the power switch is in the OFF position. Using the screwdriver, remove the ten screws—two on top and four on each side—that hold the computer cover in place. Place the screws in the dish for safekeeping. Remove the cover and place it well out of the way. Now look down at the computer. If your Kaypro 16 has a hard disk, and in the lower right corner you see a rectangular circuit board with three ribbon cables coming off it, then you do have an expansion slot available. If all you see is the yellow metal of the brace that holds the disk drives (called the drive cage), then you don't have an expansion slot available.

Turn the computer and look into it from the left side. You can see the CRT assembly, consisting of the CRT itself mounted to the front of the computer and the CRT circuit board bolted to the base. Past the CRT assembly is the power supply, set on its side and bolted to the drive cage.

Look at the video and printer connectors. You can see that they make up one end of an aluminum box that runs the entire length of the computer. This is called the card cage. Looking up top for a moment, you'll notice that a large circuit board protrudes from underneath the card cage at a 90 degree angle. This is the mainboard, and if you look carefully you will see that it is mounted upside down. The whole thing—the card cage and mainboard together—is called the card cage assembly.

Installing an expansion board involves removing the card cage assembly, opening it up, inserting the board, closing the assembly, and replacing it inside the computer.

REMOVING THE CARD CAGE

The first step is to unplug the various wires that connect the card cage assembly to the rest of the computer.

Look at the left side of the computer. To the right of the video and printer connectors, just inside the card cage, you will see two bundles of wires attached to the mainboard. These wires carry video signals. Disconnect them from the mainboard and examine them. Notice that they are *keyed*—one of the pinholes is filled with plastic, and it's a different pinhole in each connector. This prevents you from attaching the wrong connector to the wrong pins.

Underneath the mainboard, in the upper right corner, there is a wire connected to the LED on the front panel of the computer. Disconnect this wire from the mainboard.

Look atop the drive cage and you will see the hard drive controller board, with a ribbon cable running across it and underneath the mainboard. Find the spot just underneath the mainboard where this cable is attached and remove it. You may have some trouble getting it free; pull one side down first and then the other, in small increments, until the connectors separate.

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Look behind the drive cage and find the ribbon cable attached to the floppy drive. Disconnect it.

Now the fun begins. Look underneath the mainboard, just to the left of the pins, for the hard drive ribbon cable. You will see a large white plastic connector attached to four posts on the mainboard. Reach underneath the mainboard, above the CRT yoke, and gently pinch the white connector between your thumb and forefinger. Now wiggle the connector while pulling down, until it comes free from the pins.

Turn the computer so you are looking at the rear panel. There are four screws holding the card cage assembly in place: one in the upper right corner of the panel; one on the left side, just to the right of the fan; one halfway down the right side of the panel; and one next to the lower right corner of the fan. Use the screwdriver to remove the two bottom screws.

Using your left hand, place the heel of your palm on the top edge of the rear panel. Then reach across the card cage with the fingers of that hand and grip the far edge of the cage. Flex your hand and keep it flexed so that the cage presses firmly into the rear panel. Now remove the last two screws while holding the card cage assembly in place. You may have to switch hands.

With all the screws removed, gently pull the card cage assembly to the right, out of the Kaypro 16 case. When the cage is three quarters of the way out, stop and look underneath it.

You will see another cable attached to the cage in a spot that was inaccessible before. This is the keyboard cable. Disconnect it and continue removing the card cage assembly.

INSTALLING THE BOARD

Turn the card cage over so the mainboard is facing up and is positioned away from you and the card cage is close to you. There are three boards in the cage, with an empty slot for a fourth. The right edges of all the boards and the empty slot are covered by a metal bracket at one end of the cage. Remove the screws holding the bracket in place, then remove the bracket.

Looking at the other end of the cage you will see a small plate covering the left side of the empty slot. It is affixed to the card cage with a small screw. Remove this screw and the plate. You are now ready to install your expansion board.

Look inside the card cage at the empty slot and try to see how the new board will fit inside. A plate on the board will replace the one just removed, and the end opposite from the plate will fit into a plastic guide affixed to the card cage. At the bottom of the slot is a 62-pin connector; look at the expansion board and you will see a ridge along the bottom that fits into this connector.

Take a last look at the board and make sure every one of the switches and jumpers is set correctly.

Take one last look at the board you are installing to make sure every one of its switches and jumpers is set correctly. Lift the board carefully and position it above the open slot. Line up the metal plate on the board with the gap left by the original plate, and the other end of the board with the plastic guide inside the card cage.

Gently insert the board into the card cage. Push the board all the way down until the bottom of it touches the connector on the circuit board. Stop. Look down between the new board and the old and make sure that the new board lines up with the connector. If it does, push the board down until it clicks into place. If the board doesn't line up, move it gently in place until it does, then push it into the connector.

Replace the screw that holds the plate down. Reattach the bracket that covers the right edges of the expansion boards.

REPLACING THE CARD CAGE

Now to replace the card cage. Position the computer case so that the screen faces you. Put the card cage to the left of the case with the mainboard facing up. Re-attach the keyboard connector to its place on the expansion board closest to you. Pick up the card cage and turn it over. With your right hand, grab the ribbon cable that connects to the floppy disk drive and flip it up on top of the cage.

Slide the cage into place and hold it there with one hand. Lean over the computer and look at the back panel. Use your free hand to adjust the cage until you see the screw holes in the case and the card cage line up. Get the screws from the dish and hand-start them in all four positions. Tighten the top two down, but leave the rest loose.

Now reattach all the connectors: the power connector, the disk drive ribbon cable, the hard disk ribbon cable, the hard disk LED, and the two video connectors near printer port. Check all the connections visually and make sure they are firm, then turn the computer on.

Test the expansion board (if it is a memory board, try to use the memory; if it's a modem, make a phone call, etc.).

If you find that the board doesn't work, turn off the computer and visually inspect every connection. Go over in your mind the procedures you followed for both removing and installing the card cage and see if you forgot something. If worse comes to worst, remove the card cage again and check the keyboard cable and the card itself.

If the board works, tighten the rest of the screws on the rear panel and replace the computer cover.

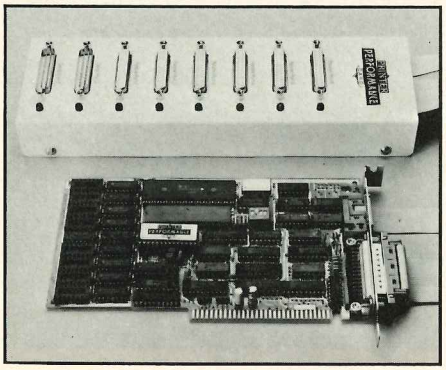
(I said I'd tell you how to install an expansion board; I never said it would be easy.) ■

EDITED BY KATRINA KOHANOWICH

The following new product listings are not reviews and should not be considered endorsements. To be considered for publication in this column, press releases should be sent to Katrina Kohanowich, "New Products" editor, c/o *PROFILES* Magazine, 533 Stevens Ave., Solana Beach, CA 92075. Releases must state prices and the operating systems the products support. Include photos if available.

SIMPLIFIED PRINTER SHARING

The Printer Performance Card is an intelligent printer interface expansion product that allows up to three PC/XT/AT computers to share up to seven printer devices.



The card has 256K of RAM (expandable to ½ megabyte) and can load optional custom software applications such as font descriptions and sideways printer programs ($39 each, available from the manufacturer).

It can be loaded with software for near letter-quality and custom font printing with dot matrix printers, or with software to automatically convert the control codes of one printer to the control codes of another.

$399. Kaypro MS-DOS computers and compatibles. Dresselhaus Computer Products, 8560 Vineyard Ave., Suite 405, Rancho Cucamonga, CA 91730; (800) 368-7737.

SHAREWARE DOCUMENTATION

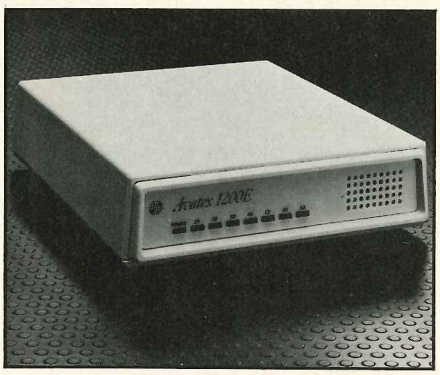
The four most popular user-supported programs are covered in detail in IBM PC Shareware: PC-File, PC-Write, PC-Talk and ExpressCalc, *by John R. Ottensmann. The book also addresses the use of these programs as an integrated package.*

The PC-DOS operating system is discussed, and an opening chapter provides a general background on user- supported software, with complete information on how to obtain these programs. The book also includes an index for easy reference and detailed illustrations.

$15.60 paperback, $23.95 hardbound. Tab Books Inc., P.O. Box 40, Blue Ridge Summit, PA 17214; (717) 794-2191.

SPACE-SAVING MODEM

The Avatex 1200e is a full-featured 1200/300 bps stand-alone modem in a compact (5 x 6 x 1-inch) case. It functions both manually and automatically and can originate or answer calls. It is Bell and CITT compatible and has DIP switches for permanent option settings.



The modem was designed with the home, school or portable computer user in mind, but is practical wherever space is limited.

$99. All Kaypro computers. Elec & Eltek (USA) Corporation, 1230 Oakmead Pkwy., Suite 310, Sunnyvale, CA 94086; (408) 732-1181.

FIRE-RESISTANT DISKETTE STORAGE

The Sentry Media Fire File #5720 is specifically designed to protect magnetic media in the event of fire.

The Media Fire File holds approximately 110 5.25-inch or 3.5-inch diskettes. It is certified to maintain an interior temperature below 125 degrees for a half hour at external temperatures of up to 1,550 degrees.

$289. Value-tique, Box 67, Leonia, New Jersey 07605; (201) 461-6500.

ADD-ON TEXT SEARCH UTILITY

GOfer is an add-on utility for text search and insertion that operates without prior indexing, file conversion, or key-wording.

This pop-up, RAM-resident program opens and searches multiple files at rates of up to 16 kilobytes per second. GOfer allows users to search for text from within a document or program, without returning to DOS.

GOfer is compatible with all leading word processors and utlities, including Microsoft Word and WordPerfect, as well as most LANs and telecommunications programs. This allows text to be searched and inserted even when the user is online with electronic mail services. Ventura Publisher and dBASE files can also be searched.

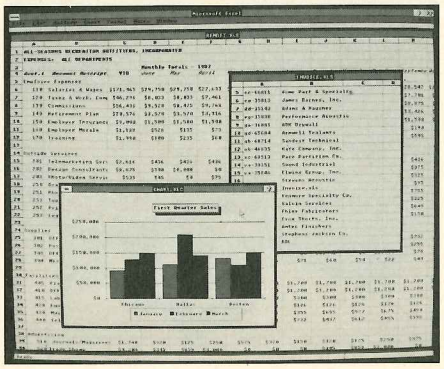
$79.95. All Kaypro MS-DOS computers. Microlytics, 300 Main St., East Rochester, NY 14445; (800) 828-6293, or in New York (716) 377-0130.

CONTINUED ON PAGE 68

CONTINUED FROM PAGE 67

GRAPHICS ADAPTER SUPPORTS WINDOWS

The Legacy II Switching Graphics Adapter now supports Microsoft Windows 2.0. The New Renaissance Windows 2.0 driver includes Adobe-licensed, PostScript-compatible screen fonts for increased speed and improved screen readability.



The adapter is an add-on graphics card that offers emulation of the Monochrome Display Adapter (MDA), Hercules Graphics Card (HGC), Color Graphics Adapter (CGA), and the Enhanced Graphics Adapter (EGA), as well as high-speed Windows performance, 640 x 480-pixel resolution, and support for Microsoft's InPort Mouse Interface.

$495. All Kaypro MS-DOS computers. Renaissance GRX, Inc., Cedar Park, 2265 116th Ave.N.E., Bellevue, WA 98004; (206) 454-8086.

C AND 1-2-3

The WKS Library provides C language functions for reading and writing Lotus 1-2-3 and Symphony worksheets. The WKS Library can access worksheets from all versions of 1-2-3, Symphony (1.2), and compatibles. The product works with all popular C language compilers, including Microsoft C and Quick C, Borland Turbo C and Lattice C.

$89. All Kaypro MS-DOS computers. Tenon Software, Inc., 112th Avenue NE, Bellevue WA 98004; (206) 453-1914, (800) 367-9882.

CREATE CAR SIGNS

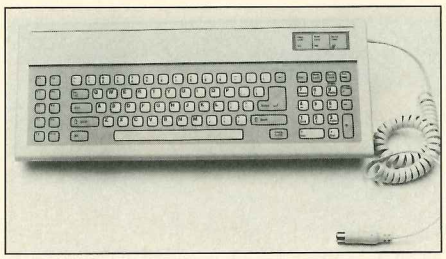
The Car Sign Designer program creates bright yellow, diamond-shaped car signs. Included are two reusable clear plastic sign holders with suction cups and yellow 9½ x 11-inch fanfold paper.

The product features a WYSIWYG (what-you-see-is-what-you-get) display, and editing is performed on a full-screen graphics representation. You can enter up to four lines of text. Most dot-matrix printers are supported.

$29.95. All Kaypro MS-DOS computers. Zebra Systems, Inc., 78-06 Jamaica Avenue, Woodhaven, NY 11421; (718) 296-2385.

TOUCH PANEL KEYBOARD

The TCE434 Series Touch Panel Keyboard from Honeywell is a sealed, flat-panel interface device for applications where dust, grime, moisture, or liquid spills might create problems for standard full-travel keyboards.



It is plug-compatible with both the PC and PC-AT and automatically selects the proper interface. The keyboard is also available with the AT or XT interface only.

The intelligent 84-key touch panel combines extensive graphic design versatility with the latest developments in environmentally protected membrane switching. Tactile feedback is accomplished with a metal snap disc and an embossed touch surface to enable positive finger positioning.

$246. All Kaypro MS-DOS computers. Honeywell Inc., Keyboard Division, 4171 N. Mesa St., Building D, El Paso, Texas 79902; (915) 543-5503.

A NEW WORDSTAR

WordStar 2000 Plus Release 3 and WordStar 2000 Plus Release 3, Legal Edition, are dramatically faster, feature-laden versions of this word processing program.

The latter program is targeted directly at the legal profession. It contains CiteRite, a program for checking the correctness of citations, and CompareRite, which compares two documents and prepares a third consisting of the differences between the two.

WordStar 2000 Plus Release 3 has advanced cursor control, allowing cursor movement of up to 30 characters per second. It allows the direct integration of text and graphics, which can be viewed in WYSIWYG form using the new Page Preview feature. It has both keyboard macros (up to 40 for each file) and an online spelling checker and thesaurus.

It lets you directly insert Lotus 1-2-3 and Symphony spreadsheet files without any conversion. It has multiple windows, five-function math, context sensitive help, newspaper-style columns, and an undo function.

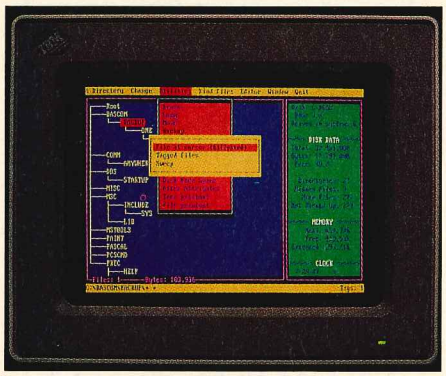
The included Star Exchange conversion program supports conversions to and from WordStar 2000 Plus Release 3, WordStar Professional 4.0, Word-

Perfect, Microsoft Word, ASCII, IBM DCA, and RFT.

$495 for Release 3, $595 for Legal Edition. All Kaypro MS-DOS computers and compatibles. MicroPro International Corporation, 33 San Pablo Avenue, San Rafael, CA 94903; (415) 499-1200.

DOS ENHANCEMENT

Tree86 is a DOS extension structured around a graphic tree of the disk. EGA and VGA users can toggle between 43- to 50-row and 25-row display. It also provides file and subdirectory maintenance using a mouse or keyboard.



All function keys work as they do with DOS. The command line is easily edited, and all previous commands can be accessed from a buffer. The slash key immediately returns the user to the Tree.

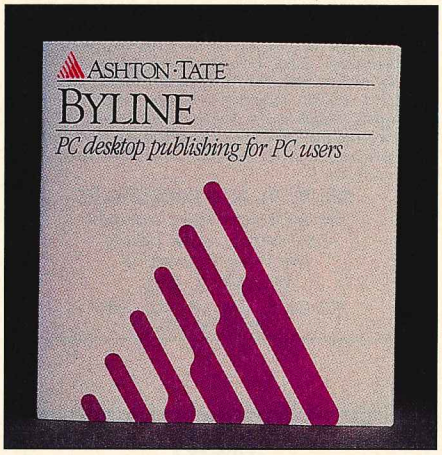
$49.95. All Kaypro MS-DOS computers. The Aldridge Company, 2500 City West Blvd., Suite 575, Houston TX 77042; (713) 953-1940.

DESKTOP TOOLS

Byline from Ashton Tate offers full-featured desktop publishing that does not require a graphics environment. Users can produce reports and business documents that incorporate text and graphics, overhead presentations, price lists, inventory reports, budgets, newsletters, and resumes.

Byline directly imports and exports all popular word processing file formats and directly imports file formats from d-BASE III Plus and Lotus 1-2-3. It also provides access to DOS without quitting or reloading the program.

$295. All Kaypro MS-DOS computers. Ashton-Tate, 20101 Hamilton Avenue, Torrance CA 90502-1319; (213) 329-8000.



COLOR TRANSPARENCIES

The AMT Office Printer Plus color printer transfers full-color graphics directly onto transparency film, without special software.

These transparencies are for use with standard overhead projectors.

The printer can create professional color business presentations, annotated CAD/CAM/CAE plots and charts, desktop publishing output and more.

A black-only model is also available.

$1,845, color printer with parallel interface; $1,645, black-only model with parallel interface.

$100 more for serial and parallel interfaces. All Kaypro MS-DOS computers. Advanced Matrix Technology, Inc., 1157 Tourmaline Dr., Newbury Park, CA 91320; (805) 499-8741.

PRODUCT UPDATES

WordStar 4.0, CP/M Edition offers more than 100 enhancements over the current CP/M version while maintaining the same look and feel. New features include stored ruler lines, macros, and onscreen boldfacing and underlining. MicroPro International Corporation, San Francisco, CA ☐ **QuickBASIC 4.0** from Microsoft Corporation has many new features, including user-defined records, program outlining, integration with the Microsoft CodeView debugger, and compatibility with other Microsoft languages. Microsoft has also redesigned the **Microsoft Mouse**. It now has a sleeker look and comes with advanced graphics support and software. Microsoft Corporation, Redmond WA ☐ Version 2.1 of **Word for Word** now converts fully editable documents among eleven word processing formats and three communication formats. MasterSoft, Phoenix AZ ☐ The newest version of **EnerGraphics** saves charts in the GED format and allows users to merge the drawing and charting portions of the program. Enertronics Research, Inc., St. Louis, MO ☐ **Turbo Pascal 4.0** lets you create programs that exceed the 64 kilobyte size limitation of earlier versions. It offers compile speeds of 27,000 lines per minute on an 8 MHz AT and separate compilation using units. Borland International, Scotts Valley, CA ☐ A new version of **Sideways**, the popular printing utility for use with spreadsheets, now functions as an extension of Lotus 1-2-3. It does this by using the "add-in" technology made available by Lotus Development Corporation in January 1987. Lotus users can now access Sideways with a single keystroke—without exiting 1-2-3. Funk Software, Cambridge, MA ☐ Bedford's **Integrated Accouting Version 3.20** lets you make accounting entries effective for prior dates within the fiscal year. This enhancement recognizes that paperwork frequently arrives late. Bedford Software, Redmond, WA ☐ **Disk Optimizer 3.0** allows you to recover data lost by the accidental formatting of a hard disk. SoftLogic Corporation, Manchester, NH

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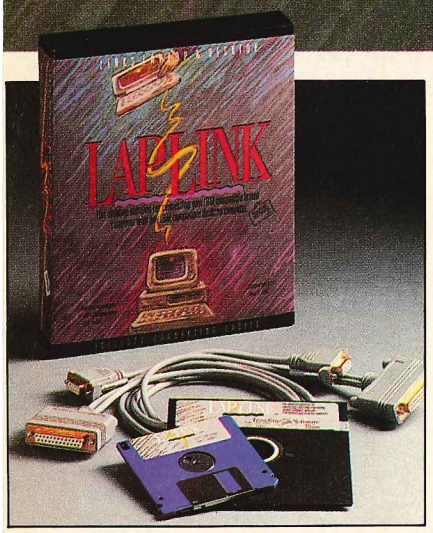
LAPLINK



They Are Still Talking

"Traveling Software's LAP-LINK is the most convenient transfer product...it does not require changes to the CONFIG.SYS or AUTOEXEC.BAT files on either machine as the Brooklyn Bridge does...LAP-LINK transfers data even faster than the Brooklyn Bridge. It seemingly sets a record for the fastest transfer on a PC."

Howard Marks
PC Magazine — July 21,1987

"LAP-LINK IS NOTHING SHORT OF INCREDIBLE..."

Jerry Pournelle
Byte Magazine — July 1987

The Ultimate Laptop and PS/2 Connection

They are still talking about LAP-LINK release #1. It has achieved virtually an unanimous editor's choice as THE solution for connecting Laptop PC's and the new IBM PS/2 series with any $5^1/_4$ inch disk PC. LAP-LINK eliminates the need to purchase expensive external disk drives. Even if you own an external disk drive, LAP-LINK's incredible transfer speeds are much faster than a normal disk copy— transfer megabytes of information in just minutes! And since LAP-LINK weighs only ten ounces (cable and disk), you can easily carry it with you for instant connectivity at any location.

Unlike other transfer programs, there is absolutely NO installation required to use LAP-LINK. No messy changes to your CONFIG.SYS file or rebooting. Just type "LL" and LAP-LINK automatically connects itself. And LAP-LINK works between any version 2.xx or 3.xx of the MS-DOS/PC-DOS operating system.

LAP-LINK users couldn't agree more with Jerry Pournelle, "I don't know if the manual is any good or not: I've never had any reason to open it. LAP-LINK is so thoroughly intuitive, fast and simple to use that the manual is blooming near superfluous. This is one of those products that sets standards: it does what it's supposed to do, does it well, and does it without fuss or bother...."

RELEASE 2 FEATURES

- Transfer speeds over 115,200 baud
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- Can be used for hard disk backup to $3^1/_2$" floppies
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Traveling Software

ADVERTISER'S INDEX

How to Use the Buyer's Hotline

Each month you are exposed to several Kaypro-compatible products, both in advertising and editorial. Trying to figure out which product suits your needs and your pocketbook, is never easy. How many times do you wish you had more information on the products listed or advertised in *PROFILES*? Since we have received so many requests for information about products and companies mentioned in the magazine, we have initiated **The Buyer's Hotline**.

The Buyer's Hotline is a brand new service for *PROFILES* readers. Most reader services such as these require that the reader fill out a tedious "bingo" card and send it in, only to wait three months for a response. This time lag is usually the fault of the publication, not the advertiser. We are attempting to eliminate the time lag so you can get the information you need in a more timely manner. With one toll-free phone call, you will be able to get information on the products in each issue of *PROFILES* that interest you.

Here's how it works: Each product manufacturer or distributor will have a Hotline number. This month the numbers are listed next to the page number in the Advertiser's Index. In future months, the number will also be listed within the ad itself or the Quick Reference Summary at the end of each article. Make a note of which products (and the corresponding Hotline number) you would like more information about. Then simply call our toll-free Buyer's Hotline number (1-800-4KAYPRO). Give the operator the information she requests, and that's it!

Weekly reports of our readers' product information requests will be forwarded to the manufacturers and distributors, so that you can get the information quickly... and be able to make an informed buying decision within your own time frame. We sincerely hope that this service will be of great value to all of our readers.

Advertiser	Page No.	Hotline #
Advanced Concepts E&C	65	111-46
American Micronics	7	001-46
Bytel Corporation	5	019-46
CDE Software	13	158-46
Central Computer Products	Inside Front Cover, 1,41	014-46
CLASSIFILES	70	----
Computer Friends	15	209-46
Computer Professionals, Inc.	11	022-46
Hurd Computers Systems	8	162-46
Intersecting Concepts	25	340-46
James River Group	Back Cover	048-46
Kaypro Corp.	20,21,29, Inside Back Cover	153-46
Kaypro General Store	2	152-46
PROFILES BACK ISSUES	47,48	----
Southwest Computing	8	371-46
Spectre Technologies	27	156-46
Traveling Software	71	999-46
U.S. Computer Supply	45	172-46

Listed below are the companies and Hotline numbers for those products mentioned in our editorial features this month.

Product	Hotline #
PC FAX Boards:	
Mfax	911-46
GammaFax	912-46
pc-FAX	913-46
MicroFax	914-46
SmartFax	915-46
The Complete FAX (CFAX)	916-46
User-supported ProComm:	
ProComm	917-46
Reflex, Part II:	
Reflex: The Analyst	905-46
WordStar 4.0 Macros:	
WordStar 4.0 CP/M Edition	907-46
WordStar 4.0 MS-DOS Edition	908-46
Editor's Choice:	
Clarity 1	917-46
Pepper Graphics Boards	918-46
LaserMaster	919-46
DOS Only:	
AVScripter/Books	920-46
Kamas	921-46
Lotus Express	922-46

THE ADVANTAGE

ENHANCED

Kaypro Corporation — electronics innovator since 1952 — has made a good thing even better. The KAYPRO 286i Model C now features a 40-MB hard drive and the 101-key AT-style keyboard. With the latest standard feature enhancements, the KAYPRO 286i is the smartest choice in advanced computer technology.

Advanced.

The heart of the KAYPRO 286i is the 80286 microprocessor — with a processing rate of 10 MHz and 640 kilobytes of RAM. The perfect match for today's high productivity software.

And Enhanced.

The KAYPRO 286i Model C has a 1.2-MB floppy disk drive, plus a hard disk with 40 MB of storage. The KAYPRO 286i AT-style keyboard features the new 101-key layout with separate cursor control, numeric keypad, and 12 programmable function keys.

Perhaps the nicest surprise about the KAYPRO 286i/C is the suggested retail price of $2995.

You won't find distinctive metal construction, 10-MHz processing, and free name-brand software that includes WordStar Professional Release 4 in any other AT-type computer. Other company's extras are Kaypro standard features.

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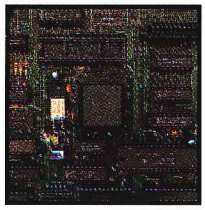
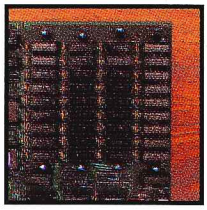
The KAYPRO 286i Model C features...



80286, 10-MHz Microprocessor.

An internal hard disk drive with 40 MB of storage.

Enhanced 101-key IBM PC/AT-style keyboard with security keylock.



640 KB of RAM; expandable to 15 MB.

Bundled software includes WordStar Professional Release 4.

made in U.S.A.

For the Kaypro Dealer near you, call 1-800-4KAYPRO.

ACCOUNTING FOR MICROS

$395 Set of Four
$325 Set of Three
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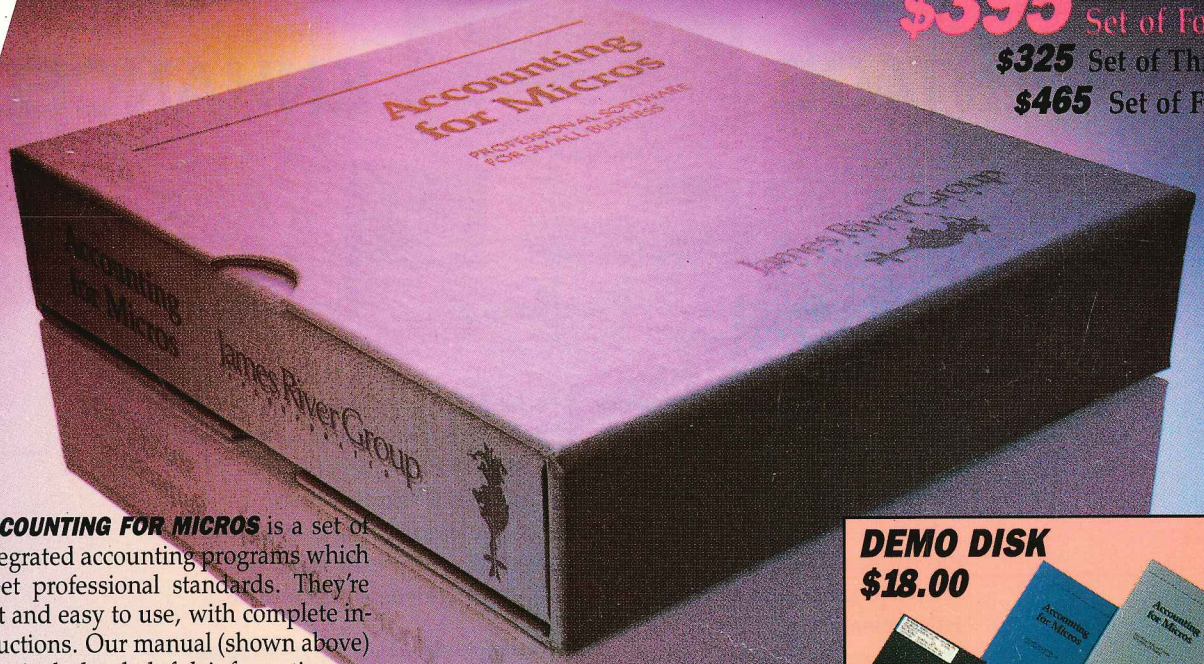

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