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PROFILES

The Magazine for Kaypro Users • December 1985



The Z-System:
A close encounter

RCPMs

[Redacted text]

HANDYMAN

TURN YOUR KAYPRO ON TO HANDYMAN!!!

AUTO DIALER

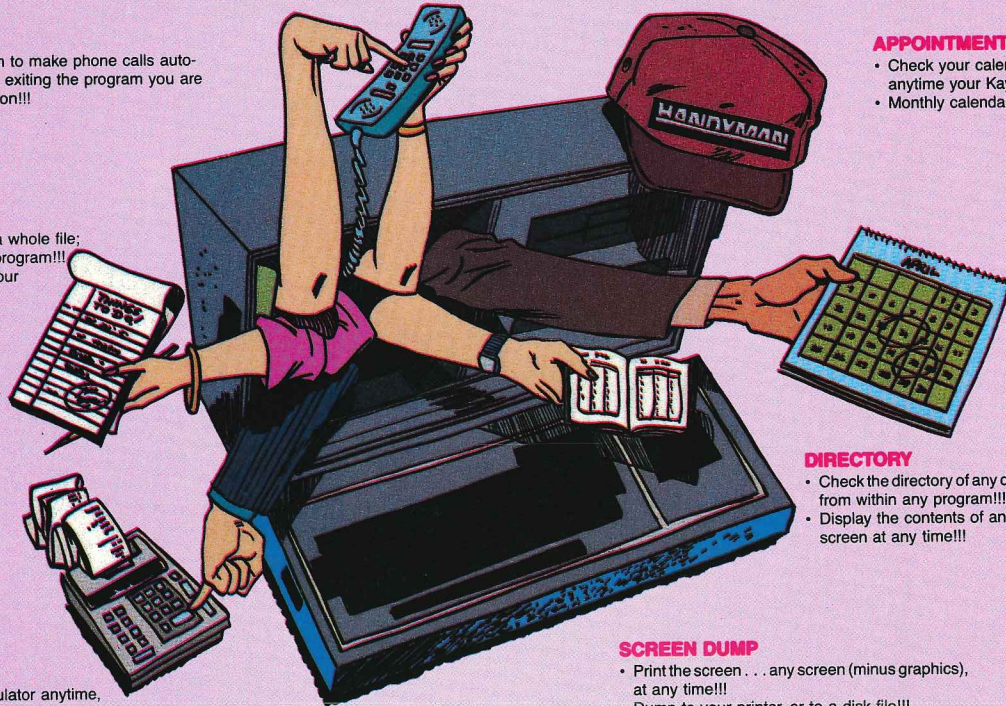
- Use your modem to make phone calls automatically without exiting the program you are already working on!!!

NOTEPAD

- Write a note, paragraph, letter, a whole file; anytime, from within any other program!!!
- Edit another file without leaving your current file!!!

CALCULATOR

- Punch up a four function calculator anytime, whenever your computer is on!!! Works in decimal, binary, hex!!! Works from within a spread sheet, or any other program!!!



APPOINTMENT CALENDAR

- Check your calendar, schedule appointments anytime your Kaypro is on!!!
- Monthly calendars 1752-2099 AD!!!

DIRECTORY

- Check the directory of any disk, any user number, from within any program!!!
- Display the contents of another file on your screen at any time!!!

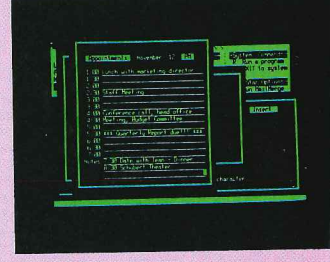
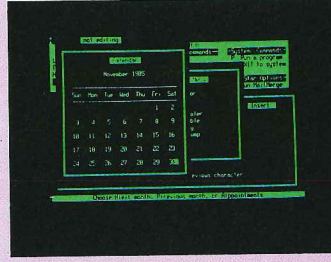
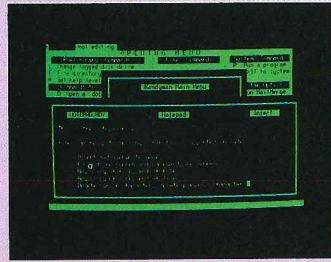
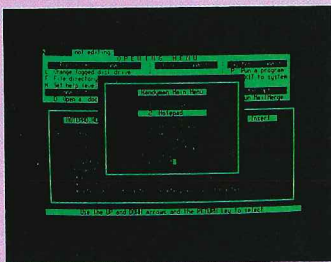
SCREEN DUMP

- Print the screen . . . any screen (minus graphics), at any time!!!
- Dump to your printer, or to a disk file!!!

- "Disk Full" message? With **HANDYMAN** you can check the disk directory and erase superfluous files from within any program!!!



Turn your Kaypro on!!! HANDYMAN is there!!!



HANDYMAN is a plug-in board for your Kaypro!!!
HANDYMAN Works with all Kaypro CP/M models!!!
HANDYMAN Easy to install!!!
HANDYMAN We'll talk you through it over the phone!!!

HANDYMAN Includes software in ROM and its own working RAM!!!
HANDYMAN You never have to load it!
HANDYMAN Single stroke commands!!!
HANDYMAN is compatible with all CP/M application programs!!!

HANDYMAN Uses no main memory!!!

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- KAYPRO II to IV UPGRADE** . . . includes 2.5 Mhz to 5 Mhz speedup, two 390K disk drives (double sided to replace single sided); price does not include shipping..... \$395.00

Electronic RAM Disk and Printer Buffer Combination—the ultimate add-on for Kaypro I, II, 4, 2-84, 2X and 10 Computers. Incredible speed and efficiency are offered using MicroSphere's dual operation Electronic RAM disk and printer buffer. No longer will you need to wait for your Kaypro to slowly finish mundane tasks such as running a printer or waiting for floppy drives to turn when you have better things to do.

- Features:**
- ★ Can be powered externally
 - ★ 255 directory entries
 - ★ 10 MHz microprocessor speed
 - ★ Choice of drive A or E
 - ★ Compatible with Pro 8 and Plu-Perfect or 5 MHz speed up kits
 - ★ RAM disk memory not lost on cold boot or reset of Kaypro
 - ★ Printer buffer runs independently of RAM disk operation
 - ★ Printer buffer sizes available: 4K, 32K, 64K
 - ★ Fully buffered data transfer using Z80 PIO
 - ★ Micro Cornucopia Pro 8 Version 8 ROM includes RAM Disk Code
 - ★ On 4-84 the standard installation disables either internal modem or real time clock unless Expansion Board is installed
 - ★ All installation materials included in listed price except for Parallel Expansion Board
- Any RAM Disk listed below can be expanded to 1mb by adding memory chips.**

- Tested RAM Disk without RAM Chips .. \$295.00
- 256K RAM Disk \$370.00
- 512K RAM Disk \$445.00
- 768K RAM Disk \$520.00
- 1MB RAM Disk \$595.00
- When ordering, specify computer model and printer buffer size.
- Adapter board free with purchase of a 1MB RAM Disk.

Time Comparisons	4MHz Kaypro	
	Floppy Disk	RAM Disk
Recal 14K Perfect Calc	9:31.25	1:17.78
Load LADDER.COM	9.38 *	2.12 *

Load Printer Buffer
20K file, 11 pages,
2586 words using PIP to
the LST device

24.61 *

The Word Plus
90K file search for 1st misspelled word
(note: programs may run different speeds due to a variety of disk access protocols and computer speeds)

MicroSphere RAM Disk ... 32.00*

Advent RAM Disk 34.00*

*Time in seconds

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- | | | | |
|--------------------|---------|---------------------|-------|
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| 2 Planetfall | 44.95 | | |

LEVELS: 1=Jr., 2=Standard, 3=Advanced, 4=Expert
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Color Board for Kaypro I, II, 4, 2-84, 2X, 4-84, 10 and Robie..... \$145.00

Special: Color Board and Deluxe TLC Logo \$199.95

NEW: LOGO APPLICATIONS PROGRAM DISK . . . Use with Deluxe TLC Logo; includes multiple turtle programs, multi-processing applications \$15.00

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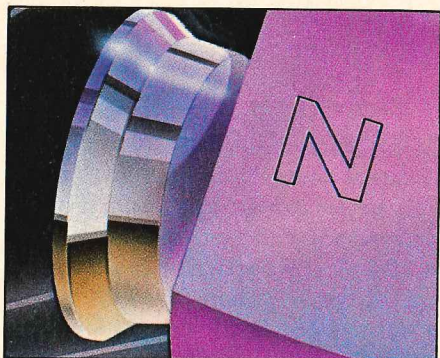
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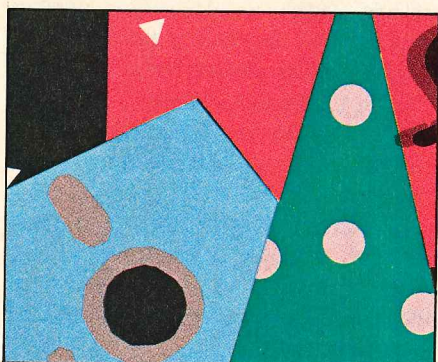
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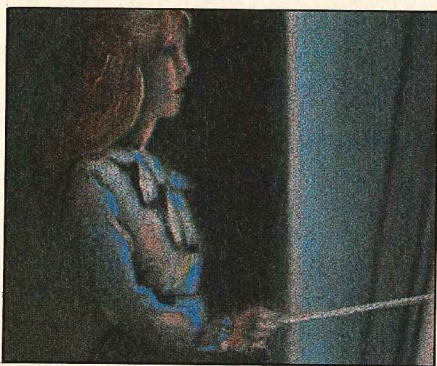
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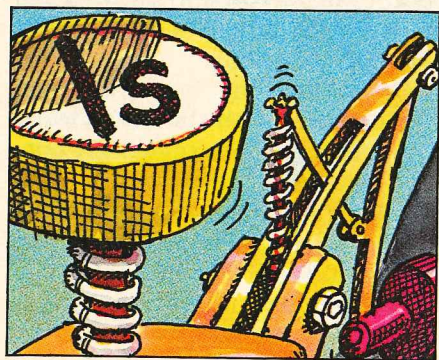
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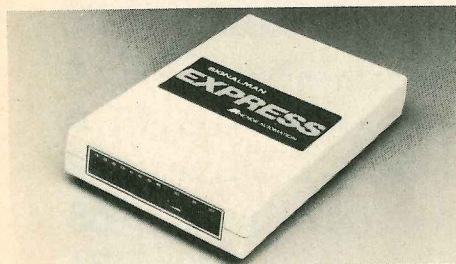
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This modem is an EXACT to the Hayes 1200. PLUS... has storage ability of 10 number of 48 digits. Anchor Automations "top-of-the-line"... for those who will only have a Hayes!

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PUBLISHER & EDITOR-IN-CHIEF
Geoffrey W. Soule

CO-EDITORS
Diane Ingalls
Terian Tyre

TECHNICAL EDITOR
Tom Enright

CONTRIBUTING EDITORS
Ted Silveira
Dick Lutz
Brock Meeks

ART DIRECTOR
Doug Powell

ART ASSISTANT
Lorraine Leung

ASSISTANT PUBLISHER
Gwyn Price

CIRCULATION
Mary Boggy

CIRCULATION/EDITORIAL OFFICES
533 Stevens Avenue
Solana Beach, CA 92075
619/481-4353

ADVERTISING
Nancy Donabedian
249 S. Highway 101, Suite 321
Solana Beach, CA 92075
619/436-6112

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Roman PS	The Quick Brown Fox Jumps Right Over The Lazy Dog. [\ \ ^ ^ { } ~
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Prestige Elite 12	The Quick Brown Fox Jumps Right Over The Lazy Dog. [\ \ ^ ^ { } ~
Mini Majestic 12/15	The Quick Brown Fox Jumps Right Over The Lazy Dog. [Ω]Δ°½¶¼²
Letter Gothic 10/12	The Quick Brown Fox Jumps Right Over The Lazy Dog. [Ω]Δ°½¶¼²

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PARTIAL LIST OF FEATURES

General Information

- Menu driven
- Password protection
- File capacity limited only by disk space
- Support contract available

General Ledger

- Unlimited multi-level accounts
- Three-year account history for CRT inquiry
- Pencil and pen feature to correct mistakes
- Unique budgeting routine
- CRT transaction inquiry
- Activity report, trial balance, financial statements, unlimited departments and journals

Accounts Receivable

- Open invoice or balance forward
- Customized aging report
- Unlimited number of customers
- Flexible mailing labels and directories
- Supports partial payments & finance charges
- Three-year customer history for number of invoices, sales, costs, and profits
- Customized statements
- Cash flow analysis/sales analysis
- Automatic sales forecasting

Accounts Payable

- Check printing with multiple invoices and cash available routines
- Aging reports with seven customized columns
- Unlimited number of vendors
- Flexible mailing labels and directories
- Three-year vendor history
- Unlimited allocations per invoice

Inventory

- Supports average, last purchase, and standard costing methods
- Powerful physical inventory routines
- Accepts any unit of measure
- Three-year product history in units, dollars, cost, and profits
- Automatic forecast of product sales
- Automatic pricing assignments
- Alert and activity reports with 11 sorts
- CRT shows on-hand/on-order/committed/sales/cost/profit/turns/GROI

Purchase Order

- Inventory and non-inventory items
- Allows up to 99 lines per P.O.
- Per line discount in %
- P.O. accepts generic discounts/freight/taxes/insurance
- P.O. accepts back orders and returns
- Purchase journal

Billing

- Service or inventory invoicing on plain or preprinted forms with remarks
- Prints sales journal
- Allows return credit memo

Forecasting

- Unique program that automatically forecasts using your three-year history:
- Revenue and expense accounts
- Vendor purchases
- Customer sales, cost, and profit
- Inventory item usage
- Forecast by same as last year, or % base from last year, or trend, or least square trend line analysis method

Minimum Hardware Requirements:
IBM PC, XT, AT, KAYPRO 16, 286i-B, C, or other compatible, 132 column printer in compressed mode, MS-DOS, PC-DOS.

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Letters

Correction

In the June 1985 "Technical Forum," reference was made to a program called COMLINE.COM, which allows the insertion of a command line on the boot track of a CP/M diskette. A reader wrote to ask where this program could be found and was told that the program COMMAND.COM could be found on the ONKUG RBBS.

The program is COMLINE.COM, not COMMAND.COM and it can be found on the ONKUG RBBS. Call (619) 259-4437 (300/1200 baud).

A point of clarification

Many thanks to Steve Jones for his mention of the Turbo User Group in his article "Programming: From BASIC to Turbocharged" (October 1985). The article is an excellent one.

I would, however, like to clear up one point: Our annual membership dues are not \$30 as stated in the article, but \$22 for everyone in North America (\$23.72 for Washington state members). Dues outside these areas (where higher air postage is necessary) are now \$35 a year.

Thanks for your interest in promoting Turbo Pascal as a logical and appropriate follow-on to BASIC. That people are following that route is evidenced by the growing number of TUG applications we process every day, and personally, I'm enjoying my nearly pasta-free programming diet!

Don Taylor
TUG Business manager
Poulsbo, Washington

Sorting through the sorts

I was pleased to read T.F. Chiang's article on sorting methods ("As-sorted Sorts," October 1985). The article addresses the many answers to the complex question of

"Which sorting algorithm do I use?" Chiang's article covers three sorting methods—the bubble sort, Quicksort, and the Shell sort, but completely fails to mention one successful sorting algorithm, Heapsort, a method that proves to be extremely effective on large amounts of data.

The performance of any algorithm is described in terms of its speed in the average case of input data, the worst case, and space usage during execution. Average or worst case refers to the initial ordering of input data. Space usage refers to the amount of extra storage needed during execution (temporary variables, files, function calls).

Heapsort is an $n \cdot \log(n)$ algorithm in the average and worst cases (for details I refer the reader to Donald Knuth's *Sorting and Searching* and to Sara Baase's *Computer Algorithms: Introduction to Design and Analysis*), is not recursive, and is an "in place" sort like the bubble sort, meaning that it uses no extra space, other than storage for the input data. In the average case, Heapsort will surpass the bubble sort and Shell sort, but never the Quicksort.

I therefore agree with Chiang that Quicksort is the best for the average sort algorithm customer. Heapsort will come close to Quicksort's performance on average, but will be superior for the worst possible case.

Jack Callahan
College Park, Maryland

Mr. Chiang did briefly mention Heapsort in his article—see page 36. He noted that its average speed is slower than Quicksort's but that its worst-case speed is better, so it is sometimes used

commercially.

It should be pointed out that this article was intended to introduce the concept of data sorting to hobbyist users. In following those guidelines the algorithms were selected and illustrated in a manner that was most likely to be understood by the widest segment of readers.

I would like to comment on the contents of "Assorted Sorts," particularly listing 1 for the bubble sort program. A program line is missing. A new line—"length = length -1"—should be inserted before the line "next index." As the bubble sort locates during each pass the highest element at the top of the sorted sequence—i.e., at its final location—the next pass need no longer concern itself with this element. The missing line causes each pass to stop before this element is reached. With this added line in place, the sorting times for the bubble sort shown in Table 1 would have been greatly reduced.

It was really refreshing to see in this issue, after an unduly long pause, an article referring to S-BASIC. As there must be many Kaypro users around who had received S-BASIC and the Perfect Software series with their computers (I am one of them), it is certainly a great disappointment that PROFILES seems to treat them as step-children and, in most issues, completely ignores them.

There still exists a lot of information on both sets of programs that is poorly or not at all documented, and these users, even though they are "oldtimers" by now, can use more help than PROFILES offers. For instance, how about a patch to Perfect Filer that permits entering
(continued on page 11)

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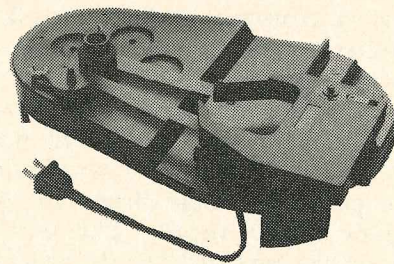
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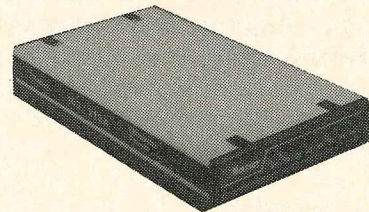
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Q & A

by Tom Enright

We welcome and read all your letters. Letters of general interest are printed in the Letters column. Pleas for technical help are dealt with here if they lend themselves to short answers, or in Technical Forum when the question is more involved.

Due to the volume of letters, we simply can't respond to all requests for assistance. Problems requiring an immediate reply should be taken to your dealer. Kaypro Technical Support can be contacted at (619) 481-3920, or write them at P.O. Box N, Del Mar, CA, 92014. Please include a day-time phone number.

Modem puzzle

Over the past two weeks I have been trying to figure out how to establish communications between the University of Hawaii IBM 3081D mainframe and my Kaypro 4'84. I had been using SuprTerm. Things went all right as long as I was only operating as a terminal. But I was unable to download or upload files because the mainframe does not support the Christensen protocol.

The folks at the university recommended that I use Kermit. Trying this, I find that I can't even get the modem to dial. Is there any way to dial the internal modem from Kermit, or do I need to upgrade to something like Mite?

Bruce Tolentino
Honolulu, Hawaii

Unfortunately, Kermit doesn't support dialing with any modem. Neither have I been able to find a copy of Kermit that will use the internal Kaypro modem.

Your cheapest solution is to buy an external modem to use with Kermit. You should be able

to find a manual-dial modem for around \$50, or possibly even less. Check with discount houses or any computer clubs in your area. I suggest a manual-dial modem because I know that students are always on a rather tight budget.

Buying a copy of Mite probably wouldn't relieve your protocol problems. You didn't mention what other file transfer protocols the mainframe supports, so I can't say whether Mite would solve your problem or not. Either way, buying an inexpensive external modem will be your cheapest alternative.

Disk accessing trouble

In the June 1985 "Technical Forum" you told a guy that disabling the internal fan on his 4'84 could damage the drives. I have a 2'84 and have been having problems accessing the drives, especially drive B. Sometimes it gives me a BDOS ERROR ON B: BAD SECTOR even though the disk is good. Other times the B drive will just sit there making a clicking noise.

I have installed a Datasolvers internal modem. Since one of the main differences between a 2 and a 4 is the elimination of a cooling fan on the 2, I wonder if I need to install a cooling fan.

My dealer is unable to duplicate the problem when I take the machine into his shop. He says I may be getting voltage drops in my home power supply. The power company says no. The dealer also keeps his shop cooled to about 65 degrees, while I can only get my home down to around 80 degrees. I showed your letter to the dealer, but he said you don't know what you are talking about.

John F. Moore
Houston, Texas

Your dealer is just about as polite as he is helpful. If he insists on keeping his shop that cold he will never be able to diagnose any kind of heat-related problem.

The most telling clue to your problem is that the dealer could not duplicate the symptom in his shop. This rules out a dirty or misaligned drive. It leaves you with two possibilities: power surges in your home wiring, or too much heat.

The easiest thing to check is the heat problem. Remove the chassis hood and set up a fan, such as a common oscillating room fan, so that it blows air on the mainboard. If, after a couple of hours of use, the problem fails to recur, you've located the problem.

If the problem still occurs, or occurs after a longer period of time than before, you may have heat damage to some component on your mainboard. (The disk controller chip is a prime candidate.) I would suggest having another dealer check out this possibility.

Dirty electrical power would show up as more than just a problem with one drive. You would get symptoms like bad data being written to both of your disks or the BAD SECTOR message appearing randomly on either drive. A power conditioner wouldn't absolutely be called for unless these conditions are present or you notice lights flickering. The only other reason to buy one would be for your own peace of mind, although that may be sufficient reason in itself.

Flaky drive

I love my Kaypro II. It has become my most valuable tool as a writer. I do have one major complaint: As soon as the warranty ran out, drive

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A quit working. It cost about \$100 to have it realigned. Now, six months later, I'm having trouble again. The drive light goes off, and I lose what I'm working on.

The technician at my local Kaypro store says that disk drives that get a lot of use will last only about a year before they have to be replaced, and he suggested that I

have my drive replaced, rather than realigned, at a cost of \$250. It seems totally unacceptable to me to pay \$250 a year to have the drive replaced. I can buy a 3K memory typewriter for about half that amount. Is his information correct? And is there anything I can do to make the disk drives last longer?

If it's true that I can expect a minimum \$250 a year bill to replace the disk drive, I'd just as soon go to another system. My friends with other brands of computers haven't had problems with their drives. So what's the story?

Beckey Gillette
Hattiesburg, Mississippi

Drives should last at least five years—and usually longer—before normal wear and tear dictate replacement. How long a drive lasts before it must be realigned varies with the make and model of drive.

Kaypro '83 series computers used Tandon full-height drives. It isn't unheard of for these drives to require alignment about once a year—but not every six months. If it's the same drive acting up as the first time, I would recommend replacing that drive. Also note that you don't have to replace the drive with one of the same make and model. Other single-sided, double-density drives can give a longer service life, but at a higher price, than Tandon drives.

You might also want to get quotes from different repair shops on how much they charge to align drives. A \$100 charge is too high for drive alignment. □

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Thank You Very Much

Letters

(continued from page 7)

the new "ZIP + 4" ZIP codes the Postal Service requires on many mailings?

Ulrich R. Furst
Sherman Oaks, California

Ted Chiang replies: "The version of the bubble sort you describe does require significantly fewer comparisons, but the number of exchanges remains the same. The basic algorithm will always require a large number of exchanges, making any version of the bubble sort still one of the slowest sorting methods currently available."

Has Quality Assurance heard about this test?

This is just a brief note to express our appreciation for manufacturing such a durable computer.

Eastmount Engineering is a small air pollution consulting firm. The majority of our work is done on the road and in less than desirable working climates for computers—extreme heat, humidity and dust. We own three Kaypros—two 2Xs and one 10.

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Charles H. Audette
Walpole, Massachusetts

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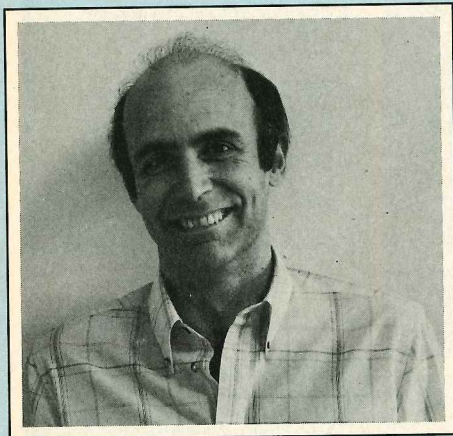
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Flea Market



by Ted Silveira

People who use key definition programs (XtraKey, SmartKey, *et al*) often develop a fervor about them. So I wasn't surprised that when I wrote two columns about using these programs with WordStar (May and June, 1985), I started getting letters saying, "I enjoyed your article, but let me show you this neat trick . . ." I've collected a number of these tricks, so I thought I'd pass them along to you.

Move to beginning of sentence or paragraph

Sandy Landesman (Flushing, NY), Mel Halbert (Oak Ridge, TN), and Marcus Bullock (St. Louis, MO) all suggested the same modification to my key definitions for moving to the beginning of a sentence or paragraph. As I gave the commands, they correctly move you to the beginning of the current sentence or paragraph. Once there, however, if you hit them again, you stay in the same place instead of moving to the beginning of the previous sentence or paragraph.

Landesman, Halbert, and Bullock all pointed out that adding a `^A` to the beginning of the command will remove this problem, allowing you to jump backward one sentence or paragraph at a time. For moving to the beginning of a sentence, the command should be

What? More WordStar?

`^A^GF <SP> <SP> <CR> b-<CR>^F`. And for moving to the beginning of a paragraph, the command should be `^A^GF <SP>-<SP> <SP> <SP>-<CR> b<CR>^F`. This command depends on your using a five-space indent to begin paragraphs. If you use a different format, you'll have to modify the command.

Move to the end of a sentence or paragraph

The same three readers pointed out that you can make a similar improvement to the commands for moving to the end of a sentence or paragraph, just by adding `^F` to the beginning of the command strings I gave.

Move to the next sentence or paragraph

At the same time, I decided that it was more helpful to move to the beginning of the next sentence or paragraph than to the end of the current one. So I now use these command strings, incorporating Landesman, Halbert, and Bullock's suggestion. To move to the beginning of the next sentence: `^F^GF <SP> <SP> <ESC>^F`. And to move to the beginning of the next paragraph: `^F^GF <SP> <SP>-<SP> <SP> <ESC>^F`.

Again, this last command depends on your using a five-space indent at the beginning of each paragraph. Also, both commands are set for WordStar 3.3, so WordStar 3.0 owners will have to adjust them, as I mentioned in the original columns.

Delete word left

Gerry Litton (Berkeley, CA) suggested a useful addition to this command that I now use. Instead of `^A^T`, the command is now `<SP>-^A^T`.

By adding this space to the beginning of the command, you avoid deleting any characters immediately to the right of your cursor. When I'm editing, I usually just stick the cursor where I want to make changes and start typing, letting WordStar push existing words to the right. In that situation, when I hit "delete word left," I found I sometimes also lost the word to the right (since if the two words were touching, WordStar treated them as one). Litton's simple change takes care of that problem.

Underline word

Someone else, whose name I've unfortunately lost, sent in a command to underline the word your cursor is currently in. The command is `^A^PS^F^S^PS`.

This command doesn't work for the last word in a sentence and also will underline any punctuation attached to the word, but it saves time if you have to go back through your text and mark any words for underlining.

Transpose letters

I took this one on as a challenge. If you place your cursor on a character, this command will transpose it and the following character: `^KB^D^KK^D^KV^KH`.

You can work out a similar command for transposing words,

though both commands are probably too slow to be useful for most people.

Scratchpad

Marcus Bullock has also suggested a method to create a WordStar "scratchpad" in the middle of any document and then erase it so that you can experiment with various sentences without messing up your text. To create the scratchpad, you can use the command `***<CR><CR><CR><CR><CR><CR>****^E^E^E`.

This command inserts five blank lines, marks the beginning with `***` and the end with `****`, and moves you to the middle of the blank space.

You can then doodle to your heart's content until you come up with a sentence or paragraph that pleases you. Move your finished gem into place in your text, and then return to the scratchpad and delete it with a key assigned to this command:

`^QF***<CR>b<CR>^KB^QF-****<ESC>^D^D^D^D^D^KK^KY`.

Keyboard layouts

Several people sent in examples of the keypad layouts they use for storing these new commands. My favorite is that sent in by Mel Halbert, because it's so easy to remember. Key 1 is "move to begin sentence," key 2 is "mark sentence," and key 3 is "move to next sentence." Key 4 is "move to begin paragraph," key 5 is "mark paragraph," and key 6 is "move to next paragraph." Key 7 is "move back one page," key 8 is "mark page" (actually, mark 55 lines), and key 9 is "move forward one page."

This layout makes a convenient 3x3 grid. The top row is all page commands, the middle row is all paragraph commands, and the bottom row is all sentence commands. The first column is always a "move back" command, the middle column always a "mark" command, and the last column a "move next" command. Very neat.

Halbert assigns the leftover keys as follows: key `0` is "delete word left," the period key is "mark to end

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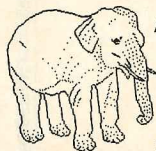


The first true drawing program for the Kaypro, **SCS-Draw** turns your computer screen into a sketchpad on which you can draw detailed images like those shown here. These images can be saved on disk or printed on a dot-matrix printer or the Kaypro/Juki letter quality printer.

There are many applications of **SCS-Draw**. For example, you could design and print your business card or company logo.



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FLEA MARKET

sentence," the enter key is "save and resume," the comma key is "reformat paragraph," and the minus key is "print screen."

The arrow keys

William Rhodes (Phoenix, AZ) suggested assigning the Kaypro's arrow keys to the \wedge QE, \wedge QX, \wedge QS, and \wedge QD commands. Since I never use the arrow keys for cursor movement (preferring WordStar's cursor diamond, which keeps my hands on the keyboard), I like these arrow key assignments, and they fit very well with Halbert's keypad layout.

Some of you may find a conflict here, if your WordStar tries to redefine your arrow keys to \wedge E, \wedge X, \wedge S, and \wedge D on its own. I'm not sure that you will, because I don't have that problem (I use an older WordStar)—nor does Rhodes, apparently. But some of you may. If so, the more adventurous of you can check the WordStar code at MORPAT (see "WordStar Deluxe," *PROFILES*, July/August 1985) to see if you can modify it.

Rhodes also passed along another tip. When you go back to edit a long file, it can be very annoying to have WordStar pause every two pages to read in a new batch of text from the disk. You can force WordStar to fill up its text buffer by executing the command \wedge QRAQP or \wedge QCACP (depending on which direction you're moving). WordStar will pause while it reads the disk, but when it's finished, you'll have about 10 double-spaced pages of text in the buffer (just over 13,000 characters), which you can edit without having WordStar go to the disk again.

The sorting bins

I've saved the best for last. In an earlier column, I mentioned Dick Ezzard's article "Shades of WordStar," to be found on the Kay*Fog bulletin board (415/285-2687). Now Dick, the WordStar Wizard, has done it again, by cooking up a way to create "sorting bins" in WordStar.

Often, after I've been brain-

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storming or making notes on some new topic, I need to go through and sort these fragments, grouping them into piles that have similar themes. Now, thanks to Dick, I can. The first step is to set up my "bins," either manually or with a special key that gives the command **^QR-^K1<CR> ^K2<CR> ^K3<CR> ^K4<CR> ^K5<CR>**.

This command just sets up five markers at the start of my text.

Next I go through my text, marking interesting notes and fragments one at a time, using a "mark paragraph" or "mark sentence" command. Then comes the good part. Once I've marked a block, I send it off to one of the markers I've previously set by using one of the following five keys:

^Q1^KV^QV^KH

^Q2^KV^QV^KH

^Q3^KV^QV^KH

^Q4^KV^QV^KH

^Q5^KV^QV^KH

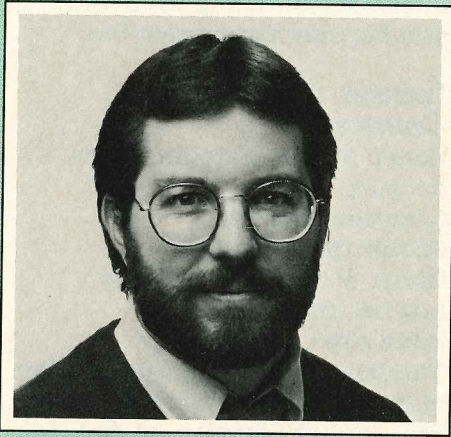
Each key does the same thing. It jumps to a particular marker, transfers the marked block there, jumps back to where the block came from, and unmarks the block.

Using these commands, I can sort my notes into five (or more, or less, depending on how I set it up) groups. I can even go back and resort those sub-groups if I want. When your thinking is as disorganized as mine is, this trick is a big help. Thanks again, Dick.

More keys, anyone?

I think we've about done WordStar to death by now. However, if you use your key definition programs with other software—dBASE, CalcStar, SuperCalc, InfoStar—and you have a great set of tricks worked out, write and tell me about them. If I get enough good stuff on any one program, I'll put it all in a column, giving everyone due credit for their contributions. (Of course, if you've got some absolutely stunning WordStar key definitions that no one else knows about, send those along too.) □

Life at 300 Baud



by Brock N. Meeks

Pop quiz time. You need information on the government's alternative fuels research program. To obtain this information you:

A. Use a \$200-per-hour online database.

B. Use a \$75-per-hour commercial information utility.

C. Wait until the phone rates drop and access a free government database.

If you chose C, you are in the minority. Every day people pay hundreds of dollars for information they can get for the price of a mere phone call.

Most people searching for information are drawn by slick advertising to expensive databases. With the proliferation of online databases (more than 3,000 are now available), the search for information quickly became a buyer-beware market.

Matthew Lesko (the Ralph Nader of online databases), author of books such as *Information U.S.A.* and *The Computer Data and Data Base Source Book*, says: "Database users should be discriminate consumers. Don't take the first database that seems to fit your need. Would you buy the first car you see? You will find alternatives to most any database."

'Tis the season

In the spirit of the season let me

Information that's free for the asking

offer you a gift pack of free online systems. Some of these systems can be accessed directly, although you may have to contact someone at the address I provide to receive the database's online phone number and a password. Other systems will, at your request, do a free online search and then send you the printout.

Dial-an-expert

The National Referral Center (NRS) maintained by the Library of Congress could be the most valuable entry in this column (you have my permission to cut out this section and tape it to your computer).

The NRS maintains a database that contains the names of 12,000 organizations and experts in the areas of science, technology and social sciences, and each of them has stated a willingness to provide free information to the public.

Each entry lists the name of the resource, telephone number, address, areas of interest, publications, and special services. Organizations can be located by name or by subject.

This system cannot be accessed directly, but searches and printouts are available on request. Write to the National Referral Center, Library of Congress, Washington, DC 20540, or phone (202) 287-5670.

Blue chip BBS

Board name: Individual Investor

Location: Chicago, IL

Phone: (312) 280-8764

Hours of operation: 24/day

Log-on: open access

Baud rate: 300/1200

The world of investments is one step below machine language programming in my ranking of complex subjects (preceded only by nuclear disarmament and child rearing). If you consider yourself an "individual investor," you will want to fire up that modem and log on before the long-distance rates go up—or the stockmarket drops.

This BBS, run by the American Association of Individual Investors, is great for hammering out investment strategies.

Log on here and you will find computer-related investment techniques and investment strategies. Public domain spreadsheet templates are also popular on this board.

One more time

Board name: RecycleNet

Location: New Jersey

Phone: (609) 641-9418

Hours of operation: 24/day

Log-on: password issued

Baud rate: 300/1200

RecycleNet is a one-of-a-kind board: It is the only BBS in the nation that deals with the topics of waste management and recycling.

There are many files regarding legislation and toxic waste problems. In addition, discussions cover a broad range of social and environmental issues.

This board is also one of four that will form the beginning of an ambitious project called the New Jersey Environmental Action Referral Service. This network of

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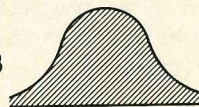
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Board Name: Satellite-Cable TV Network

Location: Illinois

Phone: (618) 451-1041

Hours of operation: 24/day

Log-on: open access

Baud rate: 300/1200

This board will satisfy that satellite buff in the family. The files on this BBS include profiles on Satcom, Westar, Comstar and Galaxy satellites. Ham radio operators will love this board because they can grab the orbit positions for all general-service satellites (handy when bouncing messages around the globe).

The board also carries listings of the various services available on the commercial satellites, such as booking dates and costs.

Sound useless? Not really. With the increased demand for telecommunications satellite time and healthy competitive pricing among commercial satellite systems for activities such as international teleconferencing, interactive videoconferencing, sports broadcasting, and news reporting, this listing becomes a desirable service.

Cryptically speaking

Board name: IACR

Location: Virginia

Phone: (703) 237-4322

Hours of operation: 6:30 p.m. to 7:00 a.m. (EST) weekdays and 24/day weekends.

Log-on: password issued

Baud rate: 300/1200

This board is run by the International Association for Cryptologic Research. Anyone interested in cryptology (the study of the methods and procedures for translating and interpreting codes and ciphers) will find many useful files available for downloading. Items listed include upcoming conferences and seminars and ab-

stracts of relevant research.

Online discussions pertain to such issues as the use of encoded messages to insure the privacy of electronic communications.

No decoder ring necessary to read text files.

Psychological BBS

Board name: American Psychological Information Exchange

Location: New York

Phone: (212) 662-7171

Hours: 24/day

Log-on: open access

Baud rate: 300/1200

This board functions as an electronic mental health clinic (although it stops short of online counseling). A library of text files (like electronic pamphlets), provides practical information on various areas of mental health, such as how to choose a therapist and how to cope with depression during holidays.

You can interact with psychologists doing research work in everything from substance abuse to thanatology (the study of death).

Climate database

The reality of the African famine emphasizes the need to understand how such disasters happen. One way to better understand how famine occurs is to study the effect of climate on this spaceship called Earth.

The National Meteorological Center offers free hookup to the Climate Assessment database, which provides information on climate conditions throughout the world.

Included in the database are files dealing with temperature, precipitation, weather indexes, heating and cooling days, energy conditions and an assessment of the effect of climate on crops. This database is updated regularly from 8,000 stations around the world.

To gain access to the online database, write to the National Meteorological Center W353, WBBB, Room 201, Washington, DC

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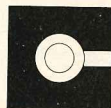
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Clearinghouse on child abuse info

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The database contains abstracts of literature published since 1965, descriptions of ongoing research in the field, and descriptions of programs that serve victims of child abuse and neglect. Spanish-language materials are also cited.

The database is updated every six months and contains 20,000 records. Contact the center with your information request and they will send you a printout of the results.

Phone (703) 558-8220, or write to P.O. Box 1182, Washington, DC 20013.

Smithsonian, I presume?

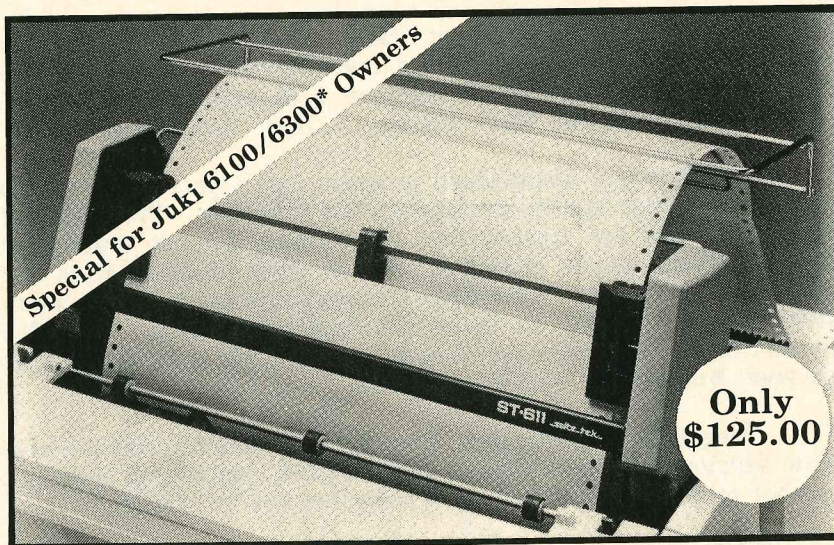
The world's largest museum has hundreds of databases just waiting for you. Though you can't sit beside the fire in your smoking jacket and log on with your Kaypro 2000, you can request that a database search be made for you. The results are sent to you free of charge.

We've all heard various stories about obscure or eccentric objects maintained in the Smithsonian museums; my favorite is a story about George Washington's wooden false teeth. Are they for real? Using the Smithsonian's databases you can play Information Age archaeologist. Just call and ask for a database search on the subject of false teeth. (The results will astound you!)

Computer databases exist for every topic the Smithsonian covers, from anthropology to volcanoes. Data is retrievable by object type or name, or even theme

(continued on page 70)

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The Z-System

A powerful booster for CP/M computers: part 1

by Ted Silveira

Would you like to have your favorite programs available at the touch of a key? Feed your computer an hour's work and leave, knowing it can deal with any problems? Have the last laugh when IBM owners brag about performance?

This may sound like a TV huckster's pitch ("It slices and dices . . ."), but it's not. The Z-System is a software supercharger. It helps you get more done in less time by giving you a plush, high-performance working environment that could make an IBM user's jaw drop.

The Z-System isn't a single thing, like a word processor or a spreadsheet. It's a set of building blocks from which you create a system that suits you. Briefly, it consists of:


- ZCPR3, a replacement for CP/M's console command processor (CCP).
- The ZCPR3 tools, utility programs that use ZCPR3's special features.
- ZRDOS, a commercial replacement for CP/M's basic disk operating system.
- Some commercial programs written specially for ZCPR3.

ZCPR3 and its utilities, created by Richard Conn, are copyrighted material that have always been available through public domain sources for non-commercial use. For people who can't get to those sources, or for people who want to use the Z-System for commercial purposes, ZCPR3 is now available at reasonable cost from Echelon, Inc. (see "Where To Get It," page 30). Echelon also markets the commercial parts of the Z-System, provides licensing for commercial use, publishes a newsletter, and coordinates ZCPR3 updates and additions. Through Echelon's efforts, the full Z-System was adopted for Steve Ciarcia's impressive SB180 computer project, featured in *Byte* magazine, September and October 1985.

This month I'll highlight some important parts of the Z-System and show how they work in my system. Next month, I'll cover ways to install the Z-System on a Kaypro.

ZCPR3

The core of the Z-System is ZCPR3 (Z80 Command Processor Replacement). ZCPR3 replaces CP/M's con-



sole command processor (CCP), which interprets your commands and contains the built-in commands DIR, REN, ERA, TYPE, SAVE, and USER. ZCPR3 enhances these commands and adds new ones. For example, ZCPR3's ERA command can ask for verification before it erases files. And its TYPE command will pause after every 22 lines (one screenful). ZCPR3 also adds new built-in commands such as LIST, which sends files to the printer.

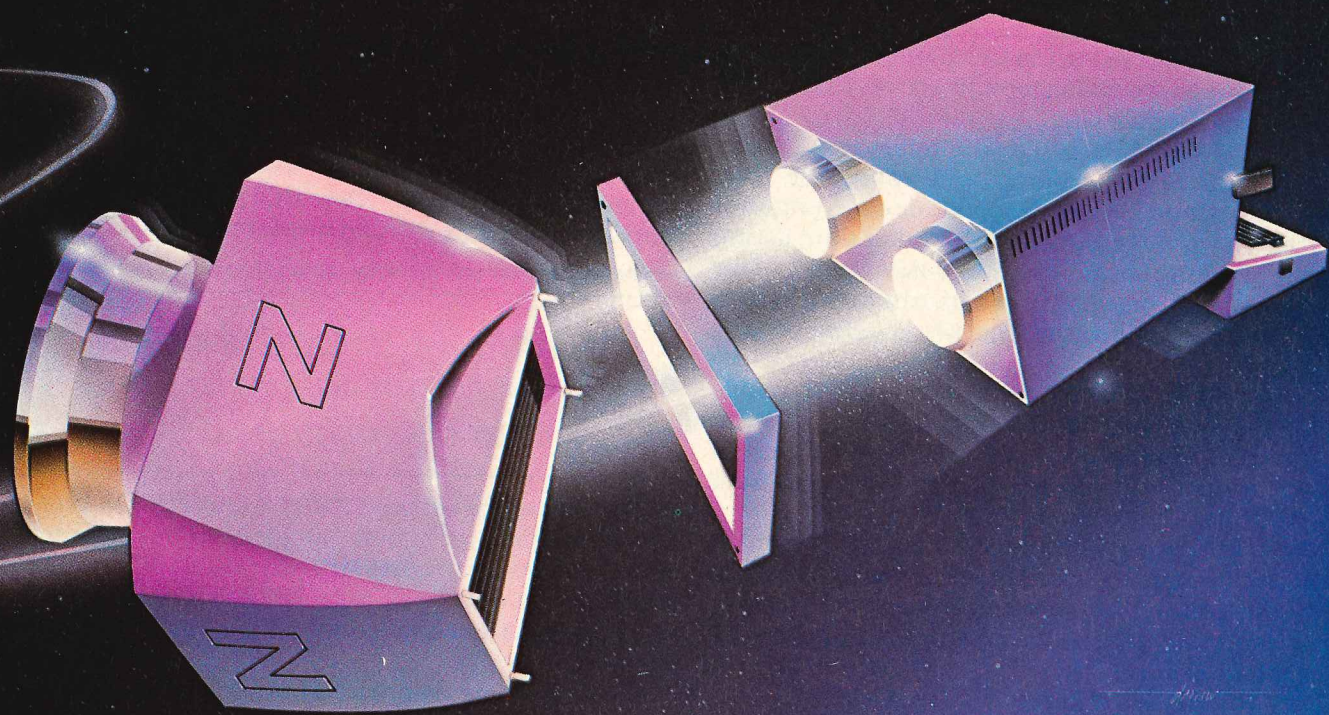
The most important features of ZCPR3 include:

Search Paths—You can specify the path ZCPR3 will follow when trying to execute a command. On my system, if I enter WS at the B > prompt, ZCPR3 will look for WS.COM on drive B; if it doesn't find WS.COM there, it will *automatically* try drive A. These paths can be quite elaborate.

Multiple-Command Lines—You can set up a command line buffer that allows you to enter several commands at once, separated by semicolons (;). For example, if you enter **WS MOM.LTR;TW MOM.LTR**, ZCPR3 will run WordStar and open the file MOM.LTR. When you exit WordStar, ZCPR3 will run The Word Plus to check your spelling.

Named Directories—You can also use named directories. Instead of referring to drive B0: or A15:, you can use names like WORDSTAR: or FINANCE:.

Other ZCPR3 Buffers—ZCPR3 can have other buffers that allow ZCPR3 programs to pass messages to each other, get information about the operating environment, and, in the case of "shell" programs, reload



themselves automatically.

Resident Command Packages—You can reserve memory space for a *resident command package* (RCP). An RCP gets loaded into memory when you start your computer so that its commands are available just like built-in commands. It can contain expanded versions of built-in commands or entirely new ones such as CP, a file copy command, or PEEK and POKE, which let you examine and change bytes in memory.

RCPs are *dynamically loadable*. You can load different ones, containing different commands, into memory at any time.

Flow Command Packages—A *flow command package* (FCP) is another dynamically loadable package, containing logic commands (such as IF, IF EXIST, and ELSE) that control the flow of command execution. By combining flow commands with ZCPR3's multiple-command line, you get "smart" commands.

Take the command line `IF EXIST B:FINANCE.COM;ERA A:FINANCE.COM;ELSE;PIP B:=A:FINANCE.COM;ERA A:FINANCE.COM;FI`. ZCPR3 will check to see if B:FINANCE.COM exists (*if exist*). If it does, ZCPR3 will erase A:FINANCE.COM. If it doesn't (*else*), ZCPR3 will copy FINANCE.COM to B and then erase it from A. The FI command closes the logical alternatives.

Flow commands are very valuable in automatic operations such as batch files and menus.

Input/Output Packages—The *input/output package* (IOP) is a third dynamically loadable package,

containing input/output device drivers. Right now, IOPs are mostly do-it-yourself. Echelon does market two commercial IOPs—PKEY, a simple key definition program, and RECORDER, which saves everything crossing your screen into a disk file.

System Security—ZCPR3 also has security options. It's possible, for example, to prevent users from entering certain drive and user areas as well as to eliminate dangerous commands.

ZCPR3 tools

Along with ZCPR3 come 76 utility programs. Some are counterparts of memory-resident commands such as DIR, IF, and CP. Others perform simple but useful tasks. DIFF compares two files. PATH alters the search path. FINDF searches all directories for a particular file.

And some utilities play especially important roles in the Z-System:

ALIAS—With ALIAS, you can create a special program containing a series of ZCPR3 commands. When you run this alias, ZCPR3 will execute the commands as if you'd entered them at the keyboard.

You can, for example, create an alias named TRANSFER.COM containing the commands `IF EXIST B:$1;ECHO FILE ALREADY EXISTS;ELSE;CP B:=A:$1;FI`. When you then give the command `TRANSFER NOTE.FIL`, the name "NOTE.FIL" will be substituted for every "\$1" in the command line. ZCPR3 will test to see if B:NOTE.FIL exists. If so, it will echo "FILE ALREADY EXISTS" to the screen and quit. If not, it will

copy NOTE.FIL to B using the CP command and quit.

Aliases can be much longer and are very useful for frequent or awkward tasks.

VFILER—VFILER is a file-maintenance program that can copy, delete, rename, and unsqueeze files, singly or in groups. It's like the public domain program NSWP207, with three extras. First, rather than listing files in a single column, VFILER shows them in four columns of 18 rows each. You can use the arrow keys to move your cursor around the file display in any direction.

Second, VFILER runs as a *shell*. From inside VFILER, you can issue any ZCPR3 command. VFILER will surrender control while the commands run and then reload itself. You can even run WordStar from inside VFILER.

Third, VFILER can store ten *macros*, each of which can be any series of ZCPR3 commands. Because VFILER keeps track of the file your cursor is pointing to, you can build general macros that will automatically act on this file.

VMENU and **MENU**—VMENU and MENU run menus you create with text files. The menu options can be any ZCPR3 command sequences (as with aliases or VFILER macros), complete with flow commands and pauses for user input. In addition, VMENU and MENU both run as shells so you can create a menu-driven system in which a user never sees the A > prompt.

The main difference between VMENU and MENU is that VMENU is video-oriented—it displays the files on the current disk just as VFILER does (but only 16 at a time). As in VFILER, you can move the cursor in any direction, and the menu options can act on the file currently pointed to.

ZEX—ZEX is a batch-file processor, a fancier version of CP/M's SUBMIT and XSUB. ZEX can use flow commands so that batch files vary their actions according to conditions. It can also use a program called GOTO to create loops in the ZEX file and one called REG to set, check, and alter counters. Together, these give you a simple programming language for batch files.

ZRDOS

ZRDOS (Z80 Replacement Disk Operating System) and ZRDOS Plus are commercial products, written by Dennis Wright and marketed by Echelon. Either one completely replaces the normal CP/M BDOS (basic disk operating system) to give you a more efficient CP/M-compatible BDOS.

Non-programmers will find four major improvements. First, you no longer have to warm boot when you change disks.

Second, ZRDOS knows whether a file has been changed since you last backed it up, allowing a ZRDOS utility, AC.COM, to back up only changed files.

Third, with ZRDOS, you can also restrict access to *files*—data files, text files, and so on—providing a new

level of security.

Fourth, ZRDOS has a "public directory" feature. If you place program overlays and similar files in a public directory, then programs that need them (like WordStar) can find them no matter which directory you're currently in. Combined with search paths, this feature simplifies hard disk management immensely.

With Z-System, you no longer have to warm boot when you change disks.

The difference between ZRDOS and ZRDOS Plus is that ZRDOS Plus allows "single-level re-entrance," which makes very efficient redirectable I/O routines possible. You also must have ZRDOS Plus in order to use Echelon's two commercial IOP products, PKEY and RECORDER.

I've found one commercial program that's incompatible with ZRDOS—a Sidekick-like program called Write-Hand-Man. Write-Hand-Man alters the standard CP/MBDOS, a very unusual step. When it tries to do the same thing with ZRDOS, it fails. Few, if any, other programs will have this problem.

Echelon also offers some commercial programs for the Z-System. It sells a set of programming tools and two application programs—DISCAT, a file cataloging program, and TERM3, a super communications program.

Z-System in action

So, the Z-System has many great features, far more than I've mentioned. What can it do for *you*? To give you a feel for what's possible, here's part of my Z-System.

I turn on my computer, stick WordStar in drive A and my current writing project in drive B, and shut the drive doors. After 13 seconds, the opening menu appears.

From the opening menu, I can choose one of four sub-menus—brainstorm, manuscript, letter, or housekeeping. This morning I'm working on a *PROFILES* article, so I select the manuscript menu. It appears *immediately* (see Listing 1).

The lower part of the screen shows the menu options. The upper one-third shows 16 files from my B disk, along with a "[more files]" message. If I hit ^F, the menu will display the next 16 files. With ^A, I can flip back to the first set.

Using the cursor arrow keys, I move a pointer (—>) around the file display until it points to the file I want. This file (ZSYS-1 in Listing 1) becomes the *pointer file*. Once I select my file (a few keystrokes, no chance of misspelling), most options on my menu (E, S, P, W) will act on that file automatically.

I enter **E** to edit the file—my key definitions for

LISTING 1

```

B0:Noname      VMENU, Version 1.6 [Z80 Code]  Z-SYS1
                [More Files]
No File        BIO                FLMKT003.    DBASE        .NOT
DU-CORX1.     LETTER .FIL          CONSOLE .FIL FLMKT004.
WS-KEYS .DOC  OUTLINE            FLMKT005.    TF082585.LTR
—) Z-SYS1     HOTROD            .NOT          Z1-LIST      .
                Z1-SIDE
                MANUSCRIPT MENU
                E - edit current file
                S - check spelling in current file
                C - clean up punctuation in current file
                P - check style and phrasing in current file
                W - count words in current file
                R - run WordStar no-file menu
                B - go to BRAINSTORM menu
                L - go to LETTER menu
                H - go to HOUSEKEEPING menu
                Z - give ZCPR3 command

```

Command (CR=Menu, #C=Z3, !=1st Menu, (=Prev Menu,)=Next Menu) -

LISTING 2

```

#
                MANUSCRIPT MENU
                E - edit current file
                S - check spelling in current file
                C - clean up punctuation in current file
                P - check style and phrasing in current file
                W - count words in current file
                R - run WordStar no-file menu
                B - go to BRAINSTORM menu
                L - go to LETTER menu
                H - go to HOUSEKEEPING menu
                Z - give ZCPR3 command
#
Eldr a:ms.iop;get 100 a:ws.com;poke 0366 00 0C 0A 00 40;poke 0376 02;poke
3CF1 C3 27 3D;go $pf
Sa::era a:errwords.txt;spell b:$pf a:specials.cmp $$scf;review;if exist
a:errwords.txt;markfix b:$pf;b::ws $pf;else b::fi
Ca::cleanup b:$pf $$D;b:
Pa::phrase b:$pf $$D;b:
Wl:wc b:$pf
Rldr a:ms.iop;get 100 a:ws.com;poke 0366 00 0C 0A 00 40;poke 0376 02;poke
3CF1 C3 27 3D;go
B:2
L:4
H:5
Z"Command?"
#

```

manuscript editing are loaded, WordStar is loaded, its defaults are set to my manuscript format, and the 20K file ZSYS-1 is loaded. Total time from striking the key to seeing the first screen of text—11 seconds.

When I exit WordStar after working on ZSYS-1, I'm back at the manuscript menu. I can now run a word count, a spelling check, a punctuation check, or a style check on the file ZSYS-1 with a single keystroke. If I correct or mark any words during a spelling check, the menu system automatically runs WordStar again. If I don't change anything, I'm returned to the menu.

When I've finished the file, I jump to the letter menu to write my cover letter. This menu is exactly like the manuscript menu, except that WordStar and the other programs get set for a different format—single-spaced text, 76 character line, etc.

I can also jump to the housekeeping menu to check disk space and erase old files. If I'm done for the day, I choose the backup option here. I'm prompted to change disks, and then every file I've created or altered today is copied to the backup disk, while unchanged files are ignored.

If I'm starting a new project, I go to the brainstorm menu, first for making notes and later for sorting and arranging them. This menu runs WordStar and the key definition program with yet a third set of defaults and definitions.

From any of these menus, I can use the Z option to enter any legal series of ZCPR3 commands, just as I would at the A > prompt.

Behind the scenes

How does it all work? Listing 2 shows part of the text file used by the menu program. The upper half shows the screen layout for the manuscript menu, and the lower half shows the command strings executed by the man-

uscript menu options. Each command string begins with the letter of the menu option that executes it (E, S, C, etc.) followed by the commands themselves, separated by semicolons.

The Edit Command—The first command string (beginning “Eldr a:ms.iop . . .”) is the “Edit current file” command executed when I select option E. The first command—**ldr a:ms.iop**—tells the program LDR to load the IOP named MS.IOP. This IOP contains the key definitions I use for manuscript editing.

The second command—**get 100 ws.com**—uses a ZCPR3 command that pulls WordStar into memory but doesn't run it. The following three “poke” commands patch this memory-copy of WordStar so that its defaults are set for manuscript editing. The last command—**go \$pf**—runs the patched WordStar. The symbol “\$pf” stands for the “pointer file,” so if the pointer file is ZSYS-1, then “go \$pf” runs WordStar just as if I'd typed “WS B:ZSYS-1” at the A > prompt.

I also use this technique (called “poke & go” by its creator, Bruce Morgen) on the letter and brainstorm menus so that I seem to have three custom WordStars. In reality, I have one standard WordStar that gets patched differently depending on which menu I run it from. The patching takes less than a second, and I could install much longer patches.

The Spelling Check Command—The next command string (beginning “Sa::era a:errwords.txt . . .”) shows how flow control makes commands smarter. The first four commands switch to drive A, erase any leftover ERRWORDS.TXT file, run SPELL from The Word Plus to check the pointer file (using the special dictionary SPECIALS.CMP), and then run REVIEW to check for misspellings.

The next command—**if exist a:errwords.txt**—checks to see if the file A:ERRWORDS.TXT exists.



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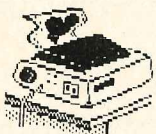
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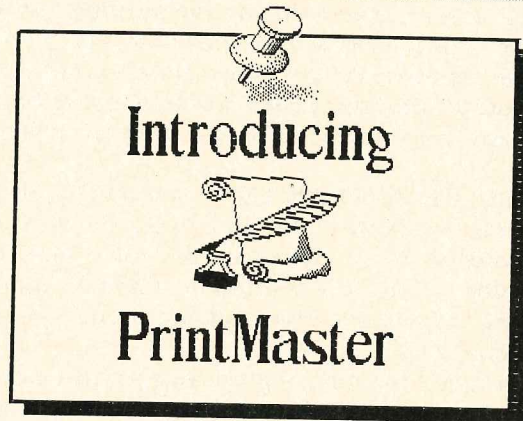
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Since I erased any such file at the beginning, it only exists if it was recreated during the spelling check—if there were misspelled words, that is to say. If so, the next three commands are executed, running MARK-FIX to correct the misspelled words, logging back to drive B, and running WordStar to open the corrected file again.

If the file A:ERRWORDS.TXT *doesn't* exist, then no words were misspelled. In that case, the execution jumps from "if exist a:errwords.txt" to the "else" command—**else b:**—which returns to drive B, ignoring everything in between. The final command—**fi**—ends the flow control.

This simple flow control gives you an idea of what's possible. It runs much faster than if I entered these commands myself. More important, I don't have to remember the command series—I just work it out once, put it in the menu, and forget it.

Other Menu Commands—Most of the other commands are straightforward; their only trick is using the pointer file. The commands **B:2**, **L:2**, and **H:5** jump to the second, fourth, and fifth sub-menus. The "Z" command shows how easy it is to include prompts and get user input. It prints the prompt "Command?" on the screen, waits for me to enter any string of commands, and then passes those to ZCPR3 for execution.

More Menus—I can also jump to entirely different functions, such as communications or database management. Even though I have to swap disks, I still gain because I can have the system reconfigure itself, automatically loading the proper RCP, FCP, IOP, directory names, and so forth.

Hard disk users, of course, don't have to swap disks and can link *all* their functions together, reconfiguring their systems at every jump. What's more, with search paths and public directories, they'll only need one copy of most programs.

What's the word on Z?

Obviously, I've become a fan, so perhaps you should take my remarks with a grain of salt. On the other hand, I'm so cramped for space here that I've barely skimmed the surface of the Z-System.

The rap on ZCPR3 and the Z-System has always been that it's hard to install, takes up too much memory, needs a hard disk, and is only comprehensible to the dedicated hacker.

First, bringing up ZCPR3 from scratch isn't a simple afternoon project for most people. But Kaypro owners have two easier options—a commercial auto-install package from Echelon and several "canned" installations from the public domain. I'll cover all these methods next month.

Second, ZCPR3 *can* take a lot of memory, but it can also take as little as 1K, depending on how it's installed. Even a fully-loaded Z-System leaves at least 48K free. Most programs work fine in this space; some, like

Where to Get It

All parts of the Z-System are available directly from:
Echelon, Inc.

101 First Street
Los Altos, CA 94022
Orders: (415) 948-3820

Sample prices are as follows:

ZCPR3 Starter Kit for manual installation (ZCPR3 plus 20 utilities in COM file form and installation guide) \$39

ZCPR3 Utilities Package (70+ utilities in both source and COM file form, including extensive help files) \$89

Z3-Dot-Com (auto-install version of ZCPR3 including all help files and all utilities in COM file form) . . . \$99

Z3-Dot-Com without utilities \$49.95

Z-Com (same as full Z3-Dot-Com plus ZRDOS) . \$119

ZRDOS (replacement BDOS plus 6 utilities) . . \$49.50

ZRDOS Plus. \$59.50

Write to Echelon for a complete list of current prices.

ZCPR3 and the ZCPR3 utilities, which are copyrighted materials, are also available from public domain sources for non-commercial users (though commercial products such as Z3-Dot-Com, Z-Com, ZRDOS, and ZRDOS Plus are not). Major users' groups often have the complete ZCPR3. If yours doesn't, you can get it from groups that do mail order, such as the Tampa Bay Kaypro users' Group, which you can join for \$30/year by contacting:

Steve Sanders
Data Com Network
2643 Cedarview Court
Clearwater, FL 33519

Modem users can download ZCPR3 and its utilities from major CP/M bulletin boards. A number of such systems are now Z-Nodes, meaning that they run ZCPR3 and carry all its pieces online. For starters, try:
Z-Node Central (very busy) (415) 489-9005
Z-Node #3 (Massachusetts) (617) 965-7259
Z-Node #25 (California) (408) 253-1309
Z-Node #31 (Texas) (915) 821-3638

Once you make contact with one of these boards, you should be able to find a list of current Z-Nodes. Unless you find a system that stocks ZCPR3 within your local calling area, you'll find that downloading all of ZCPR3 is a *very* expensive proposition. □

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Computer Professionals, Inc. has been developing computer applications for business and industry for NINETEEN years, often working behind the scenes for some of the biggest names in the industry. We have learned how to pack a lot of power into each computer program but we know that raw power and ability is worth little unless coupled with ease of use, good documentation and responsive support. CPI's Business Systems are all these things and more. They run faster, support larger capacities and cost less than any similar systems marketed today. They have been installed by thousands of users (since 1978) and are available from us directly or from your KAYPRO dealer. We specialize in KAYPRO systems.

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.** Our manuals are prepared and printed on computer systems.

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.

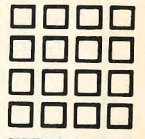
CP/M users may become MS-DOS users in the years ahead; CPI has planned ahead for this possibility and we provide data file conversion service to any user. CPI will, however, continue to support and enhance these fine systems for CP/M users for years to come. Your investments today will not be obsoleted 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 (1/2X/4/10/16), etc. Demo systems in KAYPRO formats only.

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PROGRAM FUNCTIONS: **Systems Initialization** customizes programs for your business and hardware. **Master File Maintenance** to create, modify and report on charts of accounts; auto Make Departments function speeds setup; lists charts in 3 formats, on 8 1/2" wide forms at 10 cpi. **Transaction (Journal Entry) Maintenance** to enter and change and delete and post and list (3 formats); auto increment for reference from numeric pad; auto duplication of any field from prior entry, last 7 entries on display; source/run totals; validation of account numbers at time of entry; true prior period adjustments; repeating entries for depreciation, etc. **Trial Balance** summary reports (2), worksheets and detail general ledgers; **Full/Consolidated/Selective departmental (FCS)** processing. **Financial Statements** in 4 formats: current year, current and prior year, current quarterly, cumulative quarterly; FCS selection (see above); run any report for any prior period; indicate # of months for the current period even when re-running prior periods; disclaimers (two 78-char lines) for Accountants. **Budget Reporting** with remaining or variance computations; current, YTD, both; rerun prior periods; FCS processing, variable # months on current period. **Full Year Detail G/L** high speed build up system; over 3,800 records on 191K disk; detail is shown on original input sequence by account; FCS; partial year reports when disk space is limited; auto buildup for hard disk users. **End-Of-Period** creates backup file automatically; updates repeating entry date fields for new month; selects month/year end processing automatically; updates prior year's data. **Accounting Transfer** inputs data from each CPI Business System; posts; prints control reports; multiple transfers from other applications allowed. **Query Account** - high speed displays to CRT or individual or range-of-account displays to printer. See the Hardware Requirements section also. All CPI systems include easy data entry and correction via formatted screens, Back-Up, Void & End keys.

CAPACITIES: CP/M - 600 Accounts; MS-DOS - 2000 Accounts, 3-5 Digits for Account Numbers - Up to 99 departments using 3-digit account number and 2-digit department number. Each K of disk can hold 8 records (i.e. 300+ accounts and 1200+ transactions on a 191K disk.)

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

\$80.00 **ACCOUNTS RECEIVABLE** **\$100.00**
CP/M MS-DOS
Super system with Invoices, Service Invoices, Statements, etc. A full range of reporting abilities include Customer Reports, Ageing Reports, Transactions Reports, G/L Transaction List, etc. Auto billing feature eliminates mistakes. Sales can be distributed to 100 accounts. Build up statement option combines the virtues of ledger card history detail and the speeds of today's computers. Use preprinted forms and/or plain paper for invoices and statements.
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CP/M MS-DOS
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CAPACITIES - 600/2000 emp. (CP/M/MSDOS), 98 Tax File Rcds.

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:

THE C.P.I. GENERAL LEDGER SYSTEM WAS REVIEWED IN THE NOVEMBER 1985 ISSUE OF PROFILES (STARTS ON PAGE 49). HERE ARE SOME OF THE BETTER QUOTES FROM PAGE 50, BUT BE SURE TO READ THE WHOLE REVIEW. "THIS TOP LEVEL PACKAGE RATES AS ONE OF THE BEST PROGRAMS WE REVIEWED... COMPARES FAVORABLY TO PACKAGES COSTING HUNDREDS OF DOLLARS MORE... FEATURES OFFERED BY THE C.P.I. SYSTEM MAKE IT EXTREMELY POWERFUL AND FLEXIBLE... THE DOCUMENTATION IS EXCELLENT... USER SUPPORT PROGRAM INDICATES A HIGHER THAN AVERAGE INTEREST IN USER SATISFACTION."

"MAKE YOUR IBM-PC KAYPRO COMPATIBLE"

Intersecting Concepts Announces 3 Solutions To Solve Your Computer Incompatibility

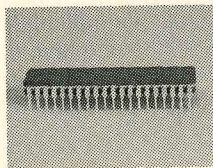
But will it work on my computer? Yes! Finally, there are three easy ways to exchange information, transfer files, and run CP/M software on MS-DOS machines.



1. **MEDIA MASTER** is our direct disk-to-disk format conversion program. Already an accepted industry standard, this \$39.95 program uses simple screen prompts that lets you read, write and format up to 70 different 5¼" diskettes from CP/M, MS-DOS and PC-DOS operating systems. So if you work on a IBM PCompatible at the office, but use a CP/M computer at home, now you can easily transfer files that would otherwise be "foreign" to your computer's operating system.



2. **MEDIA MASTER PLUS** goes one step further by converting 8-bit CP/M software to run on 16-bit MS-DOS and PC-DOS machines. This newly released \$59.95 product combines our IBM-PC version of Media Master with ZP/EM, a powerful new emulation program. The results are amazing: CP/M programs using 8080 instructions and data can be transferred from popular computers like Osborne, Kaypro and Zenith to run on MS-DOS and PC-DOS machines!



3. **ACCELER-8/16** is also new and dramatically improves the performance of Media Master Plus by tailoring the CP/M emulation around a NEC V20 microchip. This chip simply replaces the 8088 processor in your MS-DOS computer. Once installed, it'll run your CP/M and MS-DOS software much faster. (Speed improvements are roughly 15% faster in MS-DOS and 350% faster in CP/M!) With ACCELER-8/16 your MS-DOS computer is now CP/M compatible for only \$99.95! All three solutions save you money by eliminating expensive modems and communications software.

To Order

To order Media Master, Media Master Plus, or Acceler-8/16, call 800-824-7888, and ask for operator 251. For additional product and upgrade information contact:



Intersecting Concepts, Inc.,
4573 Heatherglen Ct., Moorpark, CA 93021
or call 805-529-5073.



Z-SYSTEM

WordStar and dBASE II, work in even less.

But a few programs need lots of memory and may not have enough room on a fully-loaded Z-System—very large MBASIC programs, for example. If you run into this, you'll have to relegate those programs to disks running a reduced Z-System or even standard CP/M.

*ZCPR3 can take a
lot of memory, but it
can also take as
little as 1K...*

Third, I once thought that I needed a hard disk to make use of the Z-System. And in truth, it does run better on a hard disk—because *everything* runs better on a hard disk, including standard CP/M. But I now happily run a full-bore Z-System on an ordinary two-floppy Kaypro with 390K per drive. A few Z-System features aren't practical without a hard disk, but plenty are.

Fourth, the Z-System requires learning. But learning to use aliases and menus and flow commands is much less difficult than learning to use WordStar or dBASE II. And you don't need to use all its features at once; you can start small and work up.

The weak point is documentation. Not that you don't get enough—you get reams of it. But it's heavy reading (though good reference), and it's short on tutorials and examples to help a typical computer user do productive things. This lack can make the learning process slower than it need be.

What you gain is performance. What's performance? Call it the work you get out of your computer divided by the work you put into it. You gain performance from being able to connect old programs in new ways. You gain it from long command lines delivered at high speed, without mistakes. You gain it from being able to quickly reconfigure your system to meet an unexpected task. And more.

In short, the Z-System does for your whole system what a key definition program like XtraKey does for a single program. It makes many things easier and makes other things possible that weren't possible before. It may take you a little time to ease into it, but once you do, you'll never go back. □

Ted Silveira is a freelance writer and editor and has taught writing at San Francisco State University. He also works as a consultant for novice CP/M users and is the software librarian of a very active CP/M users' group in California.

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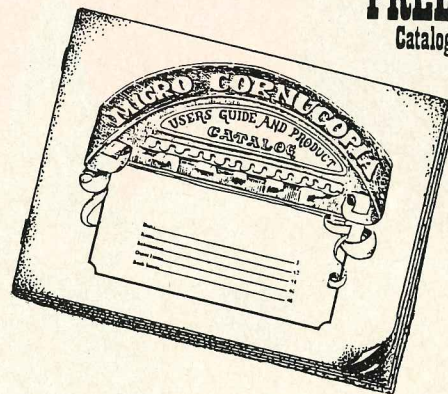
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- KayPro Disk K28
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- KayPro Disk K30
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- KayPro Disk K34
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- KayPro Disk K35
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- KayPro Disk K36
Small C Library

MS-DOS

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Essential Utilities
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- MS-DOS Disk MS3
Adventure
- MS-DOS Disk MS4
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- MS-DOS Disk MS7
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FORTH 83

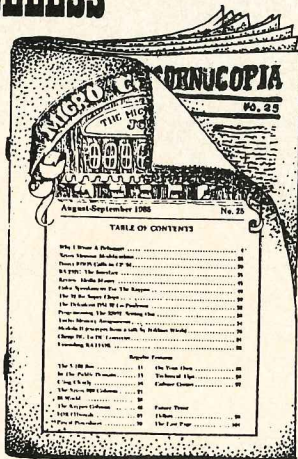
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Information for the Technically Curious

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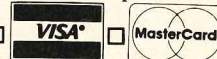
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STOCKING STUFFERS



by Brock N. Meeks

Finding gifts for your computer-owning friends and associates can easily lead to confusion and empty pockets. A swift look at any computer magazine will turn up a dizzying array of products for computer users, many at prices that would reduce your Christmas Club account to the size of your three-year-old's life savings.

For a selection of moderately priced gifts almost any computerphile would find useful, scan the following list of last-minute suggestions.

Refer to the summary at the end of the article for addresses, phone numbers and prices.

Shocking idea

Imagine it's Christmas Eve and the final phase of gift checkout is going on. All the electronic toys are screaming for electrical outlets, and household outlets soon take on the appearance of electrical mutants when adapters of all shapes and sizes are used to create

multiple outlets. Consider easing the crunch with a multiple-outlet power strip.

You can go one better and buy a power strip like the Safe-Strip that has a built-in surge protector. Surge protectors keep your electronic equipment safe from voltage spikes and surges—which can be the greatest threat to your computer outside a child determined to boot a peanut butter and jelly sandwich in your A drive.

The paper myth

If computers are supposed to eliminate paperwork, I have yet to see it happen. If anything, computers generate more paper than ever before. Two kinds of paper make excellent gifts.

An average printer can feed on a 3,000-sheet box of "draft" paper for at least four months. Couple that draft-grade paper with a ream of 20-lb. bond Micro-Perf paper (a computer paper that leaves a virtually smooth edge when the margins are removed and looks like cut-sheet stationary) and you can cover any printing job from program listings to funding proposals.

An ounce of maintenance

Although Kaypros are known as the Volkswagens of the computer industry, you shouldn't run your Kaypro for more than 12 months without a tune-up and some preventive maintenance.

For general all-around care and feeding of your computer, a Computer Care Kit is available. This kit contains all the elements you will need for normal, non-technical maintenance. The kit contains anti-static

A printhead cleaning kit will keep that workhorse printer plowing on.

spray that keeps the work area static free; a dry-process head cleaning diskette for single- or double-sided drives; CRT cleaner that cleans your screen of dust and fingerprints; cleaning cloths that are lint free and don't leave any residue when used with the CRT cleaner; and swabs for those delicate cleaning operations and hard-to-reach spots.

Since you can't send your disk drives to an aerobics class, keep them in shape with a disk drive diagnostic program. This type of program tests your drives in various ways and alerts you to a problem *before* it really happens. A program from Micro Cornucopia called Systems Diagnostics fits nicely into a stocking-stuffer budget. This program will also check out your Kaypro's memory.

Next to the disk drives, a printer probably takes more abuse than any other part of your computer set-up. A Print Head Cleaning Kit will keep that workhorse

printer plowing through thousands of printouts each year. The kit contains a non-woven fabric that is installed in place of the printer ribbon. A special cleaning solution is applied to the fabric, and as fast as you can run a printout the printhead emerges spotless.

Cheat sheets

Few things in life are more tedious than the ritual-like process of tracking down an obscure command in a documentation manual.

A locked disk holder can be a silent sentry for your disk file.

If you have friends struggling through the arcane commands of a program like WordStar, get them a Kleertex template. These templates fit over the Kaypro keyboard and provide "commands at a glance." Kleertex templates are available for most popular programs (such as WordStar/MailMerge, dBASE II, and Perfect Writer/Filer/Calc).

For MS-DOS owners, PC-DocuMate offers the same type of product designed for an IBM PC or PC-compatible keyboard. Both PC-DocuMate and Kleertex also sell blanks for making up your own templates (here's a chance to to add that personal touch: create a cheat-sheet template for a friend).

Disk administration

Anyone who owns a computer for more than two weeks soon realizes that a good disk organization strategy is vital to personal mental health. One way to keep a handle on those multiplying disks is to store them by categories such as database programs, spreadsheet templates, and accounting files. Store these categorized disks in colored disk holders and the job becomes that much easier. The Flip 'N' File/10—Spectrum Series comes as a set of five disk holders, each one a different color (red, orange, yellow, green and blue).

Whether you decide to organize your disk file or not is matter of personal choice, but everyone should be concerned about disk security. Disks can be stolen, borrowed and not replaced, or borrowed and abused—usually without your knowledge. Nothing is more frustrating than searching for a disk that you "know is right here, somewhere." A locked disk holder can be a silent sentry for your disk file. The Data Defender holds up to 70 disks and provides a lockable storage area for your disks.

Toe stuffers

Here are some items to stuff in the toe of that Christmas stocking:

(continued on page 46)

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- keep dated tax records of computer use
- back-up files by date and time
- simplify disk housekeeping chores

OPERATION: DateStamper extends CP/M 2.2 to automatically record date and time a file is created, read or modified. DateStamper reads the exact time from the real-time clock, if you have one; otherwise, it records the order in which you use files. Disks initialized for datestamping are fully compatible with standard CP/M.

REQUIREMENTS: Real-time clock is optional. Configurable for any real-time clock, with pre-assembled code supplied for popular models, including 4-84, Advent, Kenmore and Legacy.

UTILITIES: Enhanced SuperDirectory. • Powerful, all-function DATSWEEP file-management program with date and time tagging. • Disk-initializer. • Installation and configuration utilities.

General CP/M 2.2 version **\$49**

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Other Kaypro[®] Products

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 All keys fully definable in any program. Suspend any program to print the screen or send it to a file, write background notes, and use built-in CP/M commands. Now comes with Print Spooler. (Requires CP/M 2.2 Enhancements)

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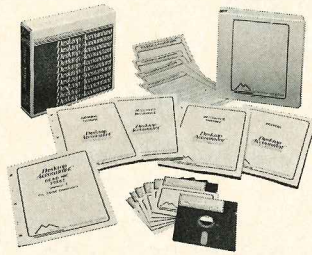
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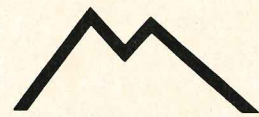
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Simple Business Forecasting

This spreadsheet can help predict the future

by Jacob De Rooy

Professional forecasters often fear that "he who lives by the crystal ball will soon learn to eat broken glass." But forecasting really isn't as difficult or risky as this statement implies. There are many sophisticated and practical methods available that can produce reliable forecasts, and the good news is that you don't need a degree in statistics to understand them or a mainframe to use them. With your Kaypro and a spreadsheet program, these forecasting methods are available to you.

Who is likely to use forecasting methods? The answer is just about anyone in business. For example, managers often are responsible for financial planning, inventory control, production scheduling, or performance evaluation, and all of these activities require some type of forecasting.

In this article I want to show you one forecasting method that will get you started: trend (or growth) lines. I selected this method because it is widely used and is appropriate for many types of business data. In addition, other useful forecasting methods can be used by making modifications to the same spreadsheet.

Trend line forecasting

Many types of business and economic data display a long-term trend or growth pattern. The trend is the easiest pattern to understand, and it is the simplest means of forecasting. A trend exists when a variable, such as annual sales or production, tends to grow or to decline at a fairly uniform rate. Once you find this rate of growth or decline, you can use it to produce forecasts.

Let's assume we are trying to forecast production of corn on a farm. This uniform rate is part of a forecasting formula that can be expressed by the simple equation: production = base + (rate x time).

This equation states that production grows at an annual average amount called "rate." "Base" is an estimate of the amount of corn grown in a particular past year. Using this formula, we can get a forecast of production for any future year by knowing how many years there are between the base year and the year for which we want a forecast. A spreadsheet is used to find the base and rate and to compute forecasts.

An example is given in Table 1 (page 42). Let's say that Happy Valley Farm and Country Market (an imaginary business created for the purposes of this article)

grows corn, among other items, and sells it at a large roadside market. (In deference to Kaypro loyalists, the market does not sell apples!) The table shows the annual corn crop for the years 1973 to 1985. Let's pick 1972 as the base year, even though we do not know—and don't have to know—the production during that year. (It's convenient to pick the base year as the year immediately preceding the year for which you have the earliest data.)

Looking at the bottom of the table, we can see that the base year production was estimated to be 1,235.5 bushels, and that since then production has increased, on average, at the rate of 190.9 bushels each year. If we can assume this growth will continue for the next four years, the forecast for 1986, which will be 14 years after the base year, is 3,908 bushels. This is found from the forecasting equation as: $3,908 = 1,235.5 + (190.9 \times 14)$.

Similarly, we can find the forecast for 1987, which is 15 years past the base year, and for the other years. These forecasts are shown in Table 1.

Setting up the trend line spreadsheet

Table 1 was produced using the Perfect Calc program that came with my '83 series Kaypro II. Here are the directions for setting up the Perfect Calc spreadsheet. (Actually, most of the spreadsheet programs on the market today are very similar in operation, so Kaypro owners with SuperCalc or CalcStar should be able to follow the directions below with minor modifications.)

Details of labeling and spreadsheet design (column widths, decimal places, etc.) are best left to the manual that came with your spreadsheet program (for example, chapter IX of the *Perfect Calc User's Guide*). What follows are details of the formulas and spreadsheet logic, column by column and row by row.

Step 1. Begin with column "a," labeled Crop Year. Enter 1973 in position a10. To complete the column, write this simple formula in position a11: $a11 = a10 + 1$. Then use Perfect Calc's automatic "replication" feature to fill positions a12 through a26 with the following: $a12 = a11 + 1$, $a13 = a12 + 1$, ... $a26 = a25 + 1$.

Such replicating is done in the following way: Put your spreadsheet into "manual" recalculation mode. Place the cursor in position a11, write the formula as shown above, then save it by typing ΛW . Then set a boundary mark by hitting the escape key followed by

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the space bar. Finally, move the cursor to position a26 and hit the escape key followed by Y. Answer the prompt, "Relative?" by typing Y, and presto: the successive positions will fill with the formulas automatically incremented by Perfect Calc. (For detail on replicating formulas see the 1983 *Perfect Calc User's Guide*, pages 117-118.)

Step 2. Now move the cursor to position b10. Enter the value 1.00 and move to position b11. Repeat the replication procedure of Step 1 by writing and replicating the formula $=b10+1$ in the entire column to position b26. This fills positions b11 through b26 with $b11=b10+1$, $b12=b11+1$, ... $b26=b25+1$, and thereby creates a "time variable" showing the passage of time from the base year to the year of forecast.

Step 3. Manually enter the crop data up to the current year using column "c." In our example, this data occupies positions c10 to c22. This is the historical data you are using to find the growth rate. (Incidentally, I suggest you format this column to include one decimal place, even though it is not needed for the crop data. Later we will have to display a number in this column that should have one decimal place.)

Step 4. Move the cursor to position c28 and enter this formula to count the number of data points or years for

which you have information: $=count(c10:c26)$.

Step 5. Columns "d" and "e" contain intermediate steps in the calculation of the base and rate figures. To construct column "d," write this in position d10: $=b10*b10$.

Now replicate this formula so that $d11=b11*b11$, $d12=b12*b12$, ... $d22=b22*b22$. This column now contains the squares of the time variable.

Step 6. Now create column "e" by writing this formula in position e10: $=b10*c10$.

Replicate this formula down to position e22, just like you did in Step 6.

Step 7. The next step is to find the means (averages) of the time and production variables. Move your cursor to position b29 and use Perfect Calc's "averages" function by entering $=avg(b10:b22)$. This will give you the mean of the time values in column "b."

Step 8. Now that you've found a mean value for the time variable, repeat this operation to find the mean of the crop variable. That is, move the cursor to position c29 and enter: $=avg(c10:c22)$.

These averages are used in the calculation of the rate and base values.

Step 9. You're more than half way home, but this next step requires the most care. You must enter a lengthy

In support of this month's editorial theme, Advent is offering the following specials:

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Write 64K file	55.65	3.25	2.93	1.52

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TABLE 1. TREND ANALYSIS AND FORECASTING OF CORN PRODUCTION
 (Production of Corn in Bushels)
 HAPPY VALLEY FARM AND COUNTRY MARKET

Crop Year	Year Number [T]	Crop (bu.) [P]	[T*T]	[P*T]	Forecast	Forecast Error (\$)	Absolute Percent Error
1973	1	1483.0	1	1483	1,426	57	4
1974	2	1506.0	4	3012	1,617	(111)	7
1975	3	1913.0	9	5739	1,808	105	5
1976	4	1934.0	16	7736	1,999	(65)	3
1977	5	2064.0	25	10320	2,190	(126)	6
1978	6	2566.0	36	15396	2,381	185	7
1979	7	2655.0	49	18585	2,572	83	3
1970	8	2830.0	64	22640	2,762	68	2
1981	9	2687.0	81	24183	2,953	(266)	10
1982	10	2971.0	100	29710	3,144	(173)	6
1983	11	3514.0	121	38654	3,335	179	5
1984	12	3702.0	144	44424	3,526	176	5
1985	13	3605.0	169	46865	3,717	(112)	3
1986	14			Forecast =	3,908		
1987	15			Forecast =	4,098		
1988	16			Forecast =	4,289		
1989	17			Forecast =	4,480		
data =		13.0					
MEANS	7	2571.5					MAPE =
RATE:		190.9					
BASE:		1235.5					5

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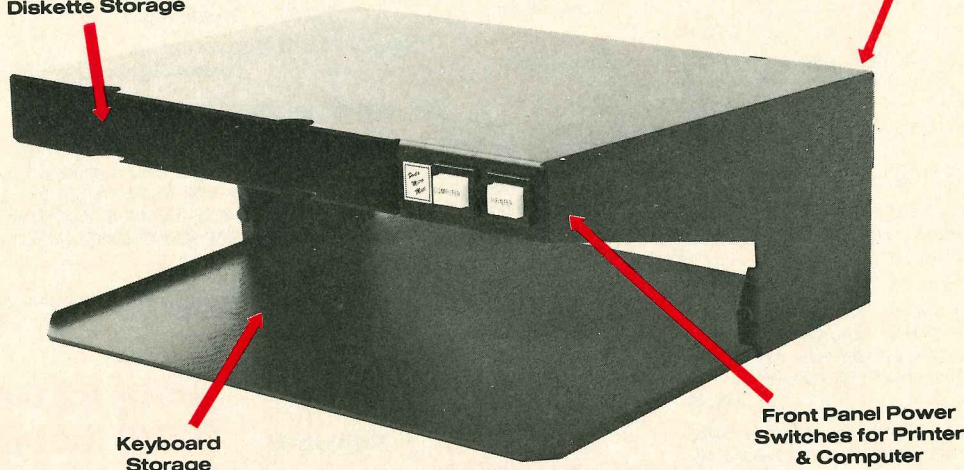
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formula to find the rate value in the forecasting formula. Move your cursor to position c30 and enter $=(\text{sum}(e10:e22)-c28*b29*c29)/(\text{sum}(d10:d22)-c28*b29*b29)$.

When you press <CR> to enter this formula your Kaypro will chug away for several seconds and then display the rate value. Remember that this number is the *average annual change* in Happy Valley's corn production—the slope coefficient you'd need if you wanted to plot the trend line.

I strongly recommend that you start constructing your forecasting spreadsheet by entering Happy Valley's crop data exactly as shown in Table 1. Then you can be confident that you did your work correctly if the rate value comes up as 190.9 on your screen.

Step 10. To complete the forecasting formula, you will need the base value (the Y-intercept you'd need for plotting the trend line). Move the cursor to position c31 and enter $=c29-(c30*b29)$. If you used the Happy Valley data and got 1,235.5, pat yourself on the back. You now have your forecasting formula.

Generating forecasts

Note that rows 10 to 22 help us calculate the rate and base while rows 23 to 26 are used for the forecasts. Let's use the forecasting formula that appeared earlier to compute that rate and base.

Step 11. Go to position f10 and enter the equation $=b10*(c30+c31)$.

Replicate this formula all the way down to position f26. As you enter this formula in the last position, watch your screen as the forecasts appear.

"Back forecasts" for past years are useful for evaluating the forecasting method.

In the case of the Happy Valley data, you generated forecasts for 1986 through 1989 using data that was complete through 1985. Notice that you also generated several "forecasts" for past years, even though your real interest is the future. The forecasts for 1973-1985 are called "back forecasts" and are useful for evaluating the forecasting method, as explained below.

How good are your forecasts?

The real test of this or any other forecasting method is how well it predicts the future. The accuracy of your forecasts depends on both the method used and on your data. If your data has a significant and consistent trend then the Trend Line method should do a good job. If your data does not display a linear trend, is very cyclical, or has a lot of randomness, then this method would not do a good job. To evaluate the method we calculate and analyze the "forecast error."

Step 12. Move the cursor to position g10 and enter $=c10-f10$. This calculates the "forecast error," which is

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the difference between the actual values and the forecasted values in the years for which we have data.

Replicate this formula down to position g22 so that you have g11=c11-f11, g12=c12-f12, ... g22=c22-f22. These are errors for the back forecasts. If these errors are large then we could conclude that the method did not perform well in the past and, therefore, is not likely to perform well in the future. If the forecast errors are small, then this method is likely to work well for you.

A good way of evaluating these errors is to express them as absolute percentages. Then find the average size of these percentages. This mean absolute percentage error (or MAPE for short) is a handy single figure that you can use to quickly "size up" the method. It can also be used to compare methods. If the MAPE is small the method is good. Steps 13 and 14 show you how to compute this helpful statistic.

Step 13. In position h10 write the following formula: =100*abs(c10-f10)/c10.

Notice that I used Perfect Calc's built-in function for finding absolute values. Replicate this formula down to position h22 (with h11=100*abs(c11-f11), h12=100*abs(c12-f12) and so on).

Step 14. Finally, get the MAPE by moving to position h32 and entering: =avg(h10:h22).

In the Happy Valley example the MAPE is a modest 5 percent. That means that the back forecasts differed from the actual crop yields by about 5 percent. This is a rough indicator of how well the forecasting method will perform in the future. For example, the 1986 forecasted corn crop of 3,908 bushels will probably be within approximately 5 percent (above or below) of the actual 1986 crop. Remember that the 5 percent figure is an *average*. The actual forecast error could be more or less than 5 percent.

But a word of caution is in order. The further into the future your forecasts go, the greater the forecast error is likely to be. For example, the 1989 forecast is likely to be less accurate than the 1986 forecast.

With this step the spreadsheet table is complete. You can now use it for your own forecasting needs. Just replace items in columns "a" and "c" with your data and recompute the table. You can insert or delete rows as needed. If you enlarge the table by inserting rows for jobs that use more data than this example used, be sure all formulas are replicated in the new rows. I suggest you insert or delete rows between rows 11 and 21. □

Jacob De Rooy is an economist on the faculty of The Pennsylvania State University, where he teaches a graduate course in business forecasting.

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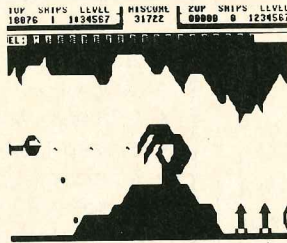
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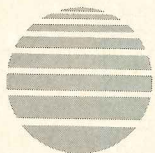
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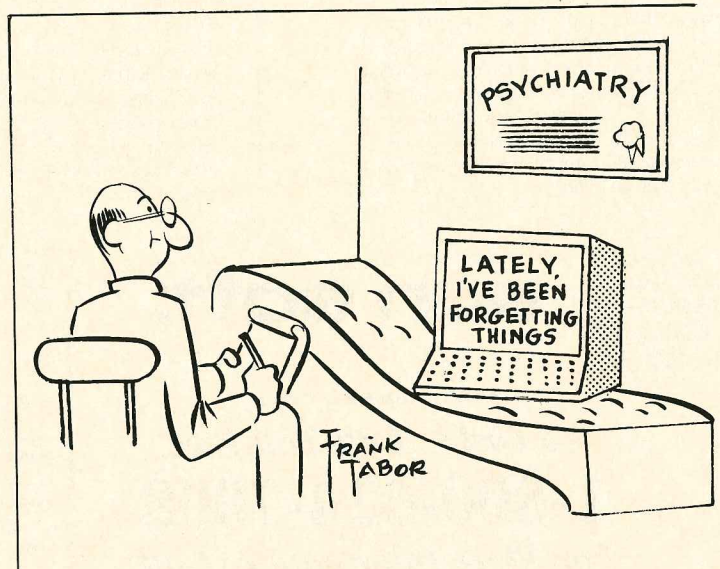
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Neustoye '85

Key Definition Programs

Make everything fall in line with a keystroke or two

by Glenn Grant

Editor's note: Software in general and KDPs in particular are constantly being revised by their creators. Before purchasing any program it is recommended that you call the manufacturer for details on their latest version, including the version's number, date of last revision, and any specifics about what makes the latest version different from previous ones. The versions of the programs reviewed below are not necessarily the latest, so call before you buy.

Why type "Saskatchewan" when typing "\s" gets you the same thing? Why enter the dBASE II commands DISPLAY STRUCTURE [RETURN], COPY STRUCTURE TO MYFILE.ABC, and APPEND FROM [MYFILE.XYZ] FOR [condition] if entering !, *, and # could do it just as well?

Why type ^K^R each time you need to insert two boilerplate WordStar files, then answer the "Name of file to read?" prompt with THISFILE or THATFILE and then hit [RETURN], when you can merely touch \T or \t and watch the desired paragraph appear at the cursor position?

Why, indeed, when there's a relatively inexpensive breed of software out there that can make your valuable time at the keyboard faster and more productive. They're called keyboard definition programs (KDPs). KDPs act sort of like those telephones that automatically dial pre-stored numbers at the touch of a button. Hit one or two keys and a KDP gives you a word, a string of words and numbers, paragraphs, commands or programming instructions in any combination or sequence you desire.

You've seen KDPs advertised in *PROFILES* and other computer magazines. You might have been attracted by their promises of keyboard speed and efficiency. Take it from someone who's tried them out: They *do* work. They *are* time-savers. It's now hard for me to imagine using my Kaypro without one.

But deciding which KDP is right for you, learning how to use it to advantage, and integrating it into your daily routine can be a time-consuming chore. You wouldn't buy a car without driving it first, but unfortu-

nately, that kind of testing is just not possible with most software. So we "test drove" the most heavily advertised KDPs for you.

Previous *PROFILES* articles have discussed KDPs for the CP/M-based Kaypros. This time around, we'll take a closer look at their personalities and examine a new KDP for Kaypro's IBM compatibles.

The cast of players, in alphabetical order:

- The Backgrounder
- Instant Install & Keys Please!
- MagiKey Plus and MagiKey Professional
- SmartKey II and SmartKey II Plus (for IBM clones)
- XtraKey with XScreen

In actual operation, each of these programs is "transparent" to your applications software, such as WordStar, dBASE II, and Perfect Writer. The KDP resides in your Kaypro's RAM, waiting to perform its magic when you need to create or recall a definition.

When you want to create a definition, hit a specially reserved key or keys to activate the KDP. A message line temporarily overwrites existing onscreen text, or the bottom of your screen goes blank, depending on the program.

You can assign definitions to keyboard, keypad and arrow keys as you work—this is called "on-the-fly." These keys can be used with their new definitions or redefined as often as you want until the next cold boot (reset), when they will go to keystroke heaven. Or you can save them in separate definition files for later use.

Place a \ or other "supershift" key ahead of the defined key and it can accept another meaning. So typing # might give "Yours truly," while typing \# might give "With sincere regards."

If you don't like the define and supershift keys or other features as delivered, you can usually customize them to your liking via configuration programs.

That's about it for similarities. Now on to some differences, program by program.

The Backgrounder (version 1.6)

The Backgrounder key definition program is a companion to CP/M 2.2E (the E is for "enhanced") and can only be used in conjunction with it. (See "Things to

Remember," below.)

Strengths. The Backgrounder is the only KDP reviewed that lets you load and save definition files at any time. This can be a real timesaver if you want to use several sets of definitions in one editing session, or if you want to create new definitions and save them in separate files for later use. Other KDPs make you exit to the system first, then run another program that loads and saves the new definitions.

The Backgrounder lets you load and save definition files at any time.

In some KDPs, pressing the DEL key makes or an unfamiliar code appear onscreen. In The Backgrounder, the DEL key works as you expect it to—it rubs out the character to the left. However, on the non-graphics Kaypros ('83 series), it only works on one line at a time. Say you're creating a definition that wraps two or three lines down the screen. If you spot an error up on the first line, you can't get back to it. You have to start over or live with the error. On Kaypros with graphics ('84 series or later), you can delete all the way back to the first character.

A "record" feature lets you actually perform all the steps in your definition, then assign them to a key. This

way you've actually seen your definition in action—you don't have to think about it as a solid string of characters, and your work flow remains basically uninterrupted.

The Backgrounder automatically distinguishes between keypad numerals and keyboard numerals. Some of the other programs require a special installation routine to achieve this. If you redefine the keypad keys and occasionally want to use them for performing calculations, The Backgrounder lets you quickly toggle to their undefined mode.

The Backgrounder's configuration program (BG-CONFIG) is easy to use and enables you to attach (automatically load) the definition file of your choice to any applications program. So when you load, say, WordStar, The Backgrounder will load your regular definition file with it, saving you a few steps.

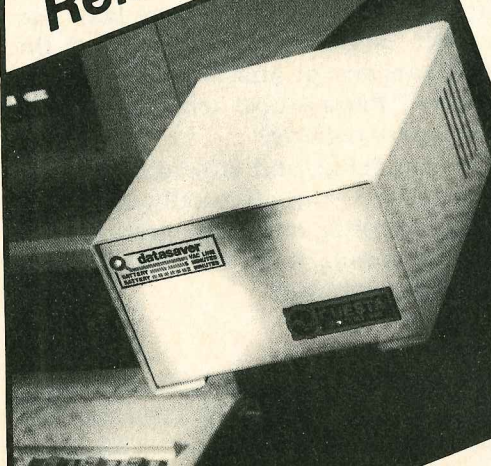
The Backgrounder also has a screen dump that will send *everything* on the screen to your printer, plus a program for writing notes in the middle of other programs, and online help.

Weaknesses. The Backgrounder can't "pause" (interrupt) a definition for insertion of new data. Many users find the pause function a real timesaver when composing memos, form letters and other documents with variable data such as dates and salutations. Pausing is a popular feature; all the other KDPs reviewed (except Keys Please!) offer it.

Nor does The Backgrounder let you control the output speed of definitions. Long definitions, especially, have a nasty habit of spitting out data faster than some

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programs can handle it. In WordStar, this results in a prolonged beep and a screenful of exclamation points until the definition is played back.

The maximum number of characters The Backrounder can assign to any key is 255—far fewer than the other programs allow. But that limit can be overcome by programming a series of keys to execute your long definitions.

Redefined alphabet keys *must* be preceded by the supershift key (default \). Therefore you can't redefine an alphabet key by itself, as the other KDPs permit. Since most users need regular access to their alpha keys, this isn't much of a problem. The Backrounder also won't let you define keys preceded by a CTRL.

Things to remember. The Backrounder can *only* be used with CP/M 2.2E, an operating system developed by the same publisher. You must install CP/M 2.2E following a very specific routine, then SYSGEN it to all applications programs that you will use with The Backrounder.

(CP/M 2.2E offers many enhancements over the Digital Research Inc. version supplied with your Kaypro, plus some helpful public domain utilities. But CP/M 2.2E's single greatest feature is Background CP/M. BGCPM, as it's called, lets you perform system functions such as DIR, TYPE and ERA without exiting to CP/M—a wonderful way to do some housekeeping without interrupting your current program. CP/M 2.2E also corrects "lurking Perfect Writer bugs" (as the publisher calls them), lets you shut off keyboard click, logs to programs on drive A from drive B, quickly reloads the last program executed when you type GO at the system prompt, has a larger type-ahead buffer and automatically logs single- or double-sided disks on Kaypros with double-sided drives.)

It's important to remember that The Backrounder operates at two levels: CP/M and user (applications programs such as WordStar and dBASE II). A definition file for each level must be on disk—even if each file is blank—for The Backrounder to operate at all. This sounds confusing, but the publisher provides sample files for each level.

As delivered, The Backrounder lets you define the arrow and keypad keys at CP/M level and an additional 16 keyboard keys at user level. Increasing the number of definable keys requires running a "size" routine against every definition file you use.

The Backrounder is *very* comprehensive, and you must follow its 72-page typed manual carefully to understand all of its features.

Instant Install & Keys Please! (version 2.0)

This isn't a true KDP. It's a program for WordStar users only, and it does three specific things: automatically defines the keypad keys to execute WordStar commands; quickly installs WordStar and MailMerge for any of 57 types of printers and three levels of expertise; and makes WordStar run faster (reportedly 20 to 30

Don't You Believe in Ghosts?

You might be rather perplexed the first time you create definitions with a KDP. Why? Because most of the KDP's prompts and messages, plus the "raw" definitions, are still up on the screen, cluttering your existing data. Think of them as onscreen "ghosts."

These ghost characters appear because the KDP is transparent, figuratively and literally, to your applications programs—figuratively because your applications don't know the KDP is in memory and aren't affected by its presence, and literally because every time you make a definition, the KDP overwrites some characters already on the screen.

Ghost characters have no effect on your file, but they'll remain onscreen until you clear them somehow. In word processing programs, you can scroll them off—usually line by line, and usually by scrolling up rather than down. Sometimes alternating the top-of-file and bottom-of-file commands does the trick, but not always. Regardless, it's a time consuming and annoying chore. If you're using a spreadsheet or database, you may have to live with ghosts whenever you create definitions—unless you can locate a "ghost buster."

The Backrounder is the only KDP reviewed that supplies ghost busting routines that automatically and immediately "redraw" the screen after you finish defining a key. However, those routines, either WSRDR30.HEX or WSRDR33.HEX, work with WordStar 3.0 and 3.3 only. You have to install the appropriate routine yourself against WS.COM using the DDT program supplied with your original CP/M disk. Installation is simple and takes only a few minutes if you follow the explicit instructions provided.

WSRDRnn.HEX will clear up SmartKey, XtraKey and MagiKey ghosts, too, but only within WordStar. It doesn't work automatically with those programs; you have to hit CTRL-\ to activate it. It even restores any WordStar screen you've blanked out with XtraKey's nifty "clear-screen" feature. Unfortunately, no KDP publisher can provide a ghostbusting routine that will work with every applications program.

The DOS version of SmartKey II Plus eliminates the ghost problem by opening a highlighted window at the bottom of the screen. All definition activities take place there, and the window promptly vanishes when you're through defining. The publisher promises the window will be standard on the upcoming SmartKey II Plus version for CP/M-based Kaypros with graphics.

Perfect Writer has a built-in "refresh screen" command [ESC-CTRL-L], and NewWord, the WordStar clone, automatically redraws the screen each time you hit the ESC key. But the majority of CP/M applications software won't do your ghostbusting for you. If you never believed in mischievous spirits before, KDPs could change your outlook. □

percent).

The idea is to access all WordStar commands via the keypad. These commands can't be changed by the user, and none of the keyboard keys is user-definable.

Strengths. Instant Install really does make WordStar operate faster—on some Kaypros. WordStar 3.3 now runs as fast on my early '83 Kaypro II as my late '84 Kaypro 2X. The differences are obvious in areas such as cursor movement, scrolling, file saves, block moves, sign-on messages and file loading. However, I detected no speed boost on WordStar 3.3 Instant Installed for the 2X.

Instant Install really does make WordStar run faster —on some Kaypros.

Printer installation, often a lengthy and confusing WordStar procedure, is reduced to about four minutes using Instant Install. The program presents an extensive menu of printers. Then it installs WordStar for the printer you select, complete with patches for superscripts, italics, condensed type and other features specific to that printer. This can be very helpful if you run your WordStar with more than one printer—just make a separate WS.COM file for each one and rename them WSEPSON.COM, WSJUKI.COM, etc. Instant Install also sets your default help level, but that's something the regular installation program does anyway.

If you like function keys, you'll love Key Please! The keypad accesses all the WordStar functions via 14 "banks." The banks are toggled by hitting the keypad hyphen, period and comma keys. For example, typing -3 gives you the file editing bank. Hitting the 9 while in this bank turns the margin release off and on. The current bank's functions are displayed at the bottom of the screen, and a laminated reminder card and a wall poster are provided for quick reference.

Weaknesses. If you plan to become proficient with WordStar, Keys Please! could become a sort of crutch. One way or another you'll have to learn those commands; if you rely on Keys Please! exclusively, you might be lost if you have to use WordStar on its own. Also, be prepared to give up your keypad. All numbers must now be entered from the keyboard.

Instant Install does a fine job of installing and patching and leaves most of your defaults alone. But it brings up the no-edit menu without a file directory—a minor irritation. And it turns off the insert mode—a major irritation. I found myself overwriting, RETURNing and TABbing through text until I remembered to turn the insert back on. You can overcome these irritations by *re*-installing an Instant Installed WordStar using WINSTALL.COM (got all that?). But that means

more work, and the idea behind this is less work.

Things to remember. Instant Install and Keys Please! can be installed separately, so you don't have to surrender your keypad unless you want to. Either way, figure on adding about 9K to WS.COM.

Instant Install works fine with regular vanilla CP/M or CP/M2.2E. But using a real KDP like SmartKey II in conjunction with Keys Please! is not recommended, because some of the features of each program will not work if you do.

A nice benefit of Keys Please! is that it includes time-saving functions not found in WordStar. Some of these are delete word; transpose two characters; save without exit, then return to previous cursor position; and insert new line regardless of cursor position. After figuring out how these functions were achieved, I assigned them using the other KDPs, too.

MagiKey Plus and MagiKey Professional

Strengths. MagiKey Plus gets you started right away. Defining, saving and loading are covered in the manual's first chapter. Any key can be defined any time at system or program level and can accept a regular or supershifted CTRL. Online help is provided and the customization and configuration programs are quite simple. All file loading and customizing can also be invoked at system level.

The backspace key deletes mistakes during editing, but, as in most KDPs, only on one line at a time. One nice feature: A previously defined key can be left as-is if you change your mind about redefining it. With other KDPs, you usually lose the old definition once you edit it for any reason.

Definition files can be merged, but the definitions loaded last take precedence. Defined keys can also be nested within other definitions—sort of like activating a definition within a definition. (Say, for example, that you've defined \D to stand for "Defender of the Faith," and you're creating another definition with \E and the phrase Defender of the Faith is part of that definition. Instead of typing out Defender of the Faith when defining \E, you'd simply type \D).

MagiKey Professional offers all the same features and also has a record function, string reassignment and other advanced capabilities. MagiKey doesn't insert a linefeed at the end of a definition-in-progress (see SmartKey II), but "ghost" images remain, as in other KDPs. (Ghosts are left-over characters on the screen that were included in the creation of a definition. They remain and overwrite existing characters until they're scrolled off the screen. See accompanying article on page 51.

Weaknesses. The MagiKey documentation, while thorough, gets confusing in a hurry. Fortunately, the basics are covered right up front. Advanced users and programmers should have no problem with the 46-page manual.

As delivered, MagiKey doesn't know the difference

between keypad and keyboard numbers. But this can be changed through the installation program, which also allows you to control definition output speed.

You can't write a definition with your word processing program and then convert that file into a definition file within MagiKey—a selling point of the competition. And definition files can be viewed or printed, but defined keys are displayed one per screen instead of in a single list.

Things to remember. MagiKey gives you lots of room for definitions—disk space is your only limitation. MagiKey offers most of the desirable features of its competitors, but easier-to-understand documentation and examples would be nice. Please note there was no version number given for these programs.

SmartKey II (version 1.0 [CP/M])

SmartKey II Plus (version 4.1 [PC-DOS])

Strengths. Both CP/M and PC-DOS versions let you define any key at any time, at system level or program level, with or without supershifting. Alphabet keys can be preceded by CTRL (^) to accept even more definitions. In the DOS version, all definitions can be preceded by the ALT key, and function keys can be redefined, too.

Both SmartKeys will turn any definition file (a series of codes) into a text file, so you can quickly and easily view or print your definitions. You can also write definitions using your word processor.

SmartKey turns any definition file into a text file so you can view definitions.

Two SmartKey definition files can be combined, but any keys defined in the file loaded second will replace their counterparts in the first; careful planning is required.

SmartKey includes SKDEF.COM (DOS) and FIXKEY.COM (CP/M), handy programs that can show you all definitions currently in memory or in a definition file, clear all definitions in memory, transfer definitions to other keys, and accept and save new strings of up to 255 characters.

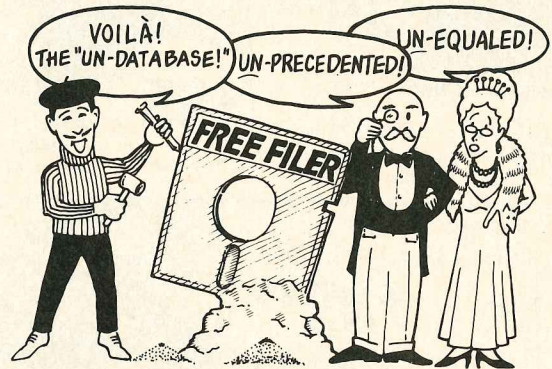
SKSETUP.COM (DOS) and SKPATCH.COM (CP/M) let you easily customize SmartKey defaults. The speed control is especially important in the CP/M version; you'll probably want to slow SmartKey II down for long definitions or you'll risk "jamming." The DOS version I tried had no problem with issuing extremely long definitions.

The DOS version's SMART window eliminates the "ghost" problems associated with the CP/M release and gives much greater control over definitions—you can,

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KEY DEFINITION

for example, back up in a definition and delete characters backward, and there is a menu.

A really nifty feature on DOS lets you delay any segment of a definition for as long as 99 seconds. This is useful for making demonstration programs, creating examples and pausing for disk changes with automatic continuation.

Weaknesses. Creating definitions with the CP/M version takes some getting used to. After you create a definition, SmartKey II inserts a linefeed in the onscreen text. This creates a space that you have to manually close every time—not fun!

The CP/M version also puts on the screen each time you delete. This not only looks strange on the screen, but each uses up memory and leaves less space for other definitions.

Things to remember. The window version (DOS) is much easier to work with than the non-window version (CP/M). The publisher promises a window on upcoming versions for the CP/M Kaypros, but they weren't available at this writing.

The DOS version takes up more disk space than does CP/M's because of the window feature. But most DOS computers can handle that with ease, and the window is well worth it in user-friendliness. Window size is adjustable, so long definitions can be accepted easily. However, you can't use the cursor to move around the window. The only editing control is backspacing to delete.

Easy to use and learn, SmartKey is said to be a favorite of authors and screenwriters who get tired of typing characters' names over and over. Documentation for both versions is excellent, although the CP/M book gets overly cute at times. Both versions now include SmartPrint, a program that helps you access special print features on most printers.

XtraKey (version 2.4a); XScreen (version 1.0)

Strengths. XtraKey is a supershifter's delight—each key can accept up to 42 definitions. The number of characters per definition is limited only by available disk space.

XtraKey offers a lot of versatility. It can do things you probably never thought of doing, such as send definitions to the printer only, send all characters in upper case, and prevent certain characters from appearing on the screen.

The program includes online help, does pauses, has a speed control, includes many sample definition files and lets you change features or load files at system level or through a configuration program. You can compile word-processed files as definitions and reduce the "define" and "end define" functions to a single key-stroke, if you so desire.

One of XtraKey's neatest features is the "clear-screen" function. It blanks the screen with two key-strokes—just in case you don't want anyone to catch

(continued on page 60)

RCPMs: Settling the Frontier

It takes more than a pioneering spirit

by Christopher M. DeBracy

Telecomputing—communicating by computer with other users via the phone lines through one computer that serves as a hub—has proliferated amazingly in the last three or four years. Where once these hubs—called RCP/Ms (remote CP/M systems)—were just lonely outposts, today there are hundreds in the United States and abroad devoted to scores of specialized topics, from politics to the space program. Software for operating such systems is becoming more abundant and easier to find, and the unseen online community continues to grow.

What used to be advance posts on a new frontier in telecommunications are now boomtowns, with more settlers arriving all the time.

This article is intended for those interested in further exploring this exciting new territory by taking on the more active (and responsible) role of sysop—system operator.

In this article I'm assuming that you have a basic knowledge of telecomputing. I'll discuss what a sysop does, what equipment is required, and how to protect your system; finally, I'll describe some of the operating software available. But first let's define our terms: An RCP/M is a computer equipped with an auto-answer modem and software designed to answer phone calls from another computer and modem. In a nutshell, all RCP/Ms allow people to leave electronic messages to other users of the same system and support file transfers over telephone lines. (Strictly speaking, a bulletin board system—BBS—only allows users to leave messages, not download programs and so on; RCP/Ms have such message sections, but they also allow users to do much more. The terms BBS, RBBS and RCP/M are often, if incorrectly, used interchangeably.)

The role of the sysop

Just what do sysops do? We constantly answer messages from users and collect or develop new public domain software (and almost single-handedly support AT&T with our long-distance phone calls).

We do all of this and more for little or no financial gain. Many RCP/Ms are run as a hobby, a means of advertising, or as a way to meet people. But there are pitfalls—see the section on system security.

Still interested? First you will need a great deal of patience, time, and some familiarity with assembly language, MBASIC, CBASIC, "C," CP/M, Turbo Pascal or any combination thereof. This is not meant to scare you off. If you know how to assemble a program and load it, that's half the battle. Instructions on how to use utilities like DDT are generally included with programs requiring modifications.

Most authors have taken the time to include installation instructions, which simplify the process. This is not to say that all instructions are perfect or even complete; that's why you'll need some knowledge of what you're dealing with. Sometimes certain things—such as knowledge of the video command set for your computer or terminal, or familiarity with CP/M device assignments—are taken for granted.

Occasionally, programming experience is not only helpful, but required. Non-standard CP/M utilities like BASCOM, M80, LD80 and MAC may be needed for some programs. Fortunately, many are already compiled or include a separate installation program.

Necessary equipment

The hardware requirements are a CP/M computer running at least 48K TPA (Transient Program Area) and an auto-answer modem. Frills such as hard drives and real-time clocks can be added later as needed. I recommend at least two disk drives for an RCP/M.

Software may consist of three different main programs: BYE, RBBS and the XMODEM file transfer program.

The BYE program resides in high memory and is primarily responsible for answering the phone, detecting carrier and baud rate, and limiting a user's access to specific drives and/or user areas. BYE can also impose specific time limits on user calls and provide certain function keys that give overriding control to the sysop, as well as reset the system should the user "drop carrier" (hang up).

The RBBS (Remote Bulletin Board System) program allows you to read and leave messages. This is the heart of many systems and might be called MBBS, RBBS, MAIL, or whatever else the author came up with to make it sound unique. All such systems function much

the same way. Some allow reading of bulletins, paging the sysop to "talk" via the keyboard using a program called CHAT, or controlling access to CP/M by password or pre-validation by the sysop. On many small systems, the RBBS is the only program available. No access to CP/M is allowed and file transfers are therefore unavailable.

The XMODEM program handles file transfers. It operates by sending or receiving a file in 128-byte blocks (or optionally, the new 1K block), and checks to make sure each block was received intact before starting with the next block. XMODEM protocol is exceedingly accurate and is commonly used regardless of the type of operating system. XMODEM will probably be the easiest program to locate. Pre-assembled versions are available for the Kaypro.

*The last thing you
want is to find that
some clown has erased
your hard drive.*

You will also need a 300/1200-baud modem. 300 baud is fine for a local RCP/M of limited use, but 1200 baud is the standard requirement for file transfers.

Protecting your datafiles

Security is the most important consideration when operating an RCP/M. Consider the following scenario:

It's late at night. You sit in front of your Kaypro and suddenly the auto-answer light on your modem blinks on: friend or foe? The person logging on is new to your system. You lean back and relax, confident in your "crash-proof" RCP/M. Your caller lives in Rome, Italy, and identifies himself as a new user. He's now in the RBBS portion of your system, where he repeatedly tries to kill every message in sight. He's unsuccessful, but he persists in his childish attempts.

You finally figure he's about had it and get ready to hit your "twit key," kicking him off the system without warning. But wait, he tries to gain access to CP/M. It's always interesting when new callers try vainly to guess the CP/M password that only your regular users know.

Surprise, surprise. He gets it right the first time. Someone's talked, and now he's on his way to CP/M with the express intention of crashing your hard drive . . .

The last thing you want is to wake up one morning to find that some clown erased your entire hard drive. Certain steps must be taken to prevent callers from stealing your command files, restrict them to certain drive/user areas, and stop them from altering the data that already exists on your drives. Sound difficult?

Not really. An enhanced version of the CP/M operating system known as ZCPR (see Ted Silveira's article on the Z-System on page 24) has taken the worry out of

RCP/M security problems. When the user is logged on, all resident commands such as TYPE, DIR, REN, ERA, USER and SAVE are disabled or replaced by a command file that prevents the remote user from employing them to ruin your data. Kaypro owners can find configured ZCPR2 or ZCPR3 operating systems on many RCP/Ms with Kaypro interests. I recommend ZCPR3 for the Kaypro 10.

If you don't want to bother with ZCPR, another option is available to you. Two terrific programs, PATCH and DU, will allow you to edit your system tracks and null out those resident commands. (Hint: Look at track 0, sectors 6 and 7.) This would be recommended for the two-drive Kaypro user who just wants something that gets the job done.

One other word of warning: Don't leave programs like NSWP, DDT or WS out where a user can find them. Any program that you don't want run on your system should either be squeezed or renamed to an object file.

You will get abusive users who try desperately to crash your system, all in the name of "harmless fun." Many RCP/Ms now charge access fees to prevent that type of harassment and to help with operating costs. Not many people will pay cold, hard cash just for the opportunity to try to trash someone's system. That's the kind of built-in security and peace of mind only money can buy, I'm afraid.

If you have specific questions about all this, ask another sysop; we were all beginners once and will often help to get a new system up and running.

RCP/M software packages

The following is an overview of several RCP/M packages that may suit your needs. I suggest calling about those you're interested in (I've included the system phone numbers); not all features are discussed here, and specific questions or problems can best be handled by those who wrote the programs.

- **EMX v3.14:** Written by Simon Ewins (416/484-9663). EMX is probably the hardest package for the aspiring sysop to set up. M80, L80, MAC and MLOAD are required to compile the system. EMX comes with its own BYE called EMXBYE. This program alone is worth all the heartache you'll encounter trying to get it running—it's perhaps the best of the BYEs.

EMXBYE allows you to restrict a particular caller to any combination of drives and/or user areas and sets time limits per call. If you wish to give one user access to a single user area but allow others access to several, this program will do the trick.

The MAIL module of EMX is a poor program. It's written in assembler and, not surprisingly, its features are minimal. Read, Scan, Enter and Quit are all that's available. It's not fancy, but many RCP/Ms worry little about the message base, instead concentrating on the mainstay of the medium—file transfers.

The version I used came complete with a SUBMIT file

that compiled everything for me in about 15 minutes. All I needed to do was pick my user options and passwords. Don't think it's going to be that easy for you. This is definitely not for the beginner unless you have some programming experience.

• **K-NET84™**: Written by Steve Sanders (813/791-1454), \$249. K-NET is a complete commercial RCP/M program. It consists of a series of programs (modules) that interact with one another. A remote BYE is included.

It is easy to use, and beginning sysops will like both the ease of maintaining the system and the fancy video displays.

Callers should have no trouble with the RBBS message base. Features include reading multiple messages, entering and killing messages, CHAT, viewing information files, and some video functions.

The system can be configured in one of several ways with a separate installation program. A 50-page manual guides you through installation steps and explains some of the other programs that are included (SD, XMODEM, CHAT, etc.). ZCPR is provided for security.

The nice thing about the system files is that WordStar can be used to correct problems should the unlikely happen. You can, for example, edit the configuration files if you need to add features (such as more security) or increase TPA size to run some programs.

If you are eager to start an RCP/M and would like the convenience that a ready-to-run package offers, this system is worth looking into.

MBYE overlays for Kaypro owners let you specify time limits for users.

• **MBBS™ v3.1**: Written by Kim Levitt (213/653-6398). MBBS is interactive with Mbye-34, or newer, to restrict users to particular drives and/or user areas and to restrict XMODEM privileges. Correctly integrated with Mbye and XMODEM, MBBS rivals EMXBYE.

Mbye overlays for Kaypro owners include time-clock routines, letting you specify time limits for your users.

The message base features true word-wrap, lets you tag messages for viewing, and allows you to search for a particular string of characters. Information files, CHAT, and password change are also available.

This system comes with an installation program, since no source code was released with it. The utility program handles validation and edits user records and messages. Sysops and users alike should find MBBS a capable program.

• **RBBS v3.7**: Written by Dennis Recla (214/681-4789). RBBS37 comes in two different forms. One is

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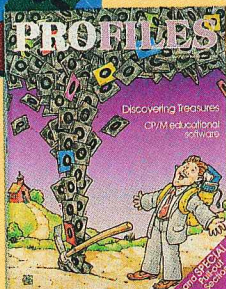
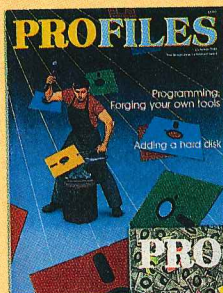
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DU to the Rescue

Part 2: More microcomputing to ease market duress *

By Ted Demme

I have been asked to write this article because of the current market duress. The microcomputer market is in a state of flux, and many users are looking for ways to make the most of their investment. This article will discuss various software options and hardware upgrades that can help you get the most out of your Kaypro system.

Changing System Configuration

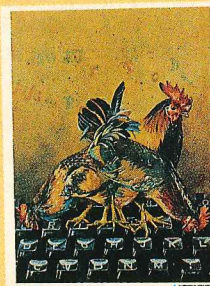
One of the first things you should do is check your system configuration. Make sure you have the latest BIOS and hardware drivers. You may also want to consider upgrading your RAM or adding a hard disk to increase your storage capacity.

Choosing the Right Software

There are many educational and productivity software options available for Kaypro. Look for software that is designed specifically for the Kaypro architecture to ensure compatibility and optimal performance.



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Learn to reach top

By Frank Morone

Hardware and software optimization are key to maximizing the performance of your Kaypro. This article provides detailed instructions on how to tune your system for better speed and efficiency. We'll cover topics like memory management, disk defragmentation, and software optimization techniques.

Hardware Optimizations

Check your hardware settings to ensure they are optimized for performance. This includes adjusting the BIOS settings for memory and cache, and ensuring that your hardware is properly configured.

Software Optimizations

Use software tools to analyze and optimize your system. Look for memory leaks, unnecessary files, and inefficient code. Regular maintenance and updates can also help keep your system running smoothly.

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already compiled; the other contains commented source code.

Try the compiled version. Other than having to buy BASCOM and LD80 (it's too big for L80), the installation program makes setting this up a breeze. Included is a utility program for the sysop.

This is a popular program. The author claims it's rather limited in capability, but its widespread use makes this a proven program.

RBBS37 allows for multiple help and information files and provides RBBS security by optionally requiring validation by the sysop in order for users to leave messages and enter CP/M. This is all chosen during installation. Mbye or a similar program is required.

• **ROS (Remote Operating System) v3.3:** Written by Steve Fox (505/299-5974). ROS (pronounced "Ross") is a public domain RCP/M package written in Turbo Pascal. This program combines BYE, XMODEM, LUX, SD, RBBS, and a sysop utility program all in one.

ROS is unique in that no access to CP/M is needed. It handles everything internally. The result is a system that runs much faster than if you were using its CP/M counterparts. Menus are available everywhere.

The message section supports multiple message bases. It features true word-wrap and the best message

editing features I've seen for an RBBS. Information files can also be displayed.

The utility section handles CHAT, includes a neat statistical summary function, and allows the user to change several user-specific parameters.

The file section allows users to view, change, and display file sections (user areas) as if they were in CP/M, and it supports single-entry library and XMODEM functions. The sysop can restrict users to certain file sections, message bases and time limits.

No security precautions are necessary because this program is not quite a true remote operating system. Other programs are an adaptation of CP/M to remote (via modem) operation; ROS never lets the remote user get to CP/M.

Kaypro modem and time-clock routines are available, almost eliminating the need for any modifications on your part. You will need Turbo Pascal 2.0 or 3.0 and Turbo Toolbox to compile the program.

This is my personal favorite among the public domain packages available. □

Christopher DeBracy is the sysop of Sanctuary, an RCP/M system running on Steve Sanders' K-NET software. You may reach his system in Florida by calling (305) 736-4950.

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KEY DEFINITION

(continued from page 54)

you playing video games at the office. Recovering the screen isn't quite so simple, however. The author rightly warns that it might take some scrolling of lines or screens to redisplay everything that was up there.

XScreen is a stand-alone program, but it works with XtraKey, too. XScreen not only includes XtraKey's clear-screen and screen-dump-to-printer features, but it can also dump a screen into a file. This is great if you want to save a portion of a file and edit it later. But remember, *everything* on the screen will appear, such as status lines, hard returns and ruler lines. XScreen also will shut off keyboard click until the next power-off.

Weaknesses. XtraKey requires more and longer commands when making definitions—\[SHIFT]! to start definition, ^QZ to end definition, ^QB to pause, etc. The authors say this is to help prevent accidents, but I found it time-consuming to learn so many commands. A quick reference card is provided, however.

When you delete a character while making a definition, the entire definition is redisplayed, minus the deleted character. The screen scrolls up one line every time you delete, showing the current definition; when you finally insert the definition the way you want it, you might end up doing a lot of scrolling to get back to your original position in the text.

Documentation is long, comprehensive and sometimes a bit too cute in an attempt to be user-friendly. You don't get to make a definition until chapter 6; the first five chapters are 13 pages of tight text on 8-1/2 by 11 paper. The author advises you to read everything twice—I concur.

Things to remember. Keypad and keyboard number keys are distinguished automatically. But if you want a number supershifted, the first place (keypad or keyboard) you define it takes precedence. The other supershifted number will give the same definition.

XtraKey's authors update the program regularly, apparently adding some of the desirable features available on competing products, such as single-key backspace delete in the definition mode and the ability to toggle cursor and keypad keys on and off. It's now even compatible, on the Kaypro 10, with Plu*Perfect Writer and the CP/M 2.2E described above.

In all, it's a very thorough KDP and well worth its price—perhaps not quite as easy as SmartKey, but fine nonetheless, even for the first-time user. This is a program that offers many capabilities as the user's needs expand. □

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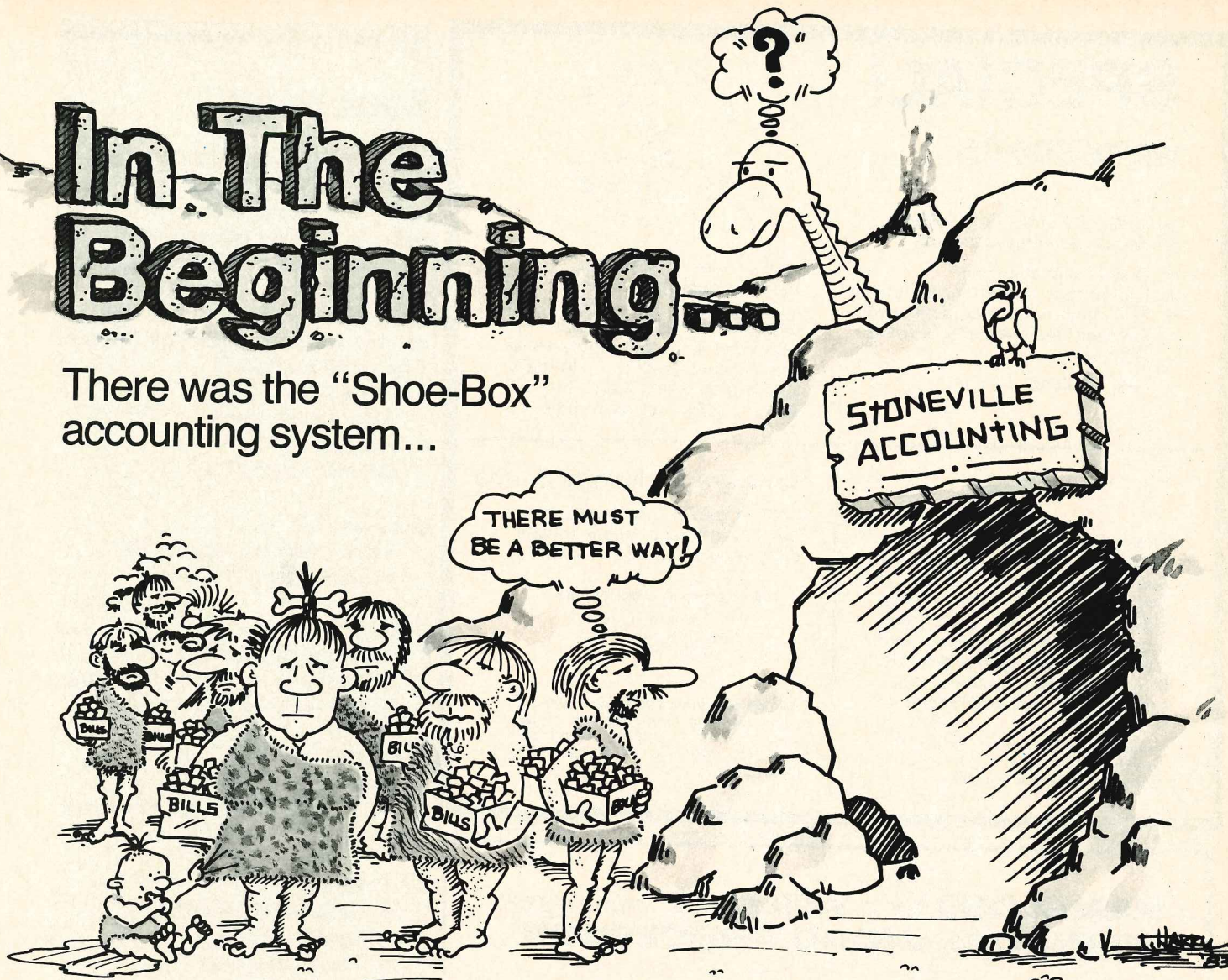
SmartKey
Software Research Technologies, Inc.
3757 Wilshire Blvd., Suite 211
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XtraKey
Xpert Software
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Glenn Grant is a copy editor for the San Diego Union and a freelance writer based in Coronado, California. He is a contributing editor of Computer Merchandising magazine.

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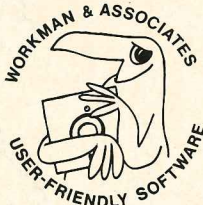


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Beginner's Luck

by Tyler Sperry

If you own a Kaypro 1, 2, 2X, 4 or 10, you probably know you have a CP/M machine, but if you're new to computing you may not be entirely sure what that means.

Is CP/M a "flavor" of microcomputer or a program that you run? Actually, it's both. You have a CP/M computer if that's the operating system your machine runs. CP/M stands for "Control Program for Microcomputers," which is a trademark of Digital Research Corporation. (Some Kaypros—the 16, 16-2, 286i, 2000 and PC—use MS-DOS instead of CP/M. Next month we'll cover the basics of that operating system.)

CP/M is a powerful program that controls virtually every aspect of your Kaypro's operation. This program is written in "assembly language," which in turn is translated into "machine code"—the only language that your machine understands—by a third program called an "assembler." (It's not essential for you to know this, but it may help put things in place as you learn more.)

When you switch on your machine, there's just enough information permanently stored in microchips in the machine's innards to tell it to automatically load CP/M from disk. You can then tell your computer to perform various tasks by using CP/M commands directly. This is called "working at the system level." When you use an "application" program like WordStar, the application program communicates with CP/M for you.

In the space below we'll explain some of the basic CP/M commands.

Executive secretary

The first order of business is simply describing what CP/M—or any other operating system—does. An

analogy might help.

Imagine a busy office. Directly under the general manager is an executive secretary. When the manager wants to do something or wants some information, he/she relies on a secretary to take care of the details. The boss says something like, "Give me that letter where I threatened to sue Fred's pants off." It's up to the secretary to take care of the details of looking through the filing cabinets for Fred's file and making a copy of the letter. It's a pretty simple system for the boss: the secretary takes care of the real work.

The situation is pretty much the same when it comes to managing disks instead of offices. Instead of filing cabinets, you have disk drives; instead of file folders, you have files on a diskette. You, like a general manager, get to give the orders while CP/M takes care of the details.

Here we'll be concerned only with the basic, most-used CP/M commands. These fall into two categories: internal commands and external commands. Internal commands, such as DIR and ERA (discussed later) don't appear on your disk directory—they're mini-programs built into the CP/M operating program. External commands, like PIP and COPY, appear on the directory as free-standing programs the same way that a program like WordStar does.

Before we get into these, it's helpful to describe the general characteristics of a CP/M command.

English as an unknown language

CP/M's vocabulary is limited. It only understands one basic sentence pattern: the command. Still, it's amazing how effective simple commands can be, like "Sue Fred"

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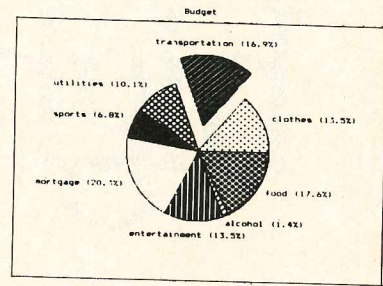
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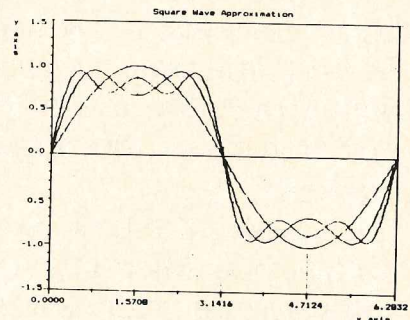
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Beginner's Luck

for instance.

As you've probably already gathered, CP/M is really a pretty simple-minded program. When CP/M is finished with a task and ready to do something else, it offers you a prompt like this:

A>

This is the infamous "A Prompt" that has intimidated many a novice user. The greater-than mark is an idiosyncrasy of CP/M; the letter indicates which disk drive is currently being looked at. (Disk drives are labeled with letters, starting with A. Your typical Kaypro has two drives, A and B.)

When you see this prompt, CP/M is waiting for your command. A command is simply the name of a program—whether internal or external—followed, if necessary, by the name of the information you want the program to work with. (As with most programs, you erase mistakes with the backspace key and signal the end of a command by pressing the "return" key.) For example, using WordStar to edit a letter to your friend Fred could look like this:

A> WS FRED.LTR

This command tells CP/M to run the WordStar program (named "WS"—programmers love abbreviations) and edit the file named "FRED.LTR" This assumes your WordStar disk is on drive A along with your letter to Fred. If you keep your letters on another diskette in drive B, the command would look like this:

A> WS B:FRED.LTR

(From this you can quickly pick up the pattern used for naming files. All filenames have three parts. The first part indicates which drive it's on, the second is a "first name"—just about anything you can fit in eight letters or less—and the third is a "last name," called an *extension* in CP/M jar-

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Our comparison chart lists just a few of XtraKey's features. We could have included XtraKey's built-in

screen dump to printer function, typewriter mode, caps lock function, printer on/off feature, printer output to screen redirection, or built-in menu. But we didn't. After all, things are one-sided enough.

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FEATURES	XtraKey	SmartKey II Plus
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All keys, including numeric keypad and cursor keys, can be directly redefined.	YES	NO
Number of extra definition sets ("shifted") that can be used at any one time.	7	1
Maximum number of characters per definition or all definitions combined.	NO LIMIT	3,838
Bytes of memory required per 500 bytes of definition data.	500	1,000
Definitions can be sent to printer, CRT, or punch device (in any combination).	YES	NO
Definitions can "chain to" or activate other definitions.	YES	NO
Automatic definition file loading.	YES	NO
Disk space required in minimum configuration to use and save definitions.	7K	24K

SmartKey II Plus is a trademark of Software Research Technologies, Inc.

gon. This can be almost anything you can fit into three letters. The exceptions and conventions used in filenames are listed in—you guessed it—the manual.)

Thus, B:FRED.DOC is a file on the diskette in drive B, while A:FRED.DOC is a file with the same name on the diskette in drive A. As a convenience to those who hate typing, you can leave off the drive designation for files on the currently active drive. (See the first WordStar example above.)

Despite the intimidating manual, almost all your CP/M usage will follow this simple command pattern of program name and filename. The tricky part is keeping track of all the command names and the various options.

The internal commands

These are frequently used because they're so useful. Perhaps the most important built-in command is the directory lister: **A > DIR**

This command lists all the files on the currently active drive—extremely useful if you have diskettes full of letters lying about.

A powerful, even lethal, command is ERA. Having nothing to do with the Equal Rights Amendment, this command's job is ERASing files from the disk. You can erase a single file at a time, or you can do it wholesale with the command **A > ERA *.***

Even with its limited intelligence, CP/M will double-check your intentions on this command with the reply "Are you sure?" This is just as well, since the command threatens to erase *all* the files on your diskette.

The asterisks are known as "wildcards," and CP/M uses them to stand for any character or combination of characters. Thus, the erase command above would erase

(continued on page 76)

XScreen



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Product Spotlight

by Tom Enright

Kaypro has introduced a new modular desktop machine—the Kaypro Professional Computer (KPC). This IBM-compatible is based on circuit cards plugged into an IBM-compatible bus-board rather than a traditional IBM-type motherboard with I/O slots only for expansion.

The basic system consists of an eggshell-white cabinet with a 132-watt power supply, an 8088 processor, 256K of memory, a parallel port, a serial port, two 360K disk drives, a video card that supports both monochrome and RGB monitors, an AT-style keyboard, a monochrome monitor, and six open expansion slots—all for \$1,595, including a typical Kaypro bundle of business-related software.

The resemblance of the KPC to the IBM PC AT is more than just cosmetic. Inside the chassis are the 132-watt power supply, floppy disk bay with room for two half-height floppy drives and an area for mounting one full-height hard disk or two half-height units. The prime departure from IBM traditionalism is the motherboard. The only thing you'll find on the KPC motherboard, besides the clock/calendar, is expansion slots—nine of them.

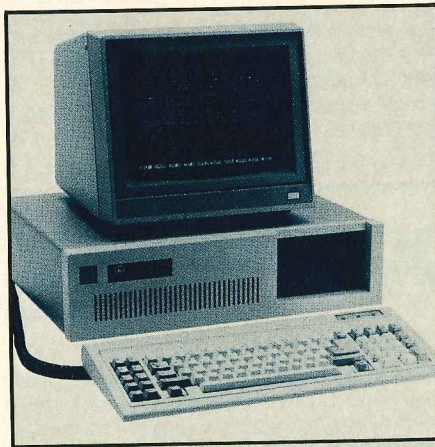
The cards

In the standard Kaypro Professional Computer three slots are used for a functioning system. These three slots are taken up by the 8088 processor card, a special multivideo card, and a multifunction card. This leaves three full-length slots and three half-length slots open for further expansion.

The standard processor card is based on an 8088 microprocessor running at 4.77 MHz. A socket on the card is provided to add an 8087 math coprocessor. Other components located on the processor card are a speaker subsystem and three

counter-timers. Purchasing the processor card separately will cost you \$395, including software.

Kaypro's multifunction card has room for 640K of RAM using three banks of 256K chips. On the standard system only one bank of RAM is populated, giving you 256K of system memory. The multifunction card is also home for the floppy disk controller, a Centronics parallel port, and an IBM-compatible serial port. This card is available separately for \$325.



The KPC multivideo card supports monochrome, RGB color, and composite video monitors. It features a crisper, more readable character set than the standard IBM color card, along with software-selectable color or monochrome modes. Color and graphics support are the same as found on IBM's color/graphics card. The multivideo card is \$395 if you purchase it separately.

Kaypro is also working on an 80286 processor card for the KPC, along with a hard-disk controller. In addition, there are plans to offer a conventional color/graphics card and a monochrome card as extra-cost options. Kaypro is also planning to market an XT version with a 10-megabyte hard disk and one floppy drive. The KPC XT, not including a monitor or video card,

is planned to sell for \$1,695.

Naturally, since all the cards are available separately, so is the chassis. The KPC chassis with power supply, speaker, keyboard and one floppy drive (no cards or software) is available for \$595.

Software

In standard Kaypro tradition, the KPC comes with a bundle of business-related software in addition to the MS-DOS 2.11 operating system. The software bundle consists of WordStar Professional, Polywindows, Mite, and GW-BASIC. This package is aimed at providing business people with the basic software for computerizing a business.

WordStar Professional includes WordStar, MailMerge, CorrectStar, and StarIndex. MailMerge uses dot commands inserted in a WordStar document file to print form letters and merge "boilerplate" paragraphs into finished documents. CorrectStar is MicroPro's new spelling checker. It highlights questionably spelled words in your document and suggests possible alternatives. StarIndex is used to generate indexes for documents produced with WordStar.

Polywindows is a desktop manager similar to SideKick. It is a memory-resident program that includes functions for text editing, an appointment book/calendar, a card file, an alarm clock, a calculator, plus some keyboard enhancements.

Mite is the telecommunications program that is bundled with both 8- and 16-bit Kaypro computers. It has the capability of creating site definitions for all the bulletin boards or information utilities you need to call.

GW-BASIC is the IBM BASIC-compatible programming language that comes with all Kaypro MS-DOS computers. □

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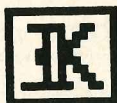
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(continued from page 20)

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Foreign affairs

It should come as no surprise that news reports outside the boundaries of the U.S.A. are quite different from those that make up the warp and woof of our major print and broadcast media.

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Publicly speaking

The databases presented here should hold you until the New Year, when I'll cover an alternative to commercial information utilities: regional networks.

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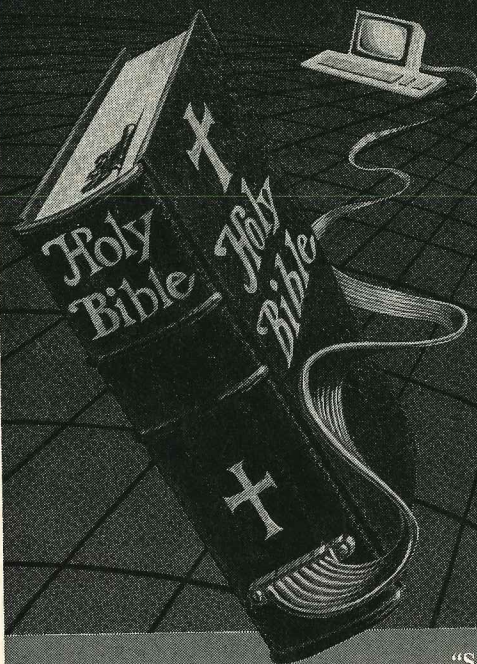
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Technical Forum

by Tom Enright

In prior installments of this column we've been discussing some of the capabilities and features of the MS-DOS and PC-DOS operating systems. We've covered named directories, pathnames, and user-specified search paths.

The next question is what other capabilities DOS has and what utility programs come with DOS. We don't have the space in this column to cover all features and utilities of DOS in detail. What we will do is cover some of the high points. For full coverage of DOS's power you should invest in one or more books on the subject.

Now back to our discussion of what DOS can do for you. One side effect of named directories in DOS is that it's easy to forget what directories you've created and where they're located. You could keep a paper sketch of your directory structure next to the computer, but since a piece of paper is too easily misplaced, DOS gives you a TREE program.

Listing your directory structure

What TREE.EXE does is list your directory structure out on the screen. If you append the optional "/F" to the command line, the member files of each directory are listed under the name of each directory. To see your complete directory structure and all the files in every directory, the command would be **TREE /F**.

Another method is to use the internal DIR command or the directory program bundled with Kaypro 16 computers. With the DIR command, subdirectories are listed with "<DIR>" in place of the file type. The directory program that Kaypro bundles accepts an argument of "/A" to list subdirectories along with member files.

I/O redirection

Suppose that you didn't want the listing of your directory structure printed on the screen. You might want it to go to your printer or into a text file for later reference. That's where the ability to redirect program I/O is so tremendously convenient.

I/O redirection is a UNIX-like feature that DOS has implemented. Briefly, I/O redirection allows you to reroute a program's input or output from one device to another one. Input to a program can be taken from a disk file rather than the keyboard, and output can be sent to a disk file or the printer rather than to the screen.

You specify that you want I/O redirected by using the "greater than" symbol (>) and "less than" symbol (<). Suppose you wanted to send the output of the TREE program to a disk file called STRUC.DIR rather than to the screen. In that case you would type **TREE >STRUC.DIR** instead of just plain **TREE**.

If you had another program called JIGSAW.COM that always needed the same command input, you could automate it by redirecting its input. You would prepare a text file that contained all the input commands and call it, say, JGCOM.TXT. Then you could type **JIGSAW <JGCOM.TXT** and get something else done while JIGSAW took all of its command input from JGCOM.TXT.

You could even redirect both input and output for the same program. In our JIGSAW program you could have redirected both input and output to disk files by typing **JIGSAW <JGCOM.TXT >RESULT.TXT**. That way you could check the text file that has the output of JIGSAW before printing it or whatever else you would normally do with it.

Pipes

This brings us to the next UNIX-like feature of DOS: pipes. A pipe passes program output through something else on the way to its normal destination. This is the same thing a water pipe does—it forms a connection between the origin and destination.

A good example would be the TYPE command in DOS. Just like the command of the same name in CP/M, it doesn't pause the text as it is sent to the screen. You either have to read very fast or, in DOS, press CTRL-NUM LOCK to stop the output while you read it and then press CTRL-SCROLL LOCK to start it up again. Decidedly inconvenient.

By using a DOS pipe called MORE, you can have the output sent one screenful at a time. The command **TYPE FOO.TXT |MORE** sends the contents of FOO.TXT to the screen 24 lines at a time. When the screen is full, output pauses until you press any key.

Pipes are specified on the command line by preceding them with a vertical bar (|) followed by the pipe name. DOS includes pipes for pausing screen output (MORE), sorting output (SORT), and to search a text file for a particular string of characters (FIND).

Incompatible software

We've been getting a lot of letters from Kaypro owners who have more than one Kaypro. The problem they've encountered is the inability to run some software from new machines on an older Kaypro model. This has been especially prevalent with software that came with the newest Kaypro models that sign on CP/M 2.2u1.

The BIOS (Basic Input/Output System) for this revision of CP/M 2.2 is radically different from prior Kaypro revisions. What Kaypro has done is come up with a BIOS where



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the ROM-resident portion is the same for all CP/M Kaypros. Part of this BIOS, and all prior ones, is a translation table to alter the codes sent by the cursor and keypad keys into the ASCII values that Kaypro wants those keys to have. The location of this translation table is the cause of the entire problem.

The programs that give trouble when run on older machines are the bundled versions of WordStar, DataStar, and any bundled program making use of cursor keys.

WordStar's patch

Using WordStar as an example, the following sequence of events takes place: Kaypro's WordStar has been patched to go into the translation table in the BIOS. It then saves the ASCII code produced by each cursor key and replaces each ASCII code with the value that it prefers (^E, ^X, ^S, and ^D). That way the cursor keys now send the cursor movement codes that WordStar wants, rather than ^H, ^L, ^J, and ^K. When you exit WordStar, the cursor keys are restored to their original codes.

The problem is that the BIOS for CP/M 2.2u1 has the translation table in an entirely different location than in prior revisions. So, when you try to run a WordStar that came with 2.2u1, it overwrites a totally different portion of the BIOS than was intended. At that point the program appears to go completely nuts. When you exit from WordStar, the portion of the BIOS that was overwritten is restored to its original state and everything works properly again.

This situation exists only on bundled software that uses the cursor keys. But some users, as well as a few dealers, have jumped to the conclusion that no software written for CP/M 2.2u1 Kaypros will run on older machines. Wrong! New MicroPro software, for CP/M

2.2u1, won't run properly on older Kaypros because of the cursor key patch. The only other programs that aren't portable are machine-specific utilities like DUTIL or CONFIG. The only other exceptions are

programs that use video attributes available on '84 series Kaypros but not on the '83 series. There has never been any inherent incompatibility among different models of CP/M Kaypros. □

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Books in Brief

by Dick Lutz

The holidays seem to me a time when we ought to step back from it all—put aside our nuts-and-bolts books that explore the intricacies of CP/M, MS-DOS or WordStar techniques and look at a bigger picture. That also suggests a good plan of attack for parents and computer-widow(er)s who feel a need for something with which to wean the family computer buff away from bits, bytes, and keystrokes.

With that in mind, here is a Christmas list—just the sort of thing you can leave open on the coffee table if you want to help out the folks who are wondering what in the world to get you for Christmas this year.

This Christmas list is heavy on the subject of (capitals and the echo chamber, please) Artificial Intelligence. It's a topic that's come into its own and is getting hotter by the day. (Well, by the month, anyway.) And it's a subject that you can grow into and with. It's one of those revolutionary developments in the affairs of humankind that will take place almost completely during your lifetime. So, just as the real old-timers can talk these days about the first aircraft they ever saw in flight, this is the kind of reading that prepares you to be a grandparent.

The best news of all is that Pamela McCorduck's *Machines Who Think* is in paperback (W.H. Freeman, \$11.95). To my thinking, it's the pacesetter among books that bring an understanding of AI to the layperson. More about this book further on.

Books on artificial intelligence

Here are some of the recent books on AI that can turn you into the best-informed person on your block—as long as you don't live

down the street from one of the authors.

Artificial Intelligence: How Machines Think, by F. David Peat, presents some real examples of the education of an "intelligent, learning" program. He manages to convey the sense of how a truly dumb box of electronic parts can simulate some kinds of intelligent knowledge and behavior. It's \$8.95 from Baen Publishing.

Roger Schank is one of the leading lights of AI. With Peter G. Childers, he's produced an Addison-Wesley book called *The Cognitive Computer: On Language Learning and Artificial Intelligence*. It goes for \$17.95.

Minds Over Matter—A New Look at Artificial Intelligence, by Jeffrey Rothfeder, is up to date and solidly informative page after page. It's \$15.95 from Simon & Schuster.

A book that should probably be more widely read in government circles is *The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World*, the stuff of which public policy might be crafted. It's by Edward A. Feigenbaum and Pamela McCorduck, published in paperback by Signet for \$3.95.

Another leading light, Donald Michie, has joined with writer Rory Johnston to produce *The Knowledge Machine—Artificial Intelligence and the Future of Man*, at \$16.95 from Morrow. (If you put McCorduck's *Machines Who Think* at the head of this list, these books move from history through today's concrete facts and figures and into speculation and issues—and this last book gives thoughtful consideration to where people might fit in as AI moves forward.)

Cohabiting With Computers is a collection edited by Joseph F. Traub for William Kaufmann, Inc. Issues are the meat of this book,

which contains essays by (among others) IBM's Lewis F. Branscomb and Nobel prizewinner Herbert Simon.

The Biology of Computer Life, by Geoff Simons, is subtitled "Survival, Emotion, and Free Will." It carries forward the idea of computers as an emerging form of life, asking wrenching questions like "Will computers be content to simply mind the store?" It's from Birkhauser for \$11.95.

The Second Self—Computers and the Human Spirit, by Sherry Turkle, also delves into some key issues. It's \$8.95 from Simon & Schuster.

Related, but moving away from AI a bit, is *TechnoStress—The Human Cost of the Computer Revolution*, by Craig Brod. This rounds out the discussion of issues and is \$16.95 from Addison-Wesley.

This list of books should provide a pretty good background for keeping up with the issues as they develop. AI is one of those latent areas of computer science and social revolution that will require treatment over and over again in future books.

The AI pacesetter

McCorduck's *Machines Who Think* provides a pretty good basis for understanding how the ball got rolling in this exciting field. "To know intelligence well enough to be able to build a working model of it," she writes, "is surely one of the most intellectually exciting and spiritually challenging problems of the human race."

She delivers on that promise of adventure with an account that is elegantly crafted, exciting because it's fact, but suspenseful because we don't yet know where AI will take us.

It's an exciting book and an exciting winter of reading.

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Other gift books

But if AI just isn't your thing, here are some other possibilities:

The Joy of Computers, by Peter Laurie, is a large-format book from Little, Brown that is terrifically well illustrated. At \$19.95, this is a priceless investment if you can leave it lying around where a young person might be drawn in by the diagrams. In a day when kids play video games more than they read, here's something that just might get them reading about the machines they find so intriguing.

Dean Gengle's *The Netweaver's Sourcebook* discusses technology-related social change in the context of the broad sweep of microcomputer communications. It's \$14.95 from Addison-Wesley.

Another Geoff Simons book, *Computer Bits and Pieces*, makes good bedtime reading. It consists of short takes of less than a page, and its alternate title sets up the contents: "A Compendium of Curiosities." Penguin puts it out at \$4.95.

Good computer-based fiction can be had in William S. Davies' *The NECEN Voyage* (\$9.95, Addison-Wesley), in which a crack team of computer scientists is shrunk to "bit-size" so they can infiltrate a central computer that controls everything in the north-east United States. Along the way, the book educates us about digital representation of data.

For the reader who's incurably serious about computers, any of the James Martin books make a great gift. *Telematic Society* (\$25) or *Future Developments in Telecommunications* (\$49.95) are two titles worth reading, both from Prentice-Hall.

Finally, two very different books: Tracy Kidder won a Pulitzer prize with *Soul of a New Machine*, and it makes a good gift in paperback

from Avon at \$3.95 for anybody who hasn't yet gotten around to reading it. And for computerists who are worried about the big switch to MS/PC-DOS and what it'll

cost them in software, I suggest the notably thick *IBM PC Public Domain Software*, which is a compendium of free and almost-free programs. It's \$24.95. □

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(continued from page 67)

all the files having first and last names—that is, all of them.

(By the way, you can use wild-cards with the DIR command also. Thus "DIR *.LTR" would list *only* the files on your diskette that have the extension .LTR.)

The other built-in commands aren't nearly so dangerous. The next one simply lets you know the contents of a file. If, say, you wanted to check that the file on your diskette in the B drive was in fact the latest legal threat, you would enter:
A>TYPE B:SUE-FRED.LTR

Granted, the TYPE command is rather unsophisticated: once CP/M finds the file, it starts putting it on the screen as fast as it can. You have to have fast hands to stop the display from scrolling the entire file past you before you know it.

(You do this by pressing the "CTRL" key and striking the "s". This stops the display cold. To start scrolling again, just press another key.)

Another useful command is REN, short for REName. It allows you to change your mind about what you're calling a disk file. Suppose you decide to write yet another letter to that no-account Fred, and this time you really *are* going to sue. Since you want the new letter to be called "SUE-FRED," you enter: **A>REN BUG-FRED.LTR=SUE-FRED.LTR**

This somewhat awkward equation tells CP/M to change the name of your first letter to "BUG-FRED," without changing the actual contents of the file.

There are two other built-in commands, SAVE and USER. The first, SAVE, is of use only to a few programmers; it's left over from the early days of CP/M's use as a programmer's development tool. USER is a different matter. USER is a command that lets you move from one user area to another. If you haven't got a Kaypro 10 with a hard



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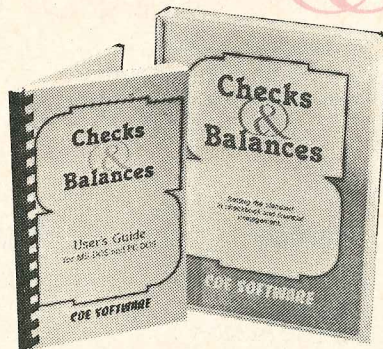


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disk, you can safely forget this one. For those who do have a hard disk, the command is pretty simple: enter **USER** followed by the number of the user area you want to move to.

External commands

As mentioned earlier, external commands are really stand-alone programs. You can see which ones are on what disk by using the DIR command. A better description than “external command” would be “utility program.”

Two of the more useful utility programs you should become familiar with are D.COM and PIP.COM. D.COM is a directory program that lists the files on your disks sorted in alphabetical order and tells you how big each file is. PIP.COM is used to transfer disk files from one place to another. Normally PIP (which stands for Peripheral Interchange Program) is used to move a file from one disk to another, such as **PIP B:=A:D.COM** to move the program D.COM from the diskette in drive A to the diskette in drive B.

One last type of command that you will be giving your Kaypro is a command to start an applications program such as WordStar, as in the example used earlier. Applications programs are programs that perform tasks not specifically tied to housekeeping functions. Word processors, spreadsheets, and accounting programs all are types of applications programs.

Tyler Sperry is a freelance writer and former Editor of PROFILES. He has a great deal of both expertise and experience with the hardware and software aspects of Kaypro computers. Mr. Sperry was a member of the engineering team responsible for producing the first Kaypro II (then called the KayComp) in 1982. □

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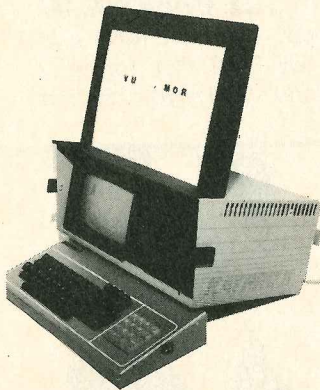
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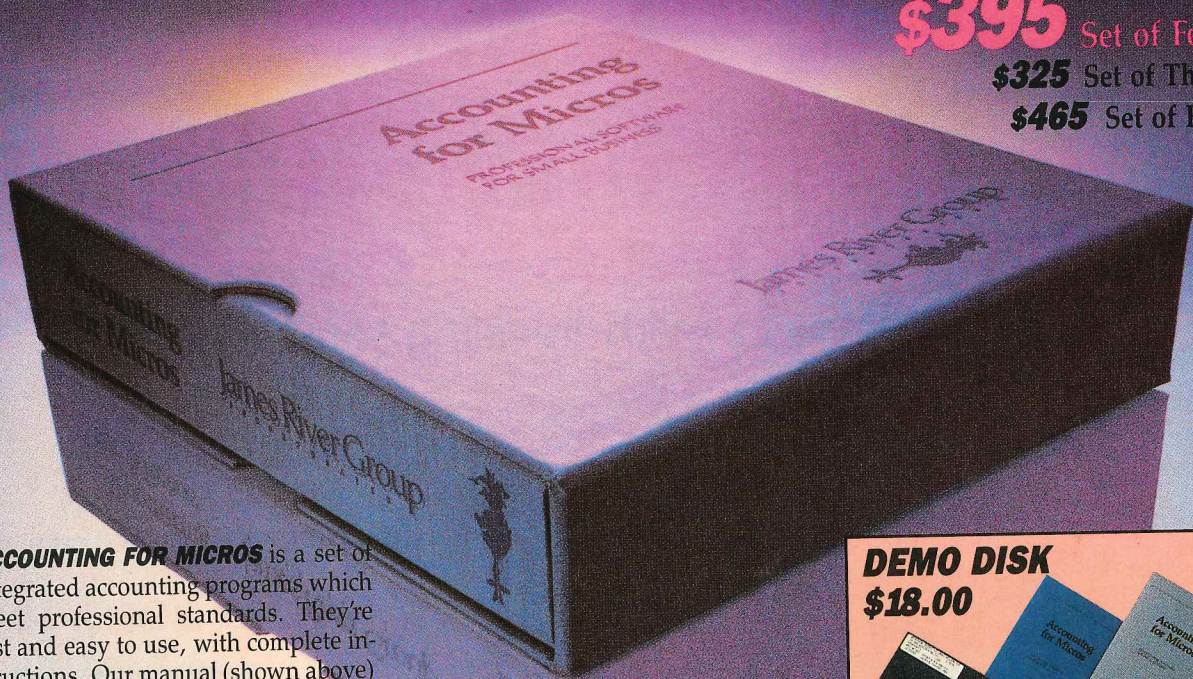
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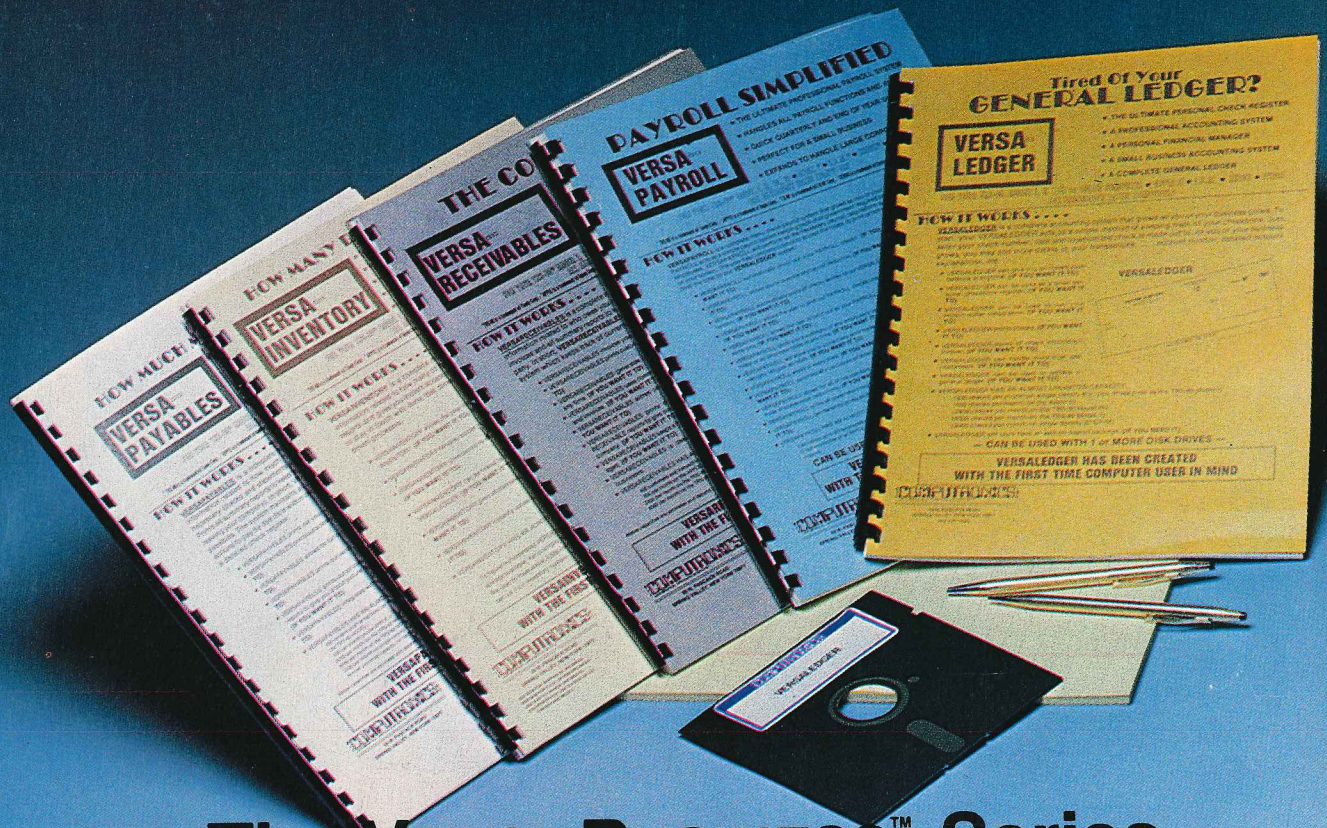
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