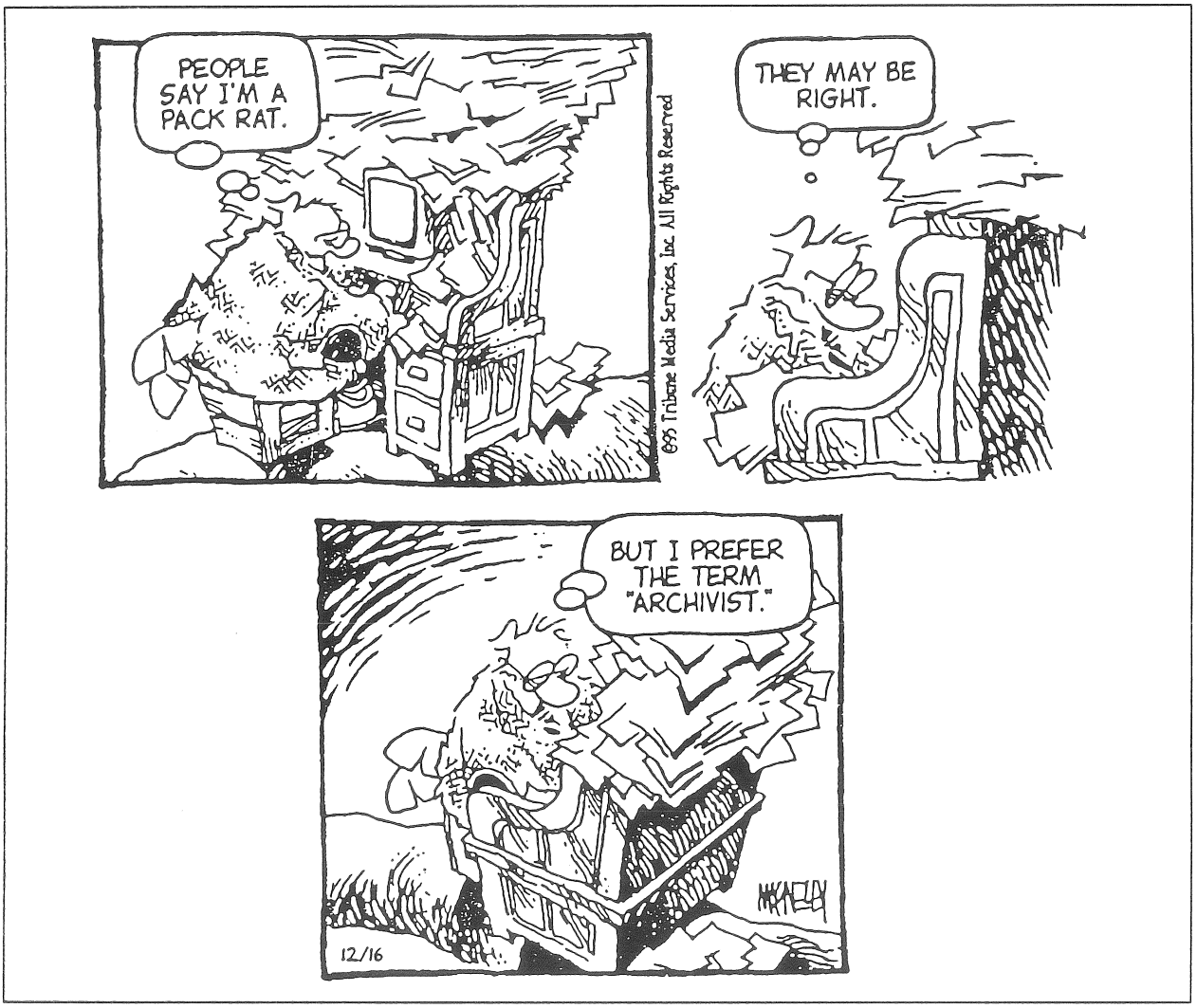
The Z-Letter

Newsletter of the CP/M and Z-System community

Number 41 January-April 1996



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CIS COBOL and GSX-80 available

MP/M II manuals available

Kasparov trounces Deep Blue

Viewing, Printing, and MOVEIT, by Tina Huovinen

22NICE, by Zener

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Welcome to *The Z-Letter*, the newsletter of the CP/M and Z-System community. *TZL* is copyright © 1996 by David A.J. McGlone, Lambda Software Publishing, 149 West Hilliard Lane, Eugene, Oregon 97404-3057, phone (541) 688-3563, email **d.mcglone@genie.geis.com.**

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The Z-Letter is indexed as time permits. The index for issues 35-40 appeared in issue 40. An index for issues 1-40 is being prepared.

The Z-Letter is printed by Hypatia Press, 360 West First, Eugene OR 97401, phone (541) 485-0947, and mailed bulk rate.

RANDOM ACCESS

Trenton Computer Festival 1996

The Trenton Computer Festival will take place this year in Trenton, New Jersey on April 20 and 21. Unfortunately, no one has organized a CP/M Forum or Z-Fest this year. Many of the CP/M gurus who've attended in years past can't make it this year, and those who've organized a CP/M get-together have gone on to other things. Jay Sage, for instance, isn't sure he'll be able to attend, and says I'm the first person to mention Trenton to him this year.

Hal Bower will be attending and demonstrating his YASBEC laptop, but with no CP/M Forum organized, will be showing it off in the hardware forum instead. The laptop is a highly-modified YASBEC with a 1.76-Mb floppy-disk drive, hard disk, and Earth Technologies 8-bit LCD screen. This is a VGA monochrome screen; Hal says it appears to run 2½ times as fast on his laptop as on a PC.

All the PC, Mac, and other computer stuff is no doubt going on this year as usual, and the huge flea market is worth going for, if you live on the East Coast. Attendance is some nominal fee like $5 or $7, so the major cost is travel, and hotel room if you stay overnight.

Late but still plugging

Please accept my apologies for the lateness of this issue. I lost three whole weeks when I was too sick with either a staph or strep infection to do anything but sleep. I even had to forego a Jackson Browne concert that Tina was going to take me to on my birthday!

Because this issue is so late, I've had to combine the January/February issue it was supposed to be with the March/April issue it has become. I haven't done this before, and with my new staff (see below) I shouldn't have to do it ever again.

I also want to apologize publicly to the editor and readership of *The Computer Journal*. I had promised to write an article on what CP/M programs were still available, along with how I negotiated the rights to sell them, etc. Due to the lateness of last issue, and my subsequent illness, I was unable to get that article done. It didn't help that my YASBEC locked up when I was almost done with it, losing most of what I'd done – I think the memory chips in my YASBEC aren't fast enough for the 18-MHz CPU! Nevertheless, I made a promise, and I apologize for having to break it.

CIS COBOL 4.5 available

Long-time CP/M user **Rlee Peters** just sent me a box full of DRI software and manuals! This donation to the CP/M cause included some items included in my contract with Novell, that I didn't have originals for. Thanks to Rlee, I can now offer them for sale.

Most exciting to me is a copy of DRI's CIS COBOL, which I've wanted to play with for a long time. Back when CP/M was the most common micro operating system, CP/M COBOL implementations typically sold for $800 or more, way out of my price range.

DRI didn't write this COBOL, it turns out. CIS COBOL is actually Micro Focus COBOL, licensed by DRI. I still don't have a DRI COBOL manual, but if anyone can find a Micro Focus COBOL manual, it should serve.

Micro Focus COBOL is the COBOL I used to write LPascal. I've been telling everyone it was Ryan/McFarland COBOL, but in putting away these disks, I rediscovered that I only have the run-time package for R/M COBOL, and it was a copy of Micro Focus COBOL I worked with. Please accept my apologies for the confusion.

GSX-80 1.1 available

Another bonus in the package from Rlee is version 1.1 of GSX, including the release notes and the second edition of the *Programmer's Guide* and *User's Guide*, which go with this version. Interested parties should note that this is the DRI version, which is generic, not an implementation for the Apple II or the Visual 1050, which is what I had before. Of course, if someone *wants* the Apple II or Visual 1050 version instead of the generic version, they have only to say so when they order.

DRI dropped some printer drivers from 1.0 when they released 1.1, so that 1.1 would still fit on a 241K 8" disk. The release notes, however, say that the discarded printer drivers will still work under 1.1. I have included all the drivers from both versions in the product I offer, to make it as complete as possible.

MP/M II manuals available

Finally, with this windfall from Rlee I can now offer the *MP/M II Programmer's Guide* and the *MP/M II System Guide*. Previously I had only the *User's*

Guide in my collection.

DRI prices, circa 1983

The Digital Research price list, from 1982 or 1983, is interesting from an historical perspective. Products that Lambda now sells for $25 plus $20 for the manual, or $40 total, include:

Access Manager	$300
BT-80	$200
CBASIC	$150
CBASIC Compiler	$500
CIS COBOL	$850
CP/M	$150
CP/M Plus	$350
CP/NET	$200
Despool	$50
Display Manager	$400
Level II COBOL	$1600
MP/M	$450
Pascal/MT+	$350
PL/I	$500
Programmer's Utilities	$200
SID	$100
SPP	$200
TEX	$100
XLT86	$150

The DRI price list also includes a number of books: *CP/M Compatible Software Catalog* ($10.00), *OSBORNE CP/M User Guide* by Hogan ($12.95), *The CP/M Handbook with MP/M* by Zaks ($13.95), *The CP/M Primer* by Murtha and Waite ($11.95), *Using CP/M* by Fernandez and Ashley ($8.95), *CBASIC User's Guide* by Adam Osborne ($15.00), and *Data Structures and PL/I Programming* by Augenstein and Tanenbaum ($25.95). This last book is the only one in this list that I don't have in my collection. If anyone sees a copy, let me know!

No CP/M Calendar for 1996

I regret to announce that there will be no CP/M Calendar this year. Alan Bard Newcomer didn't deliver the pictures to me until the beginning of March, which is too late. In addition, the pictures still aren't acceptable. Alan has an electronic camera, and recorded images of computers in my collection. Then he downloaded them to his Macintosh and went to work. Unfortunately, they come out looking washed with grey, which masks details and looks ugly. I was hoping Alan had some software which could convert the pictures to line drawings, but few of the Mac users I've talked to even understand what I mean by a line drawing.

There WILL BE a CP/M calendar next year! The computer pictures in it will either be drawn by hand by various artists, produced by CAD programs, or both. And the calendar itself will come out in December. Expect the announcement in the November/December 1996 issue.

TZL adds staff

Tina and her friends have been helping me with stapling *The Z-Letter*, inserting it into the envelopes, sticking on labels, sorting, and getting it to the bulk-mail facility. Starting next issue, they will be listed on the Table of Contents page as official staff.

Gina Jefferson will become Assistant Editor; it will be her duty to ride herd on the others and get *The Z-Letter* out if I should ever get this sick again, or if I can't edit an issue for any other reason. Katey Mackie will join Tina Huovinen and Bob Vinisky as a regular columnist. Katey's column will be called FROM THE GROUND UP, and will answer the repeated pleas from new CP/M users who want things explained for computer novices. Maddy Huovinen and Terry Corona will do whatever needs doing around here, including filing, filling orders, and generally bringing order out of chaos.

RESOURCES update, part 1

I wasn't able to contact all the people listed in the RESOURCES section before this issue went to press, so only about half the entries have been brought up to date. I'll get the others before the next issue. The date in brackets after each entry indicates how current the information is; for instance, [2/95] means the information hasn't been changed since February 1995, while [3/96] means I confirmed the information March 1996.

The magazine *dieHard* has either gone out of business or moved, more probably the former. The number I was listing for LynnCarthy Industries is no longer in service, and there's no new listing in Boise, Idaho. *dieHard* was listed because it covered 8-bit Commodore computers, including the C64, which can run CP/M with the addition of a Z80 cartridge, and the C128, which comes with CP/M 3.0 in addition to running C64 and C128 non-CP/M programs.

The Morrow Atlanta Users Group has disbanded. Not only were they a local user's group for people with Morrow computers, but they published *Mor-Atlanta News*, which was a class act. Harold Arnovitz, the former editor, has offered to send me the magazine's last mailing list, so I can send sample copies of *The Z-Letter* to the members of this defunct user's group. Naturally, I accepted with thanks.

Kasparov beats Deep Blue

The world's best chess player is still a human being – for now. Grandmaster Garry Kasparov has won his match against Deep Blue, a dedicated IBM computer running dedicated software. The match was played in the Philadelphia Civic Center in February before a galaxy of stars and superstars of the chess world. It was sponsored by the Association of Computing Machinery as part of its celebration of the 50th anniversary of computing.

In 1989, Kasparov easily defeated Deep Thought, prototype for Deep Blue. Deep Thought is a tougher opponent – a thousand times tougher, according to its inventors. The 32-node supercomputer at IBM's T.J. Watson Research Center in Yorktown Heights, New York, can examine 50 billion positions in the three minutes allowed between each move. Such computing power is necessary if computers are to compete with human grandmasters, who don't examine more than a few best positions. But computers don't have experience, intuition, or imagination.

The first game was played Saturday, February 10. Kasparov, who drew black, played his usual aggressive game. He had Deep Blue on the defensive with pressure on the machine's king. But the computer managed to capture a key pawn, preventing Kasparov from promoting it to a queen. The Ukrainian grandmaster conceded defeat on the 37th move when Deep Blue pinned his king between a knight and a rook.

In the second game on Sunday, Kasparov abandoned his attacking game in favor of a strategy which has long been the bane of computer chess players. Computers recognize agressive moves because they threaten to take pieces, and capture of the opponent's pieces or loss of its own is a major part of the algorithm used by any chess-playing computer to rate moves. So playing an aggressive game is almost like telling the computer where the danger is coming from, and it reacts well. On the other hand, a game of position, where the human player develops the whole front of his pieces without immediately threatening to take anything, is much harder to program against and much harder for the computer to recognize, let alone respond to effectively. Kasparov played such a game on the 11th. He even exposed his queen, lulling the computer into thinking it had an advantage and opening up its own position to go on the attack. The Deep Blue team conceded defeat after the 73rd move, though Kasparov had been clearly winning since the 19th move.

The third game, on Tuesday, February 13, was a tie. Each player gets ½ point for a tie; if a player wins, he gets 1 point and his opponent gets 0. Deep Blue drew white and the two players slugged it out toe to toe. On his 39th move, Kasparov offered a draw, which the IBM team accepted, giving each player 1½ points. The fourth game, played the next day, was another draw, although it perhaps should have been ruled a victory for Kasparov. After one particularly good move by the grandmaster, Deep Blue crashed, and it was 15 minutes before it returned to play. A human being who did the same would have forfeited the game. Kasparov offered a draw after the 41st move, which Deep Blue rejected, only to offer a draw itself after the 50th move. Kasparov accepted, giving each player 2 points. A minimum of 3½ points were needed to win the match.

On Friday the 16th, Kasparov offered a draw in the fifth game, when his and the computer's positions were even. The IBM team turned it down, and shortly after that, on the 37th move, the grandmaster captured a bishop in a move that ended Deep Blue's chances of winning the game. On the 48th move, the computer conceded. On Saturday, drawing white, Kasparov attacked right from the beginning, with pawns leading the way for knights and bishops. Deep Blue let a knight move to the edge of the board, always a bad move because half the squares controlled by the knight are then off the board, reducing the piece's power. The computer conceded after 43 moves, giving Kasparov the game, and the match, 4 points to the computer's 2.

"I feel wonderful," Kasparov said. "I can only compare it to '85, when I won the championship from Anatoly Karpov." He admitted that he'd underestimated Deep Blue. "I was lucky to lose Game One; otherwise, disaster could have struck later. I got an early warning."

After the match, 700 chess fans applauded Kasparov with wild whistles and cheers when he entered the spectator's room.

Kasparov wins $400,000 for the match. Had the opponents tied, each would have gotten $250,000.

50th anniversary of ENIAC

Fifty years ago this February, the Electronic Numerical Integrator And Computer was demonstrated to the world at the University of Pennsylvania. ENIAC was the first general-purpose, large-scale, electronic computer. Though far less powerful than even a hand-held calculator today, let alone any kind of computer, ENIAC's 50 tons of 8-foot grey metal cabinets could calculate ballistic tables in half a minute that took people with

mechanical calculators 12 hours to complete. Though ENIAC was not completed in time to calculate those artillery tables for World War II, it nevertheless began modern computing.

Konrad Zuse dies at 85

Konrad Zuse, father of the electronic computer, died December 18, 1995, at the age of 85 of heart failure, in Huenfeld, Hesse, Germany. Born in Berlin, Zuse created a series of binary digital calculators and computers in the 1930s and 1940s to perform structural engineering calculations for aircraft manufacture.

Zuse's Z3 computer, completed in 1941 with funding from the Third Reich's Aviation Research Institute, was the first fully automated, program-controlled computer (ENIAC had to be rewired to be reprogrammed). It was destroyed by Allied bombing. Its successor, the Z4, waited out the war in the underground Harz mountain chambers where V1 and V2 rockets were built. In 1950 it was transferred to the Federal Polytechnical Institute, where Zuse was then working.

Because Zuse was German and did not publish in English, and because his most advanced work was done as secret research under the Nazis, Zuse is not generally given the credit he deserves. But his Z4 was more advanced than ENIAC, and had Germany's manufacturing capability not been reduced to rubble by the war, the first commercial computers might well have been German, and German computers might dominate the market today.

Virtual CP/M Museum?

Don't faint, but I've ordered a 66-MHz 486 from Damark, complete with 4 Mb of RAM, a 420-Mb IDE hard disk, a double-speed CD-ROM, SVGA color monitor, SoundBlaster sound card, and a video-capture card! I hasten to add that the purpose of this system is *not* to replace my YASBEC, and the 486 will *not* be used to produce *The Z-Letter*. Instead, it will be used for applications that require graphics, such as *Doll Fun* magazine. While *The Z-Letter* should be done on a CP/M system, to show just what CP/M systems are capable of, *Doll Fun* is not about computers and should be as fancy as possible, since the target audience is young girls and their families.

Another use for the 486 would be setting up the CP/M Museum I've wanted to do for many years now. If money were no object, this would have been done long ago. Unfortunately, it takes a lot of money to set up a museum, and more money to keep it going. You have to buy or lease the building, convert it for your purposes, design and create the exhibits, etc., then hope that enough people will want to come see it that admission will pay back the startup and ongoing costs.

However, a *virtual* museum can be established as a Web page, which can be viewed by anyone with a late-model PC, Macintosh, or Amiga. As copyright permissions are secured, books and magazines can be scanned and uploaded, files can be copied, and the actual machines can be photographed by camera or video camera, converted to picture files by the video card, and made available. Believe me, it costs a lot less to set up and maintain a Web page, even on a computer dedicated to that sole purpose, than it does to set up a museum in reality. A CD-ROM, updated periodically, could be sold to those who want a copy of the museum for their very own.

Maybe it's just me, but I think this is a very exciting idea. As I investigate the technical, financial, and legal feasibility of the virtual CP/M museum, I'll keep you informed through *The Z-Letter*.

Unfortunately, most of the material would be non-text, and couldn't be viewed by people with CP/M computers. I really regret that, but it's unavoidable. I take some comfort in the fact that most people with CP/M computers wouldn't be able to afford to take a trip to Eugene to see the museum, anyway. And who knows? Maybe, just maybe, income from the virtual CP/M Museum will permit me to establish the real thing!

NEXT ISSUE

This issue is so late (for the January/February issue) that it's on time (for the March/April issue)! See you again in 60 days with Bob Vinisky's next column on the Z-System, Tina Huovinen's next column on Spellbinder, part IV of THE CP/M PC, and other neat stuff.

SPELLBOUND

Viewing, Printing, and MOVEIT

by Tina Huovinen

Hello, everybody! So far we've been looking at commands in Edit and Command mode that you use to create text, save it to disk, and read it back in when you want to make some more changes. You're probably wondering when we're going to get to printing your files, so you can read them away from the computer, or mail them to someone else. Wonder no more, that's what we'll start on in this issue.

Printing is not a simple subject, so we're going to make some assumptions to keep it simple for now. When we come back to printing later in this series we'll start discarding these assumptions and get into the complications. For now, we're going to assume that your printer is already hooked up to your computer, you've chosen the correct printer when installing Spellbinder, and the Y and YT tables that control margins, etc., are correctly set up to give you one inch of margin at top, bottom, left, and right of whatever you print. That way, we can concentrate on *how* to print something, and leave discussion of headers, footers, page numbers, changing margins for footnotes and quotations, customizing your printer, etc. for later chapters. If any of these assumptions isn't true for your computer and printer, get help from someone to get the basic setup right. You can even call David or me at (541) 688-3563, mail a letter, or send us email at D.McGlone@GEnie.GEIS.COM.

Let's read in Chapter 1 of your Great American Novel. We've entered Spellbinder, and it went automatically into Command mode as we fixed it to do last time. So we type R or RI, Spellbinder asks us for the file name, and we reply with CHAPTER.001, if that's the name you saved the chapter to. We read through it, making the odd correction here and there, save it again, and now we're ready to print it.

V is for View

We could just print it and let the page breaks fall wherever they want to, mark up the paper copy with corrections, then go back, make the corrections, and print it again. But that would waste an awful lot of paper! There's no connection between where the lines wrap around on your screen and where they break on paper, except where you hit RETURN to end a paragraph or insert a blank line. There's no telling how many pages your chapter will take from looking at the text on your screen. And there's no telling whether a paragraph will end up printing with a "widow" line or an "orphan" line. A line is called a "widow" if a single line ends up by itself down at the bottom of the page, with the rest of the paragraph on the next page; this is considered ugly. Conversely, an "orphan" is a line all by itself at the top of a page, with all the paragraph before it on the previous page. This is also a no-no. We avoid wasting paper by using the View command to discover these things and correct them *before* printing. That way we only print a file after we've got it just right.

The View command displays your text on your screen formatted the way it would appear on paper. You can display as much or as little of your file as you want, and the command begins working from the current location of the cursor. Normally you would type T/VA to send the cursor to the top of the text, and then look at the whole file with the View All part of this string of commands. When you do this, Spellbinder will show you one page at a time, stopping where each page would end on paper and displaying PRESS A KEY TO CONTINUE, ESC TO EXIT on the status line. Hitting ESCAPE will end the viewing operation; anything else tells the View command to show you the next page.

Suppose the View command shows you a widow line, the first line of a paragraph alone by itself at the bottom of the page. You can fix this by hitting ESCAPE to get out of View and inserting a carriage return before the line. Then you want to view the rest of your file, instead of typing T/VA again and going through the whole file again, including the parts you've already checked. Move the cursor to the beginning of the line that is now the first line of the next page, the one that was a "widow" until you put

the carriage return in front of it. Then type **VA**. Without the **T** to move the cursor to the top of text, the **VA** command will show you the file, one page at a time, starting from where the cursor is. You can continue this way until you've checked out the whole file.

The .E command

The trouble with adding a blank line to get rid of a widow line is that it looks like a mistake. Six months after you've written and printed your text, if you need to look at it and print it again, that extra blank line will look like you goofed and didn't notice. Also, if you have two lines at the bottom of the page, you'd have to put in two blank lines to move them to the next page, which will look even more like a mistake.

And what if you're preparing a newsletter or a book and want one chapter or article to break well before the end of the page, so that the next one can begin on a fresh page? Do you want to have to count the unused lines on the page, so you can insert that many blank lines? I don't think so!

The dot command .E saves you from thinking you goofed and from having to count unused lines on a page. Let's say your page would end like this without any changes:

> good men to come to the aid of their party. Now is the time for all good men to come to the aid of their party.
>
> Every good boy deserves favor. Every good boy deserves favor. Every good boy deserves

If we insert the line **.e<** (where < represents a carriage return) after the first paragraph, the page will end there, and the second paragraph will start on the next page. This form of the .E command is called an *unconditional page break* because it makes the page end there no matter how many lines are left unused. Getting a little ahead of ourselves, when Spellbinder prints a file, if the last page isn't full, most printers won't eject the page unless you hit the FORM FEED button on the printer or send the printer a form-feed command from your computer. If you put a .E at the end of your text, that last page will be ejected without you having to do anything. That's what the .E command does – it sends a form feed to your printer. The E in .E stands for Eject.

A *conditional page break* means that you want the page to end only if a certain condition occurs. It comes in handy if you have a stock collection of paragraphs you string together to make form letters (something we'll look at later in this series), or if you have a very short paragraph which is almost certain to look bad if it straddles the end of one page and the beginning of the next, or if you want to make sure that a table, or the space alloted for an illustration, is not divided across two pages. The form of the command is **.E<***n*, where < is a real less-than character this time, and *n* is the number of lines that must fit all together at the bottom of the current page or the top of the next one. Say your table of computer models, with the information for each model, takes up 15 lines. **.E<15** tells Spellbinder that the next 15 lines must fit on this page. If they can't, the page ends here and the next 15 lines start the next page.

Printing

The command to send text to your printer is **P** for Print. Like many other Spellbinder commands, it operates from the current position of the cursor. **P** will print one page, starting from where the cursor is; **PA** will print all the text in memory, from where the cursor is. To print all your text from the beginning, you link a Top command to a Print command, like so: **T/PA.**

If for some reason you only want to print a few lines out of a file, put the cursor where you want printing to begin, count the number of lines you want to print, and type **P***n* in command mode, where *n* is the number of lines. If you're not sure how many lines you'll need to include all the text you want to print, put the cursor at the beginning of the text and type **V***n*, where *n* is some number large enough to be sure of including the text you want, but not so large that the part you're interested in will disappear off the top of your computer screen as the View command marches inexorably to the end of the page.

That's all there is to printing, if the whole file fits in memory at once, and your printer is set up right. We'll cover the files too large for your memory, setting margins, etc. in later columns.

Text in columns

Sometimes the text you want to edit has columns of information in it, and you want to delete a column, delete everything except a column, switch the position of two columns, insert a new column, or add something to every line of a column. Spellbinder has a macro called MOVEIT for doing this.

You load the MOVEIT macro by typing **AD.** Spellbinder responds to this command by asking which macro you want, with the message **MACRO FILENAME>**. Type **MOVEIT** and hit RETURN. MOVEIT gives you a menu of choices:

Do you wish to:

1 Delete Columns
2 Exchange Columns
3 Retain Columns
4 Insert Columns from Disk
5 Expand Columns
6 Exit

WHICH ? ■

Suppose you select "Delete Columns". There might be a column of information in the text which doesn't matter to what you're writing now, so you want to get rid of it so it doesn't distract your reader. The message **CURSOR TO FIRST POSITION AND STRIKE CONTINUE** appears. Spellbinder's asking what column to begin deleting at. Use any of the cursor keys, TAB key, or any of the movement commands you've learned to move the cursor to the leftmost position you want to delete, then hit Control-A, which is the Spellbinder Continue command.

Next MOVEIT will ask **CURSOR TO FINAL POSITION AND STRIKE CONTINUE.** Move the cursor to the last position you want to delete, then hit Continue (Control-A) again. If you wanted to delete stuff between columns 15 and 20, for instance, you would have moved the cursor to column 15 the first time, and to column 20 the second time.

Now that MOVEIT knows which columns you want deleted, it needs to know which lines it should remove those columns from. It asks **FOR ALL ROWS IN DOCUMENT? (Y/N)** and if you answer Y, it will proceed to delete the columns you've marked from every line of your text.

If you answer N, it will ask you to mark the line on which it should begin deleting, and the line to end deleting, with the prompts **CURSOR ON FIRST ROW AND STRIKE CONTINUE** and **CURSOR ON LAST ROW AND STRIKE CONTINUE.**

If you choose the Exchange Columns option, MOVEIT uses the same questions to ask you to define either column of the two you want to exchange, and then asks you where to move this column to with the question **CURSOR TO INSTALL POSITION THEN CONTINUE.** The Retain Columns option uses the same questions as Delete Columns to define the column you want to *keep*, when you want to delete everything *except* that column.

Insert Columns from Disk lets you insert a column that isn't already in your text. This could be a column you've created from scratch; David has a file of line numbers, each line ten greater than the one before, which he inserts into COBOL programs. Or it could be a column removed from another file by reading in the file, using the Retain Columns to delete everything else, then saving the result to disk under a new name.

The first question the Insert option asks is **TARGET FILE ON DISK (0) OR MEMORY (1)?** Type 1 if you want to insert the column into the text already in memory, or 0 if you want to insert it into a file on disk. If you choose a file on disk, MOVEIT asks for its name with **WHAT IS TARGET FILENAME?** Once it knows where to insert the column, then it asks where to get the column from, with the prompt **WHAT IS INSERT DATA FILENAME?**

Since the source file already contains a column, Spellbinder doesn't need to ask you to define first and last column and first and last row. It just asks **CURSOR TO ROW AND POSITION AND STRIKE CONTINUE.** Move the cursor to the line and column where you want to new column to go, and strike Control-A (Continue). MOVEIT will do the rest.

Expand Columns is very useful when you want to add the same thing to every line of a column of data. Just as you can use Delete Columns to remove extra spaces between columns, you can use Expand Columns to add more space if they're too close together. You can also add a period after numbers, inline commands to make a column print differently from other columns, etc. The Expand option uses the same five basic questions to define the first and last column and the first and last row it should operate in. Then it asks you what it should insert with **EXPAND WITH WHAT CHARACTER(S)?** Type the characters you want it to add to each line, then hit RETURN. For instance, to insert three spaces, hit the space bar three times, then hit RETURN.

Wrapping up

In this column I showed you how to see how a file will print, using the View command, and how to print it with the Print command. We also learned how to control the page breaks using the .E command, and the use of the MOVEIT macro. Next issue I'll tell you how to read, write, view, and print files which are too big for all of them to fit into memory at once, so you can break through the 20K barrier, and how to look at what's on your disks without leaving Spellbinder. In issue 43 we'll look at Spellbinder's powerful search and replace commands, and issue 44 will introduce you to the Y and YT tables, so you can change margins, print page numbers, and so forth. – *Tina*

THE CP/M PC

Part III: 22NICE
by Zener

This is the third installment of a series comparing three different ways to run CP/M programs on a PC. In the first one, Gina and Katey explored a CP/M emulator called Z80MU. In part II, Maddy Huovinen and Terry Corona did the same for a Z80 emulator called MYZ80. This issue I'll write about a CP/M program launcher called 22NICE. Finally, in issue 42, David McGlone and David Samson will run a standard set of CP/M programs on some 4-MHz CP/M computers, a 9-MHz Micromint SB180FX Z-System computer, an 18-MHz YASBEC Z-System computer, and a couple of different PCs with different CPUs and different clock speeds. They will then compare the speeds of these programs on these different systems.

22NICE is a Z80/8080 CP/M 2.2 emulator by Sydex (see their listing in the RESOURCES section) for PCs. If you buy it from Sydex you also get their very useful disk-transfer utility, 22DISK. You would need 22DISK (or a similar program, but 22DISK is the best) to copy your CP/M files to your PC.

A shareware version of 22NICE can be downloaded from most bulletin boards, or the CP/M CDROM, for evaluation. The shareware version differs from the full-fledged (registered) program only in its date and its extras. The 22NICE CP/M emulation package offers the following features:

1. Emulates 8080, 8085, or Z80 processors with or without NEC V-series chip installed. 22NICE contains an emulator for both 8080 and Z80 processors. 22NICE also has a test mode, which allows identification of the appropriate processor needed for emulation.
2. Provides terminal emulation for most common CP/M machines, including Actrix, DEC VT-100 and VT-52, Heath/Zenith, Kaypro, LSI ADM-3A, Morrow, Osborne, and TeleVideo 925 and 950.
3. Maps CP/M user-area numbers to MS-DOS subdirectories.
4. Allows use of MS-DOS pipes, redirection, and utilities with CP/M programs.
5. Supports a complete set of BDOS and BIOS function interfaces, including direct disk read and write.
6. CP/M programs are fully integrated into the MS-DOS environment; the user need not know whether a program is CP/M or MS-DOS.

GENCOM

CP/M COM programs must be renamed to CPM on the PC; 22DISK does this automatically. The reason is that CP/M and MS-DOS COM programs are not compatible. If a CP/M COM program were run on a PC it could be disastrous.

GENCOM creates an executable MS-DOS COM file for each CPM file. Running this COM file engages 22NICE.COM to execute the associated CP/M program. The syntax of the GENCOM command is:

GENCOM *file* DISPLAY=*dtype* KEYBOARD=*ktype* PROCESSOR=*ptype*

where *file* is the name of the CP/M program file or files; wild-card specifiers * and ? may be used, in which case all matching CPM files will be executed.

The DISPLAY parameter specifies the console display emulation. If omitted, or DISPLAY=NONE is specified, MS-DOS character I/O is used for output, with no special handling of characters. DISPLAY may be abbreviated as DIS. Other legal values of DIS are ADM, ANSI, H19, KAYPRO, OSBORNE, TVI, and VT52.

KEYMAP (optional, abbreviation KEY) specifies the map for the console keyboard. Again, NONE is the default and uses MS-DOS for input. Other predefined values are ANSI, H19, OSBORNE, TVI, and WS. Anything else indicates the file name of a custom keyboard map. The default file type is KEY, but another extension may be specified explicitly.

Only the cursor keypad and the function keys can be mapped; letters, numbers and symbols can't. The KEY file consists of ASCII lines of the form *key-name "key-values"*. Key-name must be one of the following:

F1 . . . F10	Function keys F1 through F10
SF1 . . . SF10	Function keys Shift-F1 through Shift-F10
AF1 . . . AF10	Function keys Alt-F1 through Alt-F10
CF1 . . . CF10	Function keys Ctrl-F1 through Ctrl-F10
Up, CUp	Up-arrow, Ctrl-Up-arrow
Down, CDown	Down-arrow, Ctrl-Down-arrow
Left, CLeft	Left-arrow, Ctrl-Left-arrow

Right, CRight	Right-arrow, Ctrl-Right-arrow
Home, CHome	Home, Ctrl-Home
End, CEnd	End, Ctrl-End
PgDn, CPgDn	PgDn, Ctrl-PgDn
PgUp, CPgUp	PgUp, Ctrl-PgUp
Ins, CIns	Ins, Ctrl-Ins
Del, CDel	Del, Ctrl-Del
Break	Scroll Lock

Key-values represents the codes to be generated by each key. Key-name plus key-values must fit within a 255-character line. Comments, inline comments, and control characters may be specified in the key file; see 22NICE.DOC for details.

The optional PROCESSOR (abbreviation PRO) specifies the processor emulation type required for a program. The values are AUTO, E8080, TEST, V20, and Z80. These options are well chosen and cleverly implemented to switch automatically to the best option for your machine, according to the instructions they find during execution. See the 22NICE manual for details.

Resident 22NICE

22NICE.COM provides all of the emulation and CP/M support facilities needed to execute a CP/M program under MS-DOS. A COM file created by GENCOM automatically loads 22NICE when the CP/M program is executed, then removes 22NICE from memory afterwards. This mode of operation suits most applications.

22NICE can also be used as a "terminate and stay resident" (or TSR) program. You load 22NICE as a TSR by typing **22NICE.** It will stay resident until removed by the command **22NICE OUT.** This operating mode is most useful when the contents of the CP/M memory area is written to disk for later inspection. 22NICE provides an analog to the CP/M SAVE command, called CSAVE, to do so. The syntax of CSAVE is virtually identical to its CP/M counterpart. For CSAVE to operate, 22NICE must be running as a TSR.

In either mode, 22NICE.COM, the CPM files, and any GENCOM-generated COM files must be in a directory on the MS-DOS path. In either mode, you execute a CP/M program by typing its name as if it were an MS-DOS program.

Mapping CP/M user areas

CP/M assigns every file to a numbered user area, 0-15. Files in one user area are not visible to another. (In the Z-System, there are twice as many user areas, and the user areas are not isolated.) MS-DOS has no user areas; instead it fakes a hierarchy of nested directories using subdirectories, which are actually "files of files", like CP/M library files.

22NICE simulates user areas by mapping MS-DOS subdirectories to CP/M user areas. For example, to map the MS-DOS subdirectory \MYCODE to CP/M user area 2, you would type **SET USER2=\MYCODE**

All CP/M program references to user area 2 will now address the MS-DOS subdirectory \MYCODE on the current disk. You can use up to 31 user areas through the MS-DOS environment variables USER1 through USER31. User area 0 is predefined to be the current (default) directory.

The command USERS shows what user areas are defined. Just type **USERS.**

Other options

Most CP/M programs can be reconfigured for any combination of disk drives, but a few require that drive A contain programs and drive B data files. You can use your PC's actual A and B drives, but it's often best to use the hard disk exclusively.

With MS-DOS 3.1 or later, you can use the SUBST command to reassign a drive letter to a hard disk subdirectory. For example, to reassign drive A to the subdirectory \MYDISK on the C drive, you would type **SUBST A:=C:\MYDISK.** To make the real drive A: accessible again, use **SUBST A: /D.** Under MS-DOS 2.1, use the ASSIGN command to reassign one drive letter to another.

For 22NICE to find your CP/M files, either 22NICE has to be loaded in the same directory as your .CPM files or they must be in a subdirectory on your PC's path. 22NICE offers a separate CPMPATH variable as well. Suppose all your CP/M program files were in the subdirectory \USR\CPM22. The command **SET CPMPATH=\USR\CPM22** would make them usable without altering the PATH statement or first moving to that directory.

22NICE supports CP/M SUBMIT programs. First you must rename the SUB files to BAT files, then change any parameter references from $1, $2, etc. to %1, %2, and so on. Instead of typing **SUBMIT** *filename* to run the file, just type the filename.

22NICE does not support access to 8-bit I/O port numbers via the 8080 IN and OUT instructions. This is to protect the PC's hardware, as most of the first 256 I/O port addresses on the PC relate to fundamental PC hardware operation. Occasionally you may need to address a PC I/O port. You can do this using the 8080 RST 3 instructions; see 22NICE.DOC for details.

A CP/M program's memory is limited to the 64K

addressing range of the 8080. About 59K of memory can be used for program execution. If you need to inspect memory outside this range, you can use an 8080 RST 5 call. Again, see 22NICE.DOC.

Any program that creates a COM file under CP/M will produce a CPM file under 22NICE. This saves the hassle and confusion of renaming the files.

Actually running programs

My CP/M computer is a TeleVideo 802H, so for my applications I usually choose DISPLAY=TVI, KEYBOARD=TVI, and usually PROCESSOR=AUTO. Sometimes I choose Z80, however, AUTO seems to be a little bit faster.

My PC is an XT running at 4.77 MHz, so you might imagine that some applications would be pretty darn slow. They often are, to the point of frustration and/or erroneous results. Some applications don't seem worth the effort of running. However, on a faster machine this might not be the case; David McGlone and David Samson will report benchmark results in issue 44.

I tried a variety of applications, with mixed results. The biggest factor determining whether your application will perform the way it is supposed to is whether it "behaves" itself. For example, if a program uses BDOS calls it will probably do fine. However, if it addresses the hardware directly, the results will be unusual at best.

I tried to map user areas to associated subdirectories, and it looked like I did it right, but for some reason I couldn't then properly access these user areas.

FILT performs nicely under 22NICE. Believe it or not, folks, it will even work on WordPerfect files, though of course you'll still have all of WordPerfect's reveal codes intermixed with the text. David McGlone tells me that he uses FILT under 22NICE when he gets an order for disk conversion. If the customer wants WordStar files converted to ASCII as well as copied from a CP/M format to PC or Macintosh disks, doing so with FILT on his PC eliminates the need to copy the files to Wright format, run FILT on his YASBEC, and then copy the files to the desired disk format. He uses the following steps:

1. Copy the files from the original format to a TEMP directory on his PC.
2. List the files in a file called DIR with the command **XDIR *.* >F.BAT**.
3. Edit F.BAT with Spellbinder. It takes about four commands to eliminate the extra lines at top and bottom, and change the lines that actually list files to read **filt** *filename* <c:\x.
4. Run FILT against the files by hitting F and RETURN.
5. Erase F.BAT and the BAK files representing the original, unfiltered files.
6. Copy the files in the subdirectory to a disk formatted for the customer's new computer.

These steps are performed, not for each file, but for each *disk*. The file X contains the responses to FILT's prompts, so that David doesn't have to type them for each file. This is an example of how 22NICE lets you use MS-DOS redirection with a CP/M program.

The library tools that I tried (LDIR, LPUT, LBREXT, etc.) seem to work well. I have a little program that I wrote in Turbo Pascal that adds units of time, it works well. A CP/M cribbage game that I use (also written in Turbo Pascal) works well too.

Using Turbo Pascal itself was a most interesting experiment. I chose to use an ANSI environment, hoping to simplify things and maybe speed Turbo up a bit. I'm not sure either was accomplished. First I had to run the Turbo Pascal configuration program, which was *very* slow and cumbersome. Then I wrote a very simple program. The program ran fine. I was able to create an executable CPM file. I was *not*, however, allowed to save the file. I kept getting a message saying "Directory Full".

Since 22NICE doesn't create a CP/M environment, I didn't expect NZ-COM to work, but I tried anyway. First I copied all of the NZ-COM files into a special subdirectory on my hard disk. Then I used the MS-DOS SUBST command to rename that subdirectory to a virtual A drive. NZ-COM did as it was supposed to up until the time when it wanted to actually boot NZ-COM. At that point the program tries to access my actual drive A. This doesn't work, because the files it wants aren't there. Nor can they be, because my A drive is only 360K. Someone with a 1.2-Mb drive A might want to take it from there.

Running Spellbinder was very frustrating. For one thing, when trying to execute an external program from Spellbinder the task is performed as it should be, but upon reentry into Spellbinder you must press Control-C. This causes Spellbinder to abort.

But the biggest problem I had was that the TVI keyboard emulation does *not* support function keys, and the delete key didn't work the way it's supposed to. You see, there are some things that are supposed to be set in stone, like ASCII characters. However, this isn't always the case, *especially* with a PC. Somebody thought it necessary to make the PC's DEL key emit ???.

To get around this I made a 22NICE custom keyboard definition files. No problem, right? Wrong! 22NICE.DOC tells you how to implement your own KEY definition file, and even gives you an example.

It *doesn't* mention that you're restricted to control characters.

I chose to emulate part of the my TeleVideo's key codes, such as the output of the function keys. For other keys it proved simpler to make them echo something different from either my TeleVideo or Spellbinder. I made up for these differences with my MKTAB table. I also imported my soft-key table from my TeleVideo; with a little modification I was able to use it, too.

My custom keyboard definition file SB.KEY consists of the following:

```
F1          "^A@"   TeleVideo F1
F2          "^AA"   TeleVideo F2
F3          "^AB"   TeleVideo F3
F4          "^AC"   TeleVideo F4
F5          "^AD"   TeleVideo F5
F6          "^AE"   TeleVideo F6
F7          "^AF"   TeleVideo F7
F8          "^AG"   TeleVideo F8
F9          "^AH"   TeleVideo F9
F10         "^AI"   TeleVideo F10
SF1         "^A\"   TeleVideo SF1
SF2         "^Aa"   TeleVideo SF2
SF3         "^Ab"   TeleVideo SF3
SF4         "^Ac"   TeleVideo SF4
SF5         "^Ad"   TeleVideo SF5
SF6         "^Ae"   TeleVideo SF6
SF7         "^Af"   TeleVideo SF7
SF8         "^Ag"   TeleVideo SF8
SF9         "^Ah"   TeleVideo SF9
SF10        "^Ai"   TeleVideo SF10
Up          "^K"    SB Cursor Up
Down        "^J"    SB Cursor down
Left        "^H"    SB Cursor Left
Right       "^L"    SB Cursor Right
PgUp        "^[1"   SB Previous Page
PgDn        "^[2"   SB Next Page
Home        "^[3"   SB Top of text
End         "^[4"   SB End of text
Ins         "^E"    SB Insert
Del         "^[5"   Delete
CHome       "^S"    SB Scan
```

You may have noticed that this file lists only function keys 1 through 10. This is because 22NICE only supports 10 function keys. Redefinition of a TeleVideo's 11 or 16 function keys (depending on the model), or my PC's 12 function keys, is therefore impossible.

My MKTAB table further redefines most of these keys inside Spellbinder:

```
&7 ;MKTAB.TVI
 001        ; MULTI-KEY LEAD-IN 1 = "^A"
 000        ; TERMINATOR 1        = no terminator
 002        ; KEY COUNT 1         = 2 characters
 001        ; SHIFT FLAG 1        = ignore upper/low
 016        ; DELAY               = 16
 027        ; MULTI-KEY LEAD-IN 2 = escape = "^["
 000        ; TERMINATOR 2        = no terminator
 002        ; KEY COUNT 2         = 2 characters
 000        ; SHIFT FLAG 2        = don't ignore case
 016        ; DELAY               = 16
 ;
 001        ; First multi-key lead-in
 ;
 064 222 255            ; F1
 065 223 255            ; F2
 066 224 255            ; F3
 067 225 255            ; F4
 068 226 255            ; F5
 069 227 255            ; F6
 070 228 255            ; F7
 071 229 255            ; F8
 072 230 255            ; F9
 073 231 255            ; F10
 092 232 255            ; SF1
 097 233 255            ; SF2
 098 234 255            ; SF3
 099 235 255            ; SF4
 100 236 255            ; SF5
 101 237 255            ; SF6
 102 238 255            ; SF7
 103 239 255            ; SF8
 104 240 255            ; SF9
 105 241 255            ; SF10
 255        ; Block terminator
 ;
 027        ; Second multi-key lead-in
 ;
 049 007 255            ; Page Up
 050 022 255            ; Page Down
 051 027 084 255        ; Top of Text
 052 027 069 255        ; End of Text
 053 127 255            ; Delete
 255        ; Block terminator
 ;
 255        ; End of MKTAB.TVI
```

Finally my soft-key table interprets the function keys depending on whether I'm in edit or command mode.

```
&13 ;SKTAB.TVI
 ;      TABLE OF SOFT KEY DEFINITIONS
 0              ; Disable after each keystroke?
 ;
```

```
0     ; Level 0 soft keys
222 013 017 255          ; Command Mode
255 ; End of section
;
1     ; Level 1 = primary edit mode
222 017 255              ; F1  = Command Mode
223 015 255              ; F2  = Cursor Mode
224 006 255              ; F3  = Mode Forward
225 002 255              ; F4  = Mode Backward
226 004 255              ; F5  = Mode Delete
227 022 255              ; F6  = Page Down
228 007 255              ; F7  = Page Up
229 027 067 255          ; F8  = Line Center
230 027 084 255          ; F9  = Top Of Text
231 027 069 255          ; F10 = End Of Text
232 023 255              ; SF1  = Enter Enhance
233 021 255              ; SF2  = Mode Enhance
234 025 255              ; SF3  = Indent
235 027 073 255          ; SF4  = Clear Indent
236 027 072 255          ; SF5  = Hold
237 027 085 255          ; SF6  = Unhold
238 003 255              ; SF7  = Clear
239 024 255              ; SF8  = Mark
240 027 070 255          ; SF9  = Forward Mark
241 027 066 255          ; SF10 = Backward Mark
255 ; End of section
;
3     ; Level 3 = primary command mode
222 017 255              ; F1  = Edit Mode
223 082 013 255          ; F2  = Read
224 'T/W' 013 255        ; F3  = Write
225 087 068 013 255      ; F4  = Write done
226 072 013 255          ; F5  = Hold
227 085 013 255          ; F6  = Unhold
228 083 013 255          ; F7  = Search *
229 083 065 013 255      ; F8  = Search All *
230 084 013 255          ; F9  = Top Of Text *
231 069 013 255          ; F10 = End Of Text *
232 'HO/@:SBHELP.HEP' 013 255 ; SF1  = Get help File
233 'HO/@:ASCII.LST' 013 255  ; SF2  = Get ASCII list
234 'T/VA/T' 013 255     ; SF3  = View All
235 'T/PA' 013 255       ; SF4  = Print All
236 022 255              ; SF5  = Page Down
237 007 255              ; SF6  = Page Up
238 089 013 255          ; SF7  = Y Table
239 089 084 013 255      ; SF8  = YT Table
240 071 013 255          ; SF9  = Get
241 071 068 013 255      ; SF10 = Get Done
255 ; End of section
;
255 ;End of SKTAB.TVI
```

There're still a few bugs to get out, but I'm making progress. In this case patience is definitely a virtue. Between juggling these three tables and the "pickiness" of Spellbinder and 22NICE, the collaboration of these parts is not as easy as it would seem. But maybe worth the effort.

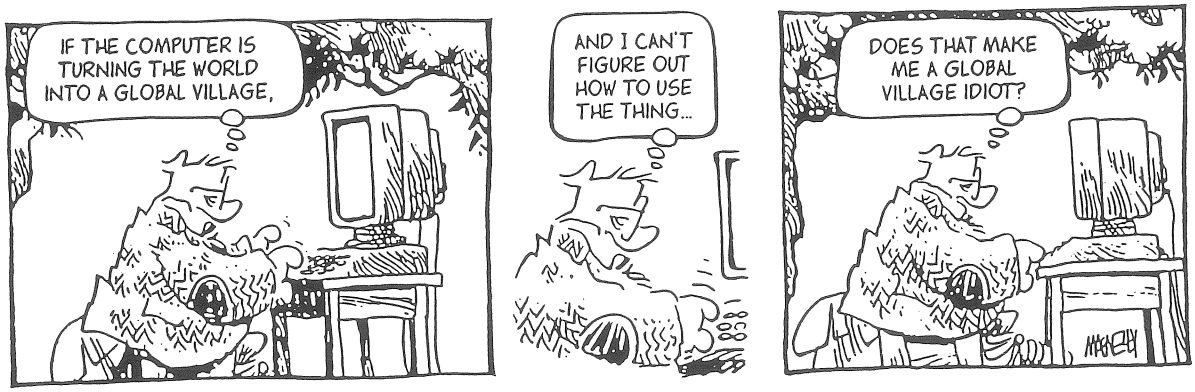
Conclusion

Your PC's speed makes a big difference as to what's worthwhile and what isn't. The benchmarks will show how fast a PC you need for the various "emulators" we're covering in this serious, but generally the faster the better.

Whether the program "behaves" itself, all the time or part of the time, makes all the difference in the world. The last thing you or I need is "gremlins" in our computers, either from software or hardware.

There are some monster software packages out there that may not be wise to try to implement, but somebody's bound to try to make them work anyway. Let's remember that the bigger the program, the slower it will run.

If you're willing to experiment and be patient many things may be accomplished. The trade-offs are up to the user to determine, and what kind of software you want to implement is solely a matter of functionality and trade offs.



Shoe by Jeff MacNelly. Reprinted by permission: Tribune Media Services

PERSONAL ADS

COMPUTERS FOR SALE OR TRADE

Each one in working condition, price $50 plus shipping, unless otherwise specified. Two **Eagle III** computers, each with two 784K disk drives, $75 plus shipping. One **Eagle II** computer. Two **TeleVideo 802** computers. One **TeleVideo 803** computer. One **TeleVideo TPC-1** portable computer. One **Epson QX-10** computer. One **Kaypro** computer with double-sided 390K floppy-disk drives (Kaypro 4, New 2, 2X, etc.). One **Morrow MD-2** computer; terminal not included. One **Morrow MD-3** computer; terminal not included. One **Xerox 820** computer with dual 8" drive units. Two **TRS-80 Model II** computers, one SSDD 8" floppy-disk drive each. Five **NorthStar Horizon** computers, condition unknown, $20 plus shipping; wood and steel covers available. Other computers come and go all the time; let me know what you're looking for. Will trade for comparable computers not in my collection. Contact David A.J. McGlone, phone (541) 688-3563.

WANTED!

Will buy, or trade spare computer parts, books, manuals, software for the following items: **Boot disks:** Altos 8000 with hard disk, DEC VT180, Maxicom D/L with hard disk, Sanyo 2000, Sharp 5500, 5600, 5631, Sharp YX-3500, Systel 3, Telcom ECD 4000EX (3½"), TRS-80 Model II/12/16/6000 CP/M 3.0, Zeus 3X with hard disk. **Hardware:** Three (3) NorthStar Advantage hard-disk controller cards; three (3) TeleVideo hard-disk controller cards, Zenith Z-100 data separator card. **Software:** Any version of UniForm other than UniForm-PC and the CP/M versions listed in the price list at the back of this magazine. Contact David A.J. McGlone, (541) 688-3563.

BOOKS FOR SALE

Even after keeping two copies each, the following titles are extra in the quantities listed: *CP/M and the Personal Computer*, 1. *CP/M Bible*, 1. *CP/M Handbook with MP/M*, 3. *CP/M Primer*, 8. *dBase II User Guide*, 3. *Everyman's Data Base Primer*, 1. *Inside CP/M*, 1. *Kaypro User's Handbook*, 1. *Mastering CP/M*, 1. *The MBASIC Handbook*, 2. *Oh! Pascal!* (Second Edition), 1. *Osborne CP/M User Guide*, 5. *The Perfect Manual for the Kaypro II*, 2. *Problem Solving and Structured Programming in Pascal*, 1. *The Programmer's CP/M Handbook*, 4. *Programming the Z80*, 1. *Soul of CP/M*, 1. *Starting Forth*, 1. *The Users Guide to CP/M Systems*, 1. *Using CP/M*, 5. *Using dBase II*, 3. *Z80 and 8080 Assembly Language Programming*, 1. *Z80 Assembly Language Programming* (Leventhal), 3. *The Z80 Microcomputer Handbook*, 3. *Z80 Users Manual*, 1. Will sell for $15 each, or $10 each if you buy four or more. Will also trade for any not listed here if I don't have two copies already, especially *CP/M Solutions* and *CP/M Techniques* by Barbier. Please help me lighten the load in my file cabinets! Contact David A.J. McGlone, (541) 688-3563.

Hardware and information wanted

Technical information, mounting hardware, and power supply needed for Shugart SA 400 and SA 400L 5¼" floppy-disk drives. For use in TRS-80 Model III computer. Earl W. Ladendorf, 208 S. Columbia Street, New Auburn WI 54757, phone (715) 237-2633.

Kaypro 2 for sale

Good working condition, with SWP board installed (runs early MS-DOS software, or may be used as 1-Mb RAM disk) and 5-MHz CPU. Also included: Kaypro daisy-wheel printer, Carrying case for computer, CP/M system disks, all software in Perfect series, some WordStar, BASIC, other CP/M programs, some issues of *Micro Cornucopia*, and many diskettes. Would like to find a good home for all as I have gone completely to MS-DOS. Robert C. Bates, 321 Hillsmere Drive, Annapolis MD 21403, phone (410) 267-7684, CompuServe 75447,1515.

S-100 manuals wanted

I need manuals for the following S-100 hardware: ASC 5¼" hard-disk controller, CPS 32K memory, Pickles & Trout IEEE-488 interface, PMMI MM-103-9 300-baud modem, QT clock/calendar, RCTC 1-Mb dynamic memory board kit, Seals 16K memory, Seiko extender board with logic probe, Simpliway VDB-A video board, TDL Z16 16K memory. Rlee H. Peters, 1600A North Sierra View, Ridgecrest CA 93555-2438, phone (619) 446-4825.

Printer for sale

Brand new **dot-matrix** printer, **Laser 192E**, including manual and some paper. $75 plus shipping if purchaser lives outside Eugene, Oregon. Call Ed Orth, (541) 688-2288.

Xerox 820-II computer for sale

Complete system with all manuals and software, dual 5¼" floppy-disk drive unit and dual 8" floppy-disk drive unit. $50 plus shipping. Richard D. Gill, P.O. Box 372, Sunol CA 94586-0372, phone (510) 862-0425.

Printer ribbons for sale

17 new, unopened printer ribbons, plus 1 extra, that fit the following: Qume Sprint models 7, 8, 9, 10, 11, and 11+; DEC LQP-02; Apple III, Lisa, & Daisywheel printer; Exxon 500; Lanier EZ-1 & typemaster. $29.00 for ALL, includes postage and handling. Ken Thomson, (415) 648-7550.

VT180 disk-drive units for sale

New, never-removed-from-package dual floppy-disk drives by Digital, model RX180. External and fully self-contained. Made for Robin VT180 CP/M computer. Will work with any CP/M computer. $35 COD. Joel Garcia, 1792 East Ocean Avenue, Ventura CA 93001, phone (805) 641-1573.

Complete set of *ProFiles* for sale

Every issue ever published of the magazine for Kaypro owners published by Kaypro. $50 plus shipping for the complete set. Chuck Stafford, 4000 Norris Avenue, Sacramento CA 95821, (916) 483-0312 evenings or weekends.

LETTERS

Up to his ears in S-100

12 January 1996

Dear sir:

Thank you for the info on Ron Jacobs . . . I think. To cut a long story short, I have acquired Ron's total inventory. My garage is now FULL and so is my patio. His garage and space under his house is now in a condition to make his wife very happy.

I am now infested with lots of Morrow and other stuff. This includes new mother boards, CPUs, I/O, and memory. The stack of boxes of new 256K memory boards is taller than I am. It's going to take me a long time to sort and inventory it all, and some is in need of rework. Down to my last 60 or so computers now. If you need boards for some of your systems, let me know. Am including a printout of what I had prior to this last escapade. There is also a set of Vector Graphics boards in the bunch. In sorting through the software there were several that I will send to you. One appears to be the CP/M serial number installer disk. There are many varieties of Morrow boot disks that I will sort through. The last BIOS seems to be version E4, which supports the Disk Jockey 2D, DMA, HDDMa, and the version for the 8" and 14" hard disks as well as 8", 5¼", and NorthStar floppies.

Just got back from the Consumer Electronics Show at Las Vegas. Everything from solder lugs to satellite systems. The high point arrived while waiting for the start of a presentation on an "Elvis CD rack". I got into conversation with a man across the aisle. He turned out to be the owner of the old TEI computer company. I knew it as a manufacturer of S-100 boxes, but it turned out that they also turned out multi-user systems. He offered me the 3000 user system that was formerly up at Lawrence Livermore Labs (complete with Mag tape drive). Since I'm now out of room and he lives in Dallas, Texas, I had to decline. May pick up one of his smaller systems though. Sent him your name and address – HA!

One bit of information that he dropped on me was that the DOS that Seattle Computer Products sold to Bill Gates to become MS-DOS was sold to them by TEI. Not only that but they only got the stripped-down single-user version. This guy sounds like a good source for some good stories on the early computer industry. (Jan R. Schwenk, Resource International Publishing, Inc., 1921 Meadowview Court, Carrollton TX 75010, (214) 395-0022, FAX (214) 492-3322, email jschwenk@unicomp.net or janschwenk@aol.com)

My best wishes for a happy and prosperous new year.

Rlee H. Peters
1600A North Sierra View
Ridgecrest CA 93555-2438
(619) 446-4825

Mr. Schwenk's remark doesn't match Seattle Computer Products' claim that they wrote Q-DOS. But then, probably most people believe that Microsoft wrote MS-DOS. I wonder if we'll ever have the whole story of MS-DOS' illegitimate birth? – DAJM

Used CP/M computers

16 February 1996

David,

I hope everything is OK with you and the CP/M machines regarding the Oregon floods. February flea market at Livermore was rained out.

You should add these people as a mandatory stop every time you're in the San Francisco area:

Nifty Thrifty
2545 Geneva Avenue
Daly City CA 94014
(415) 333-3703 Voice

(415) 333-3702 Fax
They have a section marked "CP/M machines, As-Is, $5.00". I was there today and they had two small H-P units, two Epsons, a Digital model V1240, lots of manuals, software, etc. The stock, of course, undergoes constant change.

Cordially,
Kenneth D. Thomson
71 Rosenkranz Street
San Francisco CA 94110
(415) 648-7550

The floods bothered Eugene very little, and my neighborhood not at all. My house is located on a part of the Williamette flood plain rated at one flood in 100 years, and this wasn't the time. Thanks for the Daly City reference. – DAJM

RESOURCES

Hal Bower writes, sells, and supports B/PBios, the most advanced CP/M-compatible operating system today. Presently it's available for the Ampro Little Board, the Micromint SB180, and the YASBEC. The cost is $69 plus $3 shipping and handling. Hal Bower, 7914 Redglobe Court, Severn MD 21144-1048, phone (410) 551-5922. [3/96]

Lee Bradley sells My-Z-Demo, a package for running CP/M or the Z-System on a PC. The high-density 3½" disk contains Simeon Cran's My-Z80, the shareware version of Sydex' 22DISK, 170 utilities, and copious documentation files. Send $10 to Lee R. Bradley, 24 East Cedar Street, Newington CT 06111-2534, phone (860) 666-3139. [3/96]

The Computer Journal covers all small computer systems, including CP/M. Published 6 times a year. Free sample issue available. Subscription is $24/year surface, $34 air, $44/2 years surface, $64 air, in the US. In Canada and Mexico, $32, $34, $60, $64 respectively. Elsewhere $34, $44, $64, $84 respectively. Dave Baldwin, 6619 Westbrook Drive, Citrus Heights CA 95621, (916) 722-3877. [9/95]

Corvatek sells KEY-UP, a keyboard interface for IBM-style keyboards. The DM-1 for Big Boards, DM-2 for Xerox 820, DM-3 for Kaypro, DM-4 for Franklin, DM-5 for ASCII Universal, DM-6 for Apple II are each $129. Inquire for other models and custom key definitions and applications. Corvatek, 561 N.W. Van Buren St., Corvallis OR 97330, phone (541) 752-4833. [2/95]

Discus Distribution Services, Inc. sells Digital Research products, including its many operating systems. Their price for CP/M is $150. They also offer CBASIC ($600), FORTRAN-77 ($350), and Pascal/MT+ ($600). 16600 Meridian Road, Salinas CA 93907, (408) 663-6966. [2/95]

Elliam Associates sells disks of public-domain software and commercial software for most CP/M computers, including the Amstrad PCW. For a 100+ page catalog, send $8.50 plus $3.00 shipping and handling to Elliam Associates, P.O. Box 2664, Atascadero CA 93423, or phone (805) 466-8440. [2/95]

Herbert R. Johnson is "Dr. S-100". He supports S-100 bus computers, including NorthStar, Compupro, Cromemco, IMSAI, and Vector. He can sell you S-100 boards, manuals, books, etc. Write to him at P.O. Box CN-5256 #105, Princeton NJ 08543, e-mail **hjohnson@pluto.njcc.com**, phone (609) 771-1503. [2/95]

Lambda Software Publishing publishes this magazine; see our price list in the back.

Microcomputer Mail-Order Library of books, manuals, and periodicals relating to microcomputers in general, and Heath/Zenith systems in particular, will loan you any item for 4 weeks for a handling fee plus postage. The price is deliberately low to encourage people to learn more about their computers. Inevitably, some items will be lost in the mail or not returned. Donations of printed material would therefore be greatly appreciated! For details, a list of available items, or to borrow material, write to Library c/o Lee A. Hart, 4209 France Avenue North, Robbinsdale MN 55422, phone (612) 533-3226 [2/95]

Micromint makes and sells the SB180 and SB180LO computers. These are 9-MHz HD64180/Z180 single-board computers with 256K RAM. The SB180 is the size of a 3½" disk drive, costs $299 ($195 each 100 quantity), or $399 with ZCPR, ZRDOS, BIOS and ROM sources. The SB180LO is the size of a 5¼" disk drive, has SCSI, costs $329 ($295 each 100 quantity), or $429 with ZCPR, ZRDOS, BIOS and ROM sources, Z-System utilities. The SB180FXMME 2-Mb memory-expansion board, populated with 256K, costs $319.

Micromint, Inc., 4 Park Street, Vernon CT 06066. Technical Assistance, (203) 871-6170. To order, (800) 635-3355. [2/95]

MicroSolutions makes several products of interest to our community. UniForm-PC costs more ($69.95) and knows fewer formats than 22DISK (see Sydex, below), but includes a few formats 22DISK doesn't. MicroSolutions also sells the CompatiCard IV, which lets a PC use 4 floppy-disk drives (including 8" drives) for $95. MicroSolutions Computer Products, 132 W. Lincoln Hwy, DeKalb IL 60115, phone (815) 756-3411. [2/95]

David Morrison deals in Xerox 820, 820-II, and 16/8 computers, software, and manuals. P.O. Box 1911, Mishawaka IN 46546-1911, phone (219) 257-0193. [3/96]

Rondell Systems services and repairs all kinds of computers. Call Ron Reymore at (503) 981-8617, or write to him at 9993 Broadacres Road NE, Hubbard OR 97032. [3/96]

Sage Microsystems East, selling and supporting the best in 8-bit software. NZ-COM, Z3PLUS, XBIOS, DSD, BackGrounder ii, ZSDOS/ZDDOS, DosDisk, JetFind, ZMATE, BDS C, and ZMAC. Next-day shipping of most products with modem download and support available. Order by phone, mail, or modem. Shipping and handling $3 USA, $4 Canada per order; based on actual cost elsewhere. Check, VISA, MasterCard. Specify PC 360K or Kaypro 4 disk format. Sage Microsystems East, 1435 Centre St., Newton Centre MA 02159-2469, Voice (617) 965-3552 (9:00 AM to 11:30 PM), Modem (617) 965-7046 (v.32bis), e-mail SAGE@LL.MIT.EDU [3/96]

The SEBHC Journal is the magazine of the Society of Eight-Bit Heath Computerists, dedicated to Heath/Zenith H-8 and H-89 computers. It's published by Leonard Geisler, 895 Starwick Drive, Ann Arbor MI 48105, phone (313) 662-0750. [2/95]

Chuck Stafford sells products for Kaypro computers: Advent TurboROM, $35; hard-disk conversion kit, $185 (without clock); *Micro Cornucopia* Schematics and Theory of Operations for Kaypro II/2/IV, Kaypro 10, '84 Kaypros, $15 each, any two for $25, all three for $30; Kaypro 10 Tinker Kit, $10; Teac 96-tpi drives, $15 each or two for $25. Prices include tax and shipping. He sometimes has hard disks for sale: ST-225, ST-251, and others. Write to Charles B. Stafford, 4000 Norris Avenue, Sacramento CA 95821, or phone (916) 483-0312 evenings or weekends. [3/96]

Sydex sells PC software useful for copying CP/M files and handling CP/M disk formats (22DISK), running CP/M programs on a PC (22NICE), and copying CP/M boot disks without having the original machine (AnaDisk). Free sampler disks with the limited shareware versions are available. The registered versions, which are more powerful, are $25 each for 22DISK and AnaDisk, $40 for 22NICE (which includes 22DISK). Add $2.50 for shipping and handling with each order. Talk to Chuck or Miriam at Sydex, P.O. Box 5700, Eugene OR 97405, phone (541) 683-6033. [2/95]

Jim Thale sells the I/O board which gives the YASBEC two additional high-capacity disk formats, two serial ports, and two Centronics ports. The board's available with surface-mounts, PAL, and big chips only for $150, or with the additional parts for $210. James S. Thale, Jr., 1150 Somerset Avenue, Deerfield IL 60015-2944, phone (708) 948-5731. [2/95]

Trio Company of Cheektowaga, Ltd. sells several CP/M packages as well as PC software. They offer InfoStar 1.5 ($160), SuperSort 1.60 ($130), and WordStar 4.0 ($130). Write P.O. Box 594, Cheektowaga NY 14225, or call (716) 892-9630. [2/95]

Steven W. Vagts publishes *Z-100 LifeLine*, a bimonthly journal dedicated to the Zenith Z-100 dual 8088-8085 computer. A one-year subscription is $15 per year to any U.S. zip code, $18 to Canada or Mexico, and $20 to any other country, from Steven W. Vagts, 2409 Riddick Road, Elizabeth City NC 27909, phone (919) 338-8302. [2/96]

Walnut Creek CDROM sells the CP/M CDROM, containing over 480 Mb of CP/M public-domain software and freeware, including the entire Sound Potentials, CP/MUG, and SIGM collections. The cost is $39.95. California residents add 8.25% sales tax. Shipping is $5 in the US or Canada, $9 elsewhere. Walnut Creek CDROM, 4041 Pike Lane, Suite D-893, Concord CA 94520. Orders can also be placed at (800) 786-9907, or **orders@cdrom.com.** For questions phone (510) 674-0783 or fax (510) 674-0821. [2/95]

PUBLICATIONS

The following magazines and newsletters were received since last issue:

AIM, #117 (Vol. 12 No. 1, January 1996) and #118 (Vol. 12 No. 2, February 1996), is the newsletter of Adam's House, a company selling Coleco ADAM products. Issue 117 contains part II of *Hard Disk Drives* (sic), on adding a hard disk to the Adam, by Gene Welch. He also writes on installing a No-Slot SmartClock, and *Sleepless in Waterloo* is his account of ADAMCON 007. Issue 118 contains part III of Gene's hard-disk series. *AIM* is published by Terry R. Fowler, Adam's House, 1829-1 County Road 130, Pearland TX 77581-9503, phone (713) 482-5040, fax (713) 997-6907. [Coleco ADAM]

Amstrad PCW User's SIG, Vol. 9 No. 2 (November 1995) and Vol. 9 No. 3 (January 1996), is the newsletter of a special interest group of American Mensa Ltd. Both of these issues have information on converting the Amstrad from its 3" to a 3½" floppy-disk drive. The SIG chairman and publisher is Al Warsh, 6889 Crest Avenue, Riverside CA 92503, phone (909) 352-2521, CompuServe 73300,2644. Contact him for membership or subscription information. [Amstrad PCW]

A Bit More, December 1995/January 1996 and February 1996, is the newsletter of NOVAOUG, the Nova Osborne Users Group. The December/January issue contains a list of boot disks available from Don Maslin. Membership's $12 per year from William E. Kost, 7007 Brocton Court, Springfield VA 22150, phone (703) 569-2213. [Osbornes and PCs]

Classic Computer Society Newsletter, February 1996 and March 1996, is edited by Andy Shapiro. In the February issue Al Paarmann describes relative addressing. Contact the Classic Computer Society, P.O. Box 2007, Santa Barbara CA 93120, (805) 684-8838, for membership information. [All computers]

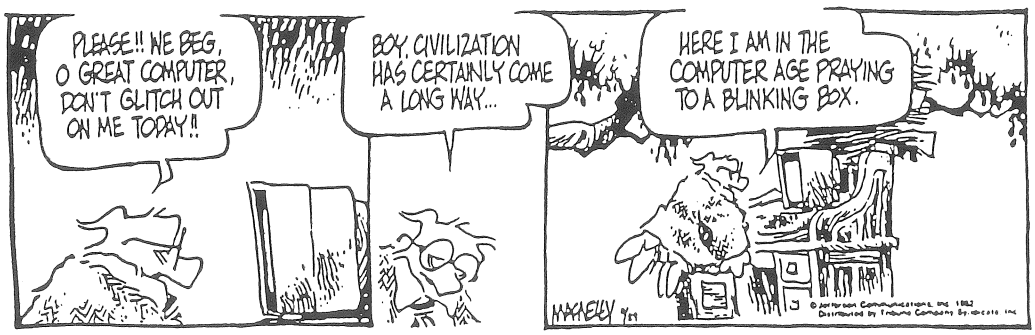
Sanyo PC Hackers Newsletter, December 1995, January 1996, and February 1996, contains some Sanyo CP/M model information, but most of the contents is for Sanyo PCs, mostly the MBC-550 series. Dues are $20/year 3rd class, $25 first class US or Canada, $30 foreign air; back issues are $2 singly or $17 for any 12 consecutive issues. Victor R. Frank, 12450 Skyline Blvd., Redwood City CA 94062-4541. [Sanyo]

TeleVideo Times, Vol. 1 Issue 1, February 1996, is published by TeleVideo, 2345 Harris Way, San Jose CA 95131, (408) 954-8333. This first issue announces the new TVI 9096, a low-cost color terminal. [TeleVideo terminals and computers]

Z-100 LifeLine, #43 (January-February 1996). This issue has a listing of the *Z-100 LifeLine* Software Library, and includes a master catalog disk and a *Z-100 LifeLine* 1996 Early Bird Disk. See RESOURCES for address and subscription information. [Z-100]

ART CREDITS

Tina Huovinen drew the picture on page 7 from a photograph taken by Gina Jefferson.



Shoe by Jeff MacNelly. Reprinted by permission: Tribune Media Services

THE HORSE'S MOUTH

Patch 2, ASM, 1/21/82

Whenever space permits, this column will reprint one of the Digital Research CP/M application notes or patches until they've all been printed. Like the DRI CP/M manuals, these very technical notes are intended for the advanced system programmer. Less knowledgeable readers are urged to attempt these only with the close personal assistance of a long-time CP/M guru. These notes won't be explicated or fleshed out, but will be printed with minimum alteration of content. In the examples, lines in lower case are typed by the user; other lines are program output. – DAJM

Program: ASM
Products and Serial Numbers Affected: CP/M V1.4 and V2.2

Error description

ASM occasionally generates an erroneous phase error when the identifier in a SET statement appears within an expression from another statement. For example,

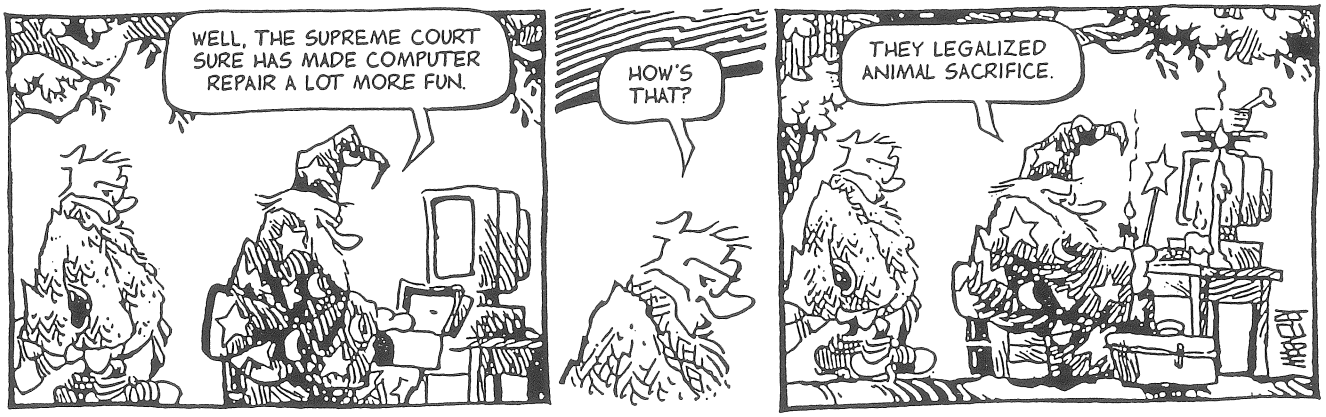
```
X     SET  1
Y     EQU  X
      END
```

Patch procedure

Make a back-up copy of ASM.COM before you use DDT to make the following changes.

```
A>ddt asm.com
DDT VERS 2.2
NEXT PC
2100 0100
-l1dad
1DAD CALL 1352
1DB0 CPI  05
1DB2 CNZ  20DD
-a1dad
1DAD CALL 1B8D
1DB0 .
-l1b8d
1B8D NOP
1B8E NOP
1B8F NOP
-a1b8d
1B8D CALL 1352
1B90 ORA  A
1B91 JZ   1DB5
1B94 RET
1B95 .
-^C
A>save 32 asm.com
```

Licensed users are granted the right to include these changes in CP/M software.



Shoe by Jeff MacNelly.

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Lambda Software Publishing Price List

149 West Hilliard Lane, Eugene, OR 97404-3057 – (541) 688-3563

AmigaZ80 – $45.

CPMUG public-domain software –
Catalog disk: $10. Lists all 92 disks.
Individual disks: $10 each.
Complete set: $400 (save $520).

Digital Research Inc. (Novell) –
Software is $25 each. Manuals are $20 each, $15 if purchased with the software.
Access Manager 1.1
Programmer's Guide
Reference Manual
BT-80 1.0
CBASIC 2.8
Reference Manual
CBASIC Compiler 2.0
Graphics Guide
Programming Guide
Reference Manual
CIS COBOL 4.5
CP/M 2.2
Operating System Manual
CP/M 3.0 (CP/M Plus)
Programmer's Guide
System Guide
User's Guide
The CP/M Card
User's Guide
CP/M Software Finder
CP/Net 1.1
Despool
DR Graph
Reference Guide
GSX-80 1.1
Programmer's Guide
User's Guide
Link 1.31
Operator's Guide
MAC 2.0
Language Manual and Applications Guide
MP/M
MP/M II
Programmer's Guide
System Guide
User's Guide
Pascal/MT+ 5.6.1
Reference Manual
Personal Basic Reference Guide
Personal Basic Tutorial
PL/I-80 1.4
Applications Guide
Language Manual
Programmer's Utilities Guide
RMAC 1.1
Reference Manual
SID
Reference Manual
User's Guide
SPP 5.5
User's Guide
TEX 1.0
User's Guide
XLT86 1.1
ZSID

DR Assembler Plus Tools set – $60.
Includes MAC, RMAC, SID, ZSID, *Programmer's Utilities Guide*, and *SID Reference Manual*

Eagle Computer Users Group newsletter –
July 87-October 90 in one volume, $15.

Echelon products –
Software and manual, $40 each;
Manuals only, $15 each.
Assembly Language Translators
DISCAT (version 1.3)
DSD
TERM III (version 1.2)
ZAS/ZLINK (version 3.0)
Z-MSG
Publications, $15 each,
$10 each if four or more ordered.
JetFind User's Guide
Kaypro Z-System Manual
ZCPR3 and IOPs
ZCPR3: The Libraries
ZCPR 3.3 User's Guide
ZDM/ZDMZ/ZDMH User's Guide
Z-Index, index to *The Z-News*
The Z-News, complete set
Z-Node Configuration
ZRDOS 1.0 Programmer's Guide
Z-System User's Guide

Lambda Access – $40.

LeBug (version 5.1) – $20.

MagicIndex text formatter (version 3.00) – $100.

Micro Cornucopia –
Back issues:
Issues 8, 10, 11: $8 @ US, Canada, Mexico, $10 each elsewhere.
All other issues: $4 @ US, Canada, Mexico, $6 apiece elsewhere.
Complete set: $150 (53 issues).
Author and subject index on disk: $10.
Kaypro disks –
Catalog disk: $5. Lists all 49 disks.
Individual disks: $5 each.
Entire set of disks: $200. Save $45.
Big Board disks –
Catalog disk: $5. Lists all 30 disks.
Individual disks: $5 each.
Entire set of disks: $100. Save $50.

MIX ASM (version 1.1.0) – $20.

MIX C (version 2.1.0) – $60.

MIX Editor (version 1.1.0) – $30.

SIG/M public-domain software –
Catalog disk: $10. Lists all 310 disks.
Individual disks: $10 each.
Complete set: $1000 (save $2100).

Sound Potentials and Sound Potentials II public-domain software –
Catalog disk: $10.
Any software in the collection: $10/disk.

Spellbinder Word Processor (version 5.3H) – $60.

SuperCalc 2 – $30.

TeleSolutions-80 – $25.

Turbo Editor Toolbox – $40.

UniForm – $65.
Versions available:
Actrix
Epson QX-10
Kaypro
Micromint
Morrow MD-2, 3
Morrow MD-5, 11, 16, 34
Osborne 1 (DD)
TeleVideo 801, 802, 802H
Toshiba T100
Xerox 820-II

Z-Fonts catalog – $3 (US, Canada, Mexico), $5 (elsewhere).
Z-Fonts – $8 each.

The Z-Letter –
Subscription: $18 per year, all countries.
Back issues, 1-11 at a time:
$3 each (US, Canada, Mexico),
$5 each (elsewhere).
Back issues, 12 or more:
$1.50 each (US),
$1.85 each (Canada & Mexico),
$3 each (all other).

Z-System software –
NZ-COM (version 1.2H) – $20.
Z3PLUS (version 1.02F) – $20.
ZCPR 3.4 source code – $15,
$10 if purchased with NZ-COM.
I/OR – $25.
B/Printer – $25.
NuKey (version 2.03) – $25.
All three at once – $60.

Floppy disks – $1 per disk.
8" SS, 8" DS, 10 hard-sector, 16 hard-sector.

Customizable diskette carriers – $3 each.
Each holds 3 5¼" disks.

Disk wallets – $3 each. Holds 6 5¼" disks.

Disk copying service – $10 per disk. Discounts over 20 disks.

ORDERING

Please allow 4-6 weeks for delivery. Sorry, no credit cards or CODs. If you live outside the U.S., payment should be in U.S. funds in an international money order. Don't add anything for shipping and handling; it's included in the price. Don't add anything for sales tax; Oregon has none.