The Z-Letter
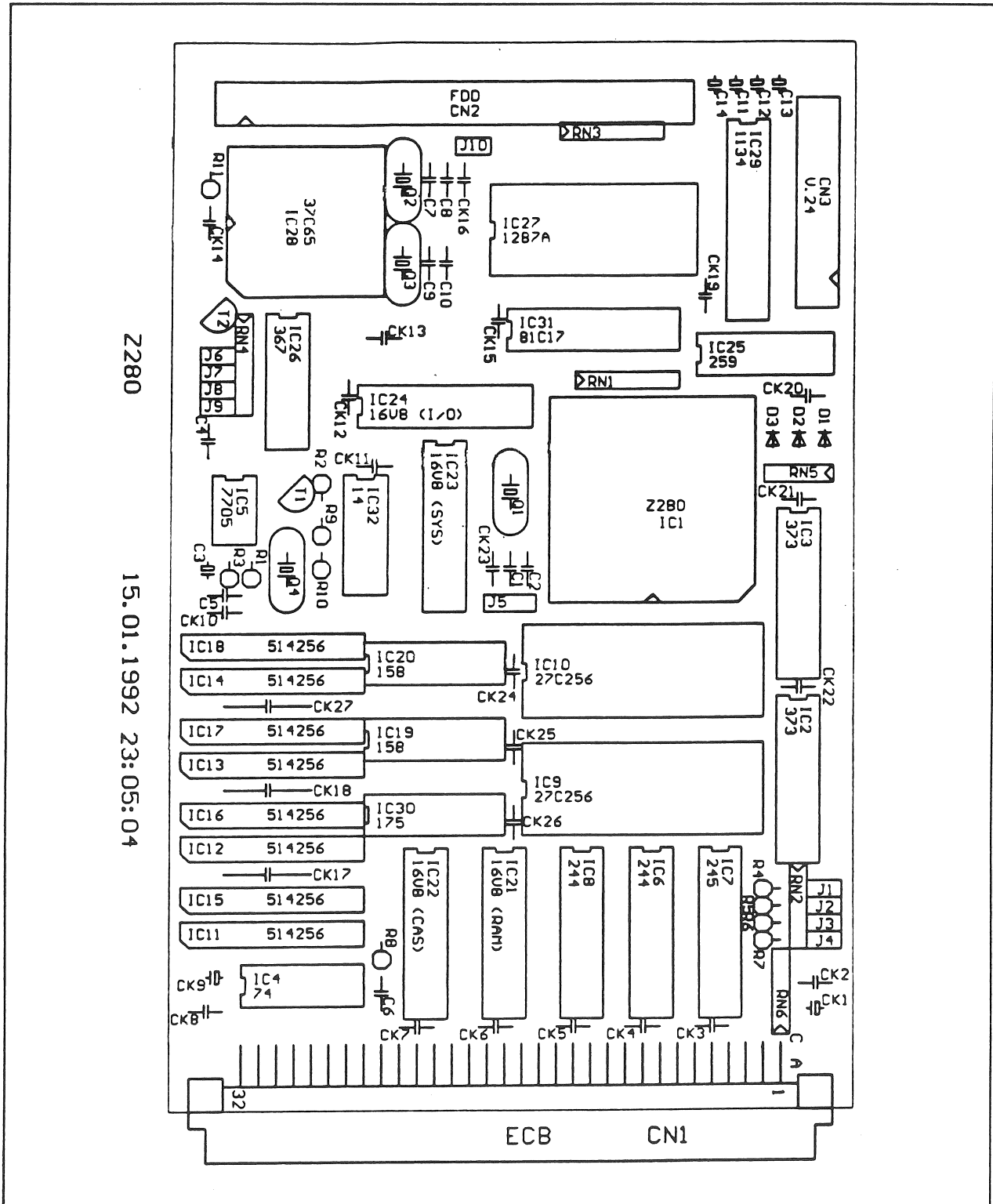
Newsletter of the CP/M and Z-System community

Number 21

June/July 1992

The CPU280 computer

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Welcome to *The Z-Letter*, a newsletter for the community of CP/M and Z-System users. Everything in this issue is copyright © 1992 by David A.J. McGlone, Lambda Software Publishing, 720 S. Second Street, San Jose, California 95112-5820, phone (408) 293-5176.

The purpose of this magazine is to spread the news about new developments in the community, and to help newcomers get the most out of their machines. So send us the news about your new software or hardware, your opinion of someone else's product, that article you've been meaning to write, your praise, gripes, or just plain questions! This is the place.

Please submit material on 5¼" diskette in almost any format, on 8" diskette, or printed or typewritten on clean white unlined paper. We cannot pay for articles, but the author of any article we publish will receive that issue of *The Z-Letter* free. If the author has a subscription, the subscription will be extended for one issue.

The Z-Letter reserves the right to edit for publication letters received.

RANDOM ACCESS

CP/M Museum being considered

Since the first thing anyone says to me these days is "Got a job yet?", I assume most readers will be interested in the answer to that question. I've been working with a career-management company called Stanley, Barber, Southard, Brown, and Associates, who aren't headhunters. Instead, they put you through tests to determine what your interests and aptitudes might be, and teach you how to market your skills, rather than hunt for a job. They've been in business for more than fifteen years, and have the highest standing with the local Better Business Bureau.

Not only does Stanley Barber have a zillion letters from former clients thanking them for helping them land a job at X, there are also some thanking them for helping people get started as writers, and others thanking them for helping people start their own businesses. The latter is what I have been pursuing. I have been writing a business plan, locating sources of grants, and otherwise looking into the feasibility of starting a museum of CP/M and Z-System computers, and having it pay me a salary, rather than going to work for someone else. I am, after all, now 40, and it is time I considered what I want to do when I grow up.

In connection with this, if any reader knows anything concrete about getting grants, or can help do so, or has any solid information about starting a business in California or Oregon, I would welcome any input. Please feel free to write about this — or anything else, of course.

One unexpected benefit of this exercise is that it has broken the logjam in my head, and I am seriously writing my non-fiction again. You may see my name on some science fiction before too long.

Nevada COBOL sold out

I have sold my last copy of Nevada COBOL and have no more to sell. If you were going to get a copy someday, it's now too late. However, you can still get a copy from Elliam Associates (see the RESOURCES section) for $39. Elliam has a contract with the owners of the software, so there should be no problem getting all the copies you want. I, on the other hand, was re-selling copies I had found in a surplus store.

Price of Z-Fonts goes up

I regret that I must raise the price of the bit-map Z-Fonts to $8 apiece. The former price was based on Digi-Fonts' extremely low royalty rates. They have raised their rates, and so I must raise mine. On the positive side, at $8 each the cost of the diskette(s) is negligible, so you need not guess in the future how many disks will be required. Just figure out which Z-Fonts you want, and multiply by $8.

Source of 96-tpi drives found

Double-sided double-density 96-tpi floppy-disk drives, also called "quad density" or "80-track" drives, have become hard to find. This leaves owners of machines such as Eagles, Pied Pipers, Monroes, etc. in some trouble if their drives wear out, or they want to add a second drive, upgrade a single-sided machine to a double-sided model, or the like. I have stumbled across a source of such drives.

Stanley Kung of City 1 Computronic Service, 932 Webster, Oakland CA 94607, has about 90 Mitsubishi M4853 drives (he had about 100, but I bought twelve). His work number is (510) 268-0963. He will take orders and ship them UPS for $18.50 each, or you can get them directly from him in Oakland or at the Foothill Flea Market for $10 each. Checks or money orders should be made payable to Stanley Kung. If any are found defective, he will replace them. Of the twelve I bought, four are defective.

Z-Fest in Florida?

Nancy Black, who writes the Beginning Computing column in *Computer Monthly*, sent me a copy of a letter from Edward Snow, Chair of Computer Information Science at Orlando College, a business college in Orlando, Florida. Ed says, in part, *I have been trying for some time to locate a CP/M system to use in several of the classes the college teaches in my department. For instance, in our Introduction to Computers class we trace the development of personal computers from the Altair to the Macintosh. We discuss the Osborne, for instance, as well as CP/M. Also, in our Operating Systems class CP/M is discussed. I would like to have a machine to use as a hands-on illustration of CP/M, as well as an example of the early portable computers. If you know of someone who could provide one for the college, please have them contact me.*

Ed and I got in contact, as a result of which, Ed has

bought an Eagle II, a Kaypro II, and a Morrow for his college. He is also sending me tapes of the lectures from the relevant courses, so I can fill in the gaps and bring the material up to date. Apparently the textbook which has the most to say about CP/M gives about four paragraphs to Gary Kildall and a couple to CP/M. And of course it says nothing about the Z-System.

Orlando College is also having a computer fair on September 5 and 6. Ed writes, *It is my goal to present all types of personal computers at the fair, not just IBM and Macintosh. If you would know of any CP/M group that would like to exhibit and present a seminar presentation, please let me know so that I can make a formal invitation.* Jay? Lee? Anybody? Someone on the east coast should contact Ed and see whether we can have a Z-Fest in Florida this year. The address is 5500 Diplomat Circle, Orlando FL 32810, phone (407) 628-5870.

Further notes on the Eagle V+

David Banoff, who owns an Eagle 1600, had some corrections to make to last issue's item on turning an Eagle IV into an Eagle V+, using parts from an Eagle 1630. First, Dave says that "1600" is the name of the whole line; the actual models are 1610 (2 floppies, no hard disk), 1620 (1 floppy, 1 10-Mb hard disk), and 1630 (1 floppy, 1 32-Mb hard disk). Secondly, Dave says that his 1600, which apparently is an older machine than the one I dissected for parts, *does* have the rare SASI card in it, rather than having SASI circuits in the mother board. So an older 1600 with this board has the entire Eagle hard-disk subsystem, and could be used to turn a I, II, or III into a IV+ or V+.

Surplus places to check out

Turpen A. Daughters told me of Mike Quinn Electronics (727 Langley Street (Bldg. 727), Oakland Airport CA 94614, phone (510) 569-1539). MQE is an old Army barracks building full of old computers and electronics stuff. I passed up several kinds of computers I already have, including some Xerox 820s, and a TeleVideo 801. I bought a TeleVideo 802 as is for $15 and an Eagle II as is for $35; both have things wrong with them, so the prices were right. I also passed up a Bondwell 12 CP/M portable, because they wanted $75 for it. TAD says he saw some Panasonic CP/M computers (I didn't) and that he got a CompuPro S-100 system (mother board, I/O, memory, CPU, controllers, and box) for $25.

I also visited Curtis Trading Company, aka Surplus Stuff from the big sign on the front of their warehouse, and on their trucks (776 S. Milpitas Blvd., Milpitas CA 95035, phone (408) 946-5455). Besides computer stuff of all descriptions, Curtis' two big warehouses also has office furniture, office equipment, shop and lab hardware, etc. The only CP/M computer I saw was a Morrow, complete with printer, terminal, and manuals, which I bought as is for $55 (it works fine, by the way). I also got some CP/M software that was shoved in among the shelves of MS-DOS stuff. And I made a donation of my own; they had a Xerox 860 IPS system, which is a dedicated word processor. Ken Thomson of ECUG had given me a box full of 8" disks for this machine, including original software and manuals. Since Sydex discovered, by examining the disks, that they weren't CP/M disks, and hence the Xerox 860 not a CP/M system, I gave Curtis the disks and manuals to go with the hardware.

Further adventures in collecting

What I have done in the last couple of months? Well, we've definitely established that Dynabyte disks can't be read by any other hardware known to man, including Sydex' fancy PC boards. This is why, when DRI referred a guy in Grants Pass to me, and he said he had a Dynabyte but no boot disk or manual, I didn't even try to sell those to him. Instead, I've sent him a Kaypro 4 '84 that I picked up in Weird Stuff, and he's sending me the Dynabyte for my collection.

Another interesting machine is the PBM-1000, sold to me by two guys in San Rafael. One of them has brain damage from a car accident, so they ended up getting a PC with Windows under the theory that this will be easier for him to use. I doubt the theory, but I bought the PBM-1000, and they gave me a couple of old printers and an H-89 that otherwise they would have thrown away. The PBM-1000 itself is a machine with a 5-Mb hard disk, a 96-tpi floppy-disk drive, 96k of memory, and a special version of CP/M 2.2 that can use the extra memory. It hooks up to a terminal (a TeleVideo 950, in this case) and comes in a metal box whose upper and lower halves are held together with two clips on each side; these clips are the same kind that a Kaypro uses to hold its keyboard on when shut. Jay at Mike Quinn's Electronics, who has the only other PBM-1000 I've heard of, says that MicroPro made these machines for use in house, and that the WordStar manual was written on them. Since the manual for the PBM-1000 is written by MicroPro, I can believe this.

At the June Foothill Flea Market, I bought 2 TEAC drives, a Kaypro 4 for $20, and a Kaypro 10 for $75. The TEAC drives and the Kaypro 4 don't work, but the Kaypro 10 does! At the July flea market I bought two NorthStar Horizons and an Apple III; I haven't tested them yet. And Ken Thomson found a guy who has a Rex computer and an Hewlett-Packard 125 computer, who is willing to sell them both to me. This hasn't happened yet, because the owner is in the middle of a move, but you'll probably hear more about this later.

INITIALIZING ZCPR BUFFERS WHEN INSTALLING ZCPR 3.3.

by Richard Brewster

I bought my Kaypro model 4-84 CP/M computer brand new in 1984 (for $1,900!). It came with vanilla CP/M 2.2, and a BIOS written by Kaypro. Before long I began to tinker with the operating system. The first modification I made was to replace the CCP (Console Command Processor) segment with ZCPR1 (Z80 Command Processor Replacement). I got ZCPR1 on a disk from *Micro Cornucopia* magazine. My next improvement was to disassemble the part of the BIOS code in memory. I found a bug in that code and fixed· it. (The bug would only show up if an unusual IOBYTE setting was selected, and so it probably did not affect most users.) That was a satisfying experience. I went on to replace the ROM BIOS with first, a *Micro C* ROM that had ZCPR1 hard coded for super fast warm booting, and then later the Advent Products TurboROM by Plu*Perfect Systems. I also added Plu*Perfect Systems DateStamper to the system. Along the way I naturally progressed from ZCPR1 to ZCPR2 and then ZCPR3. The step to ZCPR3 was a big one, and I had a problem getting it to work initially that discouraged me. I would have been running ZCPR version 3.3 a year earlier than I did, had I known better how to initialize its in-memory segments. That's the subject of this article: how to initialize the memory segments needed by ZCPR33 without having to put *any* initialization code into your BIOS cold-boot loader.

If you have ZCPR 3.4, which you can get and install automatically by using NZCOM (for CP/M 2.2 systems) or Z3PLUS (for CP/M 3.0 systems), you won't have to go through any of this. But it's fun, really, and will give you a good idea appreciation of what NZCOM or Z3PLUS are doing for you.

First, take a look at the configuration of my Z-System, which is taken from my Z3BASELIB file.

Address Range	Size	Function
0 – FF	256 b	Standard CP/M Buffers
100 – CFFF	51.75 K	Transient Program Area, 59K CPM
D000 – D7FF	2 K	ZCPR 3.3 Command Processor
D800 – E5FF	3.5 K	BDOS 2.2 + DateStamper
E600 – EAFF	1280 b	Advent BIOS + DateStamper
EB00 – F2FF	2 K	Resident Command Package
F300 – F4FF	512 b	Flow Command Package
F500 – F57F	128 b	ZCPR3 Shell Stack
F580 – F5CF	80 b	ZCPR3 Message Buffers
F5D0 – F5F3	36 b	ZCPR3 External FCB
F5F4 – F5FE	11 b	ZCPR3 External Path
F5FF	1 b	Wheel Byte
F600 – F6FF	256 b	Environment Descriptor Bytes 00H-7FH: Z3 Parameters Bytes 80H-FFH: Z3 TCAP
F700 – F79F	160 b	Multiple Command Line Buffer
F7A0 – F7CF	48 b	ZCPR3 External Stack
F7D0 – F7DC	13 b	Unused
F7DD – FFFF	2083 b	BIOS buffers

Figure 1. Memory map of my system

In order to bring any CP/M or Z-System up to the point of getting a command prompt, e.g., A0<, the normal procedure is generally as follows. When the computer is reset, a cold-boot program is executed from ROM. This program usually performs some hardware initialization of ports and then loads the in-memory portion of the BIOS from the system tracks of the boot disk. The last step in this cold-boot sequence is to jump to the warm-boot call in the BIOS. The warm-boot call then loads both the BDOS and the CCP from the system tracks of the boot disk, and jumps to the CCP. The CCP prints the prompt and awaits your command.

If you simply replace the CP/M CCP with ZCPR1 or ZCPR2 without any external buffers, then this sequence remains the same. It is when you begin to add external buffers — the buffers that really give the Z-System its power — that you begin to encounter initialization considerations. Some ZCPR external segments need initialization, and some do not. It was learning which ones do, and how to initialize them, that had me stumped for a while. A change in the cold-boot sequence is required: certain buffers need to be initialized *before* jumping to the warm boot, since ZCPR3 expects certain things to be in place already when it loads. A common solution to this problem is to add code to the cold-boot program that does the initialization. I solved the problem in a completely different way. I simply assembled a ZCPR2 without any external buffers and integrated this with the system tracks on a special cold-boot diskette. My system thus cold boots with ZCPR2 in the same memory location as ZCPR3, and then I use one command under ZCPR2 that initializes all the ZCPR3 memory segments at once. Then I place a second, warm-boot disk with the ZCPR3 system on it into my system drive and hit control-C. ZCPR3 warm boots into place and everything works like a charm. I'll explain the details next.

As you can see in Figure 1, in my Z-System the ZCPR3 segments begin at EB00h with the RCP segment. Other segments follow, up to address F7DDh, which just happens to be the first RAM that is used by the Advent BIOS for disk buffering. In my system the addresses above F7DDh are reserved for the BIOS. My idea for initializing the ZCPR segments is simple. I create a disk file that contains a binary image of what I want the system memory from EB00h through F7DDh to look like when the ZCPR3 CPR starts to run. I'd like to have the RCP, FCP, ENV, etc., all in place and ready to go. Also, I'd like any buffers, especially the MCL (Memory Command Line) to be initialized properly. Once this file (which I call Z33.MEM) has been created, all I have to do is load it into place at EB00h, using the ZCPR2 command:

    GET EB00 Z33.MEM

There is just one catch, and this is that the ZCPR2 system I have (and I suppose most are the same) includes a check on the address parameter to the GET command, and normally will refuse to load anything that is higher than the address of the CCP itself. This provision helps to protect the operating system from being trashed by an erroneous GET parameter. (In ZCPR3 there is an option to enable or disable this test with GET.) So I had to make a small modification to the ZCPR2 source code:

```
————————— TEXT FROM ZCPR2.AZM, 1 LINES FROM LINE 1 —————————
; ZCPR2.AZM              2/6/88            RICH BREWSTER
————————— TEXT FROM ZCPR2.ASM, 1 LINES FROM LINE 1 —————————
; ZCPR2.AZM              6/29/89           RICH BREWSTER

————————— TEXT FROM ZCPR2.AZM, 3 LINES FROM LINE 2242 —————————
LD    A,.HIGH.ENTRY-1  ;GET HIGH-ORDER ADR OF JUST BELOW CPR
CP    H                ;ARE WE GOING TO OVERWRITE THE CPR?
JR    C,PRNLE          ;ERROR IF SO
————————— TEXT FROM ZCPR2.ASM, 3 LINES FROM LINE 2242 —————————
; LD    A,.HIGH.ENTRY-1  ;GET HIGH-ORDER ADR OF JUST BELOW CPR
; CP    H                ;ARE WE GOING TO OVERWRITE THE CPR?
; JR    C,PRNLE          ;ERROR IF SO
————————————————— END OF COMPARISONS —————————————————
```

Figure 2. Change to ZCPR2 source code

Figure 2 shows the output of a text-comparison program (DF by Richard Greenlaw) run on ZCPR2.AZM and ZCPR2.ASM. This just shows that the test part of the code has been commented out. (By the way, the "AZM" type is not a crunched file; it's the file type required for input to the Z80MR public-domain assembler.) Once this change has been made to the ZCPR2 source code, everything works fine. The ZCPR2 source code is available from many Z-Node bulletin boards, or from SOUND POTENTIALS as ZCPR2 packaged by Richard Brewster (see RESOURCES for the address of SOUND POTENTIALS). My package also includes the Z80MR assembler.

Buffers needing initialization in ZCPR3

ZCPR3 needs to have some information at hand when it begins to run. I am not an expert in knowing exactly what it needs, so my comments here can be expanded upon by those more knowledgeable than I. For sure, the MCL has to be initialized. The first four bytes of the MCL have special usage. The first two bytes contain a pointer to the next command to be processed. These bytes are normally used by the CPR or a utility program that places a command into the MCL. They have to be initialized to point to the start of the MCL command line, which is MCL+4 bytes. The low-order byte comes first. The third byte has to contain the size in bytes of the whole buffer. Byte number four is reserved for a character count, and byte number five is the first byte of the actual command line. In my system these bytes are initialized to:

    F700: 04 F7 A0 00 20 00

The A0h is 160 decimal, the total size of the MCL in my system. The next 00h is the initial character count. The 20h and 00h that follow are just a dummy command line. Note that the dummy line is null terminated. I imagine, though I have not tried it, that you could place any ZCPR3 command line here for automatic execution.

Other segments you will need to initialize are the PATH, the WHEEL byte, and ENVironment descriptor. It is also a good idea to null out the SHELL STACK and MSG buffers to binary zeros. For good measure, I also null out the External FCB, the remainder of the MCL, and the External Stack, although these need not be zeroed. As for the remaining segments, i.e., RCP and FCP (plus NDR and IOP, which I do not use), these could very well be loaded by LDR.COM. I prefer to include them all

together in my Z33.MEM file and load them all at once.

I won't go into a step-by-step analysis of the process of creating the Z33.MEM file, since it will be different for each system, and because there are many ways of creating it. I'll just give a rough outline.

On my system Z33.MEM turns out to be 13 256-byte sectors in size, which covers from EB00h up to F7FFh. (This cuts a little bit into the BIOS buffers, but has never produced any bad effects.) You simply take your existing .FCP, .RCP, .ENV, .IOP, and .NDR segments, and concatenate them in the right order to produce a Z33.MEM file. I start by generating a file of all binary zeros by running DDT and using the fill command: F,100,1000,00. I then g0 (i.e., quit DDT) and SAVE 13 Z33NULL.MEM. After that, I use the GET command to overlay the segments in their proper location, e.g. in my case:

    GET 100 Z33NULL.MEM
    GET 100 Z33.RCP
    GET 900 Z33.FCP
    GET C00 Z33.ENV
    SAVE 13 Z33.MEM

I can then use ZPATCH or ZP on Z33.MEM to initialize the MCL, PATH, and WHEEL byte. I am sure there are many ways to skin this particular cat, and you are welcome to find your own.

In summary, to get ZCPR 3.3 up and running by this method, you would do the following:

1. Design your Z-System and assemble ZCPR33.
2. Integrate ZCPR33 with your system tracks on a WARM-BOOT disk.
3. Assemble a special ZCPR2 (with no external buffers), located at the same memory address as your ZCPR33 CPR.
4. Integrate ZCPR2 with your system tracks on a COLD-BOOT disk.
5. Assemble your RCP, FCB, NDR, and IOP segments as usual.
6. Create a file, Z33.MEM, which contains a memory image of all your Z-System segments and buffers, and place this on your COLD-BOOT disk.

Then each time you start up your system, you perform these steps:

1. COLD BOOT ZCPR2 with the cold-boot disk and then give a command such as the following:

GET EB00 Z33.MEM

(NOTE: I implemented this command as an autostart command to be executed upon cold boot, so I never have to type it.)

2. Swap to the warm-boot diskette that has ZCPR33 on it and hit control-C. You are now running ZCPR33!

Caveats

One drawback to this method is that you have to swap in your cold-boot diskette every time you need to hit the reset button. Then you have to swap back to a ZCPR33 system disk and hit control-C. I have found that a few aliases easily restore my system to where it was before a program crash.

Perhaps a greater disadvantage to this method is that it will not work if you are booting from a hard disk. However, hard-disk systems usually have a provision for booting from floppy. You might be able to do the cold boot from a floppy and then warm boot ZCPR33 from the hard disk. I imagine, though that in many cases, hard-disk users may already have cold-boot code in place to initialize their ZCPR33 buffers, obviating the need for my method.

SCRIPT OF THE MONTH CLUB

My Two Most-Used ARUNZ Scripts
by Jay Sage

My last few columns, which dealt with ZEX scripts, were pretty long, so this time I'm going to cover some short ones. Specifically, I am going to present the two ARUNZ scripts that I use by far the most. As you will see, they are not at all complicated. They do simple jobs, but jobs that I do often.

The number-one honors for frequency of usage surely go to my D alias, which displays a directory of files. The important special twist is that it makes the file specification "wild" automatically. It is very rare that I need to insist on a directory display strictly limited to a specific file (e.g., SD THISFILE.TYP). Most of the time I am looking for files matching a more general specification (e.g., SD *.COM), and even when I am looking for one particular file, it is usually better to be a little more general about the specification. After all, why look for PROG137.LBR when there might already be a PROG138.LBR? The command SD PROG*.LBR will be much more effective.

Here is the definition for the D alias:

    D   sd $tp1$tn1*$tt1* $-1

The first ARUNZ parameter, $tp1, gets any path specification (i.e., DU: or DIR:) in the first command-line token. The next parameter, $tn1, gets any file name in the first token. To this is appended an asterisk to make the name wild and a period to separate the name from the file type. The third parameter, $tt1, gets any file type specified. To this also an asterisk is appended. Finally, any other tokens on the command line (perhaps some option switches for SD) are included by the parameter $-1 (all tokens except the first).

With this alias in my arsenal, I can get the effect of entering the commands SD *.COM or SD PROG*.LBR by entering just D .COM or D PROG.LBR. The latter commands are much easier and faster to type, because asterisks require pressing the shift key and, unless you are a much better than average typist, looking at the keyboard and taking your hands away from the standard touch-typing position.

My second most used alias is called NEWFILES. It invokes the program FD (File Date) that comes with ZSDOS. It is a directory-display program that knows about file datestamps, and one of its options is to display files sorted by date. Here is the definition of the alias:

    NEWF,ILES   b0:fd $tp1$tn1*$tt1* /-$-1

First note that I allow a shorter version of the alias name; only the first four letters are required. The first part of the definition is quite similar to the one for D. The program FD.COM is invoked from directory B0:, and the first command-line token is converted to fully wildcarded form. Then the option /- is appended, followed by any other options that might be given on the command line (though I can't remember any time I have done that). The /- option specifies that the files should be sorted in order by their modification dates, starting with the newest file. This alias gives me a very quick way to see what's new in any

directory.

These two aliases illustrate two general techniques that I use frequently. One is automatic wildcarding of file specifications so I don't have to type the asterisks; the other is providing standard options so I don't have to remember the syntax for a program. One final comment: since I use these aliases so often, I place them at the beginning of my ALIAS.CMD file. Even when ALIAS.CMD is stored on a RAM disk, this turns out to improve the speed of access quite noticeably.

LETTERS

SOUND POTENTIALS demise postponed

May 19, 1992

Dear David,

This is just a note to let you know it has turned out that we will be around for the rest of the year, and that I will be filling SOUND POTENTIALS orders for the remainder of 1992. Although there are only about 50 printed catalogs left, and no more to be printed, the disk version of the catalog will remain available. So if you like you may run the SOUND POTENTIALS ad again in *The Z-Letter* up through November of '92.

Sincerely,
Richard E. Brewster
SOUND POTENTIALS
R.D. 1, Box 46
Brackney PA 18812

HDOS and MS-DOS

May 18, 1992

Dear Dave:

Was good to meet you at Trenton. I mentioned at that time that I was going to try to build a YASBEC into a laptop. I even went as far as buying a junk Zenith minisport. Investigation revealed that the only problem was a defective power switch. I now have a working Messy-Dos computer, as I don't hate MS-DOS that much, to tear up a working computer.

Your comments in the latest issue of *The Z-Letter* concerning the origins of MS-DOS and its being a CP/M ripoff are somewhat at variance with the stories that traveled through the Heathkit world at that time.

The Heath Disk Operating System was written by a contract programmer, J. Garry Letwin. His name appears on the HDOS source code, and he even used his initials to fill in final sectors of programs. The story goes that after completing HDOS, he turned to developing a 16-bit version. This was offered to Heath and was rejected by them. The story continues that he tried to peddle the system to various companies. Microsoft saw this as a chance to compete with DRI for the IBM-PC operating-system contract. The story ended at the time with Gary Letwin selling the DOS to Microsoft for a rumored price of $35,000 and a job. Gary Letwin is now a Vice President of Open Systems development for Microsoft.

I cannot vouch for any of the above, but it was a good story at the time. MS-DOS version 1 commands bore many similarities to HDOS.

So much for history. Good luck with *The Z-Letter*, and I hope you got everything back safely from Trenton.

Edmund McGovern
20 Jericho Street
East Islip NY 11730-1432

Ed, it was good to meet you, too, and everyone else at Trenton. Thanks for your help in getting my stuff back to the motel. Everything made it back to San Jose just fine.

Anyone have a broken MS-DOS laptop to give Ed? It would have to be something he couldn't fix, but could still use to put his YASBEC into. If you took the MS-DOS motherboard out first, he couldn't possibly fix it, and it would be cheaper to ship, too.

The thing that makes me doubt your HDOS story, Ed, is the fact that MS-DOS was developed by a one-man Washington company called Seattle Computing (or something very like that). A few years ago, Microsoft sued this company because they were selling computers with MS-DOS and not paying Microsoft a royalty. Seattle Computers counter-sued, saying that their contract with Microsoft gave them the right to sell MS-DOS in their computers, as long as they didn't sell it as separate software to anyone. I don't know how the lawsuit came out, but it doesn't sound like the guy who wrote MS-DOS (under the name S-DOS, I seem to recall) went to work for

Microsoft. Rather, it sounds like his own company was still in business and selling computers a few years ago.

Chicago BBS, Epson QX-10

May 22, 1992

Dear David,

Enclosed please find my check for a donation to your enterprise. I am the Sysop of Z-Node 11 (the Antelope Freeway BBS, (708) 455-0120, 2400 bps, 24 hours/day), as well as the Sysop of the QX-Link BBS ((708) 455-9193, 2400 bps, 24 hours/day). The Antelope is affiliated with Computer People United (formerly CFOG). The QX-Link is the regional support BBS for older Epson equipment. In Chicago, these two boards are one of the few places where 8-bit equipment is still supported. I sympathize with your current situation, as the usage of these systems is becoming less frequent. It is always gratifying when someone logs on and is overwhelmed by the volume of our material. Usually these people received an old machine, with no software, etc. I always refer people to you for system disks.

Personally, I enjoy the way the eight-bit community operates. These talented programmers have always astounded me with their elegant and efficient use of the scarce resources available on these old machines. The comraderie among this community reminds me of the old days, when programs kept improving, yet remained public domain. While I do not program as much as I'd like to, I intend to keep the BBS's running as long as I can. If you ever need information pertaining to Epson computers, be sure to let me know.

My current desire is to be able to get a SCSI interface together for the QX-10. If you have anyone who is working on this interface for other machines, please cajole them into an article for your magazine, or pass my address on to them. The way I see it, the only way to keep our appreciation for eight-bitters going is to keep pushing the envelope of technology. The YASBEC and the Z-System are giant steps in the right direction.

In closing, PLEASE keep up the great work, it is appreciated!

Sincerely,
Chuck Erickson

Several people have astounded and flattered me by sending outright donations of money, not even ordering a product.

I'm not sure they even want to be named, but thanks to all of you, from the bottom of my heart. Kind words make my day, and the sincerity of kind words accompanied by money can scarcely be doubted.

I sure wish someone would design a board with 512K or so of memory, and SCSI circuits. That would enable us to add SCSI hard disks and other devices to not only QX-10s, but to Eagles, Morrows, Kaypros, Attaches, etc. With the extra memory, we could even use the banked version of Hal Bower's B/P Bios. So far, everyone I've approached on the subject has bailed out after a little thinking about the subject. A local computer group, the PMC Micromate User's Group, actually designed and built such a board a few years ago, but show no interest in building another batch of boards, or modifying the board for other machines. If I could get the design from them, and permission to use it, is there anyone out there who could adapt it for other machines, and would be willing to do so?

Spiders and lint, oh my!

July 8, 1992

Dear Dave:

This has been an interesting two months. It started when I took down a ceiling panel in my office. I dropped a colony of Brown Recluse spiders all over me, the Great Slavering Beast, and everything else in a ten-foot radius. I had to fumigate the whole house double strength.

I got all bit up, to the point where a doctor had to give me special shots and some salve to rub on the little ulcers those bites cause. The sores are gone now, so that part's over.

The Beast got bit up, too! Both drives quit next time I tried to use them. Couldn't read or write anything, steppers burbled and growled, sounded like a small war going on in there.

I've had trouble with my Shugarts from day one, so I bought and installed two new TEACs from Jerry Davis. When I took out the Shugarts, I found spider webs and lint. To see what would happen, I vacuumed out the big stuff, swabbed out the worm gears and slides with Q-Tips, and tested them. The steppers sound like new, both drives read-test 100% on my reserve disks, and everything's hunky-dory now.

I know now that my Shugarts are vulnerable to dust. All I have to do is swab them out and I can use them for a long time. Now ain't that a blast? I'm using the

TEACs because they run at least twice as fast as the Shugarts. Now I have four drives in good working order, 100% interchangeable.

But I couldn't read my day-to-day working disks. I sent them to Dave for data recovery. He couldn't do it, so he sent them to Sydex. They dragged the alignment way off to one side and recovered all but one disk. I kinda think they'll be able to recover that one, too, off the backup.

Remember, these are day-to-day disks that I've been using since 1986 with no problems. That tripped my radar. Out of that come things that some of your readers might be able to use.

The Shugarts drag the disks along when alignment drifts. I suspect the TEACs do, too. That means everybody needs to keep back an extra set of reserve backup disks with everything on them, and use them to read-test the drives periodically. If I'd done that, there's have been no need for data recovery. That · would have exposed the drift in one drive early, giving me a chance to swab it out, reformat any bad disks, and recover everything with the other drive.

I also learned the hard way that one does not use a clean bed sheet to cover the Beast. Lint slowly settles into the drives over a couple of years, is sucked into the machinery by the muffin fan, settles on the worm gear, and slowly pushes it off alignment bit by bit, dragging the disk with it. I guess you know I have a home-made plastic dust cover now, made out of 4-mil plastic drop cloth from the lumber yard. Yes, Virginia, it's non-static.

Then I hit another problem. Some 3M disks won't format in the TEACs, but work fine in the Shugarts. Others format in the TEACs, but won't take system tracks, and work fine in the Shugarts. It took some testing to run it down. The TEACs don't grip the hubs quite as tight as the Shugarts, letting the disks slip. That was confirmed by trying to format a box of Radio Shack disks, which have no hub rings. Half didn't work at all in the TEACs, and two wouldn't work in the Shugarts. Now I'm beating the bushes for add-on hub rings like I used to be able to buy. If anyone knows where I can get some, I want to try them on the "bad" disks before I throw them out.

My insurance requires my source-code disks to be rated 96 tpi. If they catch me overloading 48-tpi disks, it's no good. There's no way I can buy 5¼" DSDD 96-tpi disks from computer stores. But by doggies I found an almost unlimited source — office-

supply houses. Every one I talked to carries 5¼" DSDD 96-tpi disks. Most have to be specially ordered and the cost is high, but to me it's worth it. They all carry 3M, most carry Maxell, and some carry Dysan. Nobody else makes them.

There is a problem with the catalogs. All but Quill have them so mislabeled that you have to know the manufacturer's numbers to order them. 3M is 00240. Maxell is MD2-DD (don't order MD2-D, that's 48 tpi). You can probably special-order Dysan, but many office outfits don't carry the brand. Some catalogs call them quad density (DSQD). That's valid, but be sure to check the manufacturer's numbers.

That gives me breathing space until I can find a source for 3½" interchangeable drives. I can buy them around here. Prices will run about $60 to $80 for brand new, still in the box. Once I find out how to configure them, I'll report back.

One thing I run into everywhere is eventual discontinuance of 5¼" disks. How much of that is sales hype and how much real, I don't know. But I do know that those of us who want to keep using Eagle, Heath-Zenith and other orphans are going to have to convert some time. So, I'll get on it.

More later on add-on hub rings and 3½" drives.

Sincerely,
Eugene Austin
P.O. Box 115
Tilden NE 68781
No telephone

A few comments, for a letter that mostly speaks for itself. First, the Great Slavering Beast is Gene's name for his two-floppy, no-hard-disk Eagle III. Second, we've always known that Gene's disks were out of alignment. This was shown by the fact that he couldn't read Eagle disks sent to him, by and large. Of course any machinery with moving parts is vulnerable to dust, dirt, lint, spider webs, or any other foreign matter; that's why office machinery, let alone computers, have always had dust covers. Most dust covers are non-static plastic, in the case of computers, for precisely the reasons Gene discovered. Plastic dust covers also keep out corrosive liquids, such as coffee, pepsi, and cat urine.

Gene says that out-of-alignment disk drives drag the disks along, too. Not so. The disks just sit there, spinning. But remember that it is the drives that write information on the disks, including the initial disk formatting. If the drives are out of alignment, the read-write heads are off to one side of where they're supposed to be for a given track.

That necessarily means that the tracks will be written to one side, also. It could not be otherwise, because the disk drives write the information on the disk.

You probably won't be able to find add-on hub rings these days. It has been many years since disks were not routinely made with hub rings. In addition, the add-ons had problems such as being stuck on out of alignment, causing problems when they were inserted in the drives, and coming unstuck in the drives. It would be better to copy the information on any disks without hub rings to disks that have them, and then throw the hubless disks away, and don't buy that kind any more.

I use 48-tpi disks in 96-tpi drives regularly, with no problems. On the other hand, I am not using the disks in a floppy-only machine, and wearing them out the way the ones you sent me were worn out. My machine operates off a hard disk, and floppy disks are used only to back up the information on the hard disk, and to transfer files to the hard disk. So they are used very lightly, and last forever. Dirt and dust and lint can also mess up floppy disks themselves; the disks you sent were very dirty. Keep them in their envelopes whenever they are not in use, and put them away in a disk box, file-cabinet drawer, or other closed container when you're done for the day. I've never been to your house, Gene, but I've seen lots of people's work spaces. Leaving disks lying around on the desk, without even envelopes to protect them, and letting dust settle on them, is very common.

5¼" disk drives may eventually cease to be manufactured, though I doubt it. It's more likely that the drives will continue to be made, but the only disks that will be available will be the wimpy high-density disks that, because of the thinness of the magnetic medium on them, wear out very fast and cannot be formatted in the higher magnetic field strength of our older drives. In either case, between all the disks I get with every machine I acquire for my collection, and the fact that I only use floppy disks to back up my hard disk, I have enough floppies on hand to last me the rest of my life.

The CPU280 is coming

Presumably you have already heard about the CPU280. If not, go to *The Computer Journal* issue 53 for details. In short, it is a single-board microcomputer with the Zilog Z280 CPU running at close to 12.5 MHz. As such it is the most powerful CP/M machine available now. It was designed by Tilmann Reh in Germany, and several dozen systems based on it are in use in Germany already.

A short description of its features (for the full detail, please look at the *TCJ* article):

- Z280 CPU running at 12.288 MHz, with a 16-bit Z-bus internal to the board.
- Between 1 and 4 Mb of memory, 16 bits wide, no wait states, with burst access for code fetches (using regular memory chips, no nibble-mode RAMs required).
- Up to 128 Kb of EPROM.
- Two serial ports with modem-control signals.
- Floppy-disk controller for up to 4 drives, any mix of 8", 5¼", and 3½".
- Real-time clock with NVRAM for configuration information.
- ECB bus interface for external I/O, timing mimics a 6-MHz Z80 system, supports vectored interrupts and RETI instructions on the external bus.

There are no surface-mount components, and the PC board is two layers.

The software which runs the system contains device drivers for all the I/O mentioned above, plus a RAM disk in the memory not used by the system, and utilities to set up the system. It automatically recognizes different disk formats; see the *TCJ* article for details. It is set up to run under CP/M 3.0 (aka CP/M Plus), which boots from EPROM.

The board uses the single-size European form factor (100 x 160 mm, or about 4" by 6", mechanically the same as an A-size VME board), and has the DIN connector for an ECB bus on the back. *[See the cover for schematic of the board layout — DAJM]* One can operate the boards stand-alone, using the bus connector just to supply power to it (it needs only +5V, 350 mA). Or one can connect expansion I/O boards via a bus backplane; if there is only one expansion board, the back plane could be just a ribbon cable with two female DIN connectors. If one intends to have many expansion boards, a back plane and a euro-crate are necessary. For just one or two boards it would not be required. One such expansion board is an IDE hard-disk interface which Tilmann Reh has developed, and which should become available later this summer.

I have the first CPU280 board in the U.S. running happily in the Santa Cruz mountains. Tilmann, Jay Sage, and I have been thinking about getting a few more of them into the hands of the true diehard CP/M hacker community. We were hoping that the boards, software, and parts would all be distributed by a commercial supplier, but the company which had been interested bowed out at the last moment.

The fallback position is that Jay distributes the boards, and I organize a group buy of parts kits for interested enthusiasts. Unfortunately, some of the rarer parts (the CPU, the floppy controller, the serial interface components) are a little hard to obtain for hobbyists in small quantities, so a group purchase seems to be the way to go.

The news is that Jay Sage has brought 15 empty PC boards and the software to go with it from Tilmann Reh to the U.S. Of those 15, 8 are bespoken, but the others are still available from Jay (contact him at Sage Microsystems East, phone number and address in the RESOURCES section of *The Z-Letter*). The cost of the boards with software will be between $130 and $150 (depending, among other things, on the $-to-DM exchange rate).

I have been preparing to make parts kit for interested people. A complete kit for the CPU280 board (containing all ICs, all passive components, sockets for all ICs, bus connector and a power connector, the connectors for the two serial lines, and programmed EPROMs and GALs) will probably run $300 with 2 MB of memory (about $25 less for 1 MB, and $80 more for 4 MB); those prices are still uncertain by as much as 20% (I haven't received quotes from all the distributors yet). It is possible to make partial kits (excluding certain components which you already have at hand). A deposit of about half the cost of the kit will be required (I don't want to be stuck with a drawer full of Z280 CPUs which I have no use for); one method would be a check which I won't cash until the kits are actually sent out. Please let me know by the end of July if you are interested. I will contact the eight people who already have ordered boards from Jay; otherwise you can contact me at:

 Ralph Becker-Szendy
 869 San Lorenzo Avenue
 Felton CA 95018
 (408) 335-4347
 Internet: ralph@slacvm.slac.stanford.edu
  (preferred method)

Now the disclaimer: This is a hobbyist's system. You have to put it together yourself, hook up floppy disk drives, install the operating system, and know how to use CP/M if you want to get some fun out of it. The Z280 CPU has some known problems (bugs which Zilog acknowledges, most of which only affect DMA and I/O, and even some very bizarre bugs which Zilog does not acknowledge). Tilmann and another few dozen people in Germany are using the system rather successfully, and their experience is that all standard software (editors, compilers, utilities and such) works just fine. Jay and I would prefer that only people who have the required experience try this system. If you don't know which side of a soldering iron is the business end, this is not the correct system for you! And last, but not least, I have no intention of making a profit from the group buy; should such a thing happen, I will refund it, or, if that turns out to be impractical, donate the profit to *The Z-Letter* (a cause worth supporting, in my view).

   Sincerely,
   Ralph Becker-Szendy

   Another Z80 simulator

      July 14th 1992
Dear David:

Pardon my delay in contacting you! I have just completed my move to New Jersey from Colorado, and can now access my stock, records, etc. Please note my new address and phone for future reference. So how is your newsletter going? What's the scoop on *The Computer Journal*, since their move to California? Find work yet?

I've also sent a letter to Simeon Cran, an Australian whom I've corresponded with on the FidoNet CP/M Tech echo. He has a Z80 simulator package for the PC that potentially permits execution of a user-installed CP/M or Z-System operating system! It is also reasonably fast; equivalent to a 10-MHz Z80 on a 386/25. We are discussing terminal/system emulation options and a sense of the American market for his product, called MYZ80. I'd appreciate any reader feedback, as well as your own, on such a product.

I hope you aren't too offended by my IBM-PC activities. I am trying to stir interest in the Z80/180 direction, and am still one of the last remaining resources for S-100 equipment (IMSAI, Altair, CompuPro) and knowledge. However, inquiries are down to a few a month (when I run ads) and I fear for the future of the hobby Z80 world.

   Sincerely yours,
   Herb Johnson
   CN 5256 #105
   Princeton NJ 08543
   (609) 588-5316

MYZ80 sounds interesting, Herb. We need a good Z80 simulator so that we can run the latest Z-System software on PCs. If for no other reason, the old CP/M machines

will eventually all wear out, and the new machines will never be manufactured in PC quantities, and hence will always be more expensive. Right now we have some CP/M emulators, of which 22NICE from Sydex is reputedly the best, but that doesn't give us Z-System features. There is an American Z80 simulator called Z80SIM, but the last I heard, it didn't give the user access to the PC's hard disk. Does MYZ80 do this? Please send all the information you can get on MYZ80, or have your Australian friend do so. I'm sure that TZL readers will be glad to comment!

PERSONAL ADS

Boot disks wanted!

I am a licensed CP/M distributor who will pay $5 for a copy of the boot disk for *your* computer. I wish to build a library of such disks so that I can supply working CP/M disks for all makes of machines. The disk should contain the CP/M utilities, the formatting and other utilities that are specific to the machine, and have the operating system on the boot tracks. Send me a post card listing which makes and models of CP/M machines you have the system disks for, and I will send you $5 for each one I don't have already. David A.J. McGlone, (408) 293-5176, 720 South Second Street, San Jose CA 95112-5820.

Xerox 820-II for sale

Working Xerox 820-II in good condition, 2 DSDD 8" drives, all manuals and some internal documentation (I used to work at Xerox). CP/M, WordStar 4.0, Tutsim simulation software included. Newer keyboard, lower profile than older model. $50. Also selling Turbo Pascal, Waltz Lisp, MuMath, $30 each. Steve Trapp, 24768 Mango Street, Hayward CA 94545, phone (510) 785-0171.

Free CP/M computers

Intel Intellec-2 computer with 2 2-Mhz 8080 CPUs, many manuals. Toshiba computer with 8085 CPU, manuals. Both in working condition, both with 8" drives, both free to anyone who will come get them from their storage place in San Pablo, CA. Call David McGlone at (408) 293-5176 if interested.

MAGAZINE ARTICLES

The following magazines were received since last issue. Articles relevant to the CP/M and Z-System community, if any, are listed for each magazine. Where the address and subscription rate is not listed, see the listing for the magazine in the RESOURCES section.

The Computer Journal, #55, May/June 1992. *The Cyclic Redundancy Check in Forth*, by Walter J. Rottenkolber. Jay Sage's Z-System Corner describes Type-3 and Type-4 programs, a new Type-4 loader, a new Type-3-like loader, and a new version of ZCPR, 3.4E. *Remapping Disk Drives through the (NZ-COM) Virtual BIOS*, by Roger Warren. *The Bumbling Mathematician, Part I: Big Numbers*, by Frank C. Sergeant. Paul Chidley contributes *YASMEM*, which describes the new YASBEC memory-expansion module. Bill Tishey's ZBest Software column, as always, tells us what's new in Z-System utilities. *TCJ* is a magazine that every CP/M or Z-System user should subscribe to. See the RESOURCES section for address and rates.

Computer Monthly, May 1992: Nancy Blacks's "Fearless Computing" repeats reader Eric West's instructions on getting into bulletin boards and buying and using modems. She also makes some good points about how everyone she knows is buying used, usually obsolete, computers, while the manufacturers of the new stuff are bemoaning sales. Faye Deere's "ADAM News" gives an address for ADAM modems, reminds users that during lightning storms, not only should the computer be unplugged, but so should the modem. There's also ADAMCON 04 information, but it will be over by the time you read this (good thing I've mentioned it before).

June 1992: Nancy Black lists 13 companies and persons that sell CP/M software, and under publications lists *Run, The Z-Letter, The Computer Journal*, and *Mor-Atlanta News*. I'm not certain all of these sources are still in business, but I will check them out, and add them to RESOURCES if they are valid. The Classic Computer columns were all the same as the May issue; bad enough they're all being squeezed out by tons of me-too PC and Mac product reviews, but someone goofed bigtime.

User-group listings appeared in the June issue, and ads of interest appear in both issues. *CM* is $15.95 per year from Computer Monthly Subscriptions, P.O. 7062, Atlanta GA 30357-0062.

The Cursor June 1992 and July 1992. This is the newsletter of a Denver user's group called the PC-CLUB, formerly CP/M SIG. The articles are strictly PC (in these two issues at least), but the club has an extensive CP/M library as well as PC software, and should be useful to people in the Denver area. Dues/subscription is $18 annually to the PC-Club, P.O. Box 5633, Denver CO 80217-5633. The editor is Eliot Payson, (303) 798-7812.

Eight Bits and Change! Volume 2, Number 5 (Issue 11), June/July 1992. This issue covers Trenton '92, with pictures (in case anyone's wondering what I look like, I'm the guy with the lion sweater, in the left of the picture of Joe Wright which appears on the cover of this issue of *EB&C*). Stephen Griswold describes building the YASBEC for CCPM, the Connecticut CP/M users' group he belongs to. *Bugs I've Loved* is an article by Lee Bradley about assembly-language programming that he and Bruce Morgen have been doing. Al Hathway and Cam Cotrill contribute *A BDS Z Application.* See Small Computer Support, under RESOURCES.

RESOURCES

[handwritten: Micromint Attn: Ken Davidson send 22 DISK to distribute]

The Computer Journal is the foremost magazine in today's CP/M community. Published 6 times a year. Free sample issue available. Subscription is $18/year, $32/2 years (US); Foreign, Surface is $24/year, $44/2 years; Foreign, Air Mail is $38/year, $72/2 years. Contact Socrates Press, P.O. Box 12, South Plainfield NJ 07080-0012, phone (908) 755-6186.

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. They also sell Keytronic keyboards in QWERTY or Dvorak; the KB5150 is $112, KB5151 is $164; shipping and handling extra. Corvatek, 561 N.W. Van Buren St., Corvallis OR 97330, phone (503) 752-4833.

Davidge Corporation makes and sells the Ampro Z80 Little Board, one of the CP/M computers still made. This is a 4-Mhz Z80 single-board computer with 64K RAM. The Little Board without SCSI is $240, the Series 1B Little Board Plus is $250. Software, BIOS source, manuals, and repair service are also available. Volume discounts available. Write to Davidge Corporation, 94 Commerce Drive, P.O. Box 1869, Buellton CA 93427, phone (805) 688-9598.

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 $2.00 shipping and handling to Elliam Associates, P.O. Box 2664, Atascadero CA 93423, or phone (805) 466-8440.

Lambda Software Publishing publishes this magazine and sells CP/M and Z-System software, manuals, laser fonts, books. See the ad in this magazine.

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 $400 ($320 each 100 quantity), or $490 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, 1 (800) 635-3355.

[handwritten: Jeanette]

Morgan, Thielmann & Associates sells and services computers, not only the latest 386 and 486 systems with DR DOS or Unix, but also Eagle computers, all models, and other CP/M computers. Call them at (408) 972-1965 for prices and information.

Sage Microsystems East, selling and supporting the best in 8-bit software. NZCOM, Z3PLUS, XBIOS, PCED, DSD, Z-System Software Update Service, Backgrounder ii, ZSDOS/ZDDOS, DosDisk, JetFind, ZMATE, BDS C, Turbo Pascal, ZMAC, SLR Systems assembly-language tools, MEX-Plus and MEX-Pack. 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 exact disk formats acceptable. Sage Microsystems East, 1435 Centre St., Newton Centre MA 02159-2469, Voice (617) 965-3552 (9:00 AM - 11:30 PM), Modem (617) 965-7529 (pw=DDT) (MABOS on PC-Pursuit)

Small Computer Support publishes *Eight Bits and Change,* a bi-monthly computer and humor 'zine, cost $15/year (US), $18/year Canada, $21/year foreign.

Back issues $5 each. SCS also sells public-domain CP/M packages, $15 each for the game disk, word-processing disk, dot-matrix printer disk, time-manager disk, SIL compiler disk, NPS COBOL compiler disk, mailing-list disk, spreadsheet disk. NZCOM, Z3PLUS, ZSDOS, BDS C, ZMAC also available. CP/M computer training, $15/hour. Contract programming service available. Computers, printers for sale. Write Small Computer Support, 24 East Cedar Street, Newington CT 06111, or call (voice) (203) 666-3139 or (data) (203) 665-1100.

Sound Potentials sells disks of CP/M public-domain software. Send $2.00 for a printed catalog and other information to Sound Potentials, Box 46, Brackney PA 18812.

The Staunch 8/89'er is a magazine for users of Heath/Zenith H-8 and H-89 computers; $15 per year. Kirk L. Thompson, the editor, also sells CP/M and HDOS software, in all H/Z formats, including hard-sector. Write him at P.O. Box 548, West Branch IA 52358, or phone (319) 643-7136 (evenings and weekends).

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). $25 each plus $2.50 shipping and handling per order. Free sampler disks with the limited shareware versions are available. Talk to Chuck or Miriam at Sydex, P.O. Box 5700, Eugene OR 97405, phone (503) 683-6033.

EAGLE COMPUTER USERS GROUP

The Eagle Computer Users Group is one of the few remaining support groups for users of Eagle computers, both the CP/M line and the later 1600 and PC models. Because Spellbinder was bundled with Eagle computers, ECUG is also a Spellbinder users group. Anyone who acquires an Eagle computer is urged to get in touch with ECUG by writing Lambda Software Publishing, 720 South Second Street, San Jose CA 95112-5820, or phone Morgan Thielmann and Associates, (408) 972-1965. Do not use the old P.O. box, which will soon expire and not be renewed.

Meeting place

Meetings are the second Saturday of every month, from 9 A.M. to Noon. The remaining 1992 meetings are August 8, September 12, October 10, November 14, and December 12.

Until further notice, ECUG meetings will be at the home of Bill Josephson, 1681 Samedra Street, Sunnyvale, California. How to get there: Going west on Homestead Road, you come to Mary Avenue, which dead ends at the High School. One short block farther on is Samedra Street (parallel to Mary). Turn right on Samedra. Bill's house is white; it's the third house on the left. If you get lost, you can call Bill at (408) 245-0318.

May 9 meeting

Our May meeting was attended by Dave Honkala, David McGlone, Ken Thomson, Shirley Welch, Bob Kowerski, Dave Banoff, Bill Josephson, Jack Morse,

and Jerry and Denise Davis. Mostly we sat around and talked computers; it doesn't sound like much, but we enjoyed it.

June 13 meeting

Summer occupations and vacations reduced attendance in June to Dave Banoff, David McGlone, Jerry Davis, Jack Morse, Bill Josephson, and Ken Thomson. Ken and I spent the meeting restoring files on the hard disk of his Kaypro 10, which he had wiped by accident. Having just acquired a Kaypro 10, I brought it to the meeting to serve as a guide for Ken's setup. Also, Ken delivered a TPC-1 which I had bought from Dave Goodenough in San Francisco. The TPC-1 is a portable CP/M computer which was made by TeleVideo.

July 11 meeting

Ken Thomson, Dave Banoff, Bill Josephson, Bob Kowerski, Jack Morse, Jerry Davis, and David McGlone were present at the July meeting.

ECUG software libraries

ECUG has two software librarians. Anyone seeking CP/M or Z-System software should contact Ken Thomson, 71 Rosenkranz Street, San Francisco CA 94110, phone (415) 648-7550. For PC (MS-DOS) software, our librarian is Jack Morse, 1082 W. Hill Court, Cupertino CA 95014, phone (408) 252-6103. This is a new address, but the phone number is the same.

When you request software from Ken or Jack, send them floppy disks, not money, and the postage to mail the disks. They will copy the software you request onto your disks and mail them back to you. That way no money changes hands, as would be the case if they continued to charge a fee per disk.

PC software has been received *since last issue from* the following companies:

Computer Specialties, P.O. Box 5694, Lake Charles LA 70606: Scoot-A-Long, Flip-n-Drop, Poker Dice, Get-Four (these are computer games).

Intelligent Educational Software, P.O. Box 440189, Houston TX 77244-0189: a disk of shareware programs (no accompanying letter or details on label).

Paladin Software, Inc., 3945 Kenosha Avenue, San Diego CA 92117, phone (619) 490-0368: DataScope version 1.4, a serial communications debugger/protocol analyzer.

Typewrite, 336 Swain Blvd., Lake North FL 33463-3342, phone (407) 969-3643: Address Controller, Gen Invoice Sales Tracker Plus version 3.63, Keber's Nice Address Program, Pop-Label, Right-Trim, Software Sales Tracker.

Original diskettes of PC software donated by David McGlone: Kaypro 16 Autoload disk #1 (MS-DOS, utilities, GWBASIC), #2 (WordStar, MailMerge, StarIndex), #3 (CorrectStar, MITE), #4 (CorrectStar Main Dictionary), #5 (KDesk, PolyWindows Desk); MS-DOS "R" Version 3 for the Z-100 PC, disks I and II; Okifont; LNWBASIC.

If you're not willing to have your letter printed, or edited before printing, please say so in the letter. All other letters will be assumed to be for publication and become the property of Lambda Software Publishing upon receipt.

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The Z-Letter is indexed annually. The index for issues 1-5 appeared in issue 5. The index for issues 1-18 is being prepared.

Lambda Software Publishing
720 South Second Street, San Jose, CA 95112-5820, phone (408) 293-5176

Spellbinder (version 5.3H), $60. The best CP/M word processor. Includes all four manuals. (Ltek)

CP/M (version 2.2), $25 (DRI)

MagicIndex (version 3.00), $100. Text formatter used to produce this newsletter. Versions available for standard word processor or WordStar, LaserJet or Diablo 630. Please specify your word processor and printer when ordering. (CES)

Computer manuals, $15 each. Eagle CP/M, Eagle 1600, Eagle PC Plus and Spirit, Otrona Attache, and Pied Piper. Inquire about others. (Various companies)

Eagle Computer Users Group newsletter, $15. Entire run July 87 to October 90; now merged with *The Z-Letter*.

The Z-Letter, back issues: $3/issue (US, Canada, Mexico), $5/issue (elsewhere).

The Z-Letter, subscription: $18/12 issues (US), $22/12 issues (Canada & Mexico), $36/12 issues (all other). Now published bi-monthly.

Z-Fonts catalog, $3 (US, Canada, Mexico), $5 (elsewhere). Samples of all the fonts available from Lambda for HP LaserJet printers, with instructions on how to choose what size, orientation, etc. you wish.

Z-Fonts, $8 per font. (Digi-Fonts)

NZ-COM (version 1.2d), $50. Turns your CP/M 2.2 system into a dynamic Z-System machine. (Alpha)

ZCPR 3.4 source code, $35. (Alpha)

I/OR, $25. Saves the screen in a file, saves printer text in another file. 1.5K IOP segment, ZRDOS required. (Alpha)

B/Printer, $25. Deluxe background single-file printing. 1.5K IOP segment, ZRDOS required. (Alpha)

NuKey (version 2.03), $25. Advanced function-key generator. 1.5K IOP segment, ZRDOS required. (Alpha)

I/OR, B/Printer, NuKey combined IOP package, $60. (Alpha)

CBASIC Reference Manual, $15. (DRI)

The CP/M Handbook with MP/M, by Dr. Rodnay Zaks, $15. (SYBEX)

Customizable diskette carriers, $3. Each protects up to three 5¼" diskettes from harm in briefcase, etc.

SuperCalc (version 2.0), $30. (Sorcim)

Disk copying – $10 per disk

I can copy most soft-sector (both single- and double-density) 5¼" CP/M formats, including Apple II CP/M and Commodore CP/M. (Sorry, no hard-sector formats except Northstar and Heath/Zenith.) I can also copy 8" disks and 3½" formats. Copies can be CP/M to CP/M, CP/M to MS-DOS, or MS-DOS to CP/M; specify the format of the disks you send, and the format in which you want the copies. Both originals and copies will be returned. *The responsibility is yours to ensure that you are the legal owner of material you ask me to copy.* This does not apply to software you buy from Lambda, which will be sent to you in the disk format you request at no extra cost.

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