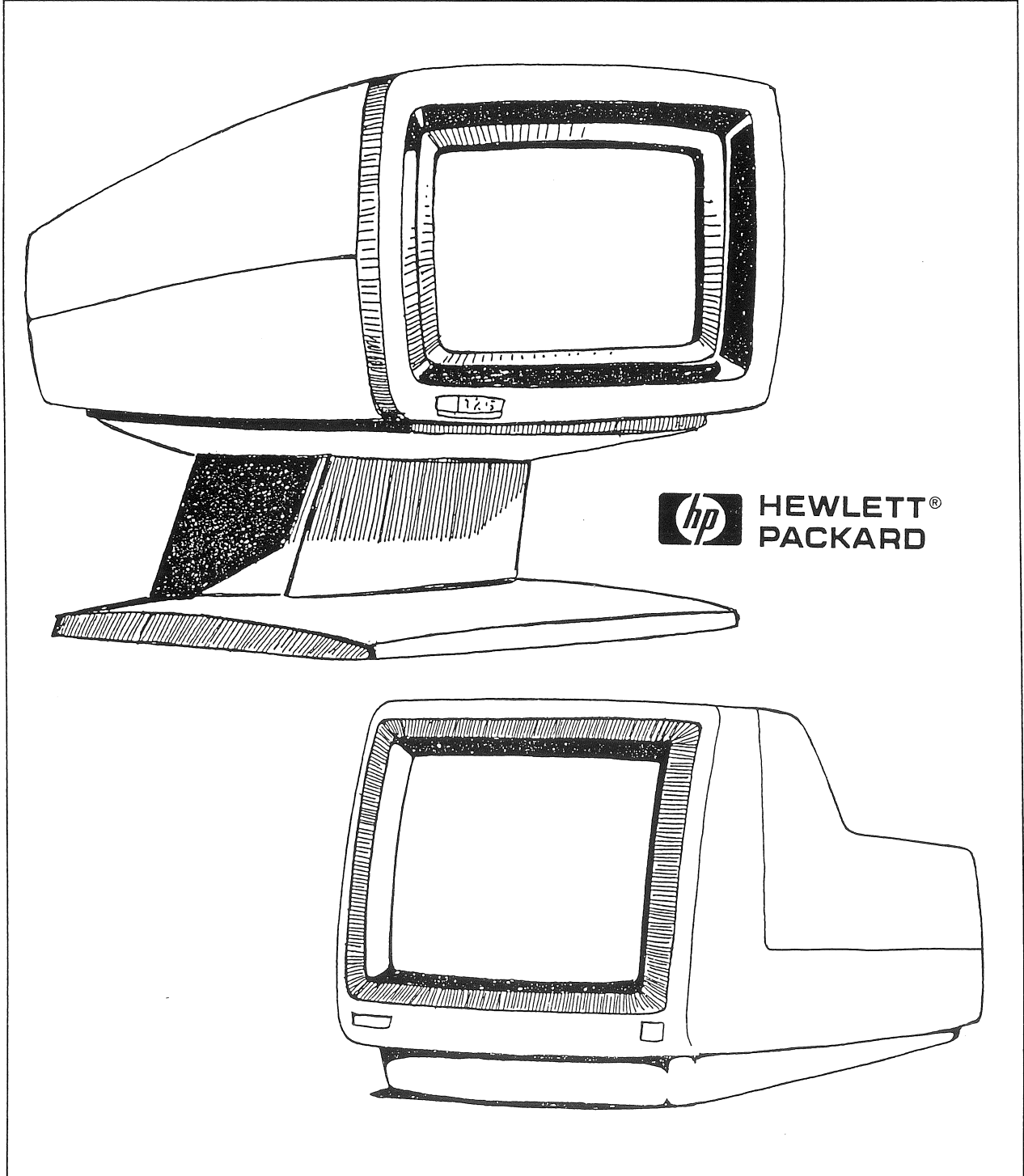# The Z-Letter

Newsletter of the CP/M and Z-System community

Number 29

January/February 1994

HEWLETT PACKARD

The HP 125 and 120

TABLE OF CONTENTS

RANDOM ACCESS

Borland ignores public-domain request

After receiving Borland's refusal to license its CP/M products *(see last issue)*, I sent them a letter asking them to consider releasing those products to the public domain. I did not expect them to agree. In the actual event, they did not even bother to reply.

Lambda LPascal to be sold

In light of this, and with some encouragement from the community, I have decided to sell my TURBO clone, which I call LPascal. LPascal is a TURBO lookalike written in Ryan-MacFarland COBOL; the only difference I've been able to find is a 5% deficit, compared to TURBO, in compiling really, really large programs.

Since last issue I've been working on the LPascal manual, and several chapters are finished. I have also created an installation program, similar to TURBO's TINST. Before releasing LPascal, I hope to add quite a few terminals and computers to this installation program, using the manuals in my collection and testing the results on computers I have.

The first released version of LPascal will be version 2.0. Version 1.0 is an almost exact duplicate of TURBO, but version 2.0 will be a decided improvement over TURBO Pascal 3.01A. Herbert Oppmann in Germany has done considerable work finding bugs in TURBO, and has prepared a set of patches which fix bugs in TURBO and add new features, including the ability to use Z-System directory names in programs. Herbert Oppmann and Helmut Jungkunz have both sent me this stuff, and at least some of it will be incorporated in LPascal 2.0, using COBOL's ability to call assembly-language code.

When LPascal is ready to go, the event will be announced in *The Z-Letter*. At present, I hope and expect that will occur in the very next issue.

Micro Cornucopia Big Board disks available

David J. Thompson, former editor and publisher of *Micro Cornucopia*, has given me permission to sell the Big Board disks he compiled during the existence of the magazine. Some of the software on these 8" disks duplicates software on the Kaypro disks announced last issue, but some of it is specific to the Big Board computer, which was made and sold by Digital Research Computers of Texas.

There are 30 8" disks in this set, and they are now available for $5 each, same as the Kaypro disks. I have also prepared a catalog disk for the Big Board set, which costs $5. If you want to get all 30 disks, I will sell them as a set for $100, which is a savings of $50 over buying them one at a time.

Lambda expands disk-copying capabilities

Lambda has acquired a Central Point Deluxe Option Board. This PC board, which is no longer made or sold by Central Point, complements the features of MicroSolution's CompatiCard IV and MatchPoint cards (the MatchPoint is no longer made or sold, either). Even nicer is that all three boards can be in the PC at the same time.

The CompatiCard IV, as long-time readers already know, is a four-drive controller for the PC, which can handle single-density 5¼", 3½", and 8" floppy-disk drives, as well as more usual PC drives. The MatchPoint is a secondary controller which can be used with a modified DSDD 48-tpi floppy-disk drive and a special version of Uniform to enable a PC to handle Apple CP/M and NorthStar disks. Special software also lets the PC deal with Apple II DOS disks.

While the MatchPoint card lets me format Apple II CP/M disks, and copy files to and from them, it does not let me create Apple boot disks. For most CP/M computers, I can duplicate boot disks, system tracks and all, using Sydex' AnaDisk software. To make Apple boot disks I had to use an Apple with a CP/M card. To make Commodore 64 or Commodore 128 boot disks, I had to use a Commodore 128.

The TC software that comes with the Deluxe Option Board does not let me copy files to and from alien disk formats, but it will make exact copies of most disks, except truly weird beasties such as Dynabytes. Using TC, I can duplicate Apple and Commodore disks, both CP/M and non-CP/M, on the PC. If the original is an Apple or Commodore CP/M boot disk, so will the copy be; if the original boots on a Basis 108 or a Franklin Ace, so will the duplicate. I can also copy, using TC, Atari, Amiga, and Macintosh disks.

Just as the MatchPoint card comes with a set of programs (ADIR, ACOPY, etc.) for performing MS-DOS operations on an Apple II non-CP/M disk, the Deluxe Option Board comes with a set (MDIR, MCD,

MTREE, MMD, MDEL, MRD, MTYPE, MFORMAT, and MDC) to perform MS-DOS operation on a Macintosh disk. In each case the command works like the MS-DOS command its name resembles; Macintosh folders are treated as the equivalents of MS-DOS directories. MDC stands for Macintosh Disk Copy.

Installing the Deluxe Option Board was easier than I expected. A little thought showed us how the boards had to be set up. The CompatiCard IV has three connectors, one of which can handle two drives. A cable runs from this connector to the IN connector on the Deluxe Option Board; a second cable runs from the OUT connector of the DOB to the IN connector of the MatchPoint card; a third cable from the OUT connector of the MatchPoint to the 48-tpi 5¼″ drive and the 3½″ drive. This arrangement lets the Compaticard use these drives for CP/M and MS-DOS formats, lets the Deluxe Option Board to use them for Apple II, Macintosh, Commodore, etc., and lets the MatchPoint card use the ″360K″ drive for Apple, Apple CP/M, and NorthStar. The 96-tpi 5¼″ drive, and the 8″ drive, each hangs from a separate connector on the CompatiCard, inaccessible to (and unneeded by) the other boards.

Though installing the Deluxe Option Board required re-installing Uniform and 22DISK, and changing the contents of the BAT files used to set Uniform to Apple CP/M and NorthStar formats, it was well worth it. I happily traded the afternoon it took to install the board for the convenience of being able to copy certain boot disks without breaking out little-used machines. In the case of transferring files to and from Macintosh disks, it's not only more convenient to be able to do this on a PC instead of a Mac, it's easier. The Macintosh-disk programs are much easier to use than Apple File Exchange on a Macintosh.

More on reaching *The Z-Letter* online

Last issue I announced my GEnie logon, *D.McGlone*. Others with GEnie logons can send me electronic mail with nothing more than that. Since then I've learned how people on Internet, CompuServe, or America Online can also send me mail. My Internet or America Online address is:

> *d.mcglone@genie.geis.com*

To send me messages from CompuServe, use:

> *internet:d.mcglone@genie.geis.com.*

Gratuitous gloating about amazing acquisitions

I can't afford it, and I'm running out of room; but I continue to collect computers, manuals, software, magazines, newsletters, etc., anyway. For one thing, I hate to think of even a poor computer being thrown out like trash. So much the worse if it's a good computer, that I might be able to sell to someone who wants it. After all, the day will come when these computers can't be found anymore.

Ken Thomson keeps finding CP/M computers and asking me whether I want them. The answer is almost always yes. This month I acquired a Kaypro II, an Epson QX-10, and two Osbornes. I haven't seen any of these yet, because they're still in my storage unit in San Jose. If they work, they will all be for sale.

The local Goodwill, Salvation Army, and St. Vincent de Paul stores usually have little of interest. However, Goodwill has a computer sale whenever the local stores have piled up too many computers. There was one such in January. I picked up an H89, a Kaypro 10, two TeleVideo 925 terminals, two TRS-80 Model 2s (one with a hard disk!), a NEC PC-8801A, an Amstrad PCW8256, and a whole bunch of books and manuals. Prices were very good (I felt like a bandit), and most of the equipment works. Best of all, getting a complete PC-8801A let me test the parts of one I acquired in my $200 ″big haul″ in 1992, and they all work, too. The Amstrad, while it boots, is missing a keyboard. Anyone out there have an extra PCW8256 keyboard? Bill Roch at Elliam Associates is looking for one, too. Once I have a keyboard, I'll be able to copy software to the Amstrad's native 3″ disk format. That's 3″, as in 3.0 inches, not 3½″. That's not a typo, folks.

After reading the article on the Bondwell 12 and 14 computers last issue, Chuck Stafford called me to say that he had a Bondwell 2, and was willing to sell it. Naturally, I jumped at the chance to acquire one.

Emerald Microware's Brian Garrison has started cleaning out his basement, garage, and storage unit, and Bob Vinisky has been sharing the loot with me. Dave Samson and I drove up to Bob's place and came back with an entire vanful of Xerox computer parts, manuals, books, and software. Bob got a File 10 for his Eagle, a CompuPro 8/16 system, and half the money for the two Xerox 8″ drive units I sold to Sydex, so don't feel sorry for him.

I was approached at the Goodwill sale by a local, Reggie Cline, who wanted to get rid of his NEC PC-8801A. This was the day before I bought one at the sale for less than Reggie wanted. Still, I had said I was interested, so Dave and I went out to Reggie's place. Big mistake! I came away with his NEC, an HP 86 with CP/M card, a TeleVideo 802H that supposedly worked except for the screen being dead, two Liberty 100 terminals, and an extra monitor to

turn the NEC parts from 1992 into a complete system. All of it works, except for the TeleVideo computer. Dave got the screen working just fine, but either the hard-disk controller or the hard disk itself needs replacing. If this sounds like impulse buying at its worst, you're right. I should have bought the 802H and the spare monitor, and let him put an ad in *The Z-Letter* to sell the rest. My checkbook hurts.

22DISK 1.40 released

Chuck Guzis has been working on a major revision of 22DISK that will combine all its commands into a single program, and add a few new commands such as CTOC, for about a year. Meanwhile, new formats have been incorporated in a new **CPMDISKS.DEF** file, but the actual programs have not been changing.

New version 1.40 includes some minor fixes (I assume) and some changed messages, but still retains the distribution of its functions into separate programs. Version 1.40 knows a whopping total of 417 CP/M disk formats! Recent additions include the Big Board II format (thanks to David Thompson for letting me copy a Big Board II boot disk) and all the NEC PC-8801A disk formats, except for one that's so weird it will require actual changes to 22DISK.

Jay Sage regrets

In an electronic message dated January 27, 1994, Jay Sage says:

"I am probably going to have to face the uncomfortable fact — which you seem to have sensed — that I really am not much involved with Z-System any longer. The pressures at work really forced me out of the pattern I had been in, and now, like Bridger before me, I don't think it is likely that I will get back to it in a serious way. Since I do not even have a CP/M computer that I am using, I no longer write or use any Z-System macros. I could write a column on 4DOS macros, but I am not sure that you are interested in that subject for TZL.

"The pace and pressure at work continue unabated. With funding getting harder to come by, we have to work incredibly hard just to protect our jobs. The work is fun, but the pressure is more than is healthy or enjoyable, but we have no choice. My older child is starting college next year at a cost of close to $27K. More pressure.

"So, I probably will not be writing any more columns, either for TZL or TCJ. Thanks."

I'm sure I speak for the whole CP/M and Z-System community in regretting this turn of events. Jay has been a backbone of our community for a long time, and his columns in *TCJ* and *TZL* have helped a lot of people. More than one reader has told me that Jay's column is the first thing he reads each issue. Both magazines will be poorer for the loss of Jay's writing. Thanks, Jay, for all your work.

A PROGRAMMER CORNERED

HELLO: A menu program for new users

An experienced computer user will usually not want to be bothered with a menu program on his computer. He will be familiar with the many programs available to him, and will want to be able to call them up in any order, at any time, to do his work on the computer. I'm aware that there are exceptions, but this is the general case.

It's far different with a new user. A beginner faced with a cryptic prompt is intimidated, not inspired. It doesn't mean to him, "Yes, master. What can I do for you?" Rather, the blinking cursor seems like a display of his ignorance, like the time display on his VCR.

Eagle Computers were designed for businessmen and other people who were not computer hackers, and they came with a menu program. The software bundled with an Eagle was generally Spellbinder for word processing and simple data base management,

UltraCalc for spreadsheet work, and CBASIC for a programming language. On the floppy-disk models (I, II, and III), CP/M on the Spellbinder and UltraCalc disks was patched to run a menu program called HELLO; the CP/M on the disk with CBASIC, the CP/M utilities, and the Eagle utilities was not. So by copying the entire disk with the Eagle DISKUTIL program, the novice got the menu upon booting every Spellbinder and UltraCalc backup disk. The more experienced user could choose whether a given disk ran HELLO when it booted by choosing which distribution disk to use for SYSGEN. On the hard-disk models (IV and V, or the other models with a File 10 or File 40 hard-disk unit attached), the software came installed on the hard disk, and the CP/M on the hard disk was patched to run HELLO. The more complex menu on the hard disk included an escape hatch which allowed the user to exit to the CP/M

prompt.

Unlike the Kaypro MASMENU program, or the various Z-System menu shells, the Eagle HELLO program could not be configured, nor were the menu screens and the commands each selection invoked contained in a script in a text file. If a software vendor wanted to sell his program with an Eagle-style menu to invoke it, he either had to contact Eagle Computers and have them cut him a special version of the HELLO program, or write his own.

The LPascal program that follows closely mimics HELLO in appearance and function. I've made two major changes from an exact clone of HELLO. One is using the procedure ReadChar, instead of READLN, so that the user doesn't have to hit RETURN after each menu selection. I strongly believe that any menu selection or input prompt for which all the allowed responses are a single character should *not* require the user to his RETURN after the character. On the other hand (there's always the other hand), this makes the actual menu inconsistent with many of the programs it invokes. The Eagle utility programs are consistent in requiring the user to hit RETURN after each choice. If this inconsistency bothers you, or is liable to confuse your user, use **READLN (Command)** wherever **ReadChar (Command)** appears in the program that follows.

The other change is in the display of the error message printed when the user requests an option, but the program corresponding to that option can't be found by the operating system. In the original Eagle program, the message ** **Option not available.** ** was printed two lines below the prompt, but the cursor stayed after the prompt. This used the cursor positioning of the Eagle terminal. To avoid using the Z-System TCAP (which is not a CP/M feature), or putting in the cursor positioning for a particular computer, I have chosen to print this message between the menu and the menu prompt, whenever it appears. This leaves the cursor after the prompt whenever the menu is displayed, without recourse to TCAP or cursor-positioning codes, by keeping the prompt always last.

To use this HELLO program on any CP/M computer, use your word processor to edit the menu display and the corresponding CASE statement for each, then compile the result to a COM file using LPascal or TURBO Pascal. Once you are sure you haven't introduced any bugs with your changes, and the customer or family member for whom you're doing this has approved the look and feel of it, you can then patch a copy of the user's CP/M to call HELLO on boot. There are many ways to do this; the easiest is probably with Sydex' AnaDisk, the hardest is probably with DDT, SAVE, and SYSGEN. Sorry,

I'm not going to describe how to do it in this article.

Experienced programmers will note that exit from the loops in procedures DisplayMainMenu and DisplayUtilityMenu are controlled by Command having values of Q or R, yet every permitted response from the user is a number. By this means I insure that no matter what numbers are used in the menus, none will correspond to leaving a menu or returning to a previous menu. If you choose letters in any customized version of HELLO, you should replace Q and R with numeric values for the same reason.

In the interest of consistency with the original HELLO, I even check for user inputs of Q and R, so that if a user actually types these, the illegal input will be ignored, just as in the original program. Be sure that you do the same for any control values you choose, so that a user cannot accidentally mess up the system you set up for him by playing with the keyboard. The principle being followed here is a simple one; in a menu program, the only legal values for any menu are the ones displayed on the menu itself.

Note the FORWARD declarations at the beginning of the program. By declaring all procedures in this way, we can put the actual procedures in alphabetical order, and not worry about which ones call which others. With forwards, procedures can even call each other in a circle; that is, Procedure A can call Procedure B, Procedure B can call Procedure C, and Procedure C can call Procedure A! Forwards not only eliminate order-of-declaration orders; in a very long program, it's much easier to find the actual procedures when they're in alphabetical order.

The procedure RunFile is displaying a bug in TURBO Pascal. The compiler directive I controls I/O checking. When it is active, the statement EXECUTE (TargetProgram) will crash the whole program if an I/O error occurs. If the program to be executed is not found, for instance, the menu program dies an ugly death, with a cryptic I/O error message on the screen. We get around this by turning I/O checking off, running the EXECUTE statement, turning I/O checking back on afterwards, then checking the value of IORESULT right away. If IORESULT is 0, no error occurred; if one did, the value corresponding to the various possible errors will be contained in IORESULT. IORESULT = 1, for example, means "file not found". In this way we can attempt to run the program requested by the user, and print an error message if the program wasn't there, and go on to the next action requested, in a graceful and professional manner.

The bug in TURBO is the syntax of the I directive. The TURBO manual says that the EXECUTE line

should read as follows:

    {I−}EXECUTE (TargetProgram) {I+};

If you actually write your program this way, however, you will get a syntax error, and your program will not compile. For reasons known only to Borland, the semicolon must precede the second compiler directive, as shown in our sample program. Because LPascal version 1.0 follows the specifications of the TURBO manual about where compiler directives may be placed, both syntaxes are correct in LPascal.

SHOE

```
(* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
 *      Eagle Computer main menu program                                        *
 *                                                                              *
 *      Written by David A.J. McGlone 1/15/94                                   *
 *              Lambda Software Publishing                                      *
 *              149 West Hilliard Lane                                          *
 *              Eugene, Oregon 97404-3057                                       *
 *              (503) 688-3563                                                  *
 *                                                                              *
 *      This program clones the menu program HELLO that comes with             *
 *      an Eagle computer.  Specifically, it duplicates the menu               *
 *      on the hard disk of a late-model Eagle IV or V.  Unlike                 *
 *      the original version, however, this one can be modified by             *
 *      changing the source code and recompiling with LPascal.                 *
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *)

PROGRAM Hello (INPUT, OUTPUT);

TYPE Str14 = STRING4;

VAR Command: CHAR;
    ErrorMessage: Str14;
    Tab: STRING5;

PROCEDURE DisplayMainMenu;                          FORWARD;
PROCEDURE DisplayUtilityMenu;                       FORWARD;
PROCEDURE GetUserInput;                             FORWARD;
PROCEDURE ReadChar (VAR UserInput: CHAR);           FORWARD;
PROCEDURE RunFile (ProgramName: Str14);             FORWARD;

PROCEDURE DisplayMainMenu;
   (* Called by main procedure. *)
   BEGIN
   WHILE (Command <> 'Q') DO
     BEGIN
     CLRSCR;
     WRITELN;
     WRITELN;
     WRITELN;
     WRITELN;
     WRITELN (Tab, '        Eagle Computer Business System');
     WRITELN;
     WRITELN (Tab, '---------------------------------------------');
     WRITELN (Tab, '|        Please select option 5               |');
     WRITELN (Tab, '|        before turning the POWER OFF          |');
     WRITELN (Tab, '---------------------------------------------');
     WRITELN;
     WRITELN (Tab, 'Your options are:');
```
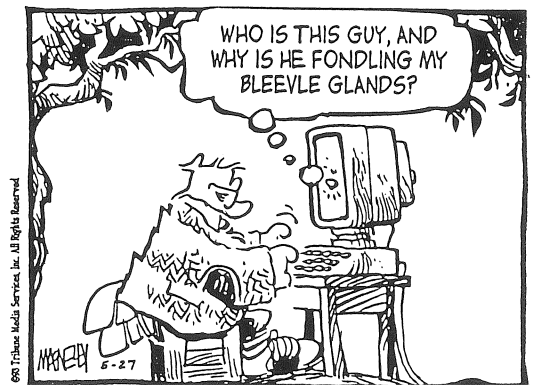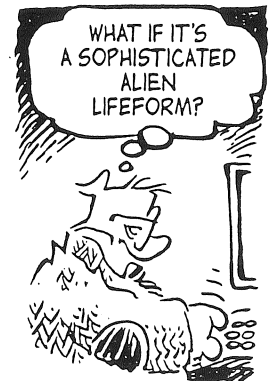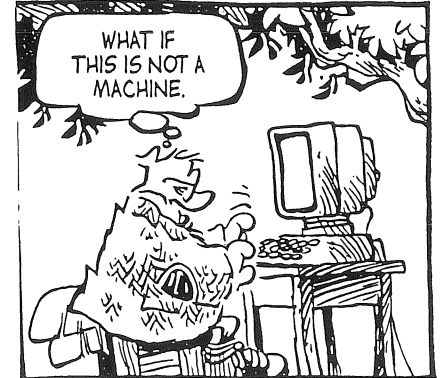
```
WRITELN;
WRITELN (Tab, '1. Enter the financial planner');
WRITELN (Tab, '2. Enter the word processor');
WRITELN (Tab, '3. Backup your hard disk files');
WRITELN (Tab, '4. Access the utility system');
WRITELN (Tab, '5. Quit');
GetUserInput;
CASE Command OF
   '1': RunFile ('SS.COM');
   '2': RunFile ('SB.COM');
   '3': RunFile ('BCKUP.COM');
   '4': DisplayUtilityMenu;
   '5': RunFile ('PWRDWN.COM');
ELSE (* Do nothing; loop will display menu or exit. *)
   BEGIN
   IF (Command = 'Q') THEN Command := ' ';
   (* If an error message is desired for illegal input, put it here. *)
   END;
   END; (* End of CASE statement. *)
   END; (* End of WHILE ... DO loop. *)
END; (* of procedure DisplayMainMenu *)


PROCEDURE DisplayUtilityMenu;
   (* Called by DisplayMainMenu procedure. *)
   BEGIN
   WHILE (Command <> 'Q') AND (Command <> 'R') DO
      BEGIN
      CLRSCR;
      WRITELN;
      WRITELN;
      WRITELN;
      WRITELN;
      WRITELN (Tab, '      Eagle Computer Utility System');
      WRITELN;
      WRITELN (Tab, 'Your options are:');
      WRITELN;
      WRITELN (Tab, '1. Transfer files');
      WRITELN (Tab, '2. Restore your hard disk files');
      WRITELN (Tab, '3. Backup (Copy) your diskettes');
      WRITELN (Tab, '4. Assign your system parameters');
      WRITELN (Tab, '5. Exit to the CP/M operating system');
      WRITELN (Tab, '6. Return to main menu');
      GetUserInput;
      CASE Command OF
         '1': RunFile ('COPYDOC.COM');
         '2': RunFile ('RSTOR.COM');
         '3': RunFile ('DISKUTIL.COM');
         '4': RunFile ('ASSIGN.COM');
         '5': BEGIN
               Command := 'Q';
               CLRSCR;
               END;
         '6': Command := 'R';
      ELSE (* Do nothing; loop will display menu or exit. *)
         BEGIN
```
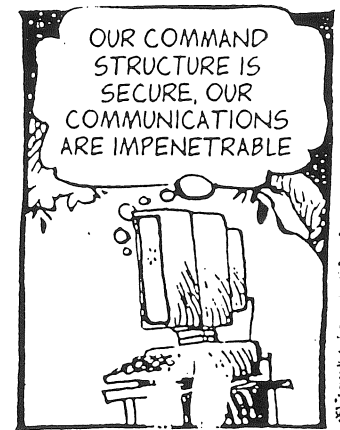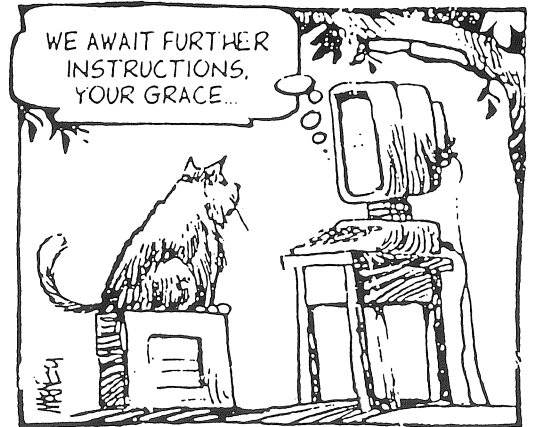
```
          IF (Command = 'Q') OR (Command = 'R') THEN Command := ' ';
          (* If an error message is desired for illegal input, put it here. *)
          END;
      END; (* End of CASE statement. *)
      END; (* End of WHILE ... DO loop. *)
   END; (* of procedure DisplayMainMenu *)


PROCEDURE GetUserInput;
   (* Called by DisplayMainMenu and DisplayUtilityMenu. *)
   (* Prints error message, if any, and gets user selection. *)
   BEGIN
   IF ErrorMessage <> '              ' THEN
      BEGIN
      WRITELN;
      WRITELN (Tab, '      *** Program ', ErrorMessage, ' not found. *** ');
      (* Originally    '      ** Option not available. **' *)
      ErrorMessage := '              '; (* reset error message *)
      END;
   WRITELN;
   WRITE   (Tab, '  Make your selection: ');
   (* Originally '   Make your selection then press <RETURN> ' *)
   ReadChar (Command);
   END; (* of procedure GetUserInput *)


PROCEDURE ReadChar;
   (* Called by DisplayMainMenu and DisplayUtilityMenu. *)
   (* Used when expected user input is a single character, so
       that user doesn't have to hit RETURN afterwards. *)
   BEGIN
   READ (KBD, UserInput);
   WRITE (UserInput);
   END; (* of procedure ReadChar *)


PROCEDURE RunFile;
   (* Called by DisplayMainMenu and DisplayUtilityMenu. *)
   (* Used to execute a program outside the menu on behalf of
       the user. If the file can't be found, an error message
       is printed, instead of the menu program dying. *)
   VAR TargetProgram: FILE;
   BEGIN;
   ASSIGN (TargetProgram, ProgramName);
   {I-} EXECUTE (TargetProgram); {I+};
   IF (IORESULT <> 0) THEN ErrorMessage := ProgramName;
   END; (* of procedure RunFile *)


BEGIN   (* main procedure *)
   Command := ' ';
   ErrorMessage := '              '; (* 14 spaces *)
   Tab     := '                    '; (* 20 spaces *)
   DisplayMainMenu;
END. (* of main procedure, and program *)
```

PERSONAL ADS

Computers for sale or trade

Two **Kaypro 10** computers, each $100 plus shipping. All standard software on disk, each with some manuals. One **TeleVideo 802H** computer, one DSDD floppy-disk drive and 15-Mb hard disk, $100 plus shipping. One **NEC PC-8801A computer, monitor, dual 5¼″** floppy-disk drives, $50 plus shipping. Two keys on keyboard need replacing. One **Morrow MD2** computer, $50 plus shipping; terminal not included. Two **Eagle File 10** external hard-disk units, $100, plus shipping. Two **TRS-80 Model 3** computers, one with 16K, one with 32K, condition unknown, $20 each plus shipping. Five **NorthStar Horizon** computers, condition unknown, $20 plus shipping; wood and steel covers available. Two **Xerox 820** computers, both working, dual 8″ floppy disk drives, each $50 plus shipping. Other computers come and go all the time; let me know what you're looking for. Will trade for comparable computers not represented in my collection. Contact David McGlone, phone (503) 688-3563.

Coleco ADAMs for sale

For sale, two or more like-new ADAMs in boxes, $80 each plus shipping. Ramen G. Griffin, 3 Robin Hood Road, Albany NY 12203-5113, phone (518) 456-3293.

Terminals and printer for sale

Three **Esprit Executive** terminals, one **Microterm 5510** terminal, one **HP 2671G thermal printer** with Centronics interface. Each $30 plus shipping (probably $50 total for each item). Includes manuals. Call Zener, (503) 344-6230.

Epson Geneva laptop for sale

CP/M laptop with all the fixings, $75 plus shipping. 80 column x 8 line LCD display, full-sized keyboard, 64K RAM, microcassette recorder, 64K RAM disk, interal 300-bps modem, RS-232 adapter. Software on removable ROM capsules includes Portable WordStar, BASIC, CP/M utilities, PortaCalc spreadsheet and Scheduler (these last two on one ROM). Various other programs and utilities available on microcassette (slow, but very reliable). Includes all manuals, extra tapes, case, and AC adapter. Write Lee Hauser, c/o Williams, Kastner, & Gibbs, P.O. Box 21926, Seattle WA 98111, or call (206) 233-2985 during business hours.

Morrow MD-11 computer, etc., for sale

Excellent hard-disk Morrow with all the fixings and lots of extras, $500 firm. Package includes Morrow, all the software and manuals that came with it; MDT 60 terminal; MP 200 wide-carriage daisy-wheel printer with tractor feed; Hard Disk Revival Kit with manual; Whizlist; full set of Morrow service manuals, with complete service info and schematics; various CP/M magazines, blank disks, printer ribbons. Will sell on take-all basis only. Contact Harry Strawbridge, 5202 W. Broadway, Atwater CA 95301, or phone (209) 358-4120.

Kaypro stuff for sale

Kaypro 4, all stock, no modifications. System disk, WordStar 3.3, some other software, printer cable. No manuals available. Works fine! Asking $50 plus shipping. **Kaypro 2X**, with Advent TurboROM and drive decoder board, two 96-tpi floppy-disk drives, one 48-tpi drive. Advent system disk, utilities, and docs-on-disk, WordStar 3.3, etc., manuals and one-piece cover. Runs great! Asking $75 plus shipping. **Kaypro 1** (last model made), TurboROM and drive decoder board added, one 48-tpi and one 96-tpi floppy-disk drive, Minnie Winnie 20-Mb external hard disk, 7-10 Mb of software including NZCOM, Z-System utilities, programming stuff, WordStar 4.0 and 3.3, CalcStar, DataStar, ReportStar, and more. Manuals, cover, etc. included. A really nice machine! Asking $200 plus shipping. **Kaypro printer** (Juki 6100 daisy wheel), tractor feed, cable. Works fine! Asking $60 plus shipping. **Kaypro technical manual**, $10. **Magazines:** quite a few *Z-News*, *Profiles*, etc. If I can sell all the machines I'll let the magazines go for shipping costs. Dave Templin, 2978 Spruce Way, West Sacramento CA 95691, phone (916) 371-2964.

Morrow Micro Decision 2 for sale

In perfect working order. Includes ADM 21 terminal, all software and manuals, JRT Pascal, boxes and boxes of diskettes. $50 plus shipping. Larry Baladino, 907 Milsom Place, Windsor CA 95492, (707) 838-7576.

Kaypro 2X, Silver Reed EXP-400 for sale

Computer has internal modem, 2 DSDD drives. Printer is daisy wheel. Includes software, manuals. Asking $200 OBO. Terry A. Chaney, 1111 N. Main, Joplin MO 64801, (417) 624-2518.

Morrow Micro Decision 3 for sale

Includes computer, most if not all software and manuals. Does not include terminal. $45 plus shipping. Dorene Minter, 1121 Key Peninsula Hwy S., Lakebay WA 98349, (206) 884-2574.

RESOURCES

Lee Bradley 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. He also carries the MYZ80 Z80 emulator for PCs, plus a large set of Z-System utilities, as a package called Z-4-AT, at $10 per disk; there are currently two disks. CP/M computer training, $15/hour. Contract programming service available. Computers, printers for sale. Write Lee Bradley, 24 East Cedar Street, Newington CT 06111, or call (voice) (203) 666-3139 or (data) (203) 665-1100.

Paul Chidley is the co-inventor of the YASBEC computer. The YASBEC board is $100 Canadian, the YASMEM memory-expansion board is $30 Canadian, the EuroCard backplane is $25 Canadian, and the ZVID video board is $35 Canadian with PALs, $25 Canadian if you wish to provide your own PALs from the logic in the documentation. Contact Paul Chidley, 627 Hunterfield Place N.W., Calgary Alberta, Canada T2K 4L5.

The Computer Journal is the foremost magazine in today's CP/M community. 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. *The Computer Journal*, P.O. Box 535, Lincoln CA 95648-0535, phone (800) 424-8825.

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.

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). 8020 San Miguel Canyon Road, Salinas CA 93907, (408) 663-6966.

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.

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, or phone (609) 771-1503.

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

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. Send the deposit plus enough for postage, and the requested items will be sent you by first class priority mail. When you return them, the deposit and any left-over postage, minus the handling fee, will be refunded. For periodicals, the deposit is $1 per issue, $0.25 handling; books and hardware manuals are $5 deposit, $2 handling fee; software manuals are $10 deposit, $5 handling fee. 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! To obtain a list of available items, or to borrow material, write to Library c/o Hart, 10111 Cedar Lake Road, #111, Minnetonka MN 55305.

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.

MicroSolutions makes several products of interest to our community. Uniform format-translation software costs more and knows fewer formats than 22DISK (see Sydex, below), but 22DISK only runs on PCs. Versions of Uniform are available for CP/M machines: Actrix, Bondwell (12 and 14), Epson QX-10, Kaypro (all models except Robie), Micromint SB180, Morrow Micro Decision (2, 3, 5, 11, 16, and 34), NEC PC-8801, Osborne 1 (double density), TeleVideo (801, 802, 803, and TPC-1), Toshiba T100, Xerox 820-II, and Zenith Z-100. All versions of Uniform, including Uniform-PC, cost $69.95. MicroSolutions also sells UniDOS, a Z80 card for PCs, for $175; and their CompatiCard IV 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.

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.

Paul F. Herman Inc. publishes *Z-100 LifeLine*, a bimonthly journal dedicated to the Zenith Z-100 dual 8088-8085 computer. A one-year subscription is $24 per year to any U.S. zip code, $28 to Canada or Mexico, and $28 to any other company by surface mail, $36 by air mail. Back issues are available for $5 each ($2 each is you're a *Z-100 LifeLine* subscriber); some early issues are getting low. An index disk to Z-100 articles in various magazines is available to subscribers for $19, and an update can be purchased any time after that for $5. Contact Paul F. Herman Inc., 9317 Amazon Drive, New Port Richey FL 34655, or call (800) 346-2152.

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)

Chuck Stafford sells important products for Kaypro computers. The Advent TurboROM allows flexible configuration of your entire system, reading and writing additional formats, and more; $35. The hard-disk conversion kit includes everything needed to add a hard disk except the hard disk itself; the interface, controller, TurboROM, software and manual. $175 without clock, $200 with clock; very few are left, so order now. Orders receive a free copy of the schematic for the Personality Decoder Board which lets you run more than two drives, and use 96-tpi drives (when combined with the TurboROM); unfortunately there are no more of the actual boards left. Write him at 4000 Norris Avenue, Sacramento CA 95821, or phone (916) 483-0312 evenings or weekends.

The Staunch 8/89′er is a magazine for users of Heath/Zenith H-8 and H-89 computers; $15 per year U.S. and Canada, $19 overseas. 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.

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 are not listed, see the listing for the magazine in the RESOURCES section.

ADAM newsletters are very difficult to cover adequately. There are a lot of them, and most are full of little articles and product reviews, that would take too much space to list individually. At the same time, they all reprint each other's articles. While this is undoubtedly a great service to their local readers, I have no space for listing an article five times when it appears in five newsletters. Suffice it to say, if you have a Coleco ADAM, you should probably get at least a sample issue of all the ADAM newsletters. Ones received since last issue include:

ADVISA, November/December 1993. *Advisa* is the newsletter of V.I.S.A., the Vancouver Island (B.C., Canada) Senior ADAMphiles. It's probably the easiest ADAM newsletter to read, and the best organized. The editor is B. David Cobley, 17-885 Berwick Road, Qualicum Beach, B.C., Canada V9K 1N7. For V.I.S.A. membership (ADVISA subscription) send a check or money order for $25 US (if you live in the US) or $25 Canadian (if you live in Canada) to Midge Cobley, V.I.S.A. Treasurer, same address as above. The check should be made out to V.I.A.U.G., *NOT* V.I.S.A.

AIM, #97, January 1994. AIM stands for Adam International Media, and is the house publication of Adam's House, a company that sells ADAM hardware, software, etc. *AIM* is the most businesslike of the ADAM newsletters. The editor/proprietor is Terry R. Fowler. For information write ADAM's HOUSE, Route 2, Box 2756, 1829-1 County Road 130, Pearland TX 77581-9503, or call (713) 482-5040.

AUGER, February 1994. AUGER (ADAM Users Group Educational Report) is the newsletter of ECAUG, the Emerald Coast ADAM Users Group. ECAUG has evolved from a local to a national ADAM users' group, and AUGER has regular short articles on CP/M and T-DOS. Membership in ECAUG is $15 per family per year. A 36-page list of the disks in the group's public-domain library, plus the year's issues of AUGER, come with the membership. Send the money to Norman J. Deere, Treasurer and Editor, at P.O. Box 4934, Fort Walton Beach FL 32549-4934, phone (904) 244-1516. All back issues of AUGER are available; see the ad in any issue.

Metro Orlando Adam Users Group newsletter, December 1993 and January 1994. A subscription to the newsletter comes with membership in MOAUG, which is $20 per year. Write to James Poulin, 1146 Manatee Drive, Rockledge FL 32955, phone (407) 631-0958.

MTAG Express, #43 (December 1993) and #44 (January 1994), is published by the Metro Toronto Adam Group, Box 165, 260 Adelaide Street East, Toronto, Ontario M5A 1N0, Canada, phone (416) 424-1352. The editor is Neil Wick, who deserves credit for a fine job; the newsletter has wide margins, and article beginnings stand out through judicious use of large type for the titles. Much of the contents are messages from their bulletin board. I couldn't find the cost of dues in either issue.

Omaha ADAM Users Club newsletter, #57 (December 1993/January 1994), bills itself as the oldest active ADAM newsletter in the USA, and says it was established 11 July 1984 by Norman R. Castro, who is still the editor. Subscriptions are $5, $7, or $10 per year (6 issues) for U.S., Canadian, and other foreign subscribers, respectively, from Norman R. Castro, 809 W. 33rd Avenue, Bellevue NE 68005, phone (402) 291-4405.

The Analytical Engine, Volume 1, Number 3 (January-March 1994), is the magazine of CHAC, the Computer History Association of California. This issue has far too much on IBM, which is not a California company. But it also has a solid article on the Intel Intellec/MDS series, a tour of the Lawrence Livermore Computer Museum, a tribute to the Apple II, an interesting article on recent acquisitions, and *lots* of interesting letters! Annual subscriptions to the *Engine* are $25 e-mail, $35 paper for individuals; $75 e-mail, $85 for institutions; $15 e-mail, $25 paper for students, seniors, or low-income

people. Write Kip Crosby, Managing Editor, 1001 Elm Court, El Cerrito CA 94530-2602, or fax him at (510) 528-5138, or contact him on Internet at cpu@chac.win.net.

Classic Computer Society Newsletter, February 1994. The Classic Computer Society was formerly a local Kaypro and a local Osborne group, that merged and extended their mandate. Their newsletter is always interesting, if somewhat eccentric typographically. Andy Shapiro is the secretary and newsletter editor; Al Paarmann contributes many short articles. Write Classic Computer Society, P.O. Box 2007, Santa Barbara CA 93120 for membership and subscription information, or call (805) 684-8838.

The Computer Journal, #64 (November/December 1993). JW Weaver's Support Groups column lists *TCJ* staff contacts, user groups, publications, and businesses supporting CP/M and other small computers. Chuck Stafford's Mr. Kaypro column tells how to customize your sign-on message and install a real-time clock in your Kaypro. Part 3 of Tilmann Reh's *Connecting IDE Drives* appears in this issue. The center fold is another Xerox 820 schematic. Herb Johnson's Dr. S-100 column answers letters and describes adding a new BIOS and a new disk controller to an S-100 system. Bill Kibler talks about the possibility of defining a new small-C and prints discussion from various folks. Brad Rodriguez presents Part 4 of *Moving Forth.* See our RESOURCES section for *TCJ*'s address and subscription rates.

Historically Brewed, #3 (December 1993/January 1994), is published by the Historical Computer Society. This issue has *The Beginnings of the Apple II Retold,* Part I, by Steven Weyhrich; *The Art of*

Computer Collecting by Timothy Swenson; *The Computer Generation,* by Mark J. Makower; a review by David Greelish of *A Collector's Guide to Personal Computers and Pocket Calculators* by Dr. Thomas F. Haddock; and *Tidbits for Collectors* by Michael J. Posner. To subscribe to *Historically Brewed* and join the Historical Computer Society ("Admirers of the youngest antiques around!"), send $15.00 to HCS, 10928 Ted Williams Place, El Paso TX 79934.

Smaller is Better, December 1993, is the newsletter of the Connecticut CP/M Users Group (CCP/M). CCP/M is a long-standing group that has much to its credit, not least of which is the East Coast Z-Fests. This issue has CCP/M meeting news, *CP/M on the C128* by Noel Nyman, and a review of *A Non-Cook Book,* which is a book about food written by a member of CCP/M. For dues and/or subscription information, write Stephen Griswold, P.O. Box 74, Canton CT 06019-0074, or call the Mouse House BBS at (203) 665-1100.

Z-100 LifeLine, #29 (December 1993). This magazine is extremely well written, and the editor writes long articles on all the ins and outs of the Z-100. Unfortunately nearly all of every issue is devoted to PC subjects. Steven W. Vagts will be publishing a new *Z-100 LifeLine* as of issue 31; write to him at 2215 Americana Drive, Roseville CA 95747, or phone him at (916) 773-4822. The new magazine will be $12.00 per year; you can order a subscription now. Meanwhile Paul Herman (the current editor) is offering back issues, an index to Z-100 articles in a number of magazines, and a complete set of *Z-100 Lifeline* articles (text only) on disk. See the RESOURCES section for his address and phone number.

The avant-garde is not the only place of courage; a principled stand within a reconstituted rear unit may call down just as much ridicule and demand equal fortitude. Crowds do not always rush off in admirable or defendable directions.

— *Stephen Jay Gould,* **Natural History** *magazine, January 1994, page 18.*

Art Credits

The drawings of the HP 125 and HP 120 on our cover are by Rick Sherman.

COMPUTER CLASSICS

The HP 125 and 120

In 1981 Hewlett Packard introduced the HP 125 Personal Office Computer. This was by no means the Palo Alto computer company's first computer; it wasn't even their first microcomputer. They had already enjoyed some success in the scientific market with the HP 85 and 86 personal computers, known collectively as Series 80 computers. But the Series 80 computers run their own, proprietary operating system. Only the HP 86, through the addition of a special board, can run CP/M.

The HP 125 runs CP/M as its native operating system, but draws on the technology developed for the Series 80. The HP-IB interface used for connecting lab instruments to the HP 85 and 86 is used by the HP 125 for the attachment of peripherals, including floppy-disk drives, hard disks, printers, and plotters.

The HP 125 vies with the TeleVideo TS-803 or 803H for the honor of being the strangest-looking CP/M computer *(see cover)*. The HP 125's main section is 18" D x 10½" T x 14½" W; its screen is 9½" W x 7" H. The pedestal is 6½" T, and the base of the pedestal covers an area 13½" W x 16" D. The keyboard is 17" W x 7" D x 3" T at the back *(see Figure 1)*.

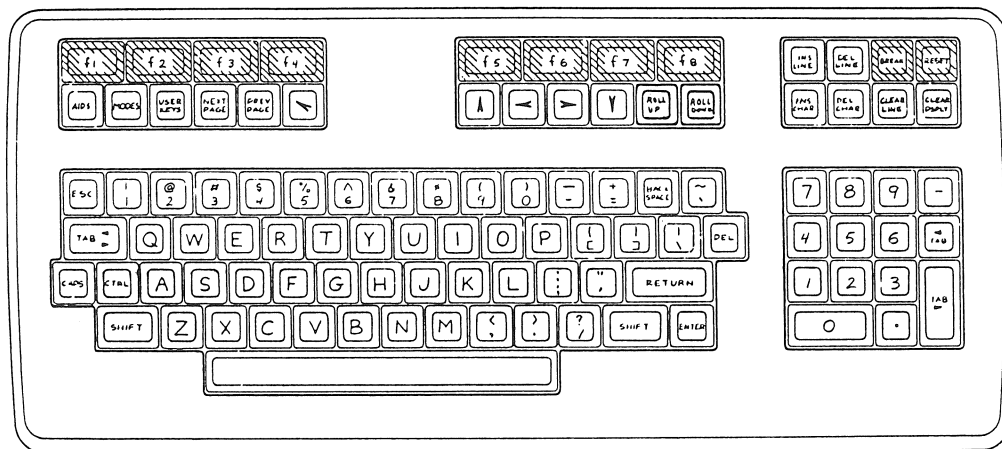A wide variety of drive units were available for

Figure 1. The HP 125 keyboard.

the HP 125, each with its own part number. The original models included the HP 82901M and S, with two DSDD 5¼" floppy-disk drives (FDD), the HP 82902M and S, with one such FDD, and the HP 9895A, with two 8" FDD. The initial HP 125, later called the HP 125A, did not have 3½" FDD or hard disks.

When a buyer opened the box from Hewlett Packard, he found the system processor (the pedestal unit shown on our cover), the keyboard, the disk-drive unit, the HP-IB cable to connect the disk drives to the system processor, the power cords for the system processor and disk drives, a stack of manuals, and a box of disks. The manuals were *Getting Started with Your HP 125*, the *HP 125 Owner's Manual*, the *HP 125 Installation Guide*, and manuals for VISICALC/125, GRAPHICS/125, WORD/125, LINK/125, and BASIC/125. There was also a *System Reference Manual*. All these

manuals were 8½ x 11" and contained in HP manuals, except *Getting Started*, which is a thin saddle-stitched booklet 8½ x 9½".

The initial software bundled with the HP 125 consisted equally of software written for the machine by HP, and third-party software slightly modified to present a uniform look with the HP 125 system software, and the software on the earlier HP 85 and 86. This software typically displays eight lighted blocks on the bottom of the screen, showing what the function keys do while you're in that program. In the middle of the function-key legends, two numbers indicate the row and column of the current cursor position *(see Figure 2)*.

As their names imply, VISICALC/125 and BASIC/125 are versions of VisiCalc and Microsoft Basic-80 modified to present a uniform appearance.
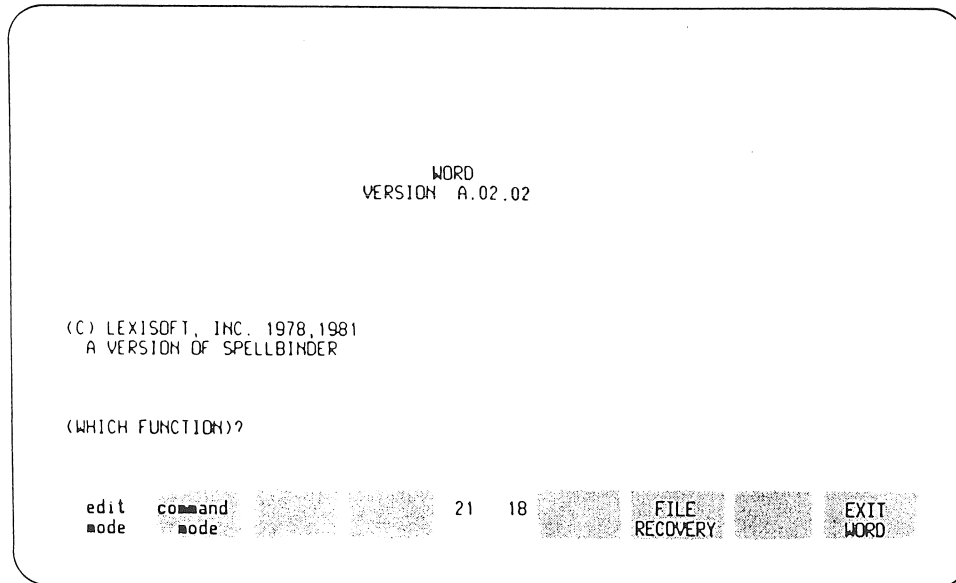
```
                              WORD
                        VERSION  A.02.02




        (C) LEXISOFT, INC. 1978,1981
           A VERSION OF SPELLBINDER


        (WHICH FUNCTION)?


           edit   command              21   18         FILE            EXIT
           mode    mode                                RECOVERY        WORD
```

Figure 2. Appearance of HP 125 software.

WORD/125 is even more interesting. The word processing software on the Series 80 computers was an HP program called WORD/80, and HP apparently felt it was important for the word processor to be called WORD/125 on the HP 125, even though it did not work like WORD/80, and was third-party software. For WORD/125, despite the name and modified appearance, is nothing more of less than the HP 125 version of Spellbinder! Whereas any CP/M computer will run the generic version of Spellbinder, Hewlett Packard joined Eagle and Xerox in getting a special version of Spellbinder for their computer. WORD/125, because of the alterations to make it look like HP standard software, is actually the most heavily modified version of Spellbinder.

HP 125 Communicator debuts

The best way to document the development and marketing of a computer is to have internal company documentation, official press releases, an official company history of the computer, or all three. For the HP 125 I have none of these, but I do have the *HP 125 Communicator*. The *Communicator* was a strange beast, partly newsletter, partly house organ. There was no question that it was an HP publication; it used the same standard illustrations and typewritten text as the HP 125 manuals. It was also undated, other than its copyright notice of 1982.

The first, 8½ x 11″ issue of the *Communicator* included tips on using WORD/125 and VISICALC/125, a warning that Pascal/MT+ didn't work right with the HP 125 (and an announcement that this bug was

fixed in the newest release of the HP 125 operating system), a Programming Challenge, articles on backing up files, random access files, file transfer, and the HP 2601A printer. It had a customer letter, a section of mistakes found in manuals, along with the correct text, a list of bugs in the software and the workaround for each, and a list of the HP 125 software listing the current version and price of each.

The first issue of the *Communicator* also included announcements of new products. This included a new two-pen plotter, a software product (Block-Format/125) that allowed data entered on the HP 125 to be uploaded to an HP mainframe, new disk drive units for the HP 125, and a new version of CP/M to support the new disk drives *(see Figure 3)*. The HP 9134A consists of a single 4.4-Mb hard disk, while the 9135A had a 4.4-Mb hard disk and a 5¼″ FDD.

The HP 125's original 4.4-Mb hard disks are the smallest hard disks you are likely to find on a CP/M machine. Each one is divided into four 1.1-Mb partitions, which look like four HP 9895 8″ floppy-disk drives to the operating system.

HP PLUS

Issue 2 of the *Communicator* introduced HP PLUS, which stood for Program to Locate User Software). This program introduced a lot of software for the HP 125. Under it, the vendors made modifications to their programs to make them look like HP programs and make full use of the HP 125's function keys. HP sold the programs in a standard package consisting of a 9½ x 11½″ box, containing a spiral-bound 8½ x 11″ manual,

and the software disks. A common cover design for the manuals and boxes emphasized the HP+ logo, with the name of the software package and the company that owned it relegated to second place. Nevertheless, these packages were supported by those companies, not Hewlett Packard. Under the HP PLUS program, HP 125 users could get Condor 20-1 and 20-2 (two different versions of the powerful Condor database manager), BPI Systems' General Accounting/125, and WordStar/125, SpellStar/125, and MailMerge/125 from MicroPro International. Peachtree Software's General Ledger, Accounts Receivable, Accounts Payable, Inventory Control, Invoicing, and Payroll packages were also available.

HP Series 100

With issue 3 of the *Communicator*, its name changed to *HP Series 100 Communicator*. The reason for the change was the introduction of the HP 120 computer *(see cover)* and a new version of the HP 125. With two computers running CP/M, HP designated the pair the Series 100.

The HP 125B and the HP 120 are basically the same computer in two different packages. They are so similar, in fact, that both machines boot from the same CP/M disk! The HP 120's keyboard differs from the HP 125 keyboard in Figure 1 by omitting the adding-machine pad in the lower right, and the edit
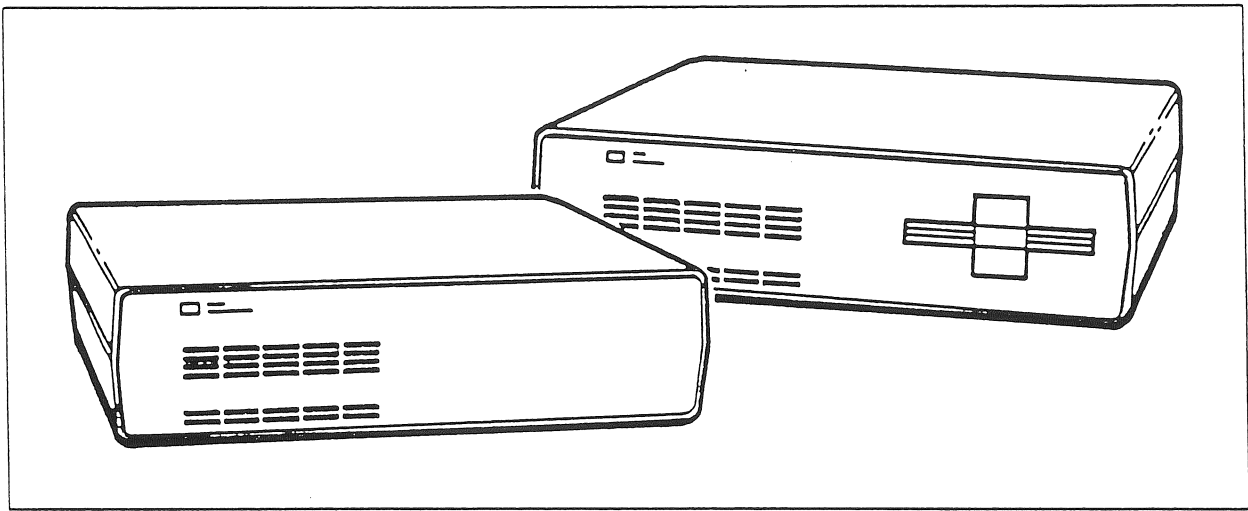

Figure 3. The HP 9134A and 9135A disk-drive units.

keys in the upper right. With the loss of these keys, the keyboard fits is no wider than the front of the HP 120, which is the same width and uses the same screen as the HP 125. But the HP 125 keyboard remained available and would work with the HP 120; customers who wished one could order the "extended keyboard."

The HP 120 and 125B came with HP 9121S and 9121D drive units, containing one or two 3½" floppy-disk drives, respectively, though the older drives remained available and usable on both machines. The main difference between the HP 125B and the older 125A, in fact, is the firmware change that allows a 125B to run the 3½" drives.

New manuals came with the HP 120 and HP 125B, basically the same as the HP 125 manuals, but with the emphasis on the Series 100. The new manuals are 5½ x 8½" instead of 8½ x 11", and typeset rather than typewritten. Each manual comes with binder and slipcase. Tutorial manuals, Quick Reference Guides, and an instruction disk, the Series 100 Computer

Tutor, were added. The *HP 125 Owner's Manual* and *HP Utilities Manual* were replaced by the *Series 100 Owner's Manual*, and the *Getting Started With Your HP 125* manual was replaced by the *HP 125 Installation Guide* and *HP 120 Installation Guide*, depending on which computer you had. Other manuals included the *Series 100/VisiCalc Reference Manual, Getting Started with Series 100/VisiCalc, Series 100/Graphics Reference Manual, Getting Started with Series 100/Word, Series 100/Word Reference Manual*, and *Series 100/DSN/Link Reference Manual* (DSN/Link was a new HP program for data communications between the Series 100 and other HP computers).

In addition to updating the Series 100 utilities, the HP PLUS program announced the addition of Organic Software's Milestone (project management software), Datebook II, and Personal Datebook.

A cornucopia of accessories was available for the Series 100, including HP 120 and HP 125 dust covers, HP Business Assistant (the new name for the HP 125) 8½ x 11" binders, an HP 9121 carrying case, a palm rest

for the "extended keyboard", a tilt unit for the HP 120 system processor, a swivel unit for the 9121, and a keyboard park for the smaller keyboard. This allowed a user to put the keyboard away when not using it, put the swivel unit on that, put the 9121 on that, put the tilt unit on that, and put the HP 120 system processor on that. That gave him a unit that could swivel as desired, had a screen that could tilt 20 degrees up or down, included two disk drives, and took up only a little more desk space than a telephone.

Fadeout

HP continued to make CP/M products available for the HP 125 and 120, including MicroPlan and dBase II, and add new accessories, including a 4.67-Mb not divided into 4 partitions, and an 8-Mb hard disk. The *Communicator* continued to be published. Starting with issue 7, it shrank to 5½ x 8½"; this was the same issue which announced HP's first MS-DOS machine, a non-clone called the HP 150. The HP 150, which was included in the Series 100 line, was the Touchscreen computer. It was one of the last non-clones introduced, and one of the first MS-DOS machines to use 3½" floppy-disk drives. The last model added to Series 100 was the HP 110, a MS-DOS laptop.

Information on the HP 120 and 125 was still present in the *Communicator*, though overwhelmed by material on later computers, right through issue 12, the last I have. In that issue it was announced the HP stopped selling the 120 and 125 on May 1, 1984. Software, parts, and full repair services remained available until May 1, 1989, under HP's standard five-year post-discontinuance support program.

Conclusion

I hope this chronological discussion of the HP 125 and 120 hasn't been too confusing. To summarize, the two machines, while outwardly different, are functionally identical. A wide variety of disk-drive units can be used with them, in all three size of floppy disks, including the units used by the later HP 150. Hard-disk units include 4.4-Mb units partitioned in 1.1-Mb partitions, and 4.67-Mb and 8-Mb units. All HP-IB, RS-232, and parallel printers and plotters can be used. A number of accessories, including dust covers and (for the HP 120) tilt and swivel units, were made in quantity, as were the manuals, and should be findable, especially in Palo Alto and in the storage rooms of companies that are heavily into HP equipment. While a number of software packages were particularly modified to present a uniform appearance on the HP 125 and 120, including a version of Spellbinder, most if not all standard CP/M programs should work just find. The programming manuals for the HP 125 and 120 are detailed enough that it should be possible to program the function keys for each program, rather than altering the programs themselves; a future issue of *The Z-Letter* may have an article on this subject.

All in all, the HP 125 and its functional twin, the HP 120, are solid, well-designed CP/M machines that served capably for many years and deserve a wider reputation than they enjoy. Hewlett Packard did not market them to individuals and the home market, but to small businesses and to larger businesses already using HP minicomputers and mainframes. As when HP chose not to exercise its option on computers invented by its employees, I feel they missed another bet in this case. The HP LaserJet line shows that Hewlett Packard did not always make the wrong choice. But the fact that the Apple II microcomputer and the Tandem minicomputer were not released as HP products, and the fact that the HP 125 and 120 were not sold to the home market, shows that the company often does.

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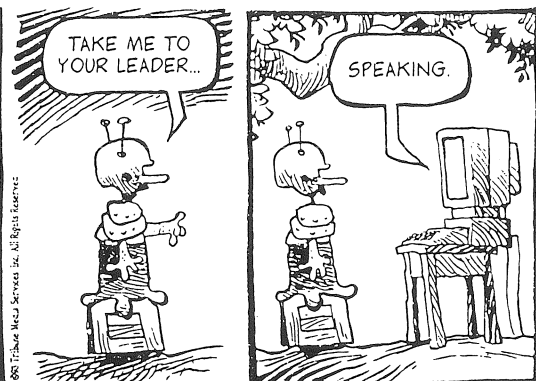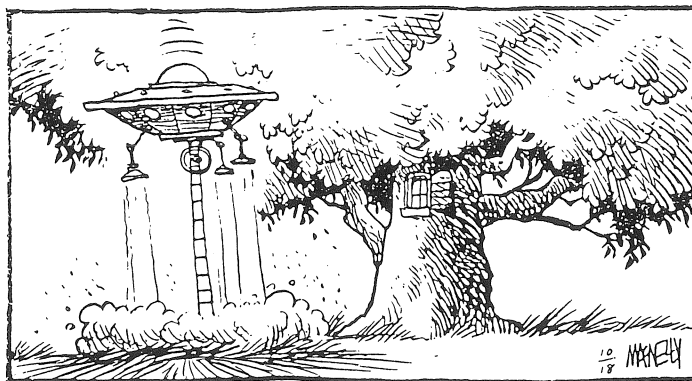
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Operating system

CP/M (version 2.2) or CP/M Plus (version 3.0), $25. A lot of my customers have picked up a computer without a disk to operate it. I can sell you the disk to run your computer. Manuals not included. (DRI)

Boot disks wanted! I am building a library of CP/M boot 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. I will pay you $5 for each one I don't have already, or deduct $5 from any products you buy from me.

Manuals and newsletters

Computer manuals, $15 each. Manuals for many different makes and models of CP/M computers are available, too many to list here; please inquire. (Various companies)

Software manuals, $15 each. *CBASIC Reference Manual*, (DRI); *MBASIC Reference Manual*, (Microsoft); *Perfect Calc User's Guide, Perfect Filer User's Guide, Perfect Writer/Speller User's Guide*, (Perfect Software, Inc.); *The CP/M Handbook with MP/M*, by Dr. Rodnay Zaks (SYBEX); *Personal Pearl Manual* (Pearlsoft). Other manuals available; please inquire.

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.

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Eagle Computer Users Group newsletter, $15. All issues from July 1987 to October 1990, in one package.

Micro Cornucopia reprints, $8 per issue in U.S., Canada, and Mexico, $10 per issue everywhere else. An excellent magazine, especially for owners of Kaypro, Xerox, and Big Board computers. All 53 issues are available. (Micro Cornucopia)

Word processing

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

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)

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)

SuperCalc 2

The standard CP/M spread sheet (version 2.0), $30. (Sorcim)

Move up to the Z-System!

NZ-COM (version 1.2H), $20. Upgrades your CP/M 2.2 system with no hardware change, yet you can still run your CP/M programs like Spellbinder and SuperCalc. Includes a manual and a large set of Z-System utilities. (Z-System Associates)

Z3PLUS (version 1.02F), $20. Upgrades a CP/M Plus or CP/M 3.0 system, just as NZ-COM does for a CP/M 2.2 system. With manual and utilities (Z-System Associates)

ZCPR 3.4 source code, $15, $10 if purchased with NZ-COM. (Z-System Associates)

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)

All three IOP segments, $60. (Alpha)

Sound Potentials public-domain software

Catalog disk, $10. Lists the public-domain and shareware software for CP/M systems in this collection, and includes NULU, CRUNCH, and UNCRUNCH, along with their documentation files. If you have a earlier printed catalog, from when Sound Potentials was a separate company instead of a Lambda trademark, you may use it to order software from me.

Any software in the collection, $10 per disk. To order, add up the sizes of the software you are ordering, divide by the size of your disk format, and round up to get the number of disks required to hold it. The larger your disk format, the more software you can get for the same amount of money. As with all things I sell, there is no separate charge for shipping and handling.

Micro Cornucopia Kaypro disks

Catalog disk, $5. Lists the contents of all 49 disks of Kaypro software compiled by *Micro Cornucopia* during its publication.

Individual disks, $5 each. Order the disks you want after perusing the catalog disk.

Entire set of disks, $200. Get the entire collection of 49 disks all at once and save $45 over the cost of buying them one at a time.

Micro Cornucopia Big Board disks

Catalog disk, $5. Lists the contents of all 30 disks of software for the Big Board computer, compiled by *Micro Cornucopia* during its publication.

Individual disks, $5 each. Order the disks you want after perusing the catalog disk.

Entire set of disks, $100. Get the entire collection of 30 disks all at once and save $50 over the cost of buying them one at a time.

Disks and supplies

8″ disks, $15 per box of 10. Specify single- or double-sided.

Northstar disks, $15 for box of 10. Hard-sectored, 10 sectors per track.

Customizable diskette carriers, $3 each. Each protects up to three 5¼″ diskettes from harm in briefcase, etc. Perfect for traveling or commuting.

Disk wallets, $5 each. Originally for Xerox Memorywriter system disks. Each sturdy plastic folder holds up to six 5¼″ disks.

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, Heath/Zenith, and Vector.) I can also copy 8″ disks and 3½″ formats. Copies can be CP/M <–> CP/M, CP/M <–> MS-DOS, CP/M <–> Mac, or Mac <–> MS-DOS; specify the format of your originals, and the format desired for 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.* Software you buy from Lambda will be sent to you in the disk format you request at no extra cost.

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