Computer News 80

P.O. BOX 680/CASPER, WYOMING 82602-0680 307-265-6483

APRIL 1995 VOLUME 8 NUMBER 4 $4.00

INDEX

EDITORIAL COMMENT

We have several very important announcements to make in this issue.

First, David Goben has completed BCX2 which is now a very advanced spreadsheet program for the Model 4 computers. He has provided for the use of variable width columns, enhanced cell use, including centering and invisibility, percents and more. But to really learn more about this new version of BCX read the ad in the products ad section.

By the time you are reading this those who already own the original BCX program will have received a special upgrade notice in the mail. And for those who have not yet purchased a BCX spread sheet program, send for the Demo program and really take a look at this superior spreadsheet program that has more features in it than any other TRS-80 spreadsheet ever written.

Secondly we have acquired a number of brand new, never out of the box external disk drives that have one double-sided 5-1/4" 360K disk drive, separate power supply, 110 volt power cord and metal case. These units were originally manufactured to be added to the Tandy 1400/FD/HD/LT laptop computers and still have the signal cable for those laptop computers.

How often have we told our readers that the minimum number of disk drives in any system is three floppy drives for maximum convenience. This is true regardless whether you have a hard drive connected or not. Three floppy drives makes life so much more bearable when making backups of floppy disks, or increasing your disk storage size.

Now for the best part -- these units can be yours for only $45 plus $6 shipping and handling if you want them as is for your laptop. But if you want them to use on a Model 4 computer we have to modify the signal cable so you can plug them into the external disk drive card edge connector on the bottom of your computer. The price then for a

modified unit for use on a Model 4 computer is $55 plus $6 for (S&H). (Modified units for the Model 4/4D are the same for Gate-Array or Non-Gate Array computers).

Supplies are limited so act fast, so that you do not miss out on this bargain. Where could you find a complete external disk drive for your Model 4 for less than the cost of a new disk drive alone?

And lastly we have an follow up article on the Model 100 Voyeur Program article by James Kenney. Since the program consists of four pages of tightly written Model 100 program test, it will not be printed in this issue. But it will be available by request for those who would like to have a copy.

For those of you who wish to see more articles on the use of the Model 100, and 102, The Model 100, Laptop Computer Corner is being moved to *Computer News PC* so that it can be combined with the coverage of other Tandy laptop computers along with the coverage of the Tandy 1000 series of computers.

If you are a Model 100 user and want programs on a disk for that computer we will shortly have a collection of Model 100 public domain programs available for you. This list will be available by request. Also, articles on your experience with the Model 100 or 102, 1400LT and other Tandy Laptop computers are more than welcome.

YOU REALLY GET MORE THAN A MOUSE

by Raymond Page

With great anticipation I waited for my order of the CN80 mouse to arrive, only made worse by watching the TV commercial for Office Depot with the actor waving a couple of mice around by the tail. When the package arrived this is what I found for the price of $ 16.95.

One three-button serial mouse. Good for use on the Model 4 using David Goben's Mouse program. Or used on an IBM-PC or clone.

One Cable adapter for use with the Model 4 Serial RS-232 connector.

One Mouse house, to store your mouse, works on any computer.

One Mouse pad, to keep your mouse clean and warm, it also works on any computer, and any mouse would not be happy without one.

Add another $12 for David Gobens Mouse Plus program and you have a complete set up to use a mouse on your Model 4.

What good is a mouse pulling a Model 4 around you might ask? Well, you can use a mouse to move the cursor across the screen when using BCX, PostMaster or creating screens for use with MagicDraw, MagicLantern or HRSlide programs. You can also use it in conjunction with programs like Dave's Mouse Menu by David Miller.

If you are going to create your own high resolution clipart file drawings the use of a mouse is indispensable.

My only regret is that I waited two years to order my own personal house pet - a mouse.
-Raymond Page.

VOYEUR 2.0 UPDATE

by James Main Kenney

Significant improvements have been made in Voyeur since version 1.0 was published by CN80 in March 1994 (Vol. 7 No. 3). The following is a supplement to that document:

VOYEUR-T automatically adjust to the computer type by PEEKing (ROM) address 1 which is 171 only for the T200. The manual backup of v.T1.0 has been eliminated since it was learned that the untested T102 has a different byte at address 1 (as does the M100). This has allowed a reduction from three opening screens to two which, together with other changes, has resulted in v.T2.0 being no larger than v.T1.0. (The symbol ">" now used in the opening screens connects key markings with key functions, and may be read as either "to" or "for".)

The default filename is now the one previously used since entering VOYEUR, if there is one, or "A" if not, serving as a reminder of the last name used or facilitating reuse.

As a true "dump" should, VOYEUR can now file or print address/byte pairs in decimal, hex, or both, in place of or in addition to, the characters (or BASIC equivalents) associated with those bytes.

After entering a filename, a second prompt will appear, asking for a choice of characters/BASIC only, addresses and bytes only , or both. press a number key ("0", "1", or "2", respectively) to make the selection: pressing any non-numeric key, such as "ENTER", will select the filing of characters (or BASIC keywords, etc.) only. (The cursor rests on "0" as a default reminder.) If key "1" or key "2" is pressed, a similar third prompt will appear, asking for a choice of decimal, hex, or both, the non-numeric default being decimal only. For a printer dump, use the filename "LPT:"; other special filename or prefixes may be used to send data to a cassette, disk drive or another computer, as discussed in the previously published section on data recovery following a cold start (and detailed for the BASIC instruction "OPEN" in the manual). Also, see below for sending data to a Booster Pak. When recovering a "dead" file, be sure to press "0" or "ENTER" at the second prompt.

In BASIC mode, high 8=bit bytes (128-255) within data strings are no longer incorrectly treated as tokens. The quotation mark (") preceding the string will disable the the conversion to keywords normally done in BASIC mode. The conversion is re-enabled by another quotation mark or by the null ending the line. This should always work correctly while running, but errors can result from moving the cursor manually into or out of a string in vertical a direction, or starting or stopping a scan within a string. Move once through a quotation mark to correct.

While re-scanning the screen (reprinting the same characters), the cursor is now visible, allowing the scan to be stopped at, or very close to, any screen position.

Jumping from one program line to another within a .BA file has been made easier by a small change in the definition of the sixteen-bit number displayed in decimal on the info line; it is now the value of the two bytes represented by the characters to the right of the cursor, i.e., at the next two higher addresses. Since this number (less 1) is the default at the address prompt, the procedure for reaching files from the directory is different: The two characters immediately preceding each filename in the directory represent bytes forming the 16-bit binary address of that file; preceding these is a byte indicating the type of file (192 for .DO, 128 for .BA, 160 for .CO, or 0 for a dead file). Place the cursor over this third character in front of the filename, press key A and then only "ENTER". If the file selected was a basic file, the character under the cursor will now be the null (0) preceding the first program line. The two bytes that follow will be the address of the next BASIC program line, and appears as the new sixteen-bit number on the info line which becomes (less 1) the new default for the address prompt. Merely again pressing key "A" and "ENTER" will therefore change the address to the null preceding the next BASIC line. Since the null separating BASIC lines is always followed by the address of the next line, pressing keys "A" and "ENTER" alternately will quickly jump the address from one program line to the next (emulating the method by which BASIC finds the lines for commands such as GOTO). The jumps can be easily followed since, in BASIC mode, the program line number appears in the BASIC position on the info line when the cursor is on the null preceding the program line.

VOYEUR has successfully rescued dead .BA and .DO files following a cold start in an M100 equipped with a Booster Pak. After file relocation, the Booster Pak was restarted by first entering:

OUT5,0

and then (separately) entering

CALL911

VOYEUR T2.0 was then copied to the "workplace" (computer RAM), and the dead files saved to the Booster Pak RAM by prefacing each filename by "R:".
-James Main Kenney

A VISIT WITH DAVID GOBEN

by David Goben

DAY OF WEEK: ENTRY # UMTEEN

I think sometimes that some people have nothing better to do. Over a year ago I present some simple "quickie" date programs. To this day I'm still being hounded about them. So here is what I hope will be the LAST (famous last words) entry I'm making on this subject. The heart of computing the day of the week is this little function, assuming that integer variables DD contains the current day of the month, MM equals the current month, and YY is a 4-digit year, such as 1995, and we are assigning the result to variable DW:

```
100 IF MM<3 THEN MM=MM+12
200 DW = (1 + DD + 2 * MM + 3 * (MM +
1) \5 + YY + YY\4 - YY\100 +
YY\400) MOD 7
```

And that's all there is to it. The backslash character (CLEAR-/) performs integer division. MOD performs modulo division, returning only the remainder of the division. Thus DW contains a value from 0 through 6, representing Sunday through Saturday. Program listing 1, DATE/BAS is a little more practical version of this program. By running DATE/BAS, it simply reads the current system date and reports the day of the week. Incorporate this routine however you like it. This routine has been around for years and years. I first noticed it in my Master Library manual for my TI-59 programmable calculator back in 1988. I just noticed the same routine again listed in Dr. Dobb's Journal. Talk about taking the old and making it new again.

BCX2: FINAL TESTING PHASE

Work continues hot and heavy on BCX2. Recent additions to the program is the ability to internally read standard BCX and Busy-Calc files, and also formula-saved BCX files. This feature had initially been removed from BCX2 in order to make more room for other important new features, with the expectation that a conversion utility would be released with BCX2 to convert these files. However, the other day I was in the process of writing this utility when it came to me how to do so with very little new code right from within BCX2. So now this feature is back in, making one less thing that you would have to worry about. However, you will need to convert any VisiCalc files over to BCX2 format. An included utility, VC2BCX2/CMD makes this process fast and painless.

Another hot new feature of BCX2 is the ability to obtain results from a spreadsheet file different from the current. This is accomplished through the new @XTERN() function. The first parameter is a label field coordinate that contains the name of the file to extract data from. This file must be a standard-saved BCX2 file (if you have such files saved under BCX or Busy-Calc, simply load them into BCX2 and re-save them. They will be saved in BCX2 format). The remaindering parameter sets are pairs of coordinates in for format coord1>coord2, where coord1 is a coordinate in the external spreadsheet file, and coord2 is a coordinate in the current spreadsheet, which will receive the source coordinate's value. This is all the more powerful since BCX2 supports dynamic record lengths, and so can have records of up to 128 bytes long. You activate external references using the /XR (RUN) command. This will open the external file(s), load the data and stuff them into the appropriate locations. Note that coordinate references can be in any order. By selecting /XO, you can choose whether you want the external references run every time you load the current spreadsheet or not, and /XD gives you a list of all the external files referenced by the spreadsheet.

Two other functions that have just been added are @INDEX() and @COORD(). @INDEX() allows you to search within a linear or matrixed range of cells and obtain, via offsets, the value stored at the offset locations within the range. @COORD() allows you to specify a column and row offset, and obtain the value stored at the offset cell within the spreadsheet.

The manual is almost complete. I simply have to finish up the tutorial and the index, plus add information concerning the newly added external feature. By the way, this idea of referencing external files has been in my mind since I was developing BCX. Indeed, when I started on the BCX2 project, I had tried to incorporate an external function, but found it too complicated and containing too much program code for what it did. However, literally yesterday morning, I got up and was looking over a small program bug in a function when the idea for @XTERN() hit me. Within 24 hours I had it up and running bug-free. It is amazing to think that I had sat on that idea for a year, and for the last 8 months had not even thought once about it.

Last month I described what a spreadsheet was, and many of the new features of BCX2. Since there are many users of VisiCalc, Multiplan, DeskMate Worksheet, Busy-Calc and BCX, plus others (to include those written in BASIC that have been published in such places as the old 80 MICRO magazine), and there surely many more people out there who could really make good use of the most powerful spreadsheet ever written for the Model 4 if they knew what spreadsheets were all about, I think I should delve on the uses of spreadsheets, and the differences between BCX2 and the others. So what follows is a quick and dirty introduction to spreadsheets.

A spreadsheet is like an accountant's worksheet. It has rows and columns. The intersection of a particular column and row is a cell; a cell that can be referenced by describing its column and row, much like coordinates on a map, using letters across the top, and numbers along the side. Thus a cell that is located both in column AK and row 48 would be referenced by its coordinate AK48. Labels, notes, and totals can be typed into any of these cells. The major difference with programs such as BCX2 is that you can also insert formulas. A formula is an expression that produces a result, either numeric or logical. Within these formulas you can reference other cells, or ranges of cells, perform

math on them, apply formatting to them, and adjust them just about any way that you could wish. You can balance your checkbook on them, perform financial forecasts, make business decisions, or compute engineering changes. Anything that you may be performing right now with a calculator can be done with BCX2. The best part is, BCX2 remembers the formulas in your worksheet, so if you make a change in any place, BCX2 can completely update the sheet to apply that change in any cell that would be affected by the change. This all without using an eraser or another sheet of paper. BCX2 can also save these sheets, so that you can use them later. If you are using Busy-Calc and BCX, you already know how to use BCX2. BCX2 supports all Busy-Calc and BCX commands and functions as a subset. You will find the transition a very fast one. It will be almost like using your old spreadsheet, but finding a new turbo-charged engine under the hood, offering you many more new commands and functions and capabilities. BCX2 also supports all VisiCalc functions, to include all commands except for windowing (windowing under VisiCalc was like splitting the screen and accessing different parts of the spreadsheet using two different "screens." Though some people do make use of this, most users don't even know its exists. It is so little-used generally that when I began developing BCX2, I quickly discarded the option). If you are a regular VisiCalc user, adapting to BCX2 menus and commands will come very easy. Because BCX2 uses intelligent menu windows, you never have to look up commands, plus on-line help is always available via the /H command. The row and column bars are also similar (except that BCX2 also supports a row 0 and a column BL). Aside from BCX2 supporting all VisiCalc functions, you can also type them in exactly the same way between the two spreadsheets. Further, BCX2 provides much more flexibility in its functions. For example, if you wished to specify a range of cells while during data entry by manually pointing to the limits of the range using the arrow keys, under VisiCalc after you press the period key to begin defining the ending range, the cell pointer returns to its original point. BCX2 goes beyond this by keeping the cell pointer at the start of the range you had pointed at, and waits for you to finish specifying the ending coordinate before returning to its original point. This may not sound very profound, but many are the VisiCalc users that constantly complain about this. Another nice thing about moving from VisiCalc to BCX2 is the all around speed that BCX2 has. The screen updates very slowly under VisiCalc, and calculations take a while. Under BCX2 the screen updates are instantaneous, and those that are not are still several times faster than with VisiCalc. Further, BCX2 can recalculate any spreadsheet better than twice as fast as VisiCalc. Many BCX and Busy-Calc users boast that it is even faster than this. In the final analysis, if you discount windowing (BCX2 does support row and column freezing for ranges), BCX2 does everything that VisiCalc did, only better, and with more features.

If you have been using the DeskMate Worksheet, or Multiplan, then the adjustment period will be longer. This is because the functions are used in a different fashion. Unlike BCX2, BCX, Busy-Calc, and VisiCalc, all functions begin with an '@' character. For example, under BCX2, then Multiplan/DeskMate function ABS(R2C3) would be entered as @ABS(C3). However, the actual application of the functions are the same. Also, coordinate specifications are vastly different. Under Multiplan/DeskMate, both columns and rows are numeric, and coordinates are specified using row then column specifications, using the letter "R" for row, and "C" for column. Thus coordinate R2C3 specifies the second row, third column. Under BCX2 (and BCX / Busy-Calc / VisiCalc), coordinates are specified by an alphabetic column and then row. Thus C3 specifies the third column and row 2.

The nice part about moving from DeskMate's Worksheet or Multiplan is the speed at which BCX2 performs. Multiplan drags along like a stick in the mud. BCX2 flies through even a large worksheet in record-setting time. Depending upon the type of spreadsheet you are using, BCX2 is anywhere from 10 to 25 times faster than Multiplan. If you have been using Multiplan, then moving over to BCX2 will be like moving from a Model T to a T-Bird.

I won't sell Multiplan short, however. Multiplan had some very good features. The best were the external file references, the INDEX function, and referencing by coordinate offsets. Because of this I have updated BCX2 to also support such features, to make anyone's move, from whatever spreadsheet they are now using on their Model 4, to fast and smooth one. Gadzooks, if I had released BCX2 back when the Model 4 was just getting started, I'd be doing lunch with Bill Gates right now (this is not to say that I think he's the kind of guy I would be wanting to do lunch with).

NEW BCX2 DEMO

I've just sent CN80 a new BCX2 demo disk. If you want a sneak peek at BCX2, now's your chance. And the best part is, you can apply the price of this demo as a credit toward the purchase of the full version, should you decide that BCX2 is for you.

Sorry, only one demo credit per full purchase, and only if you were the original purchaser of the demo from CN80.

BUSY-CALC
Don't sell Busy-Calc short. It is still a powerful and less expensive alternative to BCX2. Plus, BCX2 requires a minimum of a 128K Model 4. Busy-Calc can run on a 64K machine (I think the ads have been inaccurate for a while stating that it =needed= 128K). Also, although Busy-Calc is limited to a 64 x 64 cell matrix, as opposed to BCX2's 64 x 256 matrix, a 64-square matrix is all that most people will ever need. Busy-Calc has about 90% of the commands available in BCX2, and its more hand-holding than BCX2. BCX2 is for the power-user. Busy-Calc is for the person on a budget that needs something to get the job done, and they don't need every feature under the sun. I still bring up Busy-Calc periodically to do many things. It's a nice, friendly little spreadsheet program.

Here's some interesting trivia. When Stan at CN80 was trying to get me to write a spreadsheet program, I had never even used one. Sure, I had VisiCalc and stumbled through it on a rainy day or two, but I had never actually used it. And so, when I considered the spreadsheet theory, I found that it was within my capabilities to produce, and so I went out and bought several books just to learn all I could about spreadsheets. The more I read, the more I was exited about the project. It seems interesting to also note that each time I complete a major project, it is usually the best that my abilities can do. At the same time I continually develop or learn new tricks, making each successive project many times better than the previous effort. I recall when I actually wrote a program in 1978 that used up an entire printed page, about 60 lines of code. BCX2 required over 300 pages at 80 lines of code apiece. By the way, I use my DEA Disk Editor Assembler (the version 2 upgrade) to compile this project in a single assembly, which is comprised of 19 separate assembly language files. Let's face it, I write ALL my assembly programs using DEA, from FBACKUP, my Disk Optimizer, MagicDraw, Script, Symphony 90, and every other of my programs that CN80 currently advertises in their magazine. In fact, after initially writing the barely runnable kernel of DEA, and began using it instead of Radio Shack's Assembly Language Development System to re-assemble itself, each time adding more and more features, until it reach its final, current form.

ENTER THE DRAGON
Anyone interested in having this adventure game re-released through CN80 for the Model III and Model 4? It is the largest text-based adventure ever written, and it is a lot of fun. It places you as the leader of a suppressed elven region which has been devastated by a recently awakened dragon. Your quest is to seek it out and stop it before it brings and end to you and everyone else. Let CN80 know if you would like to have them market it, since MISOSYS, who originally marketed it, has left the business. I wish you well, Roy!

Happy Computing!
-David Goben

JURASSIC TRS-80, MS-DOS, and System 7

by Dale Hill

We watched Jurassic Park a couple of years ago at the movies, and it scared the little kids in the theatre to death. Luckily, my kids are older, and they jeered at most of the special effects and acted as if they were not scared. But they were. I had to use the bathroom half way through the thing. Dinosaurs have helped many a kid learn to read. I can remember when I was a 4th grader and my goal in life was to become a paleontologist. After watching the first part of J. P. and knowing the condition of my back, I am glad I didn't pursue it. But, as a computer user in the elementary, I try to collect all of the public domain hypercard stacks as possible. I've found two of them and they are pretty interesting.

With GIF4MOD4, I decided to see if I could move the pictures only, of the dinosaurs, to the TRS-80. Since GIF seemed to be a standard format for graphics for both machines, I thought I would try that. I thought about Macpaint commonality with LANTERN, but I wanted to build individual screens, not huge, 3 screened files as a Macpaint graphic is. GIF4MOD4 is still available and supported by Computer News 80 and Frank Slinkman. With the success of the Internet, of late, a renewed interest in graphic conversions seem to be the norm, thusly came the ramblings that Compuserve is demanding royalty payments from those who gain profit from selling GIF utilities.

I found three utilities that supported GIF, all shareware. I tried two of them but then happened on GraphicConvert, a nearly 400K utility for the Macintosh that converted graphics from many different computers. The list of formats that it supported was nearly 50, so quickly I began to

convert Pict files generated by Macintosh Superpaint to GIF files. The conversion was easy, then moving the files onto an MS-DOS disk and transferring them via David Miller's MS-DOS utilities, I could piddle with the GIF4MOD4 as I tried to convert them to the TRS-80 with a Microlabs High Res board. The conversion was instantly successful and GIF4MOD4 did a wonderous job, though tedious.

GIF files are generally color, and the GIF4MOD4 program has the ability to read the colored pictures and dither (change) them to comparable black, white and grays using 6 different possible dithers. The user must read the documentation and follow it carefully, but with little help, even the novice can soon be converting graphics. My graphics came not from Compuserve, but from a company called MEI/MICRO which sells CD's full of graphics for less than 15 dollars each. With the Macintosh PC-EXCHANGE, I can even purchase MS-DOS graphics without worrying about compatibility problems - more on that later.

For the dinosaurs, though, I found that dithering color pictures to black and white before I used GIF4MOD4 seemed to work better, especially if I erased the background. The GIF pictures turned into brilliant black and white pictures that were readily viewable on the TRS-80 machine. Using Allwrite, I set up 7 screen slides for HRSLIDE. The neat thing about MS-DOS Utilities is that you can name all of your pictures with common characteristics and move them over all at once, not one at a time. For example, my text files are called DINO1/txt, Dino2/txt, etc. Using the same idea, Gif files could be named Dino1.Gif, Dino2.Gif, ... on the Mac and be moved over to the TRS-80 with the command MSCOPY a:DINO$.gif :0, and then you can set back and watch the machine move all of your files over at once.

With a 4 drive system, do not attempt to move any files from 3 and 4 drives if they are external drives using the drive card-edge under the Model 4 or the externals on a Model 4P that use the 50 card-edger in the back of it. The utilities get mixed up and will only copy one side of your document on the Model 4 machine. I don't know what it will do with the Model 4P.

The GIF4MOD4 worked great and so did the GraphicConvert program by Thorsten Lemke; the Mac program is blow-YOU-away impressive. I believe in supporting the wonderful efforts of Shareware Entrepreneurers like TL, so I sent in my $35 fee. I had purchased a CD of .pcx and .wpg files, which are pictures for the IBM machines with .wpg files being specifically made to import into Wordperfect and .pcx is for Paintbrush. My thinking was, "Shoot for 10 bucks, I can purchase the CD and then can go up and use the Junior High MS-DOS CD-ROM to move some of the graphics over to the Mac." What a surprise when I got the Shareware version of GraphicConvert and it supported those too.

Get this! The version of GraphicConvert I received after I sent my Shareware Fee in, converted over 60 formats including .pcx and .wpg, RIFF, TIFF, Amiga, BMP (WINDOWS), SHP, PIC, Sun, RLA, ...; hey, I can't begin to name all of them. This program is what we call in Oklahoma a Level 5 tornado - it is a big, impressive sucker! Unlike tornadoes, GraphicConvert's results are stunning and recognizable. Remember, GC supports Macs with Color Quickdraw, System 7 and 2 MB of free memory.

Yep, it was impressive, true, but it didn't support the TRS-80. I could live with it. I went ahead and sent Thorsten a disk with some TRS-80 /hr and /shr files anyway, and told him it would be neat to have a filter for those files, but ... that I wouldn't be mad if he didn't. Well, TRS-80ers, guess what? I received a new GraphicConvert within a month and there on the next to the last line of the 60 odd filters was TRS-80. Don't believe me?

I am sending 4 diskettes of dinosaurs that I converted. The 7th HRSLIDE file, consisting of 7 screens of dinosaurs, contain one screen of a captured high res program of GraphicConvert with TRS-80 staring you in the face. Does it work? Send for the 4 disks and run HRSLIDE DINO8/txt. These files were converted directly from PIC files to a TRS-80 format. The conversion makes a 19K hr file which can readily be read by LANTERN. Once into lantern, I saved all files into .SHR files to conserve space.

So, how do I feel about GraphicConvert? I feel like KINGKONG down here in INDIAN COUNTRY America. Show me a graphic, and I'll convert the darn thing instantly. Now, of course, we have to be careful about converting copywrited materials, and I do. The MEI/MICRO and WALNUT CREEK CDs all say that we have the right to use the graphics, and most of them without any fine print.

German ingenuity? Well, you can experience it too, if you have a Mac or know someone that does by writing,

THORSTEN LEMKE
LEMKE Software
Insterburger Str. 6, 31228 Peire, Germany

EMAIL
CIS100102;1304
Thorsten_LEMKE@pe.maus.de(<48K,no binaries!??)

I don't use the Internet or phone lines, so I couldn't tell you if the EMail works or not; but I can guarantee you, the mailing address will get him. So you want to do some Graphic Exchanging from the TRS-80, IBM, AMIGA, Mac? Write to Lemke, now! If you've got some future paleontogists? Order the Dinosaur screens from CN-80. Using your favorite paint program, you can do anything with them you want, but watch out for the Velociraptor. He's 8 ft long and has a mean byte, ... if your not careful.
-Dale W. Hill

SUPER UTILITY 4/4P

COMMENTS & SUGGESTIONS

by Harold J. Hendriks

INTRODUCTORY COMMENTS

The standard version of Super Utility 4/4P is a collection of powerful and useful utilities for use with the Model 4/4D/4P Computers. The same set of utilities, with some minor variations, is available in the nearly "twin" program in the form of the SU4/CMD file on a TRSDOS 6.x or an LS-DOS 6.x diskette. Super Utility 4/4P serves pretty much the same purposes as do the Norton Utilities for the MS-DOS Computers.

Super Utility 4/4P, or the SU4/CMD file version, provide the Model 4/4D/4P Computer user with utilities for repairing and/or altering or zapping disk files and directories. Also included are several very useful standard and specialized diskette formatting utilities, plus purge, backup and file management utilities.

Several of the more powerful utilities are somewhat complex, and complicated to use. It's doubtful that even the most avid user of Super Utility 4/4P would make the claim that the program is "User Friendly", whatever that may mean! I have found that the more I use Super Utility, the less unfriendly it seems to be. The fact is that Super Utility and I have developed a fairly friendly relationship.

Some of the utilities, such as the "Zap Utilities", require detailed and intimate knowledge of diskette file and directory structures for safe and proper use. Such utilities should not be used to zap or to alter files or directories unless the user is competent to do so.

On the other hand, utilities such as the "Format Utilities", "Backup Utilities" and some of the "File Utilities" can be used successfully to good advantage by any reasonably experienced Model 4/4D/4P user.

MODEL 4/4D VERSUS THE 4P

Super Utility 4/4P employs its very own proprietary operating system. To use the Super Utility 4/4P utilities it is necessary to reboot the computer with the Super Utility diskette in drive "0".

When the computer is rebooted with the Super Utility 4/4P diskette, the TRSDOS or LS-DOS operating system and all SYSGENED device drivers and system configurations are wiped from memory and replaced with Super Utility 4/4P's own unique proprietary operating system. The same thing happens when you invoke the SU4/CMD file on a standard TRSDOS 6.x or LS-DOS 6.x diskette.

Super Utility 4/4P can access the two internal disk drives as well as two external disk drives connected in the standard manner to a Model 4 or 4D computer. Consequently, when used on a Model 4 or 4D with two external drives, Super Utility 4/4P can access drives "0", "1", "2" and "3".

On the other hand, Super Utility 4/4P CANNOT access external disk drives connected to a Model 4P computer via the I/O-Bus Interface Unit. Super Utility can access ONLY the two internal drives on the Model 4P. When using Super Utility 4/4P on a Model 4P do not bother to configure drives "2" and "3". These drives cannot be accessed by Super Utility on the Model 4P.

USING FORMAT WITHOUT ERASE
ADDITIONAL SUGGESTIONS

Two additional suggestions have occurred to me since I wrote and submitted the article, "Resuscitating Flaky Diskettes and Rescuing Erratic Directories and Files", which was published in the February 1995 issue of "Computer News 80".

When attempting to rescue directories and/or files on marginal diskettes it is useful to do a bit of experimenting before attempting to use Super Utility's "Format Without Erase" Utility. Use your normal DOS, either TRSDOS or LS-DOS, and do some experimenting with several of your marginal diskettes.

Using ONLY those drives which will be available to

you when using Super Utility 4/4P, attempt to determine which one of those drives is most able to read marginal diskettes with the fewest errors and difficulties.

You can even check out the relative ability of the drive in drive position "0" to read marginal diskettes. With a "System" diskette in drive "0" place another "System" diskette of the same version in drive "1". Then use either David Goben's "SYSDRV" Utility, or Mark Reed's "SWAP" Utility or the LS-DOS SYSTEM (SYSTEM=1) Command to swap the position of the "System" drive. After the drive swap is accomplished remove the "System" diskette from what is your normal drive "0" and then experiment with that drive's relative ability to read your marginal diskettes.

By using the drive that is most able to read marginal diskettes with a minimum of read errors, "Sector Not Found" errors, etc., you increase your chances of fully recovering all the files and the directory on marginal diskettes with the aid of Super Utility's "Format Without Erase Utility".

Another suggestion. If the "Format Without Erase" Utility encounters a sector that many repeated attempts at reading the sector fail, break out of the C>ontinous or the N>onstop mode by pressing the [CLEAR] key which will return you to the R>etry Menu. DO NOT select the S>kip option. If you do, any recoverable data in the troublesome sector will be lost.

Instead, select the Q>uit option which will terminate the "Format Without Erase" operation. Place the troublesome diskette in another drive and try the "Format Without Erase" operation again using a different drive. A REMINDER: Check the Configuration Table! Make certain that the alternate drive is correctly configured for the diskette.

With patience and persistence, and by trying every drive available to you, plus a dash of good luck, you stand a good chance of recovering your flaky diskette and files.

THANKS AND GOOD WISHES
I conclude with a well-deserved "Word of Heartfelt Thanks" to Lou Watts, a programming genius, for creating Super Utility in its various incarnations, and especially so for Super Utility 4/4P and the SU4/CMD file version.

May all of your disk and file recovery efforts be successful. HAPPY COMPUTING.
-Harold J. Hendriks

ENVELOPE ADDRESSING

A DIFFERENT APPROACH

by Robert M. Knowles

ADDRAVLP/BAS
(See Program Listing Number Three.)

Now that you have had a look at the envelope addressing program lets look at the same thing but just a little bit differently.

I use the envelope program and it works well but there is a better way of doing it. With the envelope addressing program you enter the return address then the address and it works great, but if you put all your addresses in a direct access file it would be much easier to handle. The program works best on a hard disk but will work just fine on a floppy, only slower.

Needless to say, but I will, put the program in just the way its written, if you don't, it will be like a lot of people I know, it won't work. With direct access you enter data as records, one address one record, and each record is numbered so the program can find it when you want it, and only that record.

The manual sounds as if direct access files are very hard to do, well, they're not, they're very easy, it does help to understand them, the manual says that to update a record all you have to do is call up the record and make the update, not from what I can see, if you do that then when you want to use the record again all you will have is the update, you must enter the whole record with the update. Example, if someone moves and you want to change the address, you can't just use the write address file and call up that record and change the street, if you do then all you will have is the street, you must rewrite the whole address with the change.

Line 10 is clear the screen, lines 20-60 is the menu. I use tab and the menu prints down from the top instead of print @,(8,30), so that the program will print in the center of the screen, its your program, you can make the menu print wherever you want it to. In the menu I use, print address, which is where the letter is going, write address, when you want to put a record in the address file you use this one. End, to end the program. I use a sequential file to keep track of who's name is in which record, it helps to know what your doing so you must keep a file what is where.

Line 70 you must have an input line so the program will stop and wait for you to make a selection so that line 80 can look and see which program to open.

Line 80 is a very interesting line. If you choose 1 then it will open the first program, and if you choose 2 it will move to the second line number and open it, and so on, line 90 is a rem line, the comma is code for rem and that line will do nothing, its just there to keep order.

Line 100 is open, D for direct, 1 for buffer #1, then the name of the file on disk :3 , you must assign a record size on the disk, I chose 128, I got that by adding the field sizes together, which is 120, but if you use 120 bytes you will have fragmented records, the idea is not to do that, according to the model 4 technical reference manual you have 256 bytes per sector so I took 256 divide by 2 to get 128, I entered that as the record size, you can put two record in one sector, you should have little or no fragmenting, you must have a field line and tell it which buffer you are using, an address has three lines and each line must have a variable, and each variable must be assigned space in the buffer, if you assign 10 bytes and the name is 20 bytes long, you can type it but only 10 bytes will be allowed, and when it comes time to print it, you will only get half the name, so, better to allow to much space then not enough, the three lines, 120-140 are the return address, put your address where the # signs are, when the program prints the return address it will move to the proper place for the address and wait for you to tell it what to do, line 160 is an input line, you must tell the program which record to print, when you are done you enter 0 for name, line 170 tells the program what to do with the 0 you enter, line 180 tells the program to get which ever record you chose from buffer #1, lines 190-210 takes the record from buffer number 1 and lprints it at tab 30, line 220 will move the to the next envelope and print your return address, you can fix the program so it will move to the next envelope and wait for you to press enter before it will print the return address. you can learn a lot by changing things and seeing what does what but if you change the wrong thing and the program won't work and you have no idea what you did or how to fix it, its nice to have a copy that you know works to fall back on, so don't forget when you put it in your computer and it works well, save it on disk.

Line 240 is close 1, if you open a file you must close it, then back to the menu to tell the program what to do next. then we come to write address, you check your sequential file first to see what the last record number is so you don't overwrite anything then from the menu you choose write address then enter the record number you want to add.

Lines 270 and 280 must be the same as lines 100 and 110. Line 290 must be the same as line 160. Lines 310-330 are the address you want put in the record, as you can see the variables are different and you might say "it will never work" and your right except that we tell the program what we did.

Lines 340-360 left sets the address in the buffer and matches the address variables with the field variables.

Line 370 tells the program to put buffer #1 in record # on disk
-Robert Knowles

PICTURE/BAS

A SLIDE PICTURE LISTING PROGRAM INCLUDING SORTING
by William T. Williams

I write this letter to follow up on a telephone call I made there a few days ago about information on type of sort program I wanted to use in connection with a computer listing of color picture slides. The sort was one there was an article on in 80 MICRO magazine in about 1986. I do not remember at least one detail needed for proper operation. In several hours of editing and rerunning I only got partial success. One example of its use: You have on a file a list of names and addresses. The file could be a direct address file or an array of strings in perhaps alpha order of the names. You get from each of these the zip codes, and store them in the same order in another array. Do a crosscompare of all zip codes only. Process the results to a third array in such a way that the contents are the first array numbers in the order that the address can be printed to labels in zip code numerical order.

I gave up on my original quest for now, and modified a swap type sort to use. (See PICTURE/BAS & PICT027/txt Program 4 & 5).

I got into the need for the sort because two months ago I got 24 additional magazines to store color slides. I put slides into them in random order from boxes, (an accumulation since 1986) and at same time entered on to computer disk data for each. (See PICTURE/DOC for pictures) I thought I could in a short time sort out all category 1, then merge new file with 1986 file listing, and sort enlarged file to year order. If all of that went well I could refer to old position listing, move about 600 slides to magazines in new positions. I hope to have

all category 1 slides thus arranged when I hope to visit my son in Austin, Texas in March.

If there is other persons that wish to take advantage of what I have done for myself and a few relatives, please make it available for them.

I supplied one listing of 23 slides as sample of input, which can also be used for trial program runs.

DOCUMENTATION FOR PICTURE LISTING INCLUDING SORTING.

The listing of 35 MM color slide pictures was first done on the Model I computer. With the purchase of a new computer in 1985, the listings were moved to a 1.3 DOS disk. Before June 1986 the listings were updated and moved to LS-DOS disk. A print out of that listing exists that was made before my son Dan and family came for a visit at that time. The format of listing, is a string for each picture. The first seven characters are numbers defined below.

2 digits, the last two of the year picture was taken.
1 digit, for a category assigned to the picture.
- 1 for family and friends.
- 2 for group picture as Boy Scouts.
- 3 for general (mostly travel)
- 4 for specialties (like destruction by fire)
- 5 for structures (buildings,dams,bridges)
- 6 for historical (trolly bus etc)
- 7 for markers
- 8 for house (612 Paulding Rd. & 4821 Fairfield)

2 digits, the container number (mostly projector magazine)
2 digits, the number order in container.

Up to 248 characters may describe the picture to complete the string. The strings are saved to a sequential file on disk. The last string in the file has the word DONE to indicate to the program which is in BASIC, that the end of the listing is reached.

All files on disk for picture listing has the file name: PICTUREX/DAT where X may be a number or a letter to make it possible to put all picture data files on one disk along with the BASIC program. The main program has a menu of operations that include: inputting a new data file, saving a list in memory to disk, reloading disk to memory, a screen display, and a search for a wanted picture.

A program with the file name PICT027/BAS was made to reorder a file into year date order. This was made to allow new data to be added to the end of a file then reordering it. The program has yet to be used to reorder picture slides in containers.

The order of slides to be shown and the records on them put into computer files has some conflict. It is not good to mix categories when showing pictures, yet pictures are mainly taken of objects and people in real time. The association with time is very strong, so that element was put first. This requires some crossover in selecting slides. A double set of files may be the answer.
-William T. Williams

OPEN FORUM

LTR: I thought some of your readers may like the enclosed short input subroutine. I have been using a model III version that I wrote for 10 years or more and decided to upgrade it for the Model 4.

I have been using this for several years now and I especially like the simplicity of inputting dates.
Clair B. Brooks, New Holland, PA
(See program listing number two.)

LTR: In the February 1995 issue of Computer News 80, Jack Willson submitted an article on "A Tale of 3 Computers (Part 3, The Model 4 Emulator on a PC)." I enjoyed reading it because so much of it reminded me of myself.

As you well know, I use the Model 3 Emulator on my PC and am happy to say that I agree with Jack in every aspect. I even have the same problems with it that he has, such as, which keyboard to use.

However, I would like to submit the following as a follow-up to his article:

The Emulator is faster than the Model 3 and I too have never had a problem running any of the software. In fact, I found that I could do things using the Emulator that I could not do with the Model 3. For instance, I wanted drive zero to be one of my 3-1/2" external drives. The only way this could be accomplished on a Model 3 or 4, without making hardware changes, was to boot-up drive zero with a 5-1/4" system disk and then swap drives. Using the Emulator on a PC, I found that I could place a virtual 3-1/2" system disk on the PC's hard

drive and designate it as drive zero. This means that my system disk would have 720K, instead of 180K capacity. Now I could load it with Profile 3+, Allwrite and even Visicalc program files, all on one system disk. This eliminates the changing or substituting virtual disks and drives every time I switch from one program to another. All my other virtual disks now become data disks.

The following are the steps I followed to accomplish this using a Model 4 (in the 3 mode), with 5-1/4" drives as [internal] zero and one, and 3-1/2" [external] drives as two and three:

1. Create a directory named "TRS80" on the PC using MS-DOS. Install the Emulator onto this directory as detailed in the Emulator Manual.

2. Format a 3-1/2" disk on the Model 3 or 4 in drive two with an LDOS 5.3.1 system disk in drive zero and using one of David Goben's great programs:

FFORMAT :2 (BIG) <ENTER>

3. Load the 3-1/2" disk with all the files on the system disk using another of Dave's fine programs:

FBACKUP /SYS:0 :2 (S,I) <ENTER>
FBACKUP :0 :2 (S,I,NEW) <ENTER>

4. Fill this newly created system disk with those program files you mostly use or that space will allow.

5. Take this new 3-1/2" LDOS system disk to drive A on your PC and install it onto your hard drive as described below and in Section 6.2 of the Emulator manual:

C: TRS80>GETDISK A: LDOS-531

I have not tried this in the Model 4 mode, but I feel certain that it will work as well.

If you have any questions, please feel free to contact me.

Harold Ratner, P. E.
168 Fire Island Ave.
Babylon, NY 11702
516-661-4767

LTR: This is a tip that might help someone using SCRIPT (or any of the SCRIPSIT variants). To print multiple columns on a page it is only necessary to format each column as a separate page with appropriate widths and margins. Then, by using the P,P Print command, use the same sheet of paper to print the multiple pages which are now multiple columns on the same page.

I hope this may be of use to someone.
-C. N. D., Colton, NY

LTR: Reviewers of the "TRS-80 Model III/4 Emulator" sold by Computer News 80 since January of this year have been very enthusiastic, and the ability to save my TRS-80 programs for use on my PC clone is appealing. However, my PC clone is a Tandy 1000HX with an 8088 CPU, 640K bytes of RAM, two 720 3-1/2 drives and a 360K external 5-1/4 drive. I note that reviewers (and I presume the CN-80 staff) have used 286 to 486 class PC's, presumably with hard drives. I am aware that a 386 PC, for example can run 8088 programs, but an 8088 may not be able to run a 386 program.

So the question is will the "Emulator" perform on my 1000HX with its 8088 CPU?

Perhaps part of the question should be: does the "Emulator" require a hard disk.

The 8088 is slow compared to the 486, as I have observed by running the same QBasic program on both. But I have never been bothered by slow performance. Reviewers of the "Emulator" mention performances very slow to very fast, depending on the program being emulated. I would be perfectly happy with half speed for a word processing program such as Typitall, provided the keystroke rate will accept my two-finger typing.

At times I can fool a program written for a hard disk that the 5-1/4" floppy will suffice -- sometimes not. When the specs call for "6 to 8 megabytes of hard disk space," I pass. GW-Basic in MSDOS 2 to 3 works well with the 8088, and QBasic in MSDOS 5 works well. Quick Basic 44.5 is advertised to work also, but QBasic is such a satisfactory subset of Quick Basic that I haven't tried Quick B.
-P. W. S., Springdale, UT

A: The Emulator requires a PC with at least 384K, CGA graphics, and at least version 3.3 of MS-DOS. An internal hard drive (required) and at least 12 MHz is also recommended.

Using a Tandy 1000HX is really not recommended with the Emulator. Because it does not have a hard drive. Adding an external hard drive to a computer is possible, but it is not recommended for use with the Emulator, as there is no way that the programmer can know of all the different ports used to connect external hard drives to a PC clone computer.

What the emulator does is it sets up your PC to operate as a Model 4 or a Model 3 computer as if the Model 4 or Model 3 computer had four "floppy drives." Each floppy drive can be formatted to a maximum of 720K, so you would have a total of four 720K floppy drives possible.

All programs have been TRS-80 programs have been reported to work well on a PC, with Model 4 programs usually running slightly slower on the PC under the Emulator than they do on a Model 4, but when you run a Model 3 program on a PC it runs considerably faster than it would on a Model 3 computer.

LTR: A little late, but hopefully of use. I use TRS-80 Model IV's usually in the Model III mode (90% of the time). My Dos of preference is Newdos/80 and more recently Warwick Sands overhauled newdos, Newdos/90 (Great DOS!) or LS-DOS in the Model IV mode. The home office has a Model IV and 4P, I am setting up Model I/III's for each of the kids (4 eventually).

I am converting some of my own software to run in the 80x24 mode as the Clan Genealogical Data Base Program By Arthur C. Hurlurt (MD3EDU38) [File Cabinet Disk] (will send a copy if I get that one completed).

Thank you for your continuing support for the trusty old TRS-80, and friendly voice on the phone. I am sure the TRS-80 will go the way of the VW BUG and live forever.
-H. S., Richmond, BC, Canada

LTR: Henry Herrdegen's column about printer control triggered a rush of memories about Tandy and other printers that I've used these past twelve years. Perhaps some of this will be of interest to others: if not, well, that's fine too.

My first PC was one drive, 48K Model III equipped with an LP VII, all bought in January of 1982. It was letter size, 10 CPI and not much else. About 18 months later, my boss bought a second hand Model III with a DMP 200 included. I fell in love! I got mine in 1984, gave it to a friend in 1989 and she's still using it with an IBM laptop. The damned thing was a horse! I never maintained it beyond sucking out the perf-dust and pin feed chips with a mini-vacum. No lube, no nothing. That's my candidate for Tandy's version of the bunny with the drum!

I graduated to a DMP300 next to get some more modern paper shuffling features and an additional font or two. It featured Tandy and IBM emulations. All in all, nice but fragile. It blew out a sprocket gear inside of a year. Even though the 300 was adequate I never felt that it measured up to my now lamented (but not late) DMP 200. As I was doing more and more spreadsheeting as I entered the '90's, I kept my eyes open for a good wide-carriage machine. Simultaneously, I encountered a DMP302 which was a minimal upgrade printing wise but which featured a EPSON LQ1050 emulation and 10, 12, 15, 17 and 20 CPI type sizes.

Not long thereafter, I located the DMP2104 which was essentially a wide carriage DMP302. Getting the 2104 freed me from the Tandy CRLF annoyance, at least when I use LOTUS or WORDPERFECT on my Tandy 2500SX/25. The 2104 is likely to be the last wide carriage DMP Tandy is going to offer, I guess. However, it serves my needs well even though it has worn out one print head in 18 months.

Next, I got into rather heavy fax activity at work and the need for fax capability spilled over into my home life. I refused to go the curly paper route last winter when such prices were tumbling and caught a sale at Staple's which offered a RICHO FAX800 for $585 plus tax. The machine's box offered a parallel printer interface for an additional $100 and a legal size cassette tray for I don't remember what.

So for a total of about $750, I got a fax, convenience copier and an ink jet printer which has Canon BJ-10ex, IBMX24E and EPSON LQ510 emulations. The EPSON emulation is very similar to the one in the Tandy DMP2104. So it's just a matter of toggling things around. The fax has a huge memory so I haven't lost any faxes while

printing. The ink jet is pretty good, runs on cheap, idiot-simple-to-install Canon BC-01 cartridges. Oh yes, the printer has a simple to invoke Tandy CRLF function.

The Cause of all this, my Model III (which became a 4 in late 1984) is still perking along. We had worn out drive 0 and had to replace the power supply in early 1994. However, those are wear and tear items. The savvy I gathered from reading CN80 enabled me to talk the Tandy technician into a reasonable cost approach to the repair. Initially, he wanted to replace everything he could name! Imagine wanting $400 for a motherboard and only having to wait a month for it!

The next project is the Model III Emulator...maybe next week....
-R. D., West Babylon, NY

Q: I have read several comments referring to FBACKUP and FFORMAT in CN80 could you provide a little more information concerning these programs.
-A. P., San Francisco, CA

A: FBACKUP was written by David Goben and is used to replace the BACKUP/CMD in TRS-DOS 6.x or LS-DOS 6.x for the Model 4. It is also available for the Model 3 to replace the BACKUP/CMD LDOS 5.x

The program has become such a valuable tool here that we sometimes forget that we are using it in some of our answers to questions instead of the slow, cumbersome BACKUP/CMD which was provided with the TRS/LS-Dos operating systems.

The "F" in FBACKUP stands for *FAST*, and fast it is. So much faster that we have removed the BACKUP/CMD on all our operating systems and replaced it with FBACKUP. First you purge the original BACKUP/CMD from the system disk. And then by simply renaming the FBACKUP/CMD program once it has been installed on your system disk to BACKUP/CMD using.

RENAME FBACKUP/CMD BACKUP/CMD <ENTER>

From that point on you don't even have to change your habit to type anything but Backup. But there are several plus advantages to using the program.

First the program will ignore any "passwords" that were applied to files. Remember we have advised everyone to discontinue the use of ***any password*** when creating files. It is not necessary and only causes problems when you have an old file that you want to read but have forgotten the password you applied to it.

Secondly, the program will automatically install the needed system files in memory so that if you want to use drive zero and one to do your file backups you do not have to mess around with the "X" parameter when using backups. (See your disk owners manual on BACKUP for an explanation of why the "X" parameter is needed if you are using the original TRSDOS BACKUP/CMD on a two drive system.)

Thirdly and most important is the fact that FBACKUP will copy all the files from one disk to another even if the disks are of different formats, -- without balking --. It will copy files from a single-sided 5.25" disk to a double-sided 5.25" disk, or from a 40 track to an 80 track. In other words from 180K <--> 360K <--> 720K, without pausing to blink an eye. (<--> means forwards and backwards.) And of course you can copy files one at a time, or all the files at once. You can copy them alphabetically, or as they are stored.

And believe us it does do it fast, even by backing up files from a hard drive.

FFORMAT is a program written by David Goben that replaces the FORMAT/CMD in TRSDOS 6.x LS-DOS 6.x, and LDOS 5.3.x. It too was written to cut down the time the old version of Format was so slow. Again the "F" stands for *FAST*. In previous reviews in CN80 the authors actually timed FFORMAT with stop-watches. So if you want to format a 720K 3-1/2" disk, or your 5.25" disks in half the time get FFORMAT.

To make it even easier for everyone who does not have FFORMAT and FBACKUP yet, we will offer this special deal for the month of April.

FBACKUP Regular Price	$17.00 + $4 (S&H)
FFORMAT Regular Price	$17.00 + $4 (S&H)

Total for Both at Regular Price $34.00 + $8 (S&H)

Combined package price good till April 30, 1995
For Both FBACKUP AND FFORMAT
$27.00 + $4 Shipping and Handling.

PROGRAM LISTING NUMBER ONE by David Goben

```
10 'day of week -- David Goben, March 1995
20 DEFINT A-Z
30 DIM D$(6), M$(12)
40 FOR X = 0 TO 6
50 READ D$(X)
60 NEXT X
70 DATA Sunday,Monday,Tuesday,Wednesday
80 DATA Thursday,Friday,Saturday
90 FOR X = 1 TO 12
100 READ M$(X)
110 NEXT X
120 DATA January,February,March,April,May
130 DATA June,July,August,September
140 DATA October,November,December
150 A$ = DATE$
160 MM = VAL(LEFT$(A$, 2))
170 DD = VAL(MID$(A$, 4, 2))
180 'delete lines 150-190 and set your own MM,DD,YY
190 'with a 4-digit year for your own programs
200 YY = VAL(MID$(A$, 7))
210 IF YY < 1900 THEN YY = YY + 1900
220 IF YY < 1912 THEN YY = YY + 1000
230 M = MM
240 IF M < 3 THEN M = M + 12
250 W = (1 + DD + 2 * M + 3 * (M + 1) \ 5 + YY + YY \ 4 - YY \ 100 + YY \ 400) MOD 7
260 PRINT "Today is "; D$(W) + ", "; M$(MM); STR$(DD); ","; YY
```

DEMOINP/BAS PROGRAM LISTING NUMBER TWO by Clair B. Brooks

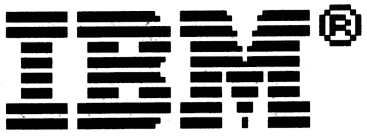
```
2 '   *    PROGRAM NAME "DEMOINP  VER 3.0   01/19/95  *
3 GOTO 100
5 '---------- Inkey input Subroutine ----------
9 IF FL=65 THEN FL$=STRING$(2,CHR$(138))+"/"+STRING$(2,CHR$(138))+"/"+STRING$(2,CHR$(138))
 ELSE FL$=STRING$(FL,138)
10 CO=POS(0):RO=ROW(0):PRINT CHR$(14);:IF FL=0 THEN FL=1:FL$=STRING$(1,138)
11  IN$="":L=0:PRINT@(RO,CO+L),FL$;:PRINT@(RO,CO+L),CHR$(14);:GOTO 16
12  IF LEN(IN$)=2 THEN  IN$=IN$+"/":PRINT CHR$(25);:L=L+1:GOTO 16: ELSE IF LEN(IN$)=5 THEN
 IN$=IN$+"/":PRINT CHR$(25);:L=L+1: GOTO 16
16 I$=INKEY$: IF I$="" THEN GOTO 16
17 IF I$=CHR$(13) THEN FL=0:RETURN
19 IF LEN(I$)=1 AND FL=1 THEN PRINT@(RO,CO+L),I$:PRINT CHR$(14):IN$=I$:FL=0:RETURN
20 IF I$=CHR$(9) OR I$=CHR$(10) OR I$=CHR$(11) THEN GOTO  16:REM DOWN,RIGHT OR UP
 ARROW *7
21 IF I$=CHR$(8) AND L=0 THEN GOTO 16
22 IF I$=CHR$(8) AND FL=65 AND LEN(IN$)=3 AND RIGHT$(IN$,1)="/" THEN
 L=2:IN$=LEFT$(IN$,1):PRINT @(RO,CO+L-1),IN$;:PRINT @(RO,CO+L-1),CHR$(138);:PRINT CHR$(14);
23 IF I$=CHR$(8) AND FL=65 AND LEN(IN$)=6 AND RIGHT$(IN$,1)="/" THEN L=5:GOTO 24
24 IF I$=CHR$(8) THEN L=L-1:PRINT
 CHR$(14):PRINT@(RO,CO+L),CHR$(138);:PRINT@(RO,CO+L),CHR$(14);:IN$=LEFT$(IN$,L):GOTO 16
25 IF FL=L THEN 16
```

Cont'd on next page.

```
26 IF  LEN(IN$) = LEN(FL$) THEN 16
27 PRINT@(RO,CO+L),I$;:IN$=IN$+I$:L=L+1:IF FL=65 THEN 12 ELSE GOTO 16
28 STOP
100 REM ---------- * NORMAL PROGRAM STARTS HERE * ----------
110 REM FL = LENTH OF INPUT (0-55)
112 REM IF FL=65 THEN DATE ROUTINE IS AUTOMATIC
114 REM IF FL IS NOT DESIGNATED THEN FL WILL =1
120  CLS:FL=25:PRINT @ (4,6),"NAME ------ > ";:GOSUB 5:A$=IN$
130  PRINT @ (6,6),"IS THIS CORRECT (Y/N)  ?";:GOSUB 5:AN$=IN$
140 IF AN$< >"Y" AND AN$< >"N" THEN 130
150 IF AN$="N" THEN 120
160 FL=65:PRINT @ (8,6),"DATE ------ > ";:GOSUB 5:DT$=IN$
170 PRINT @(12,6),A$
180 PRINT @(14,6),DT$
200 STOP
```

ADDRAVLP/BAS PROGRAM LISTINGS NUMBER THREE by Robert M. Knowles

```
10 CLS
20 PRINT TAB(24) STRING$(23,42)
30 PRINT TAB(24)"* PRINT ADDRESS   (1) *"
40 PRINT TAB(24)"* WRITE ADDRESS   (2) *"
50 PRINT TAB(24)"* END             (3) *"
60 PRINT TAB(24) STRING$(23,42)
70 INPUT A
80 ON A GOTO 100,280,420
90 'PRINT ADDRESS
100 OPEN "D" ,1, "ADDRESS/FIL:1",128
110 FIELD 1, 40 AS A$, 40 AS B$, 40 AS C$
130 LPRINT TAB(2)"ROBERT M. KNOWLES"
140 LPRINT TAB(2)"37 STEVENS ST.
150 LPRINT TAB(2)"CENTREDALE, R.I. 02911-1618"
160 LPRINT STRING$(7,10)
170 INPUT"RECORD NUMBER, 0 TO END";CODE
180 IF CODE=0 THEN 250
190 GET #1, CODE
200 LPRINT TAB(30);A$
210 LPRINT TAB(30);B$
220 LPRINT TAB(30);C$
230 LPRINT STRING$(27,10)
240 GOTO 120
250 CLOSE 1
260 GOTO 20
270 'WRITE ADDRESS
280 OPEN "D",1,"ADDRESS/FIL:1",128
290 FIELD 1, 40 AS A$, 40 AS B$, 40 AS C$
300 INPUT"RECORD NUMBER, 0 TO END"; CODE
310 IF CODE=0 THEN 400
320 INPUT"NAME:";N$
330 INPUT"ADDRESS:";F$
340 INPUT"CITY,STATE,ZIP";D$
350 LSET A$=N$
```



Cont'd on the next page.

```
360 LSET B$=F$
370 LSET C$=D$
380 PUT 1,CODE
390 GOTO 300
400 CLOSE 1
410 GOTO 20
420 END
```

PICTURE/BAS PROGRAM LISTING NUMBER FOUR by William T. Williams

```
10 DEFINT I,L,R,S:DIM W$(600):DIM WORD$(600)
20 GOSUB 410:OPEN"I",1,FI$:IW=0
30 INPUT#1,W$(IW):IF W$(IW)="DONE" THEN 50
40 IW=IW+1:GOTO 30
50 CLOSE:PRINT"DONE";IW:INPUT Y$
60 SIZE=IW
70 FOR I=1 TO SIZE:WORD$(I)=MID$(W$(I-1),3,1)+LEFT$(W$(I-1),2)+MID$(W$(I-1),4,4):NEXT
80 GOSUB 1000:I=1
90 PRINT WORD$(I):I=I+1:INPUT Y$:IF I=SIZE THEN PRINT"DONE": ELSE 90
100 GOSUB 410:OPEN"O",1,FI$
110 FOR I=1 TO SIZE:
120 WRITE#1,WORD$(I):NEXT
130 WRITE#1,"DONE"
140 CLOSE:END
410 INPUT"SUFIX";SU$:FI$="PICTURE"+SU$+"/DAT:2":RETURN
1000  FOR LEFT=1 TO SIZE-1
1010 FOR RIGHT =LEFT+1 TO SIZE
1020 IF WORD$(LEFT)>WORD$(RIGHT) THEN SWAP WORD$(LEFT),WORD$(RIGHT)
1030 NEXT RIGHT
1040 PRINT ".";
1050 NEXT LEFT
1060 PRINT
1070 RETURN
```

PICT027/BAS PROGRAM LISTING NUMBER FIVE by William T. Williams

```
10 DEFINT I,L,R,S:DIM W$(600)
20 GOSUB 200:OPEN"I",1,FI$:IW=0
30 INPUT#1,W$(IW):IF W$(IW)="DONE" THEN 50
40 IW=IW+1:GOTO 30
50 CLOSE:PRINT"DONE";:PRINT IW:SIZE=IW-1
60 OPEN"D",1,"DATAF/DAT:1",8 REM THIS IS MEMDISK
70 FIELD 1,8 AS D$
80 INPUT"SORT DIGIT 1/3";Y$:IF Y$="1" THEN 180 ELSE IF Y$="3"THEN 160 ELSE 80
90 PRINT"SORTING"
100 GOSUB 500:I=1
110 GET 1,I:PRINT D$;I:I=I+1
120 IF I > SIZE THEN PRINT"DONE ENTER F TO MAKE FILE":LSET D$="DONE       ":PUT
1,SIZE+1:CLOSE:GOTO 140
130 INPUT Y$:GOTO 110
```

Cont'd on the next page.

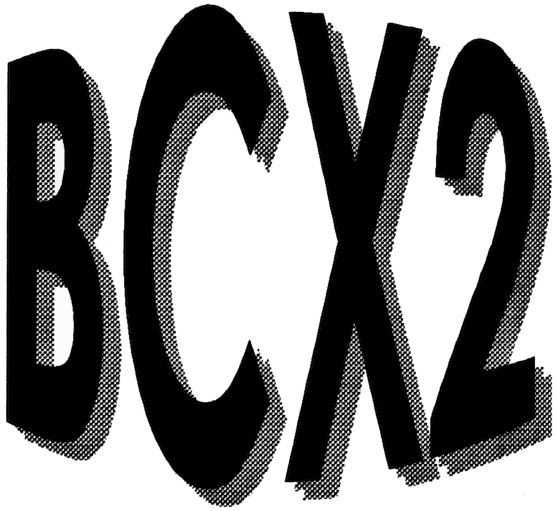
```
140 INPUT Y$:IF Y$<>"F" THEN END
150 GOSUB 200:SYSTEM"COPY DATAF/DAT:1 TO F1$:END REM SAVE TO FLOPPY
160 FOR I=1 TO SIZE:LSET D$=MID$(W$(I-1),3,1)+LEFT$(W$(I-1),2)+MID$(W$(I-1),4,4)+" "
170 PUT 1,I:NEXT:GOTO 90
180 FOR I=1 TO SIZE:LSET D$=LEFT$(W$(I-1),7)+" "
190 NEXT:GOTO 90
200 INPUT"SUFIX";SU$:FI$="PICTURE"+SU$+"/DAT:2":RETURN
500  FOR LEFT=1 TO SIZE-1
502 GET 1,LEFT:C$=D$
510 FOR RIGHT =LEFT+1 TO SIZE
512 GET 1,RIGHT:B$=D$
520 IF C$> B$ THEN SWAP C$,B$:LSET D$=C$:PUT 1,LEFT:LSET D$=B$:PUT 1,RIGHT
530 NEXT RIGHT
540 PRINT ".";
550 NEXT LEFT
560 PRINT
570 RETURN
```

PICTURE5/DAT PROGRAM LISTING NUMBER SIX by William T. Willams

```
"7215801 MOTHER ON 90TH BIRTH DAY."
"7915801 DAVID CARROL & A FRIEND ON PORCH."
"7915803"
"7915804 UNKNOWN"
"8015805 BEA AT ORGAN."
"8015806"
"4715807 BILL & WANDA AT DEEP CRICK LAKE."
"4415808 DORIS & MARVAN WITH DAUGHTERS."
"4625809 REUNION AT MICH. FARM."
"4625810 DARIS AT MICHIGAN FARM."
"4415811 MOTHER & ALL CHILDREN AT LISLE."
"5315812 NEIGHBORS IN LIVING ROOM."
"5025813 REUNION AT ROSE BUD FARM."
"5015814 TRAIN TABLE IN BASEMENT."
"5025815 REUNION AT ROSE BUD FARM."
"5315816 JESS & CLARA PUTMAN MOTHER WORTH & GLADAS JOHNSON AT LISLE."
"5325817 REUNION AT LISLE."
"4615818 IRMA & ALBERT WITH TWO CHILDREN."
"5315819 WANDA'S MOTHER MOTHER-IN-LAW & WANDA."
"6615820 DAN IN  CAP & GOWN WANDA & BILL IN LIVING ROOM."
"6615821 BILL & DAN WITH DAN'S GRANDMOTHER."
"7215822"
"7515823 GEORGIANA & BILL ON WEDDING DAY."
"DONE"
```

Coming In April '95!!!

THE WAY THAT MODEL 4 SPREADSHEETS SHOULD BE



THE BUSINESS CALCULATOR FOR EXTENDED MEMORY MODEL 4-4P-4D'S

Minimum System: 128K – 1 Disk Drive

Exclusively Published and Distributed by *Computer News 80*

PO Box 680, Casper, WY 82602-0680

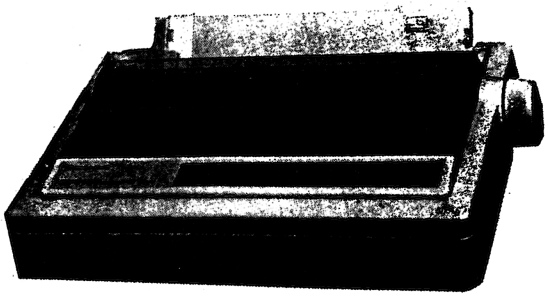
The *MOST POWERFUL* Model 4 spreadsheet program *ever* developed for the Model 4.

- 75 Powerful functions to enrich the strength of your computations.
- Variable width columns. Each column can be individually set from 1 through 76 characters.
- Greatly expanded cell display format selections, including centering, invisibily, percents, etc.
- You can expand the text of a label from one cell across several cells.
- You can easily reference other spreadsheets to update your current spreadsheet by simply typing /XR.
- Broad list of data search functions: @CHOOSE, @INDEX, @LOOKUP, @TABLE, and @ENTRY.
- Powerful data replication features. Copy ranges with options to relatively offset coordinate references.
- Dynamic record lengths. Records can be from 16 to 128 bytes long, based on the length of your formulas.
- More powerful data entry and editing features. Edit lines up to 128 bytes long.
- Name ranges or cells with easy to remember labels.
- User-defined macro keys, which are automatically saved with the file. Can also be individually saved.
- Cell locking and unlocking for data protection.
- Broad assortment of date and time functions.
- Automatically recognize & convert Busy-Calc and BCX spreadsheets. Includes convert utility for VisiCalc.
- More liberal and vastly improved function usage support. No more "stand-alone" functions.
- Row and column data freezing. Keep some data or labels in view when you scroll around the sheet.
- File merging support.
- Friendly and easy–to–understand "Plain English" menus and prompts.
- Expanded and powerful on-line help.
- Broad logical operator support.
- Automatic file name extensions.
- Greatly improved file save/load selection features.

DOZENS AND DOZENS **of other exciting features. No other Model 4 spreadsheet has anywhere near the features of *BCX*^{2}. Don't believe us? Spend $15 and get a demo copy, appliable to a full purchase.**

$125 + $4 S&H.

Panasonic
Office Automation OA



Panasonic KX-P1150

"Back to basics" 9-pin perfect for first time buyers

Having trouble finding your first printer? Well, you can stop looking. Panasonic's KX-P1150 was specially designed for students and home users. This "back to the basics" printer includes features you want, like seven resident fonts, an easy-to-use front panel and a 240 cps print speed. It also has a flat-belt push tractor for easy paper loading and a utility disk that lets you make onscreen setup changes. The KX-P1150 has everything you need to produce great-looking, professional documents. Your search is over—order Panasonic's KX-P1150 today.

- 9-pin NLQ printing
- 160-240 cps high-speed draft/ 160 cps draft/32-38 cps NLQ
- 240 x 260 dpi
- 4K print buffer
- Parallel interface
- Epson FX-850 and IBM Proprinter III emulations
- Seven resident bit-mapped fonts
- Paper parking
- ***FREE*** setup disk with Windows 3.1 driver
- Two year manufacturer's warranty

$ 167.00 Plus $6 S&H

Panasonic
Office Automation OA

KX-P2023

"EZ" To Operate And Afford

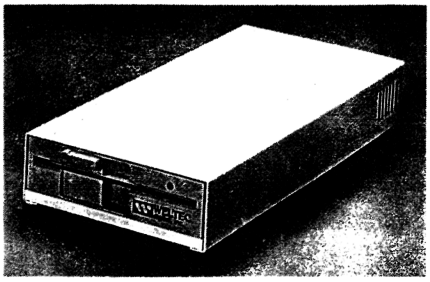
Put an end to printer set-up hassles with Panasonic's economical KX-P2023. This 24-pin printer makes high-quality printing a cinch—thanks to its EZ Set operator panel. EZ Set remembers more than 20 functions—including font, pitch, form length and emulation. At the touch of a button, the KX-P2023 recalls the most often used printer functions. Imagine the time you'll save printing your next brochure, form letter or report. For added versatility, Panasonic included advanced features like a 360 dpi resolution, seven LQ fonts, automatic loading and a flat belt tractor for simple fanfold paper loading. But best of all, it has the feature you've been waiting for—a low price.

Features:

- 24-pin LQ printing
- 160-240 cps draft/53-80 cps LQ
- 43.5 dBA noise level
- IBM Proprinter X24E and Epson LQ-850 emulations
- 11.7" mid-sized paper carriage
- 360 dpi
- Seven resident bit-mapped fonts
- EZ Set operator panel
- IBM PC-compatible set-up disk
- 14K print buffer
- Two year manufacturer's warranty

$ 200.00 Plus $6 S&H

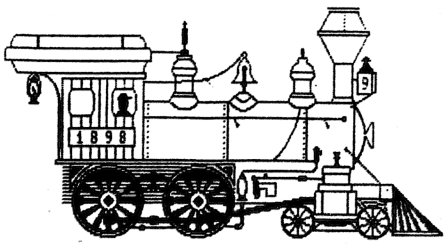
5¼" External Floppy Drive. For 1400 FD/HD/LT. 90-2084 . . . . . .



One 5.25 double-sided 360K disk drive. Metal Case, 110 volt power cord, power supply and 37 pin signal cable. This unit can be modified to fit a Model I/III/4/4P/4D and other computers by changing the signal cable.

Order from Computer News 80
With Cable for 1400LT
$ 45.00 plus $ 6 S&H

With Cable for Model 4/4D/4P
Or Model I or III
$ 55.00 plus $ 6 S&H



HIGH RESOLUTION BOARD

For the Model 4/4D/4P

The Grafyx Solution high resolution board provides 153,600 pixel elements which are arranged in 640 x 240 matrix on a Model 4 computer.

Easy plug on installation. Full instructions, complete with Test Program and Operation Programs.

Hundreds of business, personal, engineering, and educational applications. View thousands of high resolution files on your computer screen and print to your printer.

Use in conjunction with PostMaster, MagicDraw, High Resolution Utilities, and Magic Lantern to create and view your own fantastic designs.

$66.00 + (Z) S&H

CLASSIFIED

FOR SALE Model 4, 512K Ram, Hi-Res, Smartwatch, Joystick. Lots of software, books, parts and more. SASE for list. (706) 561-1193, after 5:30pm EST. D. Mullen 4131 Cainwood Ct, Columbus, GA 31903.

FOR SALE: Model 4P & 4D (GA) with internal hard drive and acessories. Send S.A.S.E. or Fax (510) 845-3255 Mitchell R. Corwin 2920 Domingo Av Berkeley, CA 94705-2454

Classified ad rates $1.00 per line of 35 characters or spaces. $6 Minimum

MODEL 3 AND 4 HARDWARE

Upgrade Model 3 to Model 4 Kit	$ 93.00 (S)
Model 4 Non-Gate Motherboards	$ 69.95 (Z)
Model 4 Non-Gate Motherboards 128 K upgrade kit added	$ 90/90 (Z)
Model 4 Sound Board Kit	$ 10.00 (Z)
Floppy Disk Controller Board	$ 39.95 (Z)
4P Internal 300 Baud Modem	$ 10.00 (Z)
New Model 4D Keyboard	$ 15.00 (Z)
New Model 4D Keyboard	$ 15.00 (Z)
New Model 4D Keyboard Cable	$ 16.75 (Z)

For other hardware repair items see CN80 Product Guide or call for prices.

Note: Model 4D keyboards will work with any Model 4 except the Model 4P. Keyboards do not have the cable connector soldered to them. To have us solder the cable to the keyboard - Add $10 to the above price.

Computer News 80

REPAIR AND UPGRADE SERVICE FOR MODELS III, 4, 4P AND 4D

* **UPGRADE INSTALLATIONS**
* **MEMORY EXPANSION TO 128K**
* **HIGH RESOLUTION BOARDS**
* **RS232 COMMUNICATION BOARDS**
* **DOUBLE SIDED DISK DRIVES**
* **OTHER UPGRADES AVAILABLEO**

We give you a firm quotation on all work to be done prior to doing the work. If you do not approve your computer is returned to you. A small diagnostic fee and return shipping costs will be charged.

You supply your own shipping carton and ship the computer to us for repair, via United Parcel Service. Please remember to insure your shipment. Return packaging and shipping costs will be included in our quotation for any repairs or installation charges.

For more details call
307-265-6483

Our shipping address is:
Computer News 80
1220 Jamaica Drive
Casper, WY 82609

RESTORATION SERVICE
If you have an original application program disk that needs to be restored, send it and $5.00 to cover the postage and handling. Please remember that it must be an original, legally owned by you, master disk. We will not restore copies of original program disks. There are many commercial games and other programs that we will not have in the archives, so it is best to call first and check.

FILE TRANSFER SERVICE
If you want to have your files transferred from one media to another. Such as having your files transferred from 5-1/4 disks to 3-1/2 we can do that for you. If you want to have files transferred from an IBM (MS-DOS) format to a TRSDOS/LS-DOS format, or from TRS-80 to IBM (MS-DOS) we can provide that service. However we do not have the equipment to handle 8" disks. Call or write for further details concerning the transfer service.

CP/M

Now only $140. Pickles & Trout CP/M-2.2m for your Radio Shack TRS-80 Model-II, -12, -16, or -6000 computer.

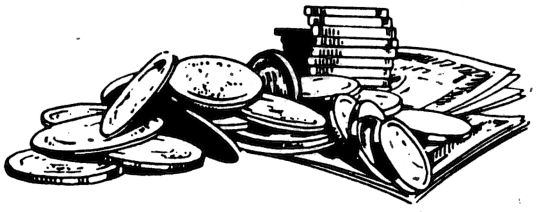
Still running "less-than-the-best?" We can upgrade your existing CP/M software (Lifeboat, P&T, ATON, Whatever) to the latest Pickles & Trout CP/M-2.2mH release, only $65. [Includes new manuals, full screen editor, full utilities, double sided disk support, and more.]

RAMD — Let your P&T CP/M use the 68000, memory as a super-speed disk drive, only $49.

REFORMATTER — Your TRSDOS system can read/write CP/M diskettes, only $49.

Looking for a CP/M program? WordStar, dBASE? Give us a call.

TriSoft
1825 East 38 1/2
Austin, TX 78722
1-800-531-5170
1-512-472-0744



NEED EXTRA CASH?

Become a Subscription Agent
for *Computer News 80* and
Computer News PC.

We supply all the materials and pay you a commission on each subscription order.

For more information contact:

Construction News
PO Box 680
Casper, WY 82602

Phone: 307-265-6483

2400 Baud External Modem

from Computer News 80

$ 78

Plus $4 S &H

2400 baud transmission speed
Hayes compatible
Compatible with Model 3/4/4D/4P
Compatible with IBM PC/XT/AT
Auto dial/answer
Eight status indicator lights
Built-in speaker with volume control
Second jack for local phone
Call progress and error detection
Ten year manufacturer's warranty
Manufactured in the USA

Complete with all cables and

TRS-80 Communication Software

STOP THROWING PRINTER CARTRIDGES AWAY!

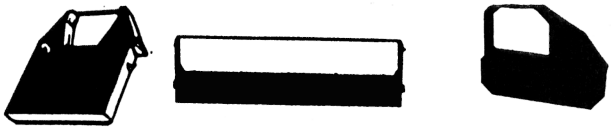
RECYCLE THEM

WE WILL RE-INK THEM FOR YOU

$ 3.00 each

Fabric ribbons can be re-inked dozens of times before the fabric wears out. Even then the plastic cartridge will still be good and the ribbon can be replaced. Send us your used printer ribbons and we will re-ink them using high quality ink that also contains a print head lubricant to prolong the life of your printer.

Add $3 Return Shipping for 1 to 5 ribbons,
Add $4 Return Shipping for 6 or more ribbons.
Include your phone number and payment by check or money order to *Computer News.*



TRS-80 MODEL III/4 EMULATOR

By Jeff Vavasour

Run your TRS-80 Model 4 and Model III Software on your PC.

Virtually all software available for your Model III or Model 4 will run on your IBM PC or PC Clone computer using The TRS-80 Model III/4 Emulator. Install TRSDOS 1.3, LDOS 5.x, NewDos (Model III DOSes) TRSDOS 6.x, LS-DOS 6.3.x, (Model 4 DOSes) on your PC.

A Model 4 or 3 and a PC with at least 384K, CGA graphics, MS-DOS 3.3 or higher is required. If you still have TRS-DOS disks but no longer have your Model 4 computer *Computer News Transfer Service* will transfer your files from your TRS-80 disks to the emulator formatted PC disks required for use in your PC, $5 per disk.

$ 59.95 plus $4.00 Shipping and handling.

Scripsit Pro

WORD PROCESSING PROGRAM
FOR THE MODEL 4
128K Memory Required

The original and the best word processing program you can use on your Model 4/4P/4D.

New manuals and program disks. Scripsit Pro is the program used to create Computer News 80. It is the easiest word processing program to use because it is a "what you see is what you get" style program. Layout your text format on the screen. No printout after printout until you get it right.

Built-in dictionary and word spell checker. Print controls for over 19 font styles. 10 user defined hot keys, split document screens and more.

This program is completely BUG free, and a joy to use. Totally supported by CN80.

$80.00 + $4.00 S&H

Programs by David Goben

DAVID'S MODEL 4 FILE UTILITIES
Nine great file handling utilities for TRS/LSDOS 6.x.

DAVID'S MOD 3 LDOS FILE UTILITIES
Nine great file handling utilities for LDOS 5.x.

DAVID'S MODEL 4 SYSTEM UTILITIES
16 Powerful programs to improve your system maintenance.

DAVID'S MODEL 3 SYSTEM UTILITIES
14 Powerful programs to improve your system maintenance.

T62DOSXT
Program to patch TRSDOS 6.2 to accept the current date, plus ONEPASS program to format and copy your disks all at the same time.

PACK
Program to compress your basic programs for faster operation and to use the smallest disk space possible. Available for TRSDOS and MS-DOS.

DEA
A powerful integrated editor/assembler for assembly language programing on your Model 3 or Model 4.

MAGICDRAW
Drawing program equals or surpasses the IBM-PrintMaster or PrintShop for the TRS80 Model 4/4P/4D (high-resolution board, mouse and mouse driver required).

HI-RES UTILITIES PACKAGE
10 Utilities for working with your high resolution files on the Model 4/4P/4D. View, print, rotate, shrink, save and many more hi-res file uses.

POSTMASTER SUPPORT UTILITIES
Utility programs to use with David P. Miller's PostMaster program. Capture icons, change sizes, view, edit and customize fonts and boarders, create your own font and boarder files for use with PostMaster, plus much more.

POSTMASTER 24
A filtering program for use with PostMaster and 24 pin printers.

FBACKUP
Replace your DOS BACKUP/CMD file for faster and easier backups. Makes backups 8 times faster, and includes several usage options. Specify Model 3 or 4 versions when ordering.

FASTBACK
The fastest hard drive backup program ever written for the TRS-80 hard drives. Specify Model 3 or 4 versions when ordering.

FFORMAT
Replace the DOS FORMAT COMMAND for lightning fast formatting of 5.25 or 3.50 disks. Use with LDOS 5.3, TRSDOS 6.2 and LS-DOS 6.3.x. Specify Model 3 or 4 versions when ordering.

SCRIPT WORD PROCESSING
A complete word processing program with all the features of TRS-80 Scripsit, plus more. Specify Model 3 or 4 versions when ordering.

SCRIPT SPELLING VERIFIER
Dictionary and word spell checker for Model 3 or 4. Use with Scripsit, Allwrite, ASCII text files, over 75,000 words and add your own up to 17,000. Specify Model 3 or 4 versions and DOS when ordering.

SUPERSCRIPSIT SPELLING CHECKER
Replace the original SuperScripsit dictionary with this powerful word spell checker, dictionary.
Specify Model 3 or 4 versions when ordering.

BCX - SPREADSHEET
The very latest in spreadsheets ever written for the Model 4 computer. Faster and larger than any other spreadsheet program ever written for the TRS-80.

BCX - DEMO DISK
Purchase price refunded when full program is purchased.

BUSY-CALC
The family & Small Business Spreadsheet.
For the Model 4/4P/4D. A smaller version of BCX for all your spreadsheet needs,

BUSY-CALC - DEMO DISK
Purchase price refunded when full program is purchased.

MODEL 4 SMALL C
Program in Small C on your Model 4/4P/4D. 225 page reference manual, compiler, macro assembler.

DISK OPTIMIZATION PACKAGE
Defragment the files on a Model 4 floppy disk or hard drive. Utilities to test drive for errors, or fragmentation and take corrective action.

SUBDIRECTORY UTILITIES
For the Model 4/4P/4D, eliminate the 256 limit on files per disk drive. Add directories with sub-directories to any disk or hard disk.

SUPERSPOOL
For the Model 4/4P/4D, take advantage of your extended memory and use it as a print buffer when printing.

SYMPHONY 90 PLAYER
Play Symphony 90 pre-arranged music on your computer using the Symphony 90 Interface unit.

SYMPHONY 90 COMPOSER SYSTEM
Compose your own music files on a disk to be used with the player program and interface.

MOUSE PLUS DRIVER
Mouse Driver program for 2 or 3 button mouse on the Model 4.

M T K
Mouse to Keyboard Interface, Model 4 Mouse Driver required.

[]

Programs by David P. Miller

DAVE'S MOUSE MENU
Build up to 26 DOS commands on a screen menu and then call up any program or use any DOS command by typing just one letter. Compatible with mouse, keyboard or arrow keys.

MS-UTILITIES
Transfer data files and program files from your TRS-DOS formatted disks to disks formatted for MS-DOS computers. Read MS-DOS formatted disk directories, Add or delete line feeds as needed.
Requires a Model 4/4P/4D for use.

POSTMASTER
Create labels, full page bulletins, and letterheads, using creative icon (clip-art) and built-in fonts, with your dot matrix printer.

[]

Programs by Howe Software
For Model 1, 3, 4/4P/4Ds

TYPITALL
Word Processor, compatible with Scripsit. Send any control/graphics character to the printer. 16 help screens. Economical and easy to use.

TYPITALL WITH SPELLING CHECKER
The same word processor as above with spell checking dictionary included.

SYSTEM DIAGNOSTIC
Complete test for every component of your TRS-80 Model 1, 3, and 4/4P/4D. Specify Model when ordering.

SMART TERMINAL
Telecommunication program for use with Model 1,3,4/4P/4D Automatic transmission and receiving data. Memory buffer and help screens.

SMALL BUSINESS ACCOUNTING WITH PAYROLL
Based on the Dome Bookkeeping Record complet business accounting with payroll and expense check writing and record keeping.

MAILING LIST
Create and maintain mailing lists of up to 32,767 names and addresses. Form letter merge.

HOME BUDGET AND CHECKBOOK
A complete checkbook program combined with budget comparisons, for the Home or Small Business.

SMALL BUSINESS MANAGEMENT
A complete point-of-sale program for small business, includes order entry, invoicing, inventory and sales reports.

[]

Programs by Mark Allen Reed

ED-IT
For Trsdos/LS-DOS 6.x Model 4/4P/4D.
Full screen text editor that accepts up to 47K of ASCII text. Complete with block, copy, delete, find, and automatic tabs for programing with assembly language. Excellent program for editing any file, readme, patch listings, job control language or just word processing text.

MARK REED'S MODEL 4 UTILITY DISK
16 Useful utilities for the Model 4. Complete with manual. This is a must file to have for all Model 4/4P/4D users.

[]

Programs by Richard VanHouten

ANSITERM 4
For the Model 4 with a modem. Transfer ANSI IBM graphics to your model 4.

MINE FIELD
Game - Cross the mine field and flag all the mines in advance of your troops. Model 4 only, can be used with a mouse.

VH/LIB
Small C Support Library
Wildcard directory Searching, low and high resolution graphic routines, mouse interface. For anyone programming in Small C on the Model 4.

Programs by Frank Slinkman

TRSCAN
Program to us the Chinon DS2000 or DS3000 full page scanner with your Model 4.

SLOT MACHINE
True rendition of a working slot machine on your Model 4 with High Resolution board.

VIDEO POKER
Remarkable screen rendition of playing cards for playing poker.

GIF4MOD4
Send and receive GIF high resolution graphics. Print to printer, or convert GIF to HR format. Model 4 required.

Programs by Vernon B. Hester

ASTROCAL
Programmable Calculator for your Model I, 3, 4/4P/4D. This unique product integrates mathematical programming functions into a single convenient application. For the student, professional, or engineer, accountants, brokers and designers.

Programs by Dan Foy

ARRANGER II
Create a master index of all your Model I,3,4/4P/4D floppy disks. Reads any DOS any 5.25 or 3.25 disks. Sort, search or print records.

Programs by Henry H. Herrdegen

PATCH UTILITY PROGRAM
A collection of patches for TRSDOS 1.3, greatly improves the use of TRSDOS 1.3.

BOOK BY DON Ady
Z80 Machine Language Techniques, 236 8-1/2 by 11 pages. Presenting Machine Language fundamentals.

THE BIBLE KING JAMES VERSION ON DISKS
Each Chapter and Verse stored in ASCII for easy search and print. See Product Guide for Prices

SPECTECH DISK
A collection of electronic and other math formula solving programs.

DOS (Disk Operating Systems)

MODEL 4/4P/4D
TRSDOS 6.2.1 System and Basic Interpreter Disk, upgraded to accept today's date, with new manual.

MODEL 3
TRSDOS 1.3 System and Basic Interpreter Disk Only.

See Computer News 80 Product Guide for all prices and shipping and handling charges.

If you would like to have more detailed information on any of the above products please mail your request and include a stamped, self-addressed, business size #10 envelope.

COMPUTERS FOR SALE

Model 4 Two Disk Drive 128K	Call for Price
Model 4P Portables Two Disk 128k	Call for Price
Model 4D Two Disk Drive 128k	Call for Price
Tandy 1000EX	$100.00 +S&H

PRINTERS FOR SALE

DWP410 Daisy Wheel Wide Carriage	Call for Price
DMP120 Dot Matrix Wide Carriage	Call for Price
DMP130 Dot Matrix 80 Colunm	Call for Price
DMP210 Dot Matrix Wide Carriage	Call for Price
DMP420 Dot Matrix Wide Carriage	Call for Price

Computer News 80 Product Guide

BACK ISSUES, INDEX, & REPRINTS

CN80 BACK ISSUES Individual Copies $ 4.00 (X)
Available from Vol 1 No. 1 January 1988

All of 1988	$ 12.00 (Z)	All of 1989	$ 14.00 (Z)
All of 1990	$ 16.00 (Z)	All of 1991	$ 18.00 (Z)
All of 1992	$ 20.00 (Z)	All of 1993	$ 22.00 (Z)
All of 1994	$ 24.00 (Z)		

COMPUTER NEWS 80 INDEX DISKS

CN80 INDEX from 1988 thru 1994 $ 2.00 (X)
Specify LSDOS 6.3 or TRSDOS 1.3

NEW USERS GUIDE

NEWCOMERS GUIDE VOLUME 1 $ 7.95 (X)
Reprint of all CN80 "Newcomers Corner" part 1 to 8.
This is a must have for all new TRS-80 users.

CN80 DISK SERIES

NUMBER 1 programs printed in Vol 1 No. 1 thru No. 6.
NUMBER 2 programs printed in Vol 1 No. 7, 8 and 9.
NUMBER 3 programs printed in Vol 1 No.10, 11 and 12.

NUMBER 4 programs printed in Vol 2 No.1, 2 and 3.
NUMBER 5 programs printed in Vol 2 No.4, 5 and 6.
NUMBER 6 programs printed in Vol 2 No.7, 8 and 9.
NUMBER 7 programs printed in Vol 2 No.10, 11 and 12.

NUMBER 8 programs printed in Vol 3 No.1, 2 and 3.
NUMBER 9 programs printed in Vol 3 No.4, 5, and 6.
NUMBER 10 programs printed in Vol 3 No.7, 8, and 9.
NUMBER 11 programs printed in Vol 3 No.10, 11, and 12.

NUMBER 12 programs printed in Vol 4 No. 1, 2, and 3.
NUMBER 13 programs printed in Vol 4 No. 4, 5, and 6.
NUMBER 14 programs printed in Vol 4 No. 7, 8, and 9.
NUMBER 15 programs printed in Vol 4 No. 10, 11 and 12.

NUMBER 16 programs printed in Vol 5 No. 1, 2 and 3.
NUMBER 17 programs printed in Vol 5 No. 4, 5 and 6.
NUMBER 18 programs printed in Vol 5 No. 7, 8 and 9.
NUMBER 19 programs printed in Vol 5 No. 10, 11 and 12.

NUMBER 20 programs printed in Vol 6 No. 1, 2 and 3.
NUMBER 21 programs printed in Vol 6 No. 4, 5 and 6.
NUMBER 22 programs printed in Vol 6 No. 7, 8 and 9.
NUMBER 23 programs printed in Vol 6 No. 10, 11 and 12.

NUMBER 24 programs printed in Vol 7 No. 1, 2 and 3.
NUMBER 25 programs printed in Vol 7 No. 4, 5 and 6.
NUMBER 26 programs printed in Vol 7 No. 7, 8 and 9.
NUMBER 27 programs printed in Vol 7 No. 10, 11 and 12.

NUMBER 28 programs printed in Vol 8 No. 1, 2 and 3.
NUMBER 29 programs printed in Vol 8 No. 4, 5 and 6.
NUMBER 30 programs printed in Vol 8 No. 7, 8 and 9.
NUMBER 31 programs printed in Vol 8 No. 10, 11 and 12.

$ 5.00 PER DISK S&H Included

For your convenience advance orders for the Disk Series are accepted. Disks are shipped to you automatically as soon as they are ready. Write or call for free CN80 Disk Series Catalog.

PLEASE NOTE: All CN80 DISK SERIES are on FLIPPY 5-1/4"disks; TRS/LS-DOS 6.3 format on Side 1 and TRSDOS 1.3 format on Side 2. Also available on 3-1/2" disks @ $5.50 each (LSDOS 6.3.1 or LDOS 5.3.1 format only). Each Disk Series has Bonus programs.

MANUALS & PROGRAMS PUBLISHED BY CN80

ANSITERM 4 by Richard VanHouten $ 30.00 (Z)

ARRANGER II by Dan Foy $ 39.95 (Z)

ASTROCAL by Vernon B. Hester $ 29.95 (Z)

BCX DEMO DISK ONLY by David Goben $ 15.00 (X)

BCX Spreadsheet Program by David Goben $111.00 (Z)

BIBLE King James Version New & Old Testaments
New Testament $ 22.50 (Z)
Old Testament $ 47.50 (Z)
Both Old & New (Save $5.50) $ 64.50 (Z)
Available for M4 TRS/LS-DOS 6.x, M3 LDOS 5.X single or double sided. M3 TRSDOS 1.3 single sided only.

BUSY-CALC DEMO DISK by David Goben $ 10.00 (X)

BUSY-CALC SPREADSHEET by David Goben $ 81.95 (Z)

DAVE'S MOUSE MENU by David P. Miller $ 15.00 (Z)

DAVID'S MOD3 FILE Utilities by D.Goben $ 11.00 (Z)

DAVID'S MOD3 SYSTEM Utilities by D.Goben $ 18.00 (Z)

DAVID'S MOD4 FILE Utilities by D. Goben $ 11.00 (Z)

DAVID'S MOD4 SYSTEM Utilities by D. Goben $ 18.00 (Z)

DEA Disk Editor/Assembler by David Goben $ 51.95 (Z)

DISKOPT UTILITY PACKAGE by David Goben $ 31.95 (Z)

EMULATOR MODEL III/4 by Jeff Vavasour $ 59.95 (Z)

FAST SOFTFONTS DOWNLOADER by D. Goben $ 12.00 (Z)

FASTBACK MODEL 3 by David Goben $ 31.95 (Z)

FASTBACK MODEL 4 by David Goben $ 31.95 (Z)

FBACKUP MODEL 3 by David Goben $ 17.00 (Z)

FBACKUP MODEL 4 by David Goben $ 17.00 (Z)

FFORMAT MODEL 3 by David Goben $ 17.00 (Z)

FFORMAT MODEL 4 by David Goben $ 17.00 (Z)

GIF4MOD4 by Frank Slinkman $ 37.95 (Z)

HARD DISK BUILDER by David Goben $ 12.00 (X)

HI-RES UTILITIES PACKAGE by David Goben $ 17.00 (Z)

LONG & LOUD by Spectre Technologies $ 34.95 (Z)

M T K by David Goben $ 20.00 (Z)

MAGICDRAW by David Goben $ 67.00 (Z)

MAGICDRAW FONTS AND CLIP ART
See MAGICDRAW MANUAL for list & prices.

MAGIC LANTERN by Richard G. Snow $ 16.00 (Z)

MARK REED'S MOD 4 UTILITY DISK $ 14.95 (Z)

MARK REED'S MODEL 4 ED-IT	$ 17.95 (Z)
MINE FIELD by Richard VanHouten	$ 12.00 (Z)
MOUSE PLUS DRIVER by David Goben	$ 12.00 (Z)
MS UTILITIES by David P. Miller	$ 30.00 (Z)
MULTIDOS Mod 4 v 3.00 by Vernon B. Hester	$ 29.50 (Z)
PACK for Model 1/3/4 by David Goben	$ 19.95 (Z)
PACK - MS-DOS Version by David Goben	$ 19.95 (Z)
PATCH UTILITY PROGRAM FOR TRSDOS 1.3 by Henry H. Herrdegen.	$ 10.00 (Z)
POSTMASTER by David P. Miller	$ 40.00 (Z)
POSTMASTER SUPPORT UTILITIES by D.Goben	$ 41.00 (Z)
POSTMASTER 24 by David Goben	$ 17.00 (Z)
REMBRANDT Graphics Toolkit by CN80	$ 39.95 (Z)
ROMCLOCK3 UTILITY PACKAGE by D. Goben	$ 7.00 (Z)
ROMCLOCK4 UTILITY PACKAGE by D. Goben	$ 7.00 (Z)
SCRIPT Word Processor by David Goben	$ 39.95 (Z)
SCRIPT SPELLING VERIFIER by David Goben	$ 39.95 (Z)
SCRIPSIT PRO by Radio Shack	$ 80.00 (Z)
SLOT4 by Frank Slinkman	$ 14.95 (Z)
SMALL BUSINESS ACCOUNTING W/PAYROLL by Howe Software.	$ 99.95 (Z)
SMALL C COMPLIER FOR LS-DOS by D.Goben	$ 47.00 (Z)
SMALL C SUPPORT LIBRARY by R. VanHouten	$ 19.95 (Z)
SMART TERMINAL by Howe Software	$ 19.95 (Z)
SPECTECH by CN80	$ 5.00 (X)
SUB-DIRECTORY by David Goben	$ 21.95 (Z)
SUPERSCRIPSIT SPELL CHECKER by D. Goben	$ 39.95 (Z)
SUPER SPOOLER by David Goben.	$ 17.00 (Z)
SYSTEM DIAGNOSTIC by Howe Software	$ 69.95 (Z)
SYMPHONY 90 COMPOSER by David Goben	$ 41.95 (Z)
SYMPHONY 90 PLAYER by David Goben	$ 19.95 (Z)
SYMPHONY 90 MUSIC INTERFACE UNIT WITH AMPLIFIER	$ 99.50 (Z)
TRSCAN by Frank Slinkman	$ 45.95 (Z)
T62DOSXT TRSDOS 6.2 Upgrade by D. Goben	$ 20.00 (X)
TYPITALL Word Processor by Howe Software	$ 49.95 (Z)
TYPITALL Word Processor w/Spelling Checker by Howe Software	$ 79.95 (Z)
VIDPOKR4 by Frank Slinkman	$ 19.95 (Z)
Z80 MACHINE LANGUAGE by Don Ady	$ 22.95 (Z)

LASER and DOT MATRIX PRINTER DRIVERS

SUPERSCRIPSIT HP LASER DRIVER	$ 22.00 (Z)
SCRIPSIT PRO HP LASER DRIVER	$ 22.00 (Z)
SUPERSCRIPSIT FX80 DRIVER	$ 19.95 (Z)
SCRIPSIT PRO FX80 DRIVER	$ 19.95 (Z)
ALLWRITE HP LASER SUPPORT	$ 20.00 (Z)
ALLWRITE DESKJET SUPPORT	$ 20.00 (Z)

LASER SOFT FONT PACKAGES

SPECIFY WORD PROCESSOR:
SuperSCRIPSIT for the Model III
SuperSCRIPSIT for the Model 4
Scripsit PRO for the Model 4

Font style	Point Size (Height of Letter)
Century	10 point
Amertype	10 point
Legal	10 point
Helvetica	10 point
Optimas	10 point
Palitine	10 point
Times Roman	10 point
Palitine	12 point
Centrum	12 point
Optimis	12 point
Helvetica	2 point
Palitine	8 point

Each Font Package supports normal, bold and italics printing of letters. Thirty-six soft font packages in all, Twelve soft fonts for each word processor supported.

Prices are $10 for each soft font package,	plus (Z)
Discounts for multiple font orders are:	
5 Font Packages for	$ 45.00 (Z)
10 Font Packages for	$ 90.00 (Z)
12 Font Packages for	$ 96.00 (Z)

FILE CABINET CATALOGS

MODEL 4 TRS-80 PUBLIC DOMAIN	$ 2.00 (X)
MODEL 4 HIGH RESOLUTION	$ 2.00 (X)
MODEL 4 MACPAINT HIGH RESOLUTION	$ 2.00 (X)
MODEL 1/3 PUBLIC DOMAIN CATALOG	$ 2.00 (X)
SYMPHONY 90 MUSIC CATALOG	$ 3.00 (X)

DISK OPERATING SYSTEMS (DOS)

TRSDOS 1.3 R/S Cat # 26-0312 $ 7.00 (X)
Model 3, Disk Operating System and BASIC

TRSDOS 6.2.1 $ 45.00 (Z)
Model 4 Disk Operating System and Basic Interpreter. Date extension applied/supports double sided drives.

DISKETTES - SLEEVES - LABELS - MAILERS

5-1/4" FLOPPY DISKS $ .38 (Z)
Use as Double or Single Sided Disks. 100% Error Free Lifetime Guarantee with Paper Sleeves, Labels & Tabs.These disks are manufactured in South Dakota by Syncom and are equal in quality to 3M brand disks, with a 3 mil heavy duty jacket.

DISKETTES - SLEEVES - LABELS - MAILERS Cont'd

5-1/4" FLIPPY DISKS $ .60 (Z)
Single Sided DD on both sides. Premium Quality with two notches by factory. Made in South Dakota by Syncom. 100% Error Free. Paper Sleeves, Labels & tabs.

3-1/2" DISKS $ .59 (Z)
Premium Quality DS/DD 100% Error Free, Lifetime Warranty. Made in South Dakota by Syncom - Bulk Platinum Brand by Syncom.

All our disks are manufactured in the US, Equal to 3M or Verbatim, Sony and other famous brands - no Chinese or other cheap imports.

5-1/4" TYVEK SLEEVES (25 per pk) $ 1.25 (X)

COLOR CODED DISK LABELS
Five Color 5.25 Write-On Disk Labels
10 labels w/10 read-write tabs per sheet
100 per package $ .50 (X)

FLOPPY DISK MAILERS
Self-Seali ng Mailer package of 10 $ 3.35 (Z)
Holds one or two 5-1/4 floppy disks.

SELECTOR SWITCHES

A-B SWITCH, PARALLEL $ 14.75 (Z)
With three female 36 conductor centronics connectors.

A-B SWITCH, SERIAL, RS232 $ 12.75 (Z)
With three DB25 Female connectors.

THREE POSITION SERIAL SWITCH $ 16.95 (Z)
w/4 DB25 Female connectors

CABLES REQUIRED BETWEEN AB SWITCH and PRINTER

Printer to Selector Switch 6' $ 13.49 (Z)
Printer to Selector Switch 10' $ 15.95 (Z)
Printer to Selector Switch 15' $ 18.95 (Z)

RS232 SERIAL CABLES

RS232 Serial Cable 6 ft. $ 8.95 (Z)
Equal to Radio Shack #26-240, Male - Female

RS232 Serial Cable 6 ft. $ 8.95 (Z)
Equal to Radio Shack #26-249, Male - Male

RS232 NULL MODEM Cable 6 ft $ 9.95 (Z)
Connect two computers together.

RS-232 EXTENDER CABLE $ 8.00 (Z)
For computers w/RS-232 connector pointing down on the bottom of the computer.

HARD DRIVE CABLES

HARD DRIVE CABLE 4 ft $ 16.00 (Z)
w/50 pin Edge Card connector & H D pin connector.

50 Pin Y CABLE $ 18.00 (Z)
Enables hard two units to be connected to the I/O-Bus at the same time.

RS232 ENTENDER CABLE

RS232 Extender $ 8.00 (Z)
FOR Non-gate array computers which have the RS232 cable pointing down out of the bottom of the computer.

PRINTER CABLES for TRS-80 & 1000 COMPUTERS

Flat Ribbon 6', Mod III/4/4D&P $ 12.95 (Z)

Flat Ribbon 12', Mod III/4/4D&P $ 15.00 (Z)

DISK CLEANING, DUST COVERS

5-1/4" DISK DRIVE CLEANING KIT $ 4.90 (Z)
3-1/2" DISK DRIVE CLEANING KIT $ 5.25 (Z)
UNIVERSAL PRINTER DUST COVERS $ 9.75 (Z)
For printers up to 16" wide, anti-static vinyl.

INTERNAL HALF HEIGHT DOUBLE SIDED DISK DRIVES

Half Height 5-1/4 360K $ 60.00 (Z)

Half Height 3-1/2 720K w/5-1/4" mounting kit $ 67.00 (Z)

INTERNAL DRIVE CABLES FOR MODEL 3 AND 4/4P/4D

Internal 2 Drive Cable $ 10.00 (X)
Specify: Model 4 Gate Array or Non-Gate Array. Model 4D or 4P. S&H included when ordered with drives.

EXTERNAL DISK DRIVES

One Disk Drive Unit $143.00 (S)
One 5-1/4 360K or One 3-1/2 720K Unit.

Two Disk Drive Unit $193.00 (S)
Two 5-1/4 360K drives, or two 3-1/2 720K drives. Or one 5-1/4 360K and one 3-1/2 720K drive.

MEMORY CHIPS for MODEL 4

64K UPGRADE KIT $ 12.95 (Z)
Includes 8 150ns 128 refresh cycle dynamic ram chips, plus instructions and Memory Test Disk.

PAL CHIP $ 8.00 (X)
Required to upgrade Non-Gate Array Model 4s.

MICRO-LABS HIGH RESOLUTION BOARDS

GRAFYX SOLUTION for Model 3/4/4P/4D $ 66.00 (Z)
Specify Model 4 Non-gate array, Model 4 Gate-array or Model 4P (portable) when ordering because the boards and instructions are different for each Model.

MOUSE - PADS - HOLDERS - ADAPTERS

THREE BUTTON MOUSE $ 16.95 (Z)

MOUSE HOUSE HOLDER $ 1.75 (X)

MOUSE PAD $ 2.45 (Z)

MOUSE CABLE ADAPTERS 9 PIN TO 25 PIN $ 2.95 (X)

Mouse pad, holder and adapter are free when ordered with the three button mouse.

CLOCKS - ENTER TIME AND DATE AUTOMATICALLY

ROMCLOCK4 - INTERNAL CLOCK CHIP $ 35.95 (Z)
Clock chip with ROMCLOCK4 or ROMCLOCK3 Utility program package and installation instructions. Keep time and date current. 10 year lithium battery.

I/O-BUS CLOCK EXTERNAL $ 59.00 (Z)
Realtime clock uses exterior I/O Bus, no internal connections or wiring.

EXTERNAL MODEL 4 OR 4P HARDWARE ADD-ONS

I/O-BUS LD INTERFACE $180.00 (Z)
Connect an exterior disk drive unit to your 4P or Model 4/4D, not required for the first two drives on your Model 4/4D.

POWER SUPPLIES FOR MODEL 4/4P/4D OR MODEL III

ASTEC 65 WATT POWER SUPPLY $ 62.00 (Z)
For units that have only one supply.

ASTEC 38 WATT POWER SUPPLY $ 22.95 (Z)
For units that have two small supplies.

MODEL 4 HARDWARE

Non-gate array Motherboards 64K memory	$ 49.95 (Z)
Non-gate array Motherboards 128K memory	$ 70.90 (Z)
Sound Board Kits	$ 10.00 (Y)

MODEL 4P HARDWARE

Cooling Fans 12 vdc used.	$ 6.00 (Z)
Internal 300 Baud Modems used.	$ 20.00 (Z)

All hardware is new and has never been installed unless otherwise noted.

FLAT RIBBON CABLE

25 Conductor	$ .38 ft.(Z)
34 Conductor	$ .51 ft.(Z)
50 Conductor	$ .75 ft.(Z)

EXTENSION BLOCKS

70-015 34 Pin 17x2 Socket 3/16" high	$ 5.50 (X)
70-016 34 Pin 17x2 Socket 5/16" high	$ 5.50 (X)
70-017 34 Pin 17x2 Socket 5/8" high	$ 5.50 (X)

FLAT RIBBON CONNECTORS

70-001 50 Pin Male Edge Card Mating	$ 4.95 (X)
70-002 50 Pin 25x2 Edge Card Connector	$ 1.75 (X)
70-003 50 Pin 25x2 Header Female Socket	$ 1.25 (X)
70-004 50 Pin 25x2 Header Male/Plug w/mtg	$ 8.50 (X)
70-005 50 Pin 25x2 Header Male/Plug no/mtg	$ 8.50 (X)
70-006 36 Contact Centronics for Printers	$ 4.00 (X)
70-007 34 Pin 17x2 Header Female Socket	$ 1.95 (X)
70-008 34 Pin 17x2 Edge Card Connector	$ 1.35 (X)
70-009 34 Pin 17x2 Header Male no/mtg	$ 7.50 (X)
70-010 34 Pin 17x2 Header Male w/mtg	$ 7.50 (X)
70-011 25 Pin DB25 (RS232) Mail Plug	$ 3.00 (X)
70-012 25 Pin DB25 (RS232) Female Plug	$ 3.00 (X)
70-013 34 Pin 17x2 Box Header/Solder Pins	$ 2.50 (X)
70-014 50 Pin 25x2 Box Header/Solder Pins	$ 4.50 (X)

CRT SCREENS AND CONTROL BOARDS

Call for prices and availability for CRT screens and control boards.

KEYBOARDS - CONTACT BLOCKS AND KEY CAPS

Keyboard Contact Blocks	$ 1.00 (X)
Key Caps	$ .50 (X)

Specify computer and type when ordering.

DISK HOLDERS

MEDIA MATE Holds 50 5-1/4" disks	$ 5.90 (Z)
MEDIA MATE Holds 40 3-1/2" disks	$ 6.75 (Z)

IDE HARD DRIVES

42.8 MEG for Models 4/4P/4D $350.00 (S)
Allow 4 weeks for delivery.

85 MEG and 125 MEG Hard Drives
Call for price and delivery.

NEW RADIO SHACK DRIVES

Original for Model 1/3/4 Radio Shack Computers
New Full Height, Single Sided, 5.25" Drive $35.00 (S)

ADD SHIPPING & HANDLING CHARGES LISTED BELOW TO YOUR ORDER

$10 Maximum S&H charge for United Parcel Ground Service. Add the shipping and handling charges per item ordered, if it exceeds $10 for shipment in the 48 states then add only $10 to your order for shipping and handling.

(X) Add $ 2.00 (Y) $ 3.00 (Z) $ 4.00 (S) $ 6.00

Shipments are made by UPS ground service whenever possible. Please use street address and include phone number when ordering. Consistent with industry standards no refunds are made for opened software, manuals, intergrated circuit chips or computer parts. Replacement limited to defective material only. No returns without written authorization.

Check or Money Order Payment Only - We do not accept Credit Card orders. C.O.D. orders accepted. APO, FPO, HI, AK, PR, and Canada add an additional $2 per order unless otherwise stated. Wyoming Residents Only add 5% Sales Tax. Prices subject to change without notice.

==========

Order from: Computer News, PO Box 680, Casper, WY 82602-0680; (307)265-6483
Monday thru Friday - 8am thru 5pm - Mountain Time
Government, School, and Rated Corporation Purchase Orders Welcome

TOP QUALITY PRINTER RIBBONS

Printer	Radio Shack Cat. Number	CN80 Number	Type	Price Each	6 or More
LP I, II, IV	26-1413	CN1001	FABRIC REFILL	5.55	5.05
LP III, V	26-1414	CN1002	FABRIC CART.	6.38	5.88
LP III, V	26-1414	CN1003	FABRIC REFILL	4.79	4.29
LP VI/VIII,DMP 400/420	26-1418	CN1004	FABRIC CART.	5.60	5.10
LP VII, DMP 100	26-1424	CN1038	FABRIC CART.	6.00	4.50
DMP 110	26-1283	CN1005	FABRIC CART.	6.58	6.08
DMP130/130A/132/133/107	26-1236	CN1006	FABRIC CART.	6.40	5.90
DMP130/130A/132/133/107	26-1238	CN1007	FABRIC REFILL	5.00	4.50
DMP 500	26-1482	CN1008	FABRIC CART.	13.40	12.90
DMP 500	26-1482	CN1043	FABRIC REFILL	5.30	4.80
DMP 120, 200	26-1483	CN1009	FABRIC CART.	7.00	6.50
DMP 120, 200	26-1489	CN1010	FABRIC REFILL	4.85	4.35
DMP 430	26-1296	CN1013	FABRIC CART.	12.20	11.75
DMP 430	26-1296	CN1044	FABRIC REFILL	5.60	5.10
DMP 440	26-2809	CN1014	FABRIC CART.	19.30	18.80
DMP 2100, 2100P, 2110	26-1442	CN1015	FABRIC CART.	6.10	5.60
DMP 2100, 2100P, 2110	26-1442	CN1016	FABRIC REFILL	4.85	4.35
DMP 2120	26-2834	CN1017	FABRIC CART.	13.05	13.05
DMP 2120	26-2836	CN1018	FABRIC REFILL	7.90	7.40
LMP 2150	26-1287	CN1019	FABRIC CART.	8.00	7.50
DWP II, DWP 410/510	26-1419	CN1020	MULTI-STRIKE CT.	5.35	4.85
DWP II, DWP 410/510	26-1419	CN1021	M-S REFILL	4.50	4.00
DWP II, DWP 410/510	26-1449	CN1022	FABRIC CART.	6.55	5.95
DWP II, DWP 410/510	26-1449	CN1023	FABRIC REFILL	5.45	4.95
DWP 520, 230, 210	26-1445	CN1024	MULTI-STRIKE CT.	5.15	4.65
DWP 520, 230, 210	26-1445	CN1025	M-S REFILL	4.50	4.00
DWP 520, 230, 210	26-1458	CN1026	FABRIC CART.	5.60	5.10
DWP 520, 230, 210	26-1458	CN1027	FABRIC REFILL	4.80	4.30
DWP 220	26-1299	CN1028	MULTI-STRIKE CT.	7.95	7.45
DMP 300/2102	26-2819	CN1030	FABRIC CART.	7.15	6.65
EPSON FX/MX/RX-80		CN1033	FABRIC CART.	5.50	5.00
EPSON LX/80/90		CN1034	FABRIC CART.	5.00	4.50
PANASONIC KXP1090/2023/1150		CN1036	FABRIC CART.	7.35	6.85
PANASONIC KXP1180/1190/1191		CN1039	FABRIC CART.	6.90	6.40
SEIKOSHA SP-2000, SP-2400		CN1041	FABRIC CART.	6.40	5.90
SEIKOSHA SL-90, SL-70		CN1046	FABRIC CART.	7.25	6.75
SEIKOSHA SL-270		CN1047	FABRIC CART.	15.40	13.86

ALL RIBBONS ARE BLACK, CART.= Plastic Cartridge, REFILL= Refills Only/No Cartridge.

Add for Shipping and Handling

1 to five items add (Y) ... 6 or more items add (Z)
Please refer to the CN80 Product Guide Shipping and Handling Schedule.

Some ribbons for the older Radio Shack printers are not stocked, but are still available by special order, please allow an additional week shipping time. All stock ribbons are shipped within 24 hours from the time the order is received. C.O.D. orders accepted, C.O.D. charges additional. Government and educational institution purchase orders are accepted. We do not accept credit card orders.

Computer News 80
Published Monthly.

Single issue $4.00
Subscription Prices:
$36 per year in US.
$48.00 per year in
Canada. $54.00 all
others outside US.
Call or write for First
Class and Air Mail Rates?

Mailing Address:
PO Box 680
Casper, WY 82602

Street Address:
1220 Jamaica Drive
Casper, WY 82609

Phone: (307) 265-6483

Classified Advertising
Rates:

$6.00 Minimum
$1.00 per line of 35
characters or spaces.

Publisher and Editors
Stan Slater
Ron Gatlin

Office Hours are
8 AM to 5 PM
Mountain Time
Monday thru Friday.

We also, publish
Computer News PC
The MS/PC IBM/Clone
Support Magazine.

SUBSCRIPTION ORDER

Yes, enter my subscription to *Computer News 80*

___ One year for just $36.00 ___ Two years for just $48.00

Name _____

Address _____

City _____ State _____ Zip _____

Check or Money order enclosed.
Computer News 80 PO Box 680 Casper, WY 82602

Computer News 80
PO BOX 680, Casper WY, 82602

BULK RATE
U. S. POSTAGE
PAID
CASPER, WY 82601
PERMIT NO. 309

FORWARDING & RETURN POSTAGE GUARANTEED
ADDRESS CORRECTION REQUESTED