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We have a new post office box number and zip code number due to Casper getting a new post office building. We will still receive mail sent to our old box number for the next sixty days or so. If you have any of our return envelopes that are addressed to PO Box 680 and are planning on using them after June we will still get the mail but it will take a couple extra days to be forwarded because the mail will come to the new Post Office, then taken to the old post office where our old box has been closed, then sent back to Cheyenne, Wyoming to be forwarded back to our new box in the new Casper Post Office. No you read right, due to the automated system that is supposed to speed up our mail service it has to be sent 300 miles back to Cheyenne, Wyoming and then travel 300 miles again back to Casper, Wyoming. And that folks is progress, spelled with a capitol S. This obviously will cause delays in your orders reaching us for a couple days if you use our old box number after the end of July. We hope you will understand.

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We now have several subscription representatives in several areas of the country and we are paying sales commissions each month to them. How about you? If you are in a user group or know of other computer users then you too can pick up a few extra dollars by signing them up with a subscription to Computer News 80 or Computer News PC.

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For those of you who have both the TRS-80 computers and one of the Tandy 1000 series computers we have just concluded the transfer of stock, video instruction tapes, and how-to books from Micro Systems to our stock. We will now be handling all the sales of these products and have purchased the copyrights to the books. This will increase our support of the Tandy/Radio Shack computers and we will also cover the Model 100 and 102 and perhaps some of the other laptops in Computer News PC.

*MAY*  
*1995*

# **MULTIPLAN, PROFILE 4 +, BCX AND BCX2**

by Harold J. Hendriks

## **SPREADSHEET OR DATABASE?**

Complete, well-organized and adequately documented records of income and expenses are very important for budgeting, planning and tax reporting purposes. Does a spreadsheet provide a more convenient, flexible and easy to use means for recording, analyzing and reporting income and expense data than does a database, or is it the other way around?

Neither a spreadsheet nor a database, if used alone, provides a totally adequate or flexible enough means for analyzing, reporting, and otherwise making the fullest possible use of income and expense data. The sorting, selecting and reporting facilities and functions provided by a database supplement and complement the recording and analytical functions provided by a spreadsheet.

A spreadsheet provides a very convenient way to record income and expense data in tabular form in chronological order or in some other organized scheme. However, spreadsheets do not provide flexible, convenient and easy to use means to break out and/or to sort items of data by various categories for analysis and reporting purposes. A spreadsheet, in and of itself, is somewhat inadequate for making the fullest possible use of income and expense data.

Entering and recording income and expense data in a database program may not be quite as quick, easy or convenient as it is do when using a spreadsheet. However, the ability to include notes regarding items of income and/or expense, the ability to select data by various categories and then to sort the selected data by the same or some other category, plus the ability to print the selected and sorted data using a variety of reporting formats make the database superior to the spreadsheet for selectively analyzing and reporting income and expense data.

## **A MAJOR PROBLEM**

Profile 4 Plus has been, and still is, a very popular and widely used database program for the Model 4 series of computers. Likewise, Multiplan has been, and still is, a widely used spreadsheet program for the Model 4 computers. Unfortunately, there is no direct or easy way to export selected data from either program and to import that data into the other program.

The typical lack of convenient data export and import capabilities of Model 4 programs is a serious limitation. Who wants to spend the extra time

entering the same data twice, once in a spreadsheet and then a second time into a database or vice versa?

## **TOO SOON OLD AND TOO LATE SMART**

I started personal computing with the purchase of a Tandy Radio Shack TRS-80 Model II small-business computer in the fall of 1980. Tandy's computer and software prices were relatively quite high back in those early days. After laying out the hard cash to purchase the Model II I couldn't justify the extra expense to purchase both a database and a spreadsheet program. It had to be one or the other.

After much study and cogitating, I opted for Tandy's Model II version of Visicalc. Once I got the "hang of it", I thought that Visicalc was the "Greatest thing since sliced bread". I used Visicalc for several years to keep records of income and expense data.

I liked the Model II computer. But it was big and heavy. It took up too much space on my desk. It was so heavy that every time I tried to move it to clean around and under it, I nearly broke my back.

In the spring of 1984 I purchased Tandy's then new TRS-80 Model 4P computer and sold my Model II with all the software that I had acquired for it. Once again, I went through another agonizing period of debating whether to invest in a spreadsheet program or a database program for keeping track of my income and expenses.

In 1984 I did not yet have enough computer experience to fully appreciate the value of a database program for keeping records of income and expenses. Based on my experience with using Visicalc, I leaned in favor of a spreadsheet program. In 1984 Tandy's price for the Model 4 version of Visicalc was \$199.00. The newly issued Multiplan program for the Model 4 carried the same hefty price tag of \$199.00.

The June 1984 issue of "80 Micro" published a glowing, highly complimentary "Five Star" review of the then new Multiplan spreadsheet program. The review concluded that Multiplan was far superior to Visicalc. The Multiplan features that caught my attention in the review were Multiplan's sorting and importing capabilities.

Multiplan is able to sort a specified number of contiguous rows of a spreadsheet based on the contents of a specified column. Also Multiplan was able to import "Named" blocks of data from an external spreadsheet into an active spreadsheet. These two features of Multiplan, which were lacking



in Visicalc, appealed to me very much. Consequently, I opted for Multiplan.

I used Multiplan for several years to keep records of income and expenses. While I liked some of Multiplan's unique and very useful features, I found Multiplan to be very frustrating and exasperating to use.

Even with the automatic recalculation mode turned off, Multiplan's speed of response to the arrow keys is slow and sluggish. Multiplan does not provide for a command key combination to quickly and easily move from a point in the spreadsheet to either the left or the right sides of the sheet. To move to the right or the left by more than a few columns in a large spreadsheet is slow and very sluggish going.

After using Multiplan for several years, I finally broke down and purchased Tandy's Profile 4 Plus database program for the Model 4 and made the switch from using Multiplan to using Profile 4 Plus to keep track of my income and expense data. I appreciated Profile 4 Plus's ability to print itemized reports of sorted data selected by specified categories. Profile's reporting features provided for calculating and printing the sums of columns of data in the printed reports.

After using Profile 4 Plus for several years I began to realize the advantages of using both a database and a spreadsheet for recording, analyzing and using income and expense data. However I found that there is no way to export Profile 4+ data and import that data into a Multiplan spreadsheet or vice versa.

I noted that Profile 4 Plus provides a means to export selected fields in selected and sorted records into a DIF type of file which the Model 4 Visicalc program can read and import into a Visicalc spreadsheet. However, by the time I discovered this capability of Profile 4 Plus, Visicalc for the Model 4 was no longer available. Too soon old and too late smart.

### BCX TO THE RESCUE

Several months ago I acquired David Goben's superb and very impressive spreadsheet program, BCX, from "Computer News 80". BCX's set of commands is very similar to Visicalc's set of commands. Although it had been more than 10 years since I last used Visicalc, I quickly settled in to using BCX with ease. It was like meeting up again with a grand old friend whom I hadn't seen for many years and immediately finding myself comfortable and at ease with his ways of thinking, talking and doing things.

BCX is FAST!!! The first time I tried it, I was about blown away by BCX's fast response to arrow and command keys. In contrast to the frustrating and agonizingly slow and sluggish response of Multiplan, BCX responds instantly to cursor key and command key operations. When using BCX you can move almost instantly from any point within the spreadsheet to the top or the bottom or to either the extreme right hand column or the extreme left hand column of the sheet. As compared to Multiplan, BCX is a real pleasure to use.

BCX's main drawback is that all columns are set to the same width, be they narrow or wide. However, the soon to be released BCX2 spreadsheet fixes this limitation. In BCX2 the width of each column can be set on an individual basis. In addition to many other useful and powerful features, BCX2 will also provide for importing blocks of data from an external BCX2 spreadsheet into the active worksheet. I'm looking forward with real anticipation to using BCX2.

BCX, as well as the upcoming BCX2, provides for saving the spreadsheet in several formats including a "Formula Save" format in the form of an ASCII file which can be edited with a word processor or created using a word processor. The "Formula Save" ASCII file is in the form of an "ENTER" delimited ASCII data file.

"PROGRAM LISTING NUMBER ONE", CHKBOOK/ASC, by David Goben, shown on page 16 of the January 1994 issue of "COMPUTER NEWS 80", Vol. 7, No. 1, is an example of a BCX file in the "Formula Save" format. BCX and BCX2 can load a file in this format directly into a BCX or a BCX2 spreadsheet.

The "SuperSCRIPSIT Selection" feature of Profile Four Plus provides an easy to use method for "spinning off" data from selected fields in selected records into an "ENTER" delimited ASCII data file. Such a file can be converted into the form of a BCX "Formula Save" format by prefixing each field line with a BCX coordinate address. This can be done using the search and replace functions of a word processor, but it is a lot of work if the file is very large.

I am debugging, fine tuning and putting the finishing touches onto a BASIC program which will convert an "ENTER" delimited ASCII data file into the format of a BCX "Formula Save" file. Such a file can be loaded into either BCX or into BCX2.

By using the BASIC Conversion Program it is relatively easy to export selected data from a Profile

Four Plus data file and to put that data into the proper form to import it into a BCX or BCX2 file. Using Profile Four Plus and either BCX or the soon to be released BCX2, you can have the best of both worlds; you can record and make use of your income and expense data in a Profile data base and be able to work with all or selected portions of the same data in a BCX or BCX2 spreadsheet.

I have never used or seen pfs:file for the Model 4. However, I am fairly certain that there must be some way to extract selected data from a PFS file in the form of an "ENTER" delimited ASCII data file which likewise can be put into the BCX "Formula Save" format and hence imported into either BCX or BCX2.

#### COMING SOON

As soon as I can eliminate the last of the "bugs" and finish fine tuning the BASIC program referred to above, I will be submitting a follow up article to "COMPUTER NEWS 80". The forthcoming article will cover the specifics of exporting selected data from a Profile Four Plus database and importing that data into either BCX or BCX2.

#### 'TIL WE MEET AGAIN

Best wishes for happy and productive computing on the friendly, reliable and capable TRS-80 Model 4 computers. Outstanding new programs such as David Goblen's fabulous BCX2 spreadsheet program will make the great little Model 4s even more useful and productive. Keep them humming and working for you.

-Harold J. Hendriks

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## BCX2 - AN INTRODUCTORY REVIEW

by Harold J. Hendriks

### A FIRST QUICK PEEK

It's the end of the first full week in April, and I have just received a pre-release copy of BCX2 from David Goblen. Due to time constraints, this article has to be limited to a quick overview and a brief appraisal of BCX2. I'm short of time, as I'm trying to make the deadline for the submission of this article for inclusion in the May 1995 issue of "Computer News 80". The time is so short I may not make the deadline in time.

### GOOD NEWS! BCX2 IS HERE.

Barring any last minute, unforeseen holdups, BCX2, the fabulous NEW spreadsheet program for the

Model 4's, should be available from "Computer News 80" by the time you read this article.

BCX2 is really FAST and FRIENDLY, and PACKED full of "dozens" of powerful features, far too many to do justice to in even several review articles. After I have more time to work and to play around with BCX2, and more time to devote to writing, I will write a more detailed review of some of BCX2's more powerful and useful features for a future issue of "Computer News 80". If there is sufficient interest, I may write several articles on BCX2 for future issues of "CN-80".

### "DITTOS" TO DAVID

Over the past weekend I had the opportunity and the rare privilege of working and playing with the real (not a DEMO) BCX2 for several hours on three different "test drives" of it on my 128K Model 4P. It has been an exciting and rewarding experience to explore BCX2. I am IMPRESSED!

BCX2 is everything that the Announcement "Advert" on page 19 of the April 1995 issue of "Computer News 80" claims it to be, and more! I also say "Dittos" to the statements that David Goblen made concerning BCX2 in his "Visit With" column in the April issue.

As a long time user with over 15 years experience using a variety of electronic spreadsheets on my several computers, I know a top notch spreadsheet when I see it. I have made extensive use of both VisiCalc and Multiplan on my two TRS-80 computers. I have used the Worksheet in DeskMate 3, Lotus for DeskMate, and the Worksheet in MS-Works on my Tandy 1000-TL. BCX2 is fast, powerful, flexible and friendly. I give it "Five Stars".

### A BIG STEP UP

Just as BCX was a big step up from Busy-Cal, BCX2 is a BIG step up from BCX and also from VisiCalc and Multiplan. BCX2 is MUCH faster than VisiCalc or Multiplan, and has MORE functions, and more POWERFUL functions and Commands, such as the provision for up to 52 User Defined Keys which can conveniently and materially speed up data entry and the manipulation of spreadsheet functions and operations.

Probably the biggest difference you will note the first time you use BCX2 is that you have control over the widths of the individual columns, unlike BCX in which all columns had to be the same width. Invoking the individual column width command, "/IW", brings up a sub-menu which offers three choices:

**"/IWB", Best Fit.** BCX2 automatically adjusts the column width to accommodate fully the cell with the widest display of data or text in the column.

**"/IWF", Fit to Cell.** This command causes the current column width to be automatically adjusted to a value based on the width to accommodate the contents of the cell that the cursor is currently on.

**"/IWM", The one I like the best, Manual Width.** This command gives the user complete control to specify the desired width of the column.

#### **ADDITIONAL CELL FORMATTING OPTIONS**

As compared to BCX, BCX2 offers four additional options for the way individual cells can be formatted.

**"/FT", Formats Cells containing Time or Date values.** Eight options are offered for the way in which Dates can be displayed. Four options are offered for the way Time can be displayed.

**"/F.", Yes, that is a "period" after the "F".** This option formats a cell (value or label) to display the contents of the cell centered in the cell. This is a very desirable and useful option. BCX allowed for only left or right alignment of the data or text in the cell.

**"/F?", Invisible.** This option formats the cell so as to Hide, or to make Invisible, the contents of the cell. However, if the cursor is placed on the cell which appears to be blank, the cell contents are displayed on the Cell Edit Line. The cell can be reformatted to display its contents by placing the cursor on the cell and selecting the option for the format in which the user wishes the contents to be displayed. If an invisibly formatted cell is also "Locked", so that its contents cannot be changed, the "Invisible" option offers a certain amount of "Security" against undesirable "snoopers" and "peekers".

**"/F%", Percentage.** This option formats a cell to display its contents as a percentage format by displaying the entered value multiplied by 100 and with the "%" sign appended at the end.

#### **ADDITIONAL REPLICATION OPTIONS**

As compared to BCX, BCX2 offers two additional Replication options:

**"/RV", Values Only.** Similar to the **"/RD", Define Range** option. This option allows the user to define a range of cells to be replicated to another location, but only the numerical values or the text contained in the cells are replicated. Formulas are NOT

replicated. This is a convenient and useful option.

**"/RF", Replicates Formats.** Similar to the **"/RD", Define Range** option. This option allows the user to define a range of cells in which ONLY the Formatting of the individual cells in the Source Range are to be replicated to the cells in the destination Range. This is a VERY convenient and useful option.

#### **BCX2 IS USER FRIENDLY**

All BCX2 Commands are invoked by pressing the **[/]** key, except when you are entering a formula such as **"128/12"** or **"@D14/C12"** on the cell entry edit line. When the **[/]** key is pressed, a Menu Window, in which all the basic BCX2 Commands are listed, immediately "pops" up on the monitor screen.

BCX2 is intelligent. If the current cell that the cursor is on is in the left half of the screen, the Menu Window pops up in the right half of the screen, and vice versa. In contrast to **BUSY-CALC**, the BCX2 Menu Window does not obscure the cell that the cursor is currently on. This is a very nice and convenient feature.

The Menu Window and the Sub-Menu Windows list all the BCX2 Commands in plain and easy to understand, and unambiguous English. After pressing the **[/]** key, the desired BCX2 Command is invoked by pressing the key corresponding to the first letter of the command or by stepping the bar cursor down to the command and pressing **[ENTER]**.

A few of the Basic BCX2 Commands stand alone. Invoking such a command does not bring up a Sub-Menu Window with several available Sub-Options. For example, the **"CLEAR"** command, which will clear the entire spreadsheet, is invoked by pressing the **[/]** key followed by pressing the **[C]** key. No Sub-Menu Window will be displayed. Don't panic, if you made a mistake and don't wish to clear the sheet. You are asked to confirm the command.

Most of the Basic BCX2 Commands do not stand alone. When a command with Sub-Options is invoked, a Sub-Menu Window pops up listing the available Sub-Options. For example, the **"Storage Command"** includes eight Sub-Options, a few of which are:

**"/SD", DOS Command.** Invoking this option provides for executing a DOS Library Command such as **"DIR", "CAT", "FREE",** etc. without leaving the current spreadsheet or BCX2. This is a very useful and convenient option.

"/SL", Load a BCX2 File from disk.

"/SS", Save a BCX2 File to disk.

"/SQ", Quit BCX2. You are asked to confirm this command.

BCX2 Commands are very user friendly and easy to use in that the majority of them are mnemonic in nature and thus very easy to remember. After using BCX2 for only a few days I do not need to stop to look at the Menu Window, I just enter the command sequence from memory.

#### A RETRACTION AND AN APOLOGY

About the middle of March "CN 80" sent me a pre-publication copy of David Goblen's "Visit With" column which eventually was published in the April issue. At that time I was busy preparing for an upcoming trip to the Pacific Northwest and hastily working on an article, "Multiplan, Profilè 4+, BCX and BCX2". This article is scheduled to appear in the May 1995 issue of "CN 80". I wish to retract a statement that I made in that article.

Apparently I read David's preview statements about BCX2 with my own "wish list" in mind. I quickly noted, with keen anticipation, David's announcement of "Another hot new feature of BCX2, . . .", the new @XTERN() function.

I now realize that my brain was "intoxicated" with the "Wish List" I had in mind for BCX2. I jumped to the conclusion that David's hot new feature, the @XTERN() function, does the same thing that Multiplan's eEXTERNAL Copy Command does. Consequently I made the following statement in the "Multiplan, Profile 4+, BCX and BCX2" article:

Quote: "BCX2 will also provide for importing blocks of data from an external spreadsheet into the active worksheet."

Several weeks after I wrote and submitted the "Multiplan, Profile 4+, BCX and BCX2" article, David sent me a pre-publication copy of BCX2. In addition, he also sent along a pre-publication set of the unbound pages for the "Quick Reference Manual" for BCX2. Now that I have had the opportunity to study the "Quick Reference Manual" in detail and to work with the real BCX2, I realize the I jumped to an unwarranted conclusion regarding the @XTERN() function. I hereby apologize for passing on a piece of incorrect information.

The @XTERN() function does NOT copy a "block" which spans rows and columns from an external

spreadsheet. Rather, it copies the value stored in a cell located at a specified set of coordinates in the external worksheet. While it is not the BIG and JUICY "Piece of Cake" I wished for, the @XTERN() function is a very useful and powerful function.

#### ALL THINGS TO ALL PEOPLE??

No device, no piece of hardware or of software can be all things to all users. Each of us has a unique set of needs, desires and uses for the computers and software we use. Not knowing or understating the constraints which any designer faces, we all too often place undue expectations on a piece of hardware or software.

All design projects involve making many compromises. You just can't pack as many features into a four room house as you can into a 16 room house so you have to pick and choose.

A software designer, no matter how ingenious and clever he may be, cannot "shoe horn" as many features into a piece of software for an eight bit computer with 128 K of memory as he can into a program for a fast 486DX "Monster" with "umpteens" megabytes of memory and a "hughmongous" hard disk. Multiplan's eEXTERNAL Copy Command involves a very large section of complex code.

This past weekend I enjoyed a rather long telephone conversation with David. He told me that he seriously considered including a feature similar to Multiplan's eEXTERNAL Copy Command in BCX2. Giving it up was one of the design compromises he had to make. You just can't "shoe horn" as many features into a four room house as you can into a 16 room house.

The @XTERN() function which David opted for doesn't do quite as much as Multiplan's eEXTERNAL Copy Command, BUT it doesn't require such a massive chunk of code to implement. By opting for the @XTERN() function rather than the eEXTERNAL Copy Command, David had the "room" to include a larger number of powerful and equally useful functions in BCX2.

#### IN CONCLUSION

BCX2 is a powerful, flexible and easy to use spreadsheet program for the Model 4 series of TRS-80 computers. If you long for a Model 4 spreadsheet that is not frustrating to use, such as Multiplan, or one that is more powerful and faster than VisiCalc, then BCX2 is the spreadsheet for you. I don't think you will be disappointed.

Time and opportunity permitting, I plan to write

several follow up articles on BCX2 and on using BCX2.

Good-bye for now and best wishes for happy, powerful and productive computing on your friendly and reliable TRS-80 Model 4, 4P or 4D computer. Keep them humming and working for you. Very few people really need a 486DX monster with "umpteens" megabytes of memory and a gigantic hard disk.  
-Harold J. Hendriks

*(Editor's note)* At the request of the author we ran both of Harold Hendriks' articles in the same issue. We both appreciate the amount of work a reviewer puts into reviewing a new product and the time it takes to create an article. We look forward to more articles from Mr. Hendricks about BCX2 and other subjects. We especially would like to hear any comments or suggestions that our readers have.

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## SUPERUTILITY SOLVES GLITCH

by Charles Harris, MD

Stan, thanks for advice with the Profile 4 Plus problem. The sequence of events is as follows. I had a disk and backup that suddenly had lost their directories. They resided in the same external housing and shared a power supply. Something happened, and without directories there were useless.

I turned to Super Utility (SU) which was able to read the directories that my system disk couldn't raise. But after the first reading, I received the message "Unable to locate directories". SU had never resurrected a directory for me. Therefore I felt all was lost. However, as a last resort I turned to the file copying capability of SU and lo and behold, was able to copy my files to a newly formatted disk. There must have been enough directory fragments and addresses around to allow SU to function.

The files copied, a new directory was created by SU or the old resurrected. Anyway with the files on a new disk and a new directory I tried the files and to my horror found that I couldn't access anything past file 100, though I had expanded the file to accept 250 records. I got an error message to the effect that there was a fault in segment DA2.

Then although HEX is Greek to me, I turned to ZAP in SU to display the files and found to my pleasure, that they were all there in ASCII, but in a

disorganized fashion, parts belonging to different segments on different parts of the disk. Turning to file my Directory, I discovered that DA2 expanded only to 100 records (Record Length heading of directory) whereas the Key, DAT and DA3 segments were all expanded to 250.

Question--- how to correct this. I called you, then was just about to ship copies to a very generous Dave Goben, when I decided to check one more thing. Since all the data was there, but a segment was dwarfed at 100 records whereas the others ran to 250, I knew that somehow in backing up data from the RAM in Megadriv, I had glitched DA2. Maybe, I thought, if I expand records, the program is designed to recreate an index of all the files.

I did this, and lo and behold, it did do just that. The number of records of DA" was brought up to 250 and all records are now safely ensconced within the data base in three floppies.

Wow, what a sweat. It was like courting an inaccessible woman. The information was there, the figure, the perfume, the beauty, the intellect---but the telephone number unlisted in the directory.

I hope this little adventure helps somebody. It almost killed me.

-Charles Harris, MD

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## GOLEM

Graphic OverLay Expanded Memory

by Jeff Buck, Vorpall Design Bureau

The Model 4 is unique among the Z-80 computers in having a provision for high-resolution graphics (among other things). The high res board is a lot of fun, but for me at least, most of the time it goes unused. I use my machine for work mostly, and was wondering how I might put all that extra memory to work. We've had the GrafDisk for a few years now, but a better way to harness the G-board's potential is to have memory management at the system level, such as the @BANK SVC does for the Model 4's banked memory. I have done just that with @GOLEM.

Golem does for your G-board what @BANK and @EXMEM together do for your banked memory. It is essentially a DOS patch that accepts, through the system SVC linkage, commands to selectively read

or write portions of the graphic board's memory into the Z-80's memory. It can be used to store program subroutines, miscellaneous data, or portions of the video screen.

By sending the appropriate values to @GOLEM, you can invoke a rich variety of options. I won't delve into the technical details here; I've submitted a separate documentation file for that, and, of course, the commented source code for those interested. I will only summarize @GOLEM's capabilities here.

First, the organization of the graphics board's memory. On a MicroLabs Graphyx Solution, you have 20 kilobytes of port-mapped memory. While your G-board doesn't have nearly the amount of memory that your two external banks in a 128K Model 4 have, it is much more flexible to use with @GOLEM. With @BANK you have to reserve and use an entire 32K at once. @GOLEM organizes the Graphyx Solution into 256 "slots" of 80 bytes each, and allows you to access any one of them, or any number of them up to 32, with a single SVC call. That's a maximum of 2.5K at a time, which should be enough for most purposes.

To use @GOLEM, you load register B with the slot number you want to access. For multi-slot operations, this is the "beginning slot", and the additional slots to be read or written will be incremented from this value. Then you load the number of slots you want to access (the "slot count") into register C bits 0 - 4. The three MSBs are used to select the options you want @GOLEM to invoke. Bit 7 specifies whether you will be reading or writing to the G-board. Bit 6 specifies whether you want @GOLEM to supply the address of the memory buffer for the I/O (default buffer), or if you will be supplying the address yourself in register HL. I selected page X'23' as the default buffer address. Bit 5 specifies whether or not you want @GOLEM to transfer execution to the beginning of the buffer after reading the slots in from the G-board, be it the default buffer or your own buffer address in HL.

And there's more. A second SVC, @VGOLEM, allows you to write the video display, or a selected portion of it, to the graphics board - or read it back to the video display from the graphics board. It works by directly switching in the video memory and shooting the display right to the G-board; not one byte of buffer space is necessary for the data transfer. You can specify any portion of the display to save or restore by putting the row # into register H, and the number of video lines to move into register C's slot count. Full range checking for

these two entry parameters is supported. Bit 7 specifies a read or write, as before. Without @VGOLEM, video operation like this is somewhat more difficult using external memory banks.

@GOLEM also provides for management of overlay residency in the default buffer. It keeps track of which overlays are and were resident, so that background programs can freely use the default buffer without disrupting the use of the same buffer by any foreground @GOLEM program.

For those of you with the Radio Shack graphics board, I haven't left you out either. I have two machines myself in that configuration. @GOLEM works as is on the RS board. So does @VGOLEM. But as a special bonus, I have included two more SVCs to access another 10 K of the additional 12K of memory the RS board has over the Graphyx Solution. @RGOLEM and @VRGOLM work exactly like their @GOLEM stablemates: you have 80-byte slots, and you have a total of 384 of them. Since the SVC's linkages are all identical, converting Golem programs to use R-Golem memory slots is simple.

Unfortunately, I made no provision for returning the availability status of Golem slots as @BANK does for memory banks. Hopefully authors of future @GOLEM software will be generous enough to publish their source code and document their Golem slot usage to allow you to modify different @GOLEM programs so that they don't contend for the same memory slots.

I'm not sure as to how this is going to be received, but here goes - I designed the @GOLEM SVCs to install themselves inside unused or little-used areas of LS-DOS. For one, I'm determined to put every byte of my DOS to work, and there is some junk down there that doesn't belong. MONTBL\$ and DAYTBL\$ and PAKNAM\$ are three examples. These memory regions aren't used by the DOS after the machine is booted (except for MONTBL\$, used by DIR in 6.3). Secondly, for maximal utility, @GOLEM is best placed into low memory where bank-switching (particularly video bank-switching) won't bother it, and my driver zone is always filled to the max. A few of the other things I took out I really don't think anybody'll complain about: CTL-255, the TRACE task, the @IPL software reset vector (no BOOT command anymore, hope your reset buttons are in good shape!); and the JOBLG (does anybody really USE it?). To get done "right", @GOLEM and company would take up at least 120 - 140 bytes of your driver zone. So that was my solution. I think it's worth it.



There is one /FIX patch file you should apply to your system disk to install @GOLEM. GOLMSYS6/FIX modifies DIR to not use the old MONTBL\$ overwritten by @GOLEM. Applications that also make use of MONTBL\$ will have to be patched, though I've never encountered any that do. It's also feasible to write a REBOOT/CMD program to replace the old @IPL, if that's important. Sorry, but that's the price of power.

Now anybody can have a 148K or 158K Model 4 without hardware hacking! Have fun with @GOLEM. As I often find myself saying these days, Bring back the '80s!  
-Jeff Buck

**NOTE:** GOLEM/CMD is a machine language program and it along with the assembly language source code and program documentation will be available on the CN-80 Disk Series #29 for April, May, and June 1995. If you would like a copy sooner send the customary \$2 for postage and handling.

We wish to thank Mr. Buck for his very interesting contribution.

## A VISIT WITH DAVID GOBEN

by David Goben

### 19,200 BAUD COMMUNICATIONS

To answer all those questions many of you have about high speed data communications: Yes, you can use a 19,200 Baud rate. And yes, this is supported by the 14,400 Baud external modems currently on the market. The problem is, none of the Model III/4 communications packages openly support it. Why not? Because at the time of their release no modems supported speed of over 9600 Baud. The serial interface inside the Model III/4 is capable of supporting Baud rates from 50 through 19,200. It cannot go higher than this because you would need a 16-bit port, and that's kind of tough on an 8-bit machine. The good news is, you WILL have the knowledge required to communicate at 19,200 Baud on a Model 4 after reading this column.

First things first. How do you set your baud rates? That's relatively easy. First you must load your communications driver, COM/DVR. Do this from the DOS Ready prompt by entering SET \*CL COM. This defines a device called \*CL for serial communications. The next step is to set your communications parameters via the SETCOM

command. You can do this by entering SETCOM (Q). You will be prompted for all settings: Baud, word length (7 or 8 bit word length), Stop bits (1 or 0), Parity (EVEN, ODD, or OFF), Break (usually 3 for CTRL-C), and other settings. You can select defaults by simply pressing the ENTER key. Most communications program, such as Bill Andrus' XT4 for the Model 4 have their own communications drivers built right into them, so you don't have to worry about using the SET command. For example, if you are developing your own program that will have a communications driver in it, you can set up really fast using the following simple assembly language code:

```
INTVEC$ EQU EH
LD      A,101
RST     28H
OUT     (0E8),A
LD      A,0FFH
OUT     (0E9H),A
LD      A,6CH
OUT     (0EAH),A
DI
LD      HL,DRIVER
LD      (INTVC$+5*2),HL
SET     5,(IY+22)
LD      A,(IY+22)
OUT     (0E0),A
EI
```

This code first points the IY index register to the system's internal flags area. It then resets the serial RS-232C by sending any value in register A to port E8. We then send the code to set the 19,200 Baud rate to port E9. Next we set no-parity, no break, 1 stop bit, and an 8-bit word code to port EA. Finally, we set out communications driver to HL, stuff it into the proper vector, then set the flag that will activate this vector for system scrutiny. The baud rate is actually set up, for whatever reasons, in two parts of the same byte. You must tell the system at what baud rate to send information, and at what baud rate to receive it. I have never seen a system that would use a different sending and receiving rate, but I suppose that somewhere there is a good reason for this. Anyway, to send out this code, we take the baud code and place it in the high nibble (upper 4 bits) and low nibble (lower 4 bits) if the byte (do you like these bona-fide technical terms?). Thus, to send a rate of 19,200, we would be using the code F (15 decimal) in the high and low nibbles, and so the full byte code would be FF. Check with a technical reference manual if you are interested in what codes correspond to what rates. If we get enough queries, they will be published here.



## XT4 AT 19,200 BAUD

Anyway, while checking the background for writing this little treatise, I discovered that XT4 (mentioned earlier) did have support for 19,200 Baud already built right into it, but it was simply disabled. To enable it under XT4 version 1.8.7a, which CN80 currently distributes through the File Cabinet and I believe with orders for modems, you have to install one simple patch:

PATCH XT4 (D1C,D2=07:F1C,D2=06)

REMEMBER, apply this patch ONLY to XT4 version 1.8.7a. It will not work with older versions! Notice that when you select "Initialize RS-232-C" from the menu (I), the 7th selection, 19200 will not be shown, simply because the text for the menu was never inserted. If you would LIKE to insert it, apply the following patch. Notice that the last 2 lines of the patch ALSO INCLUDE the above patch. Create the patch by typing BUILD XT4/FIX and pressing the ENTER key, then type in the following lines:

.Patch Xt4 version 1.8.7a for 19200 baud

.David Goben. April 1995

D05,AA=20 72 61 74 65 3A

F05,AA=3A 20 20 5B 31 5D

D05,B0=20 31 3D 33 30 30 2C 20

F05,B0=3D 33 30 30 2C 20 5B 32

D05,B8=32 3D 36 30 30 2C 20 33

F05,B8=5D 3D 36 30 30 2C 20 5B

D05,C0=3D 31 32 30 30 2C 20 34

F05,C0=33 5D 3D 31 32 30 30 2C

D05,C8=3D 32 34 30 30 2C 20 35

F05,C8=20 5B 34 5D 3D 32 34 30

D05,D0=3D 34 38 30 30 2C 20 36

F05,D0=30 2C 20 5B 35 5D 3D 34

D05,D8=3D 39 36 30 30 2C 20 37

F05,D8=38 30 30 2C 20 5B 36 5D

D05,E0=3D 31 39 32 30 30

F05,E0=3D 39 36 30 30 1F

D1C,D2=07

F1C,D2=06

.cop

Press BREAK to stop building the file, then apply the patch to a backup copy of XT4/CMD by using the command PATCH XT4/XT4. Finally, notice that the patch program will report 9 patch lines installed. This is because the actual patch lines are those starting with the letter D, and those lines beginning with F are simply checks, testing the file for the data that the new patch lines will overwrite. Regardless of whether you typed in the short patch or the long patch, when you select [I] to initialize the RS-232-C, type the digit 7 to select the 19200 baud rate. This will bring you up to speed.

## BCX2 IS OUT!

As though this would be a big surprise, BCX2 is out and is even better than it was when you first heard about it. Many last-minute improvements have been added to make BCXing even easier. For example, the macro function (USER keys) has been greatly improved, providing you with the ability to obtain a report (view) of the keystrokes assigned to a user key. You can also append additional data onto the end of a previously defined user key. By the way, BCX2 will also save the user key data right within a BCX2 file when you save it, thus eliminating the requirement under BCX to separately save and load user key data. Also, where BCX had only 3 user keys, BCX2 supports a whopping 52 user keys. BCX2 still supports the ability to save and load user key file, not only for computability with BCX, but so you can add the same keystrokes to other files without having to re-key the same keystrokes in for each.

Another big improvement that was a last minute addition is an expanded range name list. BCX2 introduced the ability to assign a range of cells a name, so that you could reference tables and such by an easy to remember name, rather than having to recall the exact cell range that the table occupied. Previously BCX2 allowed only 16 names. Now it allows you to define 46 names. A name can be up to 12 characters long (not counting the required leading '\$' character), and can consist of alphabetic and/or numeric characters in any order, and can also include the underscore '\_' character. Another feature is the ability to transfer control to another user key in an @IF() function. This ability, and the fact that you have 52 user keys available for your use, make using the user keys an incredibly powerful tool, and one I think I will dwell on in future issues. Indeed, I am currently considering a series of articles that will help all you current and new BCXers to really kick the mule and get into some real power computing.

## BCX2 ADD-ONS

Although BCX2 has been released (actually, it has been available for several weeks before you read this), I have already been asked about additional program support, such as a conversion utility to save the files in Microsoft's SYLK format, and VisiCalc's DIF format. Actually, if some industrious programmer out there want to produce such a program or two, CN80 would gladly market it for you and make you some spare bucks. The concept is simple, and could even be done in BASIC. The easiest method would be to convert a formula-saved BCX2 file, although the technical information concerning the compressed format of standard-saved files is located in the appendices of the BCX2

manual.

## CONCLUSION

I'm very excited about BCX2. I guess I've finally come upon the right combination of new or expanded features, because now I use it for just about everything. Be sure to check out the CHKBOOK/BCX file on the second disk. It is a VERY sophisticated checkbook balancing program with tons of features, and has a lot of room for additional features by you adding to it via the incredibly powerful user key interface (there are 26 out of the 52 keys available for your use).

You might also want to check out the SORTDEMO/BCX file on that disk, as it shows you how to sort checks and deposits/withdraws into ascending order by check number and by date (if no check number is present) So until next time, Happy Computing!

-David Goblen

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## RECDFILE/BAS

by Robert M. Knowles

The recdfile/bas is a program for keeping track of which record is where in the addravlp/bas program, its very important. Suppose you have as few as ten records in your addravlp/bas program, your going to have a good time remembering what is where, you must have this program to go with the addravlp/bas program, and you must keep it up to date, if you don't, when you look at the recdfile program to see what is where and print the address and it is not the one you want you're going to say that I didn't write a good program because you didn't keep the file up to date, and you can't get the record you want. Put the program in just the way its written, there is not much room to play with in this program, you might be able to change a variable or the name of the file but be careful, think before you do anything, be sure there is a working copy of the program on disk, it won't be hard to change the wrong thing so the program won't work, the program won't fall apart the minute you touch it, its a good program, and its good to change things to see how they work, but if you change something and can't get it back, its really nice to have a copy on disk that you know works.

Line 10 is a comma and my name, the comma is code and means REM which is code for everything after this means nothing, it has no effect on the

program. Line 30 stands for clear the screen. Lines 40 to 90 are the menu. Line 100 is an input line. The program will put up the menu then it must stop so you can make your choice, that is what an input does, it stops and waits and won't move until you choose a number, then it will go on to 110 to see what to do with that number. The variable is A, so on A GOSUB the number you chose, if you chose one it will open the first line number, but if you choose two it will go to the second number, and so on. I used GOSUB. The manual tells us that if you use GOSUB you should use return. If you use return it will bring you back to the line following the GOSUB line. The program won't work right if you do that. When we hit the GOTO 30 line, we have closed the program we are working on and we want to go back to the menu to choose what to do next, return won't do that, we must use GOTO. But GOTO will put one on the stack! Yes it will, and when you get enough on the stack the computer will throw you out and stop, there is more then enough room to do the job, but if you do run into an out of memory, all you do is type RUN and start over with the name you stopped on. Line 120 is just to keep order. Line 130 will clean the menu off the screen, then, line 140 will open "o" for output, tell it to use buffer #1, give it a name on disk :0. Line 150 will print a line on the screen to tell you what to do next, line 160 is the all important line input. OH HO something new, line input does the same as input except input will put a ? and line input will not, then you have a variable to store the input in. Line 170 tells the program what to do if N\$ is DONE, DONE must be in caps, but you can change this line so that you can use upper or lower case.

If you decide to use this program but you think you need a little help, you can always ask me and I will see what I can do.

Line 180 is write to buffer #1 whatever N\$ is. You might think "how do you get it from the buffer to the disk?", and I will say "it's automatic." When you open "o" you can hear it open the file on disk, and when you enter the first record that will go on disk. Then as the buffer fills up it will go to disk. When you close, everything left in the buffer will go on disk.

Line 190 is GOTO 160, that's so that when you type the record in and press enter it writes it to the buffer, then back for the next record, line 200 is close 1.

When you type DONE you will be sent to line 200 to close, then the next line will send you back to the menu so you can choose what next and it

should be the input program so you can check your work. You should always check your work. More times than not you will find a typo, it has little meaning, your the only one who will ever see it but we should always do the best job we can. We never make mistakes we just have typos.

Next we come to the input program. Line 240 must be the same for all three programs except for "O" for output, "I" for input and "E" for extend. 250 is a blank line. If you don't like it you can take it out or you can add another blank line if you want to. 260 is an input line, no, you don't have to input anything, it's another one of those automatic lines. If you are in the input program and you hit this line it goes to the RECDFILE and gets whatever is there and puts it in buffer #1 under N\$. 270 puts it on the screen, then we have if EOF(1) then 300. It goes like this, when you put all that you want in the file and close, 1 is put on the end of your file so that when everything in the file is put on the screen the program will stop looking for things to input, if you don't have 1 the program will keep looking for things to input and finding nothing, it just sits there looking at you and you will have to reset and start again,

Line 290 is GOTO 260 to form the loop to go back to get the next line and put that on the screen until it finds 1 and stops. If I didn't put lines 310-330 the input program would run into the extend program and the extend program would take it off, you wouldn't have a chance to read it.

Then we have the extend program which is almost the same as the output program. You should have no trouble with it.

-Robert Knowles

## THE NOTE FILTER

by Jeff Buck, Vorpall Design Bureau

There is a program available from the File Cabinet that is quite interesting called NOTE/CMD by Jimmy Noord (M4BUS16). It is a small editor that stores one video screen of information, and it accesses itself as its own data file. A rather handy feature, since you never have to remember the name for the data file you want to edit. Of course, you can copy it to a different name as many times as you like. I keep seven copies on my work disk called Monday, Tuesday, etc., to keep my schedule and notes and the like.

On disassembling it I discovered that it runs in the system's Library Overlay Region (allowing you to run it from inside other applications), but the way NOTE/CMD is coded it won't work properly like that. I have patched the program to fix that. But I wanted to make it even more handy, so I created NOTE/FLT.

The Note Filter is our first @GOLEM program, intended not only to showcase @GOLEM's versatility and power, but as a truly unique program I think the Allwrite or Outliner (File Cab M4UTL43) user will find very useful. It will work with certain other application programs as well, but I have only tested it thoroughly with these two.

NOTE/FLT allows you to embed full-screen notes into your documents and then access them for viewing or editing with a single keystroke. You get to your notes simply by positioning your cursor anywhere on the video line that has your note filename embedded in it, and then pressing one of NOTE/FLT's activation keys. NOTE/FLT will save your current video screen and your LOR memory region to the G-board using @GOLEM, and invoke my new NOTE/CMD using the filename that you requested. When you exit NOTE/CMD, NOTE/FLT restores your video and memory configuration and returns you to your foreground program.

To users of the other Model 4 "pop-up" programs, like Pro-WAM and SuperLog, this may seem like nothing special at all. But there are subtle advantages to NOTE/FLT. You never have to remember the name of the data file you want to edit, and you never have to scroll through a long document to find a certain piece of information. In fact, the name of the note file itself is less informative than the position it occupies within your main document. That allows you to establish an intuitive relationship between the content of your note with the meaning of the section of the document it annotates. That's ease of use. Also, NOTE/FLT only takes one keystroke to access your data. The note filter only requires that you have a graphics board with @GOLEM; no external memory bank is required, unlike those other two programs. And NOTE/FLT is slower only by a few milliseconds, thanks to the power of @GOLEM.

Another capability of this different approach is that it permits cross-references to be built between documents, by embedding the same NOTES in the different document files. A word processor could be used as a capable data base manager for freeform text.

If the requested note file does not exist on an

available drive, a new copy of NOTE/CMD is automatically created with the requested filename. Then NOTE/FLT executes it. This more than just a convenience, because by putting an appropriate header in the NOTE/CMD file, it allows you to effortlessly annotate which document(s) the note belongs to. Or you could put the "fields" of a template into the note, creating organization of your ideas like you might achieve with the use of index cards.

One possible drawback to the auto-copy facility is that it might inadvertently create a new NOTE with the name of an already-existing NOTE that you forgot to make available on a disk drive. With a hard disk system, this possibility is minimized.

The filter installs into either high or low memory, occupies 58 bytes, and installs into four @GOLEM slots (252 - 255). Install via:

SET \*NT NOTE/FLT (param H or L, HIGH or LOW)

FILTER \*KI \*NT

You must use my patched version of NOTE/CMD, NEWNOTE/CMD, renamed to the old NOTE/CMD. It must be available by that name on a disk drive. Of course, @GOLEM must be resident in memory or installation will abort.

Now, go into your application program. We'll use Allwrite as an example. Type your document as you normally would. NOTE/FLT, as presented, uses the backslash key to specify note files embedded in your document. So, type something like "\comment" someplace on the screen (for Allwrite, ;cm comment lines are the best place). The embedded note filename following the backslash must conform to DOS conventions. Only the first eight valid characters following the backslash are significant. Now, position the cursor somewhere on that video line, but not on the note filename itself, and press the NOTE/FLT activation key <CLR><CTRL><N>. Your disk drives whirl to life and you see the message (at a seemingly random location on the screen) COPYING NOTE/CMD to COMMENT/CMD. Don't worry, the video screen has already been saved. Then the screen clears and you see whatever was in NOTE/CMD. Edit it and then exit by pressing break. I patched NOTE to use break instead of "@" for exit because I have a lot of programming notes where I need the @. You are returned to Allwrite just where you left off. You can create as many notes as you have disk space for. Each note takes 3K of disk space.

The note filename can contain an extension and/or drive specifier, but it isn't required. Using an extension seems rather pointless, since NOTE/FLT appends /CMD to the note filename anyway when searching the drives for its existence. And it just takes up space in your document. You can use a drive specifier if you're certain you want the note file created on that particular drive, or if you know you have that NOTE on that drive. This has utility if your system has many drives and you want to avoid the delay of a global search to find a NOTE on a high-numbered drive. Of course, operation is much faster when you access a note file that already exists on a drive, as you don't have to wait for the COPY command. On my hard drive, it takes about three seconds to get into NOTE/CMD.

If you press <CLR><CTRL><N> on a video line without a specified note filename, nothing happens and you are returned to your program. If a disk error occurs, you may see DOS display the error message on-screen, but the screen will be restored and you will be returned. You cannot embed note files inside other note files. This would crash DOS. NOTE/FLT disables itself before it executes NOTE/CMD, and re-enables itself upon return. Furthermore, if you attempt to specify a non-Note executable file (as in something like "\BCX"), the filter tests the file's length against the known length of NOTE/CMD. The filter rejects the request if it doesn't match. It's not failsafe (any executable program with an ERN LSB of 11 records will match), but it's quite unlikely you'd specify a non-Note program that matches exactly.

Now suppose that one NOTE isn't enough to hold what you want it to. You'd have to put two separate note filenames on two video lines, which would clutter up your document more than desirable. Well, NOTE/FLT has an answer to that. By pressing <CLR><CTRL><V>, you tell NOTE/FLT to search the video line for a second note file! The search proceeds from left to right across the screen. You can butt the two note filenames together: \cm01\cm02. Now you can keep more NOTES without vertically cluttering your document.

The Note filter installs set-up for use with Allwrite. To find your note file on the video line, NOTE/FLT has to retrieve your cursor's row storage address, and that depends on the application program you're running. So you would have to patch NOTE/FLT for use with other programs. Instead, NOTE/FLT has a third activation key <CLR><CTRL><M>, to change it's application mode at any time. A menu of supported programs appears and allows you to choose one. Let's say you

wanted to use NOTE/FLT with Kevin Kierans' Outliner. Outliner doesn't maintain its own row storage, rather, it uses the DOS video driver. So select <D>OS vid drv mode from the menu, then enter edit mode <F3>, type some text, and put a note file at the end. If you don't have the cursor over top of the note filename, NOTE/FLT will find it. You have to be in edit mode with Outliner for NOTE/FLT to work because it can't find a note filename in reverse video.

If you press NOTE/FLT's activation key and nothing happens even though you do have a note file specified on that video line, it means that you're in the wrong mode for the program you're running.

Putting in the MODE command took a little more memory and two more Golem slots, but I think it's worth it not to have half a dozen customized versions of NOTE/FLT floating around. It also allows you to use NOTE/FLT with two different applications running concurrently in two separate DoubleDuty partitions. (Note that on a standard 128K machine, you couldn't even run Pro-WAM or SuperLog with DoubleDuty!) If you want to add support for a program not on the menu, and you can find its row storage address (with DEBUG or MED), there is expansion space available in the source code's MODESUB routine.

Another program that uses the DOS video driver is pfs:file. NOTE/FLT seems to work OK with it. I have included a program, VDROWTST/CMD, that you can use to test an application for use of the system's video driver for cursor location storage. If your application program behaves as stated in VDROWTST's instructions, it should work with NOTE/FLT in <D>OS mode.

One program I really want to use NOTE/FLT with is BCX. Then you would be able to annotate your spreadsheets without cluttering them with long, descriptive labels. I was able to find BCX's row storage address, but NOTE/FLT won't work with it because BCX keeps its stack in LOR (the return address back to the filter gets clobbered). NOTE/CMD could be patched to save this into IX (otherwise unused), but a better solution is a new NOTE/CMD. I am continuing work on this. The BCX menu selection appears but isn't functional.

Another program with a problem is Scripsit. It works fine - until you try to create a new NOTE file from inside Scripsit. It crashes when you exit NOTE. So if you really want to use Scripsit, make sure you create all the note files you'll be using before you go into Scripsit.

I have encountered absolutely no problems with Allwrite and Outliner. These are the two programs I use the most, anyway, so I'm happy with it. By the way, those patches for Allwrite to relocate its stack to X'2600' won't work with NOTE (same problem as with BCX, and same future solution).

Two popular programs that will never work with NOTE/FLT are LeScript and Scripsit Pro/SuperScrip. Programs that don't follow the rules and bypass standard DOS system devices can never benefit from unanticipated system enhancements that may come along later, like NOTE/FLT.

Theoretically, you could also use NOTE/FLT for the invocation of any program that runs only in the system's LOR memory region. However, if the requested program does not exist on a drive by the requested name following the backslash, the filter will copy NOTE/CMD to the requested name and execute it. Feel free, however, to tailor the code to do whatever you want.

For those without graphics boards, I have included the original disk-based version of the Note Filter, DISKNOTE/FLT. It's alot bigger, (479 bytes), and it runs much slower since the video screen and LOR must be saved to disk files. The files LOR/SAV and VID/SAV must be available on a non-write-protected disk at all times. Otherwise, operation and features are the same as NOTE/FLT.

NOTEFLT/ASM was the testbed for @GOLEM development. It exercises all of @GOLEM's different functions. For the @GOLEM programmer, I have liberally commented the source code to illustrate @GOLEM interfacing. I have also customized NOTE/FLT for use with @RGOLEM in the file RNOTEFLT/ASM. Examine this source and compare it to NOTEFLT/ASM for hints on converting @GOLEM software to @RGOLEM.

#### TIMEDATE/FLT

This is a filter that allows the user to "stamp" the current system date and time to the video display's upper right corner. This may be useful for having the date/time available at a keypress without having to use the system's TIME (CLOCK) command, which I find rather annoying to have present on-screen all the time. So, you wouldn't want to use this filter in conjunction with the TIME (CLOCK) command, and it assumes this to be the case.

This filter is even more helpful to the NOTE/FLT user. With NOTE/CMD, anything sent to the video screen becomes part of the NOTE. Thus, you can use it to permanently record the date and

time in the NOTE itself. Of course, the system stamps the file in the directory with this information, but with TIMEDATE/FLT you can view (and print) that information from NOTE without having to go back to DOS to inspect the directory.

Install via:

```
SET *TD TIMEDATE/FLT (H or L)
FILTER *KI *TD
```

Press <CLEAR><CTRL><T> to activate the filter. The current system date and time is strobed to the screen's upper right. If you're using an application program other than NOTE, it does not become a permanent part of your document. To get rid of the TIMEDATE display, just do something that refreshes the screen (with Allwrite, a simple <BREAK> twice will do the trick).

With NOTE, it becomes permanent IF you do an editing change that makes NOTE re-write the NOTE to disk. You can't just put it on-screen and exit. All you have to do is move the cursor or type something to permanently record TIMEDATE's information into the NOTE.

The filter patches the @TIME SVC, temporarily, to display the date information first. When the filter exits, the @TIME SVC is returned to its normal state. At 57 bytes, TIMEDATE is a little bigger than I'd hoped it'd be. I've included a version, DATE/FLT, that only stamps the date at 35 bytes, but it messes up the @TIME SVC. (it won't crash, but returns the date rather than the time).

Contrary to what I first thought, this won't screw up your time stamp in the directory - apparently, DIR does not use @TIME. So this can only affect applications that use @TIME. SuperLog4 is the only application I've encountered that does. But most programs don't use @TIME, so use DATE/FLT if that's OK with you and save a little memory.

Enjoy the note filter, and Bring Back the '80s!  
-Jeff Buck

**NOTE:** NEWNOTE/CMD and TIMEDATE/FLT are machine language programs and these along with the assembly language source codes and program documentation will be available on the CN-80 Disk Series #29 for April, May, and June 1995. If you would like a copy sooner send the customary \$2 for postage and handling.

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## POWER SUPPLY INSTALLATIONS

by CN80

There are two sizes of power supplies for the Model III and Model 4/4D/4P computers which were installed by Radio Shack. There are the 38 watt power supply and the 65 watt supply. Each supplies 5 volts and 12 volts DC current from a 110 volt power source.

### SPECIFICATIONS

Size	Long	Wide	High
65 watt	7-3/4"	4-1/4"	1-3/4"
38 watt	6-1/4"	4"	1-5/8"

### MODEL III/4/4D POWER SUPPLIES

First lets discuss a little history. When Radio Shack sold Model III and Model 4 (but not the 4P) computers that were audio cassette based only. That is they did not have any disk drives installed, Radio Shack or Tandy's manufacturing arm which manufactured the Radio Shack computers, only installed a small 38 watt power supply in the cassette based computers. These power supplies were mounted on the back of the aluminum shield that provides the radio frequency shield for the mother board. The power supply is attached to the shield on the "bottom half of the computer" when you have it open, and is in the video tube cavity portion of the computer. This power supply provided power to the motherboard and the video screen.

If the Model III or Model 4 cassette based computer was modified or disk drives were installed a second 38 watt power supply was installed to feed the disk drives. This was done when a computer was upgraded, and was also done when the first production runs were made that added disk drives to the original cassette only production units.

This second 38 watt power supply was mounted on the left hand side of the drive tower (the brackets that support the disk drives inside the computer). So that when you open your computer you are likely to see two small power supplies: one mounted behind the disk drives on the aluminum shield of the motherboard and one on the side of the drive towers.

Some time during the production of the Model 4s they discontinued installing two small power supplies and installed one large power supply. This required a change in the wiring harness used. Because the first harness installed had connections to allow the separate power supplies to feed individual components, i.e. one fed the motherboard and screen, one fed the disk drives. The larger power supply has a cable that fed all the components.



## MODEL 4P POWER SUPPLIES

The Model 4P has only one power supply and it is the 65 watt installed. Its location is again within the video cavity of the computer. After removing the outer case of the Model 4P lay it down with the screen toward you, in the same position that it would normally be to use. On top of the computer you will see a flat plate that has several screws along its sides and in the back. Remove these screws and taking hold of the plate by the left side tilt it up and over to the right.

You will then see the power supply as it is attached to the bottom part of this plate.

## REPLACEMENT

Replacement of power supplies in these computers is one of the easiest repair projects that can be done on these computers, if you replace the original power supply with the same type and size that was originally installed. Because there would be no changes in the connectors or re-wiring to do do.

You simply remove four screws that attach the power supply to the mounting brackets that hold the power supply, disconnect the connectors that are in place by unplugging them from the pins that are on the power supply.

Then replace the power supply with the new one by putting the four mounting screws back in and replugging the cable connectors to the new board.

## OTHER THINGS

The other situations you might run into when you open up your computer is that you might find that there may be a small transformer (looks like a door bell transformer) bolted to the bottom of the Model III or 4 case under the disk drives. These are computers modified by third parties such as Aerocomp, Montezuma Micro or others.

When Radio Shack had a number of cassette based computers in stock that were not selling they sold a number to other companies that added disk drives and sold them as Model 4 computers with disk drives. Or they sold disk drive kits to upgrade your computer. These are not the standard Radio Shack Model with Disk Drives. And to replace a power supply in one of these third party computers can not be done with the standard power supply without changing the wiring. And that may be beyond the abilities of the average computer owner.

## CONCLUSION

Changing a power supply is as simple as changing a tire on a car. And it is also the thing that is most likely to wear out with use, just as a tire on a car.

## OPEN FORUM

**LTR:** I received the renewal notice for the CN80 magazine. I'm afraid that the time has arrived that I will not continue with the subscription. My machine is over 10 years old and still does everything I really need to do. But:

I received the Emulator Program by Jeff Vavasour. I took it to our son-in-laws and tried it on his ACER machine and it seemed to work just great. Now I'm thinking that it may be time to update-when this one gets sick.

I hate to give up receiving the magazine as I always enjoy reading it and often find something new. The last issue had Henry Herrdegen's CAL4/BAS program. That program is really great with its calendar generation. I modified it a bit so the reminders can be put in for any month and year. I have some things scheduled into 1997 and now they won't get lost. Also I wanted to have a blank day input for things to put on the Reminder list but do not need a specific date- so they just show up at the beginning of the month until they get taken care of.

I didn't want to just ignore your notice because I feel like you have been a friend, which is something unusual in a publisher/subscriber relationship.  
R. L. F. Cedar, MI

**A:** We are sorry that you are planning on dropping your subscription. And even though all our Model 4s are over ten years old we think they will still be going strong for many years to come. But, we do appreciate it when someone does send us a letter when they plan to give up their subscription. Besides there are many new things in the works for the Model 4 computers, both new programs and perhaps, just perhaps expanded memory if our development plans work out.

And even if your Model 4 gets sick, it will cost a lot less to fix it than to spend a thousand dollars or more to switch to the IBM/clones. Besides, if you are thinking of switching, you can always finish out your subscription to CN80, by transferring to Computer News PC.

In any event, our warm wishes go with you for Happy Computing, on which ever machine you choose for the future.

---



**LTR:** After I picked-up a Model III at a flea market, I subscribed to CN80, and it provided me with enough information to figure-out that my unit was not only an obsolete computer, but a *broken* obsolete computer.

I don't know how much this information will help anyone else, but here's my triumphant story, free of charge:

The machine booted-up OK with the Model III boot disk I got from CN80.

Then I went "BACKUP :0 :1 to make another boot disk -- always a good idea as soon as possible, of course.

The new diskette booted, but when I went to "DIR" it was obviously broken, not at all like the original CN80 diskette.

Much pondering.... Finally, reading the "Newcomer's Introduction" from CN80, I came upon the "LIB" command -- a neolithic form of help -- used it, and there was MEMTEST.

I ran MEMTEST and the amazing elderly machine informed me, in screens of error messages, that chip U32 was defective.

Because I am a great and powerful techie, I got the machine apart, located U32, and surmised it was 4116 type memory chip (it said "Mosteck / 8125 / MK4315J / 8041016" with a TC -- Tandy Corporation -- stencil on it.

I could probably still buy one of these, but my house is filled with junk and it irked me; all I *did* have on hand was some other computer's memory card just filled with 4164s.

The accompanying illustration shows how to degrade a 4164 chip to work as a 4116 -- at least in my Model III. This is probably on of the most useless pieces of information that has ever existed, but there it is.

I installed my mutilated chip -- and it worked! MEMTEST and BACKUP. Obviously, unless you too are a techie, you shouldn't try this at home. But even *with* a techie, information like this is definitely hard to come by...

And now I can sit in the basement and turn-on *two* aged Radio Shack computers: the Model III, and my original Color Computer. The COCO is the real newcomer: its operating system signs on with 1981, while the Model III is still stuck in 1980. And then

the XT clone I'm typing this on dates itself as 1981-1986. A little history of computing marches before me...

So then, where can I obtain one of these out-of-print manuals "Getting Started" always refers to?

J. G. O. South Huntington, NY

gateway\equipment\nodiii.prm 3/6/95

↔ 1 Vbb -5	0 Vss 16	↔ 1 NC	0 Vss 16
2 D	CAS* 15	2 D	CAS* 15
3 I*	Q 14	3 I*	Q 14
4 RAS*	A6 13	4 RAS*	A6 13
5 A0 4116	A3 12	5 A0 4164	A3 12
6 A2	A4 11	6 A2	A4 11
7 A1	A5 10	7 A1	A5 10
↔ 8 Vdd 12	5 Vcc 9 *	↔ 8 Vdd 5	A7 9 *

\* different  
↔ dangerously different?

To degrade a 4164 into a 4116,  
1. Bend-up pin 1, leave unconnected  
2. Bend-up pin 8  
3. Solder a tiny piece of wire between bent-up pin 8 and pin 9 (i.e. on the top of pin 9)

Illustration Enclosed with letter.

**A:** The number 8041016 on the chip is the Manufacturers Part number identifying the chip. The Radio Shack part number for this chip is AXX3021, which we understand was discontinued (sold out) a some time ago. But we have a good stock of these chips that have been rescued from dying Model IIIs. The price: \$ 1.00 each and a \$1.00 to cover mailing them.

The Model III Disk System Owner's Manual Cat. Number 26-2111 is out-of-print and has not been available from Radio Shack for some time. We do occasionally run across a copy in the used materials that we purchase. So it pays to check with us periodically for the manuals you need and to have your needs placed on our subscribers want list.

Plus there are hundreds of programs in the File Cabinet collection that were written for the Model III computer.

## REMINDER

If the last four digits on your mailing label are 95/05, then this is your last issue. Time to get your renewal in the mail.

## MOVING?

Remember to send us your new address.

**RECDFILE/BAS PROGRAM LISTING NUMBER ONE by Robert M. Knowles**

```
10 'WRITTEN BY ROBERT KNOWLES 11/94
20 'SEQUENTIAL FILE TO KEEP TRACK OF ADDRESSES IN DIRECT FILE FOR ENVELOPES
30 CLS
40 PRINT @(7,32),"*****"
50 PRINT @(8,32),"*OUTPUT (1)*"
60 PRINT @(9,32),"*INPUT (2)*"
70 PRINT @(10,32),"*EXTEND FILE (3)*"
80 PRINT @(11,32),"*END (4)*"
90 PRINT @(12,32),"*****"
100 INPUT"WHICH PROGRAM WOULD YOU LIKE TO RUN";A
110 ON A GOSUB 120,220,340,440
120 'OUTPUT TO DISK
130 CLS
140 OPEN "O",1,"RECDLIST/SEQ:0"
150 PRINT"ENTER RECORD NUMBER AND NAME,type DONE to end"
160 LINE INPUT;N$
170 IF N$="DONE" THEN 200
180 WRITE# 1,N$
190 GOTO 160
200 CLOSE 1
210 GOTO 30
220 'INPUT FILE
230 CLS
240 OPEN"I",1,"RECDLIST/SEQ:0"
250 PRINT
260 INPUT# 1,N$
270 PRINT N$
280 IF EOF(1) THEN 300
290 GOTO 260
300 CLOSE 1
310 PRINT"YOU MUST ENTER 1 TO GET BACK TO THE MAIN MENU"
320 INPUT ;A
330 IF A=1 THEN GOTO 30
340 'EXTEND FILE
350 CLS
360 OPEN"E",1,"RECDLIST/SEQ:0"
370 PRINT"ENTER RECORD NUMBER AND NAME,type DONE to end"
380 LINE INPUT ;N$
390 IF N$="DONE" THEN 420
400 WRITE# 1,N$
410 GOTO 380
420 CLOSE
430 GOTO 30
440 END
```

**You can E-mail Computer News at: [stan.slater@syslink.mcs.com](mailto:stan.slater@syslink.mcs.com)**

**If you have access to the Internet check in on the news group: [comp.sys.tandy](mailto:comp.sys.tandy)**

**Look for more future articles on using your Model 4 on the Internet/Information Superhighway in CN80.**

# All New For 1985

## **THE WAY THAT MODEL 4 SPREADSHEETS SHOULD BE**

# BCX2

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EXTENDED MEMORY  
MODEL 4-4P-4D'S**

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

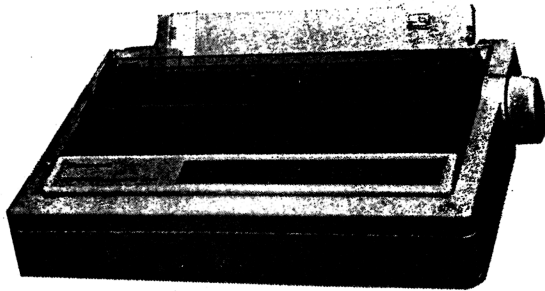
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- Powerful data replication features. Copy ranges with options to relatively offset coordinate references.
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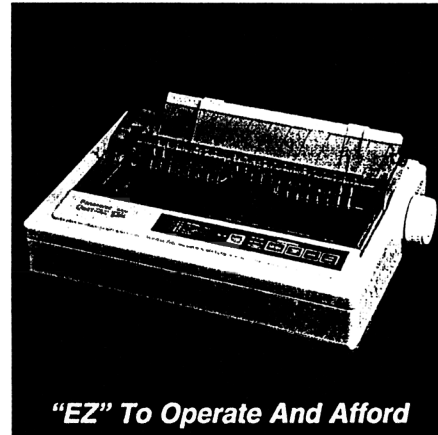
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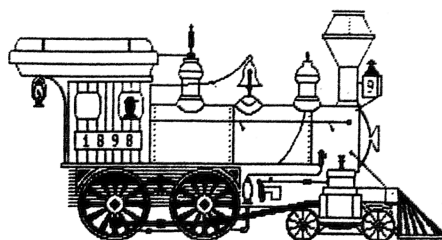
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By Jeff Vavasour

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

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

Mouse to Keyboard Interface, Model 4 Mouse  
Driver required.

## Programs by David P. Miller

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.

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.

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

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

The same word processor as above with spell checking dictionary included.

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

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

Based on the Dome Bookkeeping Record complet  
business accounting with payroll and expense check  
writing and record keeping.

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

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

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

## Programs by Mark Allen Reed

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.

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

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.

XX

## Programs by Frank Slinkman

### TRSCAN

Program to use 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.

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## 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.

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## 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.

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## 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.

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## THE BIBLE KING JAMES VERSION ON DISKS

Each Chapter and Verse stored in ASCII for easy search and print. See Product Guide for Prices

XX

## SPECTECH DISK

A collection of electronic and other math formula solving programs.

XX

## 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.

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*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.*

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## 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 Column      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)
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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)
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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)
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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
Palatine	10 point
Times Roman	10 point
Palatine	12 point
Centrum	12 point
Optimis	12 point
Helvetica	2 point
Palatine	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-Sealing 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 EXTENDER 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, integrated 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
DMP 130/130A/132/133/107	26-1236	CN1006	FABRIC CART.	6.40	5.90
DMP 130/130A/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
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DWP II, DWP 410/510	26-1419	CN1021	M-S REFILL	4.50	4.00
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