

H & E COMPUTRONICS INC.

MATHEMATICAL APPLICATIONS SERVICE™

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MOD-II

THE NEWSLETTER FOR OWNERS OF THE TRS-80™ MODEL II MICROCOMPUTER

The purpose of the **MOD-II NEWSLETTER** is to provide and exchange information related to the care, use and application of the **TRS-80 MOD II** microcomputer system (TRS-80 is a Trademark of the Tandy Corporation). The **MOD-II NEWSLETTER** is a user oriented **NEWSLETTER** and will greatly depend on **MOD-II** owners for information included in the newsletter.

BITS AND PIECES

Yes, you haven't seen our newsletter in about six months. With this newsletter, you will start seeing us on a more current basis. Much of that will depend on you. We need your help in sharing your questions, answers and observations with us. The **MOD-II** owner is virtually alone. There is very little written about it. So, let's hear from you.

IN PRAISE OF 2.0

A letter from F. L. Eskholm, SWEDUM Data Processing, Post Office Box 87, Nutley NJ 07110

"You must get a sufficiency of 'crank' letters. I sent you one in September; but in a complimentary fashion, it was your own fault. May I explain.

I always read **COMPUTRONICS** first. I ALWAYS read **COMPUTRONICS** first! **COMPUTRONICS** told me about Version 2.0 and the User Group discussed the incompatible upgrade. My own software, although ordered and paid for a long time, came in various levels. Glossy catalog notwithstanding, Fort Worth

cannot provide it all at one level even now--a year to the day of original delivery.

COMPUTRONICS suggested going to 2.0, and I was spread over all levels so it seemed a good idea to be 2.0. Some of my work was on alternate-directory disks through no fault of mine, and it seemed like a good idea to go 2.0. I went 2.0 using a routine **LIFTIT** to put alternate-directory disks under my **BASIC** programs and text files.

COMPUTRONICS came, and I ALWAYS read **COMPUTRONICS** first. The articles by Mr. Gordon Speer are full of information even when they do not actually apply to my problems. I always read his articles thoroughly. When Mr. Speer discussed the Model II, I did not remember seeing some of those 'goodies' in my manual. Then I discovered some twenty or thirty up-dating pages tucked in the back of one manual which had never been read or inserted.

I felt that it was time to read the manual, and there I found "MOVE" and other "goodies". When going to 2.0, my own **LIFTIT** will be used simply because my own coding contains **REM-ARKS** and full 'COMMENTS'. That is more than I have ever found in the zippy, itch-picky programming I have had to debug although sold with so much hurrah by others.

Well, as soon as I finish the new **COMPUTRONICS**, I'll read through the manual again. I would have saved myself a lot of time and you folks a bit of trouble.

In my next moment of spare time, I'm going to write a chess program. Somebody has already used the name 'SARGON' so it would probably be best to spell it backwards. Do you think there is a market for a chess program these days called 'NO GRASS'?"

You may publish this letter if you wish, but at least post it to say thank you for **COMPUTRONICS**, the magazine which is read, first!

From the Editor...Thank you for your praise. MOD-II owners beware. RADIO SHACK doesn't keep MOD-II owners aware of all of its changes. Go down to your computer center and find out what's new. New operating systems, new **SCRIPSITS** and manuals and new everything. Make sure you read the RADIO SHACK NEWSLETTER. The past issues of the RADIO SHACK newsletter have contained many modifications to existing programs. RADIO SHACK does deserve praise for keeping pretty up to date in the newsletter. Many MOD-II owners deserve a kick in the ROM if you don't read about them.

*****...AND ON THE NEGATIVE SIDE*****

Name withheld at writers request...from Atlanta Georgia.

"I find that your user contributed diskette is a fraud. I paid \$5 for my diskette and have found most of the programs to be completely worthless. Your WORD PROCESSOR is very slow and only contains half the commands found on **SCRIPSIT**. Your DATA MANAGEMENT system is an in memory system and is very limited in value. Your FINCALC program works fine but I prefer to use my TEXAS INSTRUMENTS hand held calculator for financial calculations. Your MAIL PROGRAM was a piece of junk. I had to spend two hours to modify it to fit my applications. Now I use it with my hard disk drive to store thousands of names and addresses. Out of the 20 or so additional programs found on the diskette, I only found 2 or 3 of them useful. I do think that you should warn people that their \$5 gets them inferior programs with little in the way of instructions."

From the Editor...You have to be kidding!!...but by the way, we have had several additions to our MOD-II programs diskettes. Of special note, is a really nice calendar program written by Pat Jackson (and it really works well with your printer) and a HANGMAN game written by Jeff Johnston. Our MOD-II contributed program diskette keeps growing. To get the latest copy, send \$8 (plus \$3 postage and handling per order). If you subscribe or renew any other of our publications at the same time, the cost is \$5. The \$3 postage and handling is added to every software order purchased from H & E COMPUTRONICS, INC. (that's \$3 postage and handling for an \$8 order or \$3 postage and handling for a \$5,000 order). If you send us any of your programs on diskette, we will send you the latest version of our **MOD-II USER CONTRIBUTED PROGRAM DISKETTE** at 0 charge.

*****MORE ON OUR MOD-II USER CONTRIBUTED PROGRAMS DISKETTE*****

From Bill Agreste, 1235 Lowery Court, Norfolk BA 23502.

"Owning a MOD-II, I am very pleased with all software purchased. However, your MOD-II SHARE A PROGRAM DISK which was FREE has been useless to me at this point.

I can't complain about anything free, but for some reason I can't seem to figure out exactly how it works and why I often get error codes when selecting from the

menu.

With the time it takes to put together the programs, I would think it would be a good idea to charge something and produce a manual.

I'm sure if I had a real good understanding of BASIC, I could figure out how to use it. But what about the person who relies on software manuals to get things going.

P.S. After reading your NEWSLETTER #5, you can use XFERSYS to put TRSDOS onto a diskette with only 1 drive. It is not required to have 2 drives.

From the Editor...First let's clear up the cost of your FREE diskette. As you know, with any subscription to one of our publications, we offer a FREE cassette containing several programs. Since MOD-II owners use disk only, we have an alternative offer for MOD-II owners. We call it our USER CONTRIBUTED PROGRAM diskette. The diskette contains about 30 or so untested programs contributed by users and developed in house. We charge \$5 for the diskette to cover postage and handling and the cost of the diskette and the personnel used to duplicate the diskette. We charge \$8 when purchased at any other time other than with the subscription. We add on \$3 to cover postage and handling on any non-subscription order. That means, you paid anywhere from \$5 to \$11 for your FREE USER CONTRIBUTED DISKETTE. Now, let me tell you, we make absolutely no profit on the diskette. On the average, we get about \$8 for the diskette. The diskette itself costs us about \$3.00. Shipping and boxing the diskette costs us on the average another \$3.00. It cost us about another \$1.00 to have someone duplicate the diskette and put on the appropriate diskette label. It costs us additional money for rent, computer time, etc. It also costs us about another 50 cents per diskette for reduplicating the diskettes and reshipping diskettes from people who returned it due to loading problems, etc...so we ain't making a profit on it. The total purpose is to allow people to fool around with programs and share their own programs. How about a manual? That's a great idea. I estimate that it would cost about \$60,000 to debug all of the programs and write a manual. We've sent out about 4,000 diskettes. That means it would cost about \$15 a diskette for debugging and manual preparation. Add another \$8 for the cost of the diskettes...\$3 for the manual...\$2 for additional preparation time. Anyone willing to pay \$50 for the user contributed programs diskette? Anyone want to debug all the programs and write a manual? In the meantime, we do believe it certainly is worth the average of \$8 you pay for it.

THE HINT OF THE MONTH

Contributed by Wayne H. Smith, 1704 West Parkview, Caruthersville MO 63830.

"I really enjoy the hints and tips and especially the programs that I get from your magazine. But being a MODEL-II user, I have in the past spent a bit of time transposing PRINT@ statements. Here is a function that can be a real timesaver. Somewhere near the beginning of the program insert this line:

```
DEF FNR(X)=(INT(X/64)*80)+(X-(INT(X/64)*64))+328
```

Then, when you come to a MODEL I PRINT@ statement, i.e. PRINT@Z,"*" you simply change it to PRINT@FNR(Z),"*". The argument can be a constant as well as a variable."

****DOES THE EPSON MX80 WORK WITH THE MOD-II?*****

Bill Agreste, Vulcan Security Systems, Inc., 1235 Lowery Court, Norfolk VA 23502 is having a problem getting his EPSON MX80 to work with the MOD-II. We get letters and calls from many MOD-II owners who are having trouble getting the printer to work on the MOD-II. We can't help you, although we can publish information about your plight and have users try to answer your question. If you are going to purchase a printer, make sure that it works on your computer. Any parallel printer should work on your MOD-II without any problems (just plug it in). Serial printers require the correct pin setting and parity information. You can get every serial printer to work on the MOD-II as long as the pins are connected correctly and you have your SPEED and PARITY set correctly. If you plan to buy a non RADIO SHACK printer, make sure that it works or that you can get your money back if it doesn't.

*****CP/M USERS AND BDOS ERRORS*****

There are certain errors in the RADIO SHACK disk controller chips that cause errors on both TRSDOS and CP/M. RADIO SHACK has changed their TRSDOS to get around the errors (hence TRSDOS 2.0A).

PICKLES & TROUT (one of the big CP/M distributors for the MOD-II) has a reply to RADIO SHACK's comment in the RADIO SHACK newsletter related to CP/M.

"PICKLES & TROUT has had many inquiries about the RADIO SHACK NEWSLETTER comments about CP/M and BDOS errors and about the defect in the disk controller chip. As you are aware, BDOS errors are caused by a variety of circumstances: bad media, dirty disk drive heads, power failure or power spikes, changing disks in a drive without hitting RESET or BREAK, program failure, etc.

The BDOS errors that RADIO SHACK is referring to only occur under certain circumstances. They told us about the changes that they made to TRSDOS and suggested that we do the same to our CP/M. We made the changes in a number of systems we nicknamed "experimental version". We tested the experimental version in-house as well as sent them to a number of test sites. After 4 months of testing, we have no conclusive evidence that running the experimental version is an improvement over running version 2.2e. Consequently, we have not issued a new version."...from Christine Pickles, Sales Manager.

Editor's comment...CP/M works fine on the MOD-II and does work just as well as TRSDOS (at least in our opinion).

*****OUR GREAT NEWS FOR MOD-II OWNERS*****

H & E COMPUTRONICS, INC. is now using and selling WINCHESTER hard disk drives. Our WINCHESTER units are extremely quiet and small (12 inches by 5 inches by 16 inches and weights 12 pounds). The units store 12 Megabytes of information (50% more than the RADIO SHACK units) and sell for \$3,195 (\$1,300 less than the RADIO SHACK unit). **THAT'S 50% MORE STORAGE CAPACITY FOR 29% LESS CASH!**

THE UNIT IS CURRENTLY IN STOCK AND AVAILABLE FOR IMMEDIATE DELIVERY!

There are some important facts that you should know about the hard disk drive:

You must purchase the **RACET COMPUTING HARD DISK DRIVE OPERATING SYSTEM** in order to use the hard disk drive. The price for the operating system is \$400. What you get is a **PATCH** to **TRSDOS** that allows all **TRSDOS** commands to work on your hard disk drive. The operating system works just as if you were using **TRSDOS**. For example, to get a directory on your hard disk drive you would **ENTER DIR :4** (drive 4 is your hard disk drive). The **PATCH** adds plenty of additional helpful commands not available on **TRSDOS** (such as commanding for backing up complete hard disk drive files on to floppy diskettes).

As an alternative or addition to the **RACET COMPUTES HARD DISK DRIVE OPERATING SYSTEM**, you may purchase **CP/M** for your **MOD-II**. The hard disk drive version sells for about \$200.

You must bring your **MOD-II** into **RADIO SHACK** for their hard disk drive modification. According to our sources (and this has not been confirmed), **RADIO SHACK** will modify your **MOD-II** for use with a hard disk drive at 0 charge. There is a problem with the **RADIO SHACK CPU CARD** which prevents proper usage with hard disk drives (both our hard drives and **RADIO SHACK's** own hard disk drives). For that reason, the modification is **FREE**. As an alternative, you can make the changes on your CPU card yourself. If you know how to solder and a little about electronics, you can do it yourself (call Mike Lenz or anyone on the technical support staff at Quality Computer Services...201-548-2135 for more information about modifying the CPU card). Another alternative is to buy an additional CPU card from us for \$300. This CPU card will contain the modification on it. Just place it in your machine and return your original ROM card and we will refund your \$300 (in other words, you will be exchanging your present ROM card for a modified CPU card...we will be holding your \$300 as security).

In order to connect your hard disk drive to your computer, you must open your computer. Don't panic. I did it myself. First, you remove the top of your computer unit by removing two screws (anyone can do that). Next, you remove two screws that hold the computer cards in place (anyone can do that). Next, you insert the hard disk drive interface card into one of the card slots in the back of your computer (that's even easier than removing the two screws). Next, you remove your computer CPU card and replace it with the modified CPU card (that's also easier than removing the two screws). Now, you screw in the bracket that holds the computer cards in place (that's the one that you just unscrewed). Now you put the top of the computer back on. The process should take about two minutes. If you don't know what you are doing, it may take up to five minutes. If you don't know how to use a screw driver, it could take up to seven minutes. It is really easy. One caution, there are some dangerous electric parts within your computer. If you touch the wrong part, you could get a pretty bad shock even with the computer unplugged (just like a television set). Anyone without any experience can connect the hard disk drive in under ten minutes (and probably much closer to five). All you are doing is opening your computer, inserting a card that fits right into a slot and closing the computer again. **DO IT AT YOUR OWN RISK**. We did it without any problem...but you will have to take any responsibility if you "screw it up!"

BEWARE...when you open the back of your computer, it is possible that your local

RADIO SHACK repair center could get angry. Once again, you have to take the responsibility for anything that happens. Our computers and several people we have spoken to have had their computers fixed through RADIO SHACK even though the computers contained the additional hard disk drive interface card. As far as we know, no one who has opened the back of their computer and inserted the additional card has had any problems with RADIO SHACK (we just remove the hard disk drive card before the serviceman comes). You are actually not doing anything to your computer that could affect how your computer works by putting in the additional hard disk drive into one of the empty slots in your computer. We do want you to know that it is possible that your local RADIO SHACK repairman may not be pleased when he finds out that you have opened your computer (but it is more probable that he won't care). In any case, even if your RADIO SHACK repairman is unreasonable...he is still obliged to fix your computer (although he is technically within his rights to charge you some additional costs due to your tampering). Once again, we don't want to scare anyone away from purchasing a hard disk drive. We want you to know all the facts. The hard disk drive can be installed within minutes by anyone without any technical knowledge. It is possible, but not probable, that RADIO SHACK could be unhappy if you open the back of your computer by yourself. It is your responsibility to check out the ramifications.

Your hard disk drive will be fixed at no charge for a period of 90-days (the likelihood of something going wrong is about 0). To fix your hard disk drive, you must send it back directly to H&E COMPUTRONICS, INC. or the manufacturer. The unit is very light and shipping is not a problem. In most cases, the drive will be fixed and returned within a week (we have never heard of any unit that has needed repair so we don't have much experience with the turnaround time).

Other versions of the hard disk drive are available. The 6 megabyte unit sells for \$2,895. 20 megabyte, 30 megabyte, 40 megabyte and 80 megabyte units are also available in an 8 inch WINCHESTER configuration (pricing available on request. We recommend the 12 megabyte unit for most people (\$3,195). The 12 megabyte units are in stock. An additional 12 megabytes may be placed in the same enclosure for an additional \$2,000 giving the user a total of 24 megabytes. Up to four 12 megabyte units (or two 24 megabyte units) may be interfaced with a single computer. Once again, these units are in stock and available for immediate delivery.

You can add up to 4 units to your computer...so it is possible to have 320 megabytes of storage hooked up to your computer...that's 320,000,000 characters of information (that's 2 and a half million names and addresses on line).

The 12 inch by 5 inch by 16 inch hard disk drive dimensions described above can include two 12 megabyte hard disk drives if you prefer (that's another \$3,095 for the second hard disk drive within the same storage unit).

For additional information, call Bob William at H & E COMPUTRONICS, INC. ...914-425-1535.

*****HARD DISK DRIVE FROM RADIO SHACK?*****

As far as we know, RADIO SHACK has not delivered a hard disk drive to a customer yet (at least as of December 12, 1981). If you order a hard disk drive today, you probably won't have it until June, 1982 (but ask your RADIO SHACK dealer for

more accurate information).

ON HARD DISK DRIVES

If you are using a MOD-II in your business, then you do need (without a doubt) a hard disk drive.

What is a hard disk drive? Just think of it as an additional disk drive. The main difference between your floppy disk drives (the disk drives in your main unit and expansion interface) and a hard disk drive is that the disk found in a hard disk drive is permanently sealed and stored in the hard disk drive unit. Your floppy disk drive can store about 500,000 characters of information (bytes). A hard disk drive can store (in the case of the RADIO SHACK hard disk drive) 8,400,000 characters of information. Now, let's examine some of the many questions that come up related to hard disk drives.

How much information does a hard disk drive store? If you purchase an additional floppy disk drive to add to your expansion interface, the cost is \$1,150. \$1,150 will allow the user to store about 486,000 characters of information (that's about 3,827 names and addresses or 4,860 inventory items or about 1,620 accounts receivable transactions or about 4,860 checks in a checkbook register). If you calculate the per character cost of storing the information, it comes out to .0024 cents per character or byte of information, or about 30 cents for each name and address that you store, or about 24 cents for each inventory item that you store, or about 71 cents for each accounts receivable transaction that you store or about 23 cent for each check that you store. The RADIO SHACK hard disk drive will store 8,816,000 characters or bytes of information for \$4,495. That's about .0005 centers per character or byte of information. The hard disk drive can store about 69,417 names and addresses, or about 88,160 inventory items, or about 29,386 accounts receivable transactions or about 88,160 checks in a check register. The cost of storing information on the hard disk drive is about 6 cents per name and address, or about 5 cents per inventory item, or about 15 cents for each accounts receivable transaction, or about 5 cents for each check stored in a check register.

In short, the hard disk drive stores information at about one fifth the cost and a hard disk drive can store about five times as much information as the standard floppy...but this comparison doesn't give the true picture. A floppy disk drive can really store unlimited information. The 486,000 characters of information that a floppy disk drive can hold is just the amount of information that can be held on one floppy diskette. You can store an additional 486,000 characters of information by placing another diskette into your disk drive. You can even store another 486,000 characters of information by inserting another diskette...and so on. So, your floppy disk drives can store an unlimited amount of information as long as your keep switching diskettes. On the other hand, a hard disk drive can only store 8,816,000 characters of information. There is no way to switch diskettes. The information is stored on a permanently sealed platter. Once you reach your limit of 8,816,000 characters of information, that's it. (By the way, you can of course erase any information and store new information if you want to.)

So, who needs a hard disk drive and why? To understand the answer to this question, let's use H & E COMPUTRONICS, INC. as an example.

We used to store all of our names and addresses on floppy diskettes. Each of our floppy diskettes were able to hold the names and addresses of 3,000 subscribers to our **COMPUTRONICS MONTHLY MAGAZINE**. In the beginning this was fine. We did have a problem when we reached subscriber number 3,001. There was no more room on the diskette...so we had to store this name on a second floppy diskette. By the end of the month we had 4,000 subscribers. 3,000 names and addresses were stored on one diskette. An additional 1,000 names and addresses were stored on another diskette. At the end of every month, in order to send out our magazine mailing, we had to print out the 4,000 names in zip code order. The task is pretty difficult when you have 3,000 names and addresses on one floppy and 1,000 names and addresses on another. Of course, we could keep switching the diskettes, but that is an enormously difficult task. That's where the hard disk drive comes in. We were able to put all 4,000 names onto our hard disk drive, sort them and print the list out without having to switch diskettes. We now use our **MOD-II** and our **HARD DISK DRIVES** to store and maintain over 100,000 names and addresses of subscribers and **H & E COMPUTRONICS, INC.** customers.

So, who needs a hard disk drive? **ANYONE WHO HAS MORE INFORMATION IN A FILE THAN CAN BE STORED ON ONE FLOPPY DISKETTE**. For example, if you have more names and addresses in one file than can be stored on one floppy diskette, then you need a hard disk drive. If you have more open accounts receivable transactions than can be stored on one diskette, then you need a hard disk drive. If you have more than 3,000 inventory items, you need a hard disk drive...etc.

And speed... The hard disk drive stores information much faster than the floppies (it's just about 5 times faster than the floppies).

What about software? It is very easy to use any software on a hard disk drive. The **RADIO SHACK** computer just thinks that the hard disk drive is another floppy diskette...so that all software that works on a floppy diskette will work with your hard disk drive with little or no modification. There is one big problem. Most software that was originally written for the floppy diskette will not allow for the extra capacity available on the hard disk drive...so that although using this software will allow for much greater speed, capacities won't be increased. For example, the **RADIO SHACK** mail system allows for 3,000 names and addresses. If you use it on the hard disk drive, it will still only allow for 3,000 names and addresses. Much of the software currently available will have to be modified in order to allow for the increased capacity (the biggest problem is in sorting the information). There is plenty of **CP/M** software that allows for unlimited storage information. All of the **PEACHTREE 5** business packages and the **SELECTOR V** data management packages that work under **CP/M** allow for virtually unlimited storage (we sell it, of course).

Why is there a problem with the software? The main problem is the sorting routine used in programs. A floppy diskette can store 3,000 names and addresses without a problem. The same software program used to store 3,000 names and addresses on a floppy can be modified within 3 seconds to work on a hard disk drive and store 3,000 names and address. This same software program can once again be modified to store 80,000 names and addresses on the hard disk drive. This modification just takes another 3 seconds. The difficult part of the modification is the sorts. There is no problem in storing 80,000 names and addresses on the hard disk drive. The problem is being able to sort the file (into zip code order for example). In order to recover name and address (or

inventory item or accounts receivable transaction, etc.), the file has to be sorted in a certain fashion. Most CP/M programs are written with unlimited sort capacity allowing for unlimited storage. Most of the current TRSDOS software is written inefficiently...therefore not allowing for unlimited capacity.

So, since there is no software, should I just forget it? There is plenty of software available if you are willing to use CP/M on your MOD-II. If not, you may want to wait until find the software. Even better, write your own. We use an in house ISAM file (a quick sorting method) that allows us to store unlimited information on our floppies. The routine that does the actual sort is only 3 lines long...so if you can write it yourself...that's great. There will be plenty of special hard disk drive software available as soon as there are plenty of hard disk drives out there...so you can wait...or you can just buy the hard disk drives to speed things up.

What about backup procedures? Hard disk drives just like floppies can lose information (although the hard disk drives are far more reliable and far less likely to lose information). There is no doubt, even with the much greater reliability of the hard disk drives, that you should backup all of your information on a consistent basis. At the present time, the best method of backup is onto your floppy diskettes.

DR. SHENKIN'S CORNER

It's been quite a while since the last edition of the Newlsetter and quite a few new products have come available in the intervening time. We will spend the next several minutes commenting on some of the new items.

Radio Shack's MODEL II HARD DISK SYSTEM will become available on or after Decmber 30, 1981 according to the new (1982 RSC-6) Radio Shack computer catalog. This is an 8.4 megabyte hard disk. Up to four unit may be interfaced to a single MOD-II. The initial unit will cost \$4495 while additional units will be priced at \$3495 each. Evidently, all current TRSDOS based software will operate transparently on the hard disk. This means that the user will be able to use exactly the same software on the hard disk as on the floppies and, in fact except for increased capacity and greater speed, the user will not even realize he is a using a hard disk. Will the hard disk system be better than the floppies? At \$4500 it had better be. Having had some experience with hard disks, we would recommend a hard disk to those users who must handle large data bases. For example, the COMPUTRONICS CAMEO hard disk system is used to manage a mailing list of over 80,000 names. This article is being written using WORDSTAR and a CORVUS hard disk system running under the CP/M operating system. This CORVUS contains the entire available set of PEACHTREE/5 Accounting Software, two complete data base systems, many CP/M utility programs, WORDSTAR, MAILMERGE and SPELLSTAR, plus several application programs. Yet the CORVUS is only half full. Both the CAMEO and the CORVUS are available NOW running either the TRSDOS or CP/M operating systems. The advantage of getting the new RADIO SHACK system is that RADIO SHACK maintenance will be available. The advantage of getting either the CORVUS or the CAMEO are immediate availability, slightly greater capacity (about 1 extra megabyte), getting equipment which has been field tested, and purchasing a system with better back up facilitties than the new Radio Shack system. It seems that the RS hard disk must be backed up onto floppies. It takes only a little figuring to see that it will take in the neighborhood of 20 floppy diskettes to back up the RS hard disk. The CAMEO is a disk system of 10 megabytes broken into two pieces, one of which may be removed from the system.

Thus 5 megabytes of the **CAMEO** may be copied and just carried away. The **CORVUS** has an attachment, called the **MIRROR** which permits the entire contents of the disk to be backed up onto your home video tape recorder.

The newest version 3.0 of **WORDSTAR** has been released and is being used to write this article. We have talked about **WORDSTAR** in the past and readers know that we consider it to be the Cadillac of the WORD PROCESSORS. It is a 'see what you get' word processor in the sense that what you see on the screen is what you get on the printer, in most cases. The new **WORDSTAR** has several enhancements. One of these is horizontal scrolling. If the user is working on a spread sheet which is more than 90 columns wide, then the new **WORDSTAR** may be scrolled to show the columns of the sheet past column 80 in exactly the way they will be printed on the printer. This should prove to be quite valuable to those people who use their word processors to generate spread sheets. The new **WORDSTAR** also has the ability to move columns of text. The old version could only move rows around. **MAILMERGE** is still available. This aids in the production of boiler plate type material and in the merging of data files into existing **WORDSTAR** files. For example, if the user wishes his word processor to generate many form letters automatically with heading and personal data being printed on the letter, then **WORDSTAR** and **MAILMERGE** together with some mailing list or data base system can do the job. Another product which runs with **WORDSTAR** is **SPELLSTAR**. This is a dictionary program which comes with a 20000 word dictionary. The dictionary may be modified and alternate dictionaries may be developed. **SPELLSTAR** works from within **WORDSTAR** and essentially checks every word in the file to see if it matches a word in the dictionary. If it doesn't, then this word is flagged as a possible spelling error. **SPELLSTAR** gives the user the option of correcting the word, accepting the word and possibly adding it to a dictionary (after all, people's names may not be in the dictionary) or some variation of this. The customers we have sold **SPELLSTAR** to are very happy. A new product called **CALCSTAR** is coming out imminently. This is a **VISICALC-LIKE WORDSTAR**. We hope to extensively review this product in a future issue as it seems that with **CALCSTAR**, **WORDSTAR** will have arithmetic capabilities. That is, it can add up column totals used in your word processor...imagine that!

What follows is the product description of **CALCSTAR** which **MICROPRO** has given to its dealer:

"**CALCSTAR** is **MICROPRO'S** electronic spread sheet and financial modeling program--a sophisticated, yet easy to use, calculating and planning tool. **CALCSTAR** calculates solutions to complex numerical problems in business and finance. It helps you to make budget plans and sales forecasts with greater speed and accuracy. It projects figures into the future to answer the "what if" questions you face in business...and **CALCSTAR** has a unique **MICROPRO** bonus: It joins with **WORDSTAR** to combine spread sheet and word processing capabilities in several powerful ways."

By the way, for those readers with old licensed copies of **WORDSTAR**, updates are available.

We have seen a new Files Management type system called **FMS-80**. This is the most expensive (\$995) and the most comprehensive system of this type which **COMPUTRONICS** sells. **FMS-80** leads the user interactively through defining file descriptions and report definitions, through entering and editing data, and through generating reports from your data. The system permits multi-keyed access to your data files (e.g. a mailing list may be accessed by a customer's

last name or social security number), permits keys to consist of combinations of different data fields, permits the user to extract data from the files using his own specifications, permits reports where the data is displayed in any desired position on the page, permits the user to define his own menus and his own screen formats for data entry and has a query capability. **FMS-80** permits data base operations in which up to 20 files interact at one time. Thus, it is reasonable to have a Customer file, an Inventory file and an Order file and have the system operate on the order file while updating the customer and inventory files simultaneously. Compare this to **PROFILE II** which only permits the processing of a single file at any one time. **FMS-80** also comes with its own data handling language for those advanced users who need even more capabilities than the menu driven system can provide. With use of this so called **EFM** (Extended File Maintenance) language, even the not so advanced programmers will be able to generate very complex operations in only a fraction of the time it takes to write a **BASIC** program. By the way, **FMS-80** is written in machine language for speed of operation. We would say that by and large, **FMS-80** is somewhat harder to use and somewhat more capable than the **SELECTOR-IV** files management system which we have talked about in the past. **SELECTOR** has less of the customizing which is available in **FMS-80** (e.g. the user may not define his own menus with **SELECTOR**) but most simple applications may be developed more quickly with **SELECTOR** than with **FMS-80**. Both of these systems require **CP/M**. **SELECTOR** also requires the **CBASIC2** programming language. One limitation of the **SELECTOR IV** package is that no individual record can contain more than 257 bytes. **FMS-80** has no limit except for memory. We've heard that a **SELECTOR V** will be out soon which will eliminate the above constraint (**EDITOR'S NOTE...it is now out**).

In our opinion, a good word processing system and a good files management or database system can handle most of the data processing chores of a modern office, if it is used properly. They do not need to be operated by experts. A typist can be taught to use **WORDSTAR** in a useful way with about two hours of training. In fact, **MICROPRO** has come out with a **WORDSTAR TRAINING GUIDE** which we believe just about anyone should be able to use. With about a day of practice, a prospective user should be able to use **SELECTOR** or **FMS-80** well enough to design simple lists and generate simple reports. Of course, none of these systems thinks for the user. But with these systems a lot of data manipulation can be performed without any real programming on the user's part.

IBM, **XEROX** and several other large companies have come out with their own small business computers. While these machines have some nice features, **RADIO SHACK** should continue to find its **MOD-II** well positioned in the small business computer market. The **XEROX 820** has the same **Z-80** processor found in the **MOD-II** and runs the same **CP/M** software. However, the disk capacity on the **XEROX** system reminds us of the old **TRS-80 MODEL-I** systems. **XEROX** does offer both 5.25 and 8 inch floppy disk drives. However, both of these systems are single-sided and single-density. What this means is that an 8 inch **XEROX** diskette has only a 241K capacity. Those readers with **CP/M** systems which support single density on the **MOD-II** should note that your single density diskettes are compatible with the **XEROX** system. **XEROX** may have a big name but in its present configuration, we do not see how this machine can be competitive. However, with the addition of a small hard disk, **XEROX** will have a good product. The **IBM PERSONAL COMPUTER** is a very nice system. The system essentially uses a 16 bit 8088 processor. This processor is much more powerful than that found on the **MOD-II** and will run most computational intensive **BASIC** programs about four times as quickly. **IBM** had **MICROSOFT** write an operating system for the new machine, but will also

support the two most popular (non TRSDOS) operating systems available for microcomputers. We have seen the personal computer and are duly impressed. About the only thing IBM did not do correctly is choose diskette capacity correctly. The system's 5.25 inch diskettes come with about 160K of capacity each, about comparable to a MODEL-III. Unless IBM comes up with disk drives of greater capacity (e.g. a small hard disk) this system cannot be adequately used for many business applications such as inventory control, mail list management, etc.

An interesting article seen in the computer newspapers: Tandy Corporation and Datapoint Corporation (a rather substantial minicomputer and office of the future company) announced that RADIO SHACK MODEL II computers would be able to be linked together in a local network using ARCNET, a component of the DATAPOINT ATTACHED RESOURCES COMPUTER. With the use of ARCNET, up to 255 MOD-II'S may be linked in such a way that they may access common data files and use peripherals such as printers located anywhere in the network. In addition, a MOD-II network can also include DATAPOINT computers and peripherals. The network will be implemented with a plug-in interface card which fits into one of the four empty slots inside the MODEL II. This card will sell for about \$400. In our opinion, the above is a major announcement. DATAPOINT is a substantial company known for expertise in all types of distributed processing applications. ARCNET is presently available on DATAPOINT computers and seems to be very effective and quite successful. The DATAPOINT name will help TANDY sell machines in the large company marketplace and the availability of DATAPOINT processors in the same network provides a natural expansion path for those companies purchasing MODEL-II's. Availability of this product should be sometime in the spring of 1982, according to TANDY.

The PEACHTREE/5 ACCOUNTS PAYABLE system is finally available. It runs on the CP/M operating system using the new (5.2 or higher) version of MICROSOFT BASIC. The following PEACHTREE/5 packages are now available: General Ledger, Inventory Control, Accounts Receivable, Sales Invoicing and Accounts Payable. Sales invoicing works in conjunction with Accounts Receivable and Inventory Control to give a totally integrated Inventory/Accounts Receivable/Invoicing package. The A/R and A/P link to the appropriate general ledger accounts at the end of each accounting period (usually one month). The systems are expensive (about \$600 per module) but excellent. (IBM chose PEACHTREE software for its new personal computer.) In addition, source code comes with the PEACHTREE packages. This means that the BASIC programs which the system consists of may be listed and modified. By the way, the multi-keyed filing system which the PEACHTREE programs use is a stand alone product sold by PEACHTREE for those who wish to do extensive modifications to the programs or who wish to link the data files generated by the system to some user written programs.

The PBS system consisting of AR/AP/PR and GL all linked to General Ledger in end of month processing now has an inventory control system linked to the AR system through the invoicing module. On invoicing, price and description of the inventory items are carried to the invoice and when OK'd, quantity sold is automatically deducted from the inventory file. Reports available from the inventory system include a reorder report, a report by department and a complete dump of the data in the inventory file. The inventory system uses a very fast hashing technique to access the items. PBS runs on TRSDOS. It has also been translated to the MODEL III and the MODEL I. Of course, it also runs in the CP/M environment.