DRIVING FOR LESS
by
Jim Ellis

For those of you running the TI disk controller card, there is another way to add disk storage space to your system for a fairly low investment. I assume that you already have at least one 5-1/4" drive. This article is just intended to give you more space for your own use as the disks are NOT transportable unless you know someone who already has such a set-up. I have not seen them advertised lately but, I am sure they are still available. They were made by Hitachi and are 3" drives. Yes, I said 3" drives, NOT TO BE CONFUSED WITH 3.5" drives. This is the same drive that Magnavox used with their word processor that ran under CPM, and was sold by Sears and other places. Two of them were packaged together by Amdek, called the Amdisk system, and sold for several systems. Yes, even for the PC/Clone faction. They are single-sided, single or double-density and were made for a special 'flippy' disk called a Compact Floppy, #CF-2. The drive light is a two color led which changes color to show you which side of the disk you are using. The drives have the same interface as a 5" drive. The drives have two sets of dip switches for setting different options, such as which drive, motor on, etc. They support 40 tracks, by the way, they will run with 6 ms head-step time if you have another disk card that provides that option. Even if you don't like the drives, I bought them cheap enough that I could take the power supply and relocate it in another cabinet if I choose to do so. It is very well made and should be capable of handling the most current hungry drives or perhaps more than two drives. The cabinet also has a nice quiet fan for supply and drives. The disks cost more than regular floppies and are not as easily located. I got mine from the same place that I bought the drives. My investment for the two drives and a box of 10 floppies came to about $70.00 including shipping. I have found another place that has the disks for a lesser price. You don't have to worry about losing the write protect tab as it is a switch-like part of the disk.

OFFICER'S CORNER

This month we have a fascinating program coming up. We are going to have a demonstration of an actual working GENEVE!! This is not just a prototype, but the actual workinc computer of one of our members. We should be able to really put it through it's paces Sunday.

As of this writing we are still not sure of our status with St. Ann's school. If there are any changes in the meeting place they will be elsewhere in this newsletter.

We have a fairly complete complement of officers now with the exception of Vice President. All volunteers form a line to the right. Actually the users group can be only as active as it's members are, so those who haven't been to the meetings need to come and see what you are missing!

We will also get a good look at some of TI-dom's best educational software this Sunday. A number of Jim Peterson's programs will be on display along with his catalog. Amnion Software's public domain catalog of over 3000 proglams will also be offered for your perusal. These programs have a price of generally 1(ONE)dollar or less!!! Tell me again how you can't afford software.

Mr.Steven Sims our hardware expert extraordinaire

With the abundance of very cheap or free software for the TI Home Computer , there is a real financial incentive to expand your TI rather than put it in the closet and purchase an IBM clone for home use. The sound, graphics and especially speech capabilities of the little old TI are usually better than those of the IBM clone at the office. With the $25 software package "PC Transfer" from Genial Computerware and a Myarc or CorComp disk controller , you can even take word processing ASCII files in IBM format home with you on a 5.5 inch disk, convert them from IBM format to D/V80 on your TI, and continue word processing at home with Ti-Writer or Funnelweb. You can then, still at home on your TI, convert these D/V80 files back to IBM format and take them to the office with you the next day. Sure, you can get cheap clones from ads in Computer Shopper, but you will spend a fortune on software. Usually for less money than the cheapest IBM clone, you can expand your TI system so that it will do most things the big guys do. What follows are my personal recommendations for expanding your 99/4A into a powerful computer system for the least amount of money. Prices quoted were in effect in mid-December, 1987.

THE FIRST STEP--A DISK SYSTEM:

If you are still living in the dark ages with just a console, tape recorder, and maybe a sidecar 32K, now is a good time to acquire a good used basic disk system. If you are already a serious TI user, now may be the time to acquire a backup system. I recommend the TI peripheral expansion box over the CorComp expansion system because the PE box really is expandable. You can't hook the Geneve or Horizon Ramdisks to the CorComp "expansion" system because there are no expansion slots. I also recommend the TI disk controller over those by MYARC and CorComp. The TI card is compatible with almost all 99/4A software (with the important exception of the above mentioned "PC Transfer"), and it is RELIABLE. I have not heard of any TI controllers going bad (I am sure that some have, I just haven't heard), whereas I do know of MYARC + CorComp controllers that have been sent back for repairs.

With many former TI users moving on to IBM land, there are a lot of used systems available, and prices are going DOWN. My preferred basic expansion system (PE box, 32K, TI controller, one SSSD drive) could be purchased for $275 at the Nov 1987 Chicago Faire. Locally, this equipment AND a TI RS232 card AND a Gemini 10X printer sold for $400 in September of 1987. Check the classified ads in MICROpendium, Computer Shopper, and the newsletters for availability of used systems from private sales. Although the cost may be higher, there is an advantage to purchasing used systems from a dealer. Dealers offer 30-day guarantees and check their systems out prior to sale. You can reasonably expect to have everything in working order if you buy used from a dealer. I recently got a used TI system (PE box, 32K, TI controller, TI SSSD drive) from Competition Computer only to find that the drive would boot BASIC, but not assembly software. I knew it was the drive itself that was causing the problem because when I put another drive into the PE box, everything worked fine. "No problem," said Competition Computer over the phone, just send the defective drive back. One week later I received via UPS an exchange used drive. The only thing I had to pay was postage to Competition. You cannot expect this kind of service with a private sale. Here is a by no means complete list of dealers who will sell you a used ti system. Phone for prices and availability.

Competition Computer
2629 W. National Ave.
Milwaukee, WI 53204

L.L. Conner Enterprise
1521 Ferry St.
Lafayette, IN 47904
317-742-8146

Queen Anne Computer Shoppe
6102 Roosevelt Way NE
Seattle, WA 98115
206-522-6558

Armadillo Bytes
Box 1816622
Dallas, TX 76218
214-328-92957

PRINTER AND PRINTER INTERFACE:

Once you get your disk system, you automatically become a serious TI user. Your next peripheral should be a printer and printer interface. You can get a printer interface with built-in cable from Tenex for $45 that plugs into the side of the console. This is by far the cheapest printer interface, but I don't personally recommend it. You can use the PE box with this device, but it adds to the width of your console and will not accept a modem. A PE box RS232 card is more expensive, but preferable because it looks neater and because it allows you to hook up both a printer and a modem. Tenex will sell you a MYARC or CorComp RS232 card for $80, a very good price.

Back in 1983 the STAR GEMINI 10X printer became the defacto standard printer for the 99/4A. This was because it was sold for less money than the TI impact printer and offered more features. I remember paying $310 for mine and thinking what a bargain it was. Many TI users still depend on this printer, including famous TI names like Jim Peterson. Almost all good TI software was, and still is, written to be compatible with the Gemini 10X. This includes graphics, word processing, and screen dump software.

In selecting a printer, it is important to choose a dot matrix model that uses the same control codes as the Gemini 10X so that the printer is compatible with our software. Daisy wheel printers are not compatible with any of our graphics software. The very important question to ask when purchasing a printer is "Is this printer EPSON compatible? This EPSON compatibility standard is what was used in the now out-of-production Gemini 10X. I believe all EPSON and STAR dot matrix printers still have this compatibility, as do some printers of other manufacturers. Printers designed for use with the Commodore 64/128 or IBM computers DO NOT have this Gemini 10X compatibility.

Based on my own experience with STAR printers, and what I have seen at the recent Chicago TI Faire, the STAR NX10 looks like it deserves very serious consideration. It is totally compatible with Gemini 10X control codes and will also print a superb Near Letter Quality typeface that is good enough for most business use. You need a good magnifying glass to prove that this NLQ was done with a dot matrix printer. With the NX10, you can select NLQ or other type fonts from buttons on the front panel. On many other printers, you need to send software codes or manipulate tiny out-of-the-way dip switches to do the same thing. Tenex sells the NX10 for $190 and the required cable (between the RS232 card and printer) for $25(5 foot) or $35 (10 foot). Triton has the 5-foot cable for $17. You need such a cable

no matter where you buy your printer, unless you are using the above-described $45 "plugs into the side of the console" interface with built-in cable. Midwest MICRO-Peripherals will sell you a star NX10 for $160. I have personally dealt with this dealer and was very impressed. Midwest is an authorized STAR service center. I know from personal experience that they will fix any STAR printer in or out of warranty, usually in just a few days. With many printers, if they break, you have to send them to the factory (in Japan?) for repair, and wait and wait and wait. If you do buy a printer from Midwest, you still need to get a parallel printer cable from a TI dealer such as Tenex or Competition.

TENEX COMPUTER EXPRESS	TRITON
P.O. Box 6578	P.O. Box 8123
South Bend, IN 46660	San Francisco, CA 94128
219-259-7051	800-277-6900

Midwest Micro-peripherals
6910 US Route 36 East
Fletcher, OH 45326
800-321-7731 (in Ohio)
800-423-8215 (outside Ohio)

EXPANDING BEYOND JUST ONE SSSD DRIVE:

You can do a lot more with two drives than with just one, and I recommend upgrading to a second drive as the next step in your system expansion after the printer. With two drives, disk copying is automatic. You don't have to switch disks back and forth. When doing serious word processing or database work, you can leave your system disk in drive one and put a data disk in drive two. With FUNNELWEB, 2 drives allow you fast menu access to lots of user programs. Double sided is also nice. You can have immediate access to all the data on both sides of the disk (720 sectors in DSSD format) and you won't have to make any more flippies in order to use the back side of the disk. Flippies for the TI are a real pain to make because you have to punch out the index hole in addition to the write protect hole. For apples and Commodores, all you need for a flippy is a second write protect hole! You can almost always get away with using cheap SSSD rate disks with a double sided drive and the TI controller. This is because the TI controller only puts 90K of data on each disk side (IBM squeezes 360K) and is thus much more tolerant of disk imperfections.

The fanciest way to expand, and the most expensive, is to install two half height double sided double density (DSDD) drives in the PE box. Lots of dealers will sell you half height drives, but it is important to also get the necessary cables for installation in the PEbox. C & G Drives will sell you the drives and all needed cables to install in the PEbox for about $240. TexComp has the same goodies for $190, the best price I have seen anywhere.

The cheap way to expand is to purchase a bare full height DSSD drive and slide it right into the PEbox in place of your original TI SSSD drive. It's easy! No additional cables or modifications are needed, but make sure the dealer configures your drive as DSK1. Such drives can be had for $75 from L.L. Conner or from C & G Drives and for $60 from L & M Systems. Then buy an external drive power supply box AND A CABLE to connect this power supply to the edge connector of your disk controller. CorComp controllers require a different cable than the one that is used for TI and MYARC controllers. Power supply boxes are $40 from TexComp. Competition Computer has the cable for $20.

TexComp and C & G Drives also probably sell this cable. Slide your original TI SSSD drive into the power supply (it's easy!), and plug your cable to the back of the disk controller of your PEbox. Another way to go is to purchase a stand alone DSSD drive with cables. TexComp has them for $119. The disadvantage here is that it is more convenient to have your DS drive as drive 1 rather than Drive 2, and you have to modify your original drive to make it work properly with a second drive. You now have, for an investment of about $120 plus shipping, a 2-drive system with ones of these drives double sided.

C & G DRIVES	TEXCOMP
1241 Landwehr Road	P.O. Box 33064
Northbrook, IL 60062	Granada Hills, CA 91344
312-272-0468	818-366-6631

L & M Systems
2330 East Ave. J-8 #173
Lancaster, CA 93535
804-948-1587

SUPER MEMORY EXPANSION:

After upgrading to multiple drives, I next recommend obtaining more PEbox memory for program and file storage. A disk system is required to use the various super memory cards.

The way TI designed our computer, the largest memory expansion that is DIRECTLY accessible to the computer via the right side expansion port is 32K. Playing lots of tricks, this directly accessible memory can be stretched to 64K, but this requires hardware modifications. For most practical purposes, no software can access more than 32K of CPU RAM outside of the console. So what about the various 256K, 512K and even 1Meg memory expansions you have read about? These devices DO NOT expand your TI's RAM to the size of a fully expanded IBM PC. No matter what the size of your memory expansion, the 99/4A will not handle software larger than what it can handle with the plain old 32K memory expansion, and your TI cannot be made to utilize huge software of a size usable by an IBM clone. Large memory expansion devices for the TI allow you to use the extra memory as a RAM disk and/or as a print spooler. As RAM disks, these devices function somewhat like hard disks, only faster, allowing you to move software and data very rapidly into and out of the TI's rather limited active memory. With FUNNELWEB on a ramdisk, you can almost instantaneously boot FUNNELWEB, shift from a central menu to the editor, then edit and save your text to the ramdisk, load the formatter and print your text. Each time you move a block of memory, it only takes 1 or 2 seconds. This isn't quite as good as having the editor, formatter, and text buffer all in CPU RAM at the same time as you do with the GENEVE, but you will hardly notice the difference. The difference between instantaneous and 1 or 2 seconds isn't much.

CorComp and MYARC both make 512K expansion cards that can be used as 32K CPU RAM with the rest (480K) available as ramdisk and/or print spooler. These are currently $240 at TENEX. Both require an AC adapter, similar to a pocket calculator AC adapter, if you want to keep data in the card after the computer is shut down. The CorComp card needs such an adapter to work even while the computer and PEbox are turned on. If the mains power is interrupted, or if the adapter jack slips out of the back of the card, or out of

the AC wall outlet, you lose all your data. This dependency on mains power to keep data after the rest of the system is shut down is the main limitation of these two cards. You cannot count on them safely holding data or programs for a long time.

I strongly recommend the Horizon Ramdisk in one of its several configurations. Horizon cards act EXACTLY like a floppy drive, but with lightning speed, and are backed up with rechargeable batteries that automatically charge every time the PEbox is turned on. With power off, your data is safe for months and is not affected by a mains power failure. You can pull a Horizon card out of your PEbox and put it in another PEbox, and the data will still be there. Horizon cards are available as kits or already built in sizes ranging from 192K (emulating a DSSD drive) up to 1 Meg. An assembled guaranteed 192K horizon costs $195 from Horizon Computer. An assembled one megabyte card costs $450 from Midwest Engineering. Complete kits are available from Bud Mills Services. You can fill every vacant slot in your PEbox with a Horizon card giving you the potential of several Megs RAM program and data storage. With V7.1 of the Johnson-Ballman RAM based Horizon operating system (public domain, available from Miami User Group), a single Horizon card can emulate several floppy drives. With this operating system, you can also get a menu, ON POWERUP, that will load programs from your ramdisk at the touch of a key. A similar, more secure Horizon ramdisk operating system is available as a ROM chip from Genial Computerware. More than any other single hardware device, the Horizon ramdisk can turn your 99/4A into a real power machine capable of doing anything you want at powerup without messing with floppy disks. I have FUNNELWEB and 15 frequently used programs on my Horizon ramdisks. I load and save my word processing text and financial data files directly to and from the Horizon cards quick as a wink. I back up my Horizon files to disk every couple of weeks, just to be sure, but have great confidence in the ability of my Horizon ramdisks to securely hold my programs and data files.

Other produces apparently similar to the Horizon ramdisk have been advertised by DataBioTics (the GrandRam) and Rave99. Horizon ramdisks have a proven tack record of two years. I have not seen any bad newsletter comments about this product, and it exists NOW.

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BUD MILLS SERVICES        HORIZON COMPUTER, LTD.
166 DARTMOUTH DRIVE       P.O. BOX 554
TOLEDO, OH 43614          WALBRIDGE, OH 43465
419-385-5846             419-666-6911

MIDWEST ENGINEERING CONSULTANTS
203 ACADIA DRIVE
VERNON HILLS, IL 60061
```

AND ON AND ON AND ON:

Other hardware upgrades are available, but for the most part they seem to be quite expensive for what you get. The exception is modems. Some are cheap, and some are expensive. You probably get what you pay for. Since I am not into telecommunications, I can't comment personally except to say that they plug into your PEbox RS232 serial port. Check out MICROpendium and the newsletters for comments on modem features and quality.

An IBM style keyboard is available from RAVE99 for $200 complete. This keyboard allows single key entry of TI-Writer and Multiplan commands.

How about an 80-column display with TI-Writer and Multiplan? The Mechatronic 80 column "card" (it plugs into the side of the console, not into the PEbox) available from Tenex, or the DIGIT Systems AVPC PEbox card will both do this for "only" $220. You need either a monochrome monitor ($100, maybe less) or an analog (not an IBM compatible TTL) RGB color monitor ($345 at L & M Systems) in order to see this 80-column display. A TV or composite color monitor just do not have the necessary resolution.

Because of cost, I can't recommend the fancy keyboard or 80-column cards. Together with a new monitor, their combined cost is at least $520. You can get an IBM clone complete with monochrome monitor, fancy keyboard, 80-column display, and 256K CPU memory for less than this from several dealers advertising in Computer Shopper. If you must have 80-columns and a fancy keyboard, then go with a clone, but be prepared to pay big bucks for the software.

Double density controllers by Myarc or CorComp are available from Tenex or L & M Systems for $150. These allow you to store twice as much data on a double sided disk as the old reliable TI controller and are needed to transfer IBM ASCII files to a TI D/V80 format. A MYARC quadruple density controller costs $190 from L & M and requires special 80-track drives to work in quad density. I still prefer the old TI controller .

How about a built-in clock accessible with software. The CorComp Triple Tech card (provides calendar/clock, 64K printer buffer, speech synthesizer in the box connector) costs $130 and the CorComp stand alone clock goes for $80, both at Tenex. If you have a Horizon Ramdisk, the MENU operating system can access these clocks with a single keypress from the BOOT menu. It's too bad there is no automatic way of dating files as they are saved to disk. Personally, I find that my $4 KMART cheapo quartz wrist watch is good enough for me. I just can't see paying $80 for a computer clock.

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RAVE99                    DIGIT SYSTEMS
112 Rambling Road         4345 Hortensia St.
Vernon, CT 06066          San Diego, CA 92103
203-871-7824             619-295-3301
```

SUMMARY - MY PREFFERED EXPANSION HARDWARE:
Console, Extended Basic, Tape Recorder--I assume you already have these items.

```
Used PEBOX, 32K, TI Controller, SSSD drive............$275
RS232 card for PEBOX, new...............................  80
Star NX10 printer, new (now replaced by nx1000).......  160
Double sided drive and box for second drive...........  120
Assembled 192K (=DSSD drive) Horizon Ramdisk..........  195
TOTAL EXPANSION COST..................................$840
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plus and tax and postage.

LETTERFORM (from the Chicago Times, #8186)
BY Ollie Herbert

LETTERFORM tutorial for your word processor: BA-WRITE. FUNLWRITER. TK-WRITER (each is fairware). or TI-WRITER. I use it as a start for the letters that I write as it saves me the setup time.

To create a LETTERFORM file. load the editor and <ENTER> the following:

```
0001 .LM 36;RM 72;FI;PL 58;HE      0014 GREETING.
0002 .SP 4                         0015 .SP 2;IN +5
0003 You R.^Name                   0016 .HE 30 "'sLast:Name" Page 2
0004 P.O.^Box ###                  0017 .CO START HERE
0005 Chicago, IL^ 60657            0018
0006                                    thru    blank
0007 .CO Tel # and .SP Optional    0030
0008 DATEXX, 1986                  0031 .CO LAST LINE
0009 .SP 2;LM 8                    0032 .SP 2;LM 36
0010 T.O.^Name                     0033 SALUTATION,
0011 P.O.^Box ###                  0034 .SP 4
0012 CITYXX, STATE^ ZIP##          0035 You R.^Name
0013 .SP 2                             END
```

Function 9, T <ENTER> to get into tab settings. Function D over to column 33. R <ENTER> to set right screen margin. Function 9, SF <ENTER>, DSK1.LETTERFORM <ENTER> to save the file that you just created as LETTERFORM.

It would be a good idea to use the formatter to make a printout of LETTERFORM at this point and make any adjustments that are necessary before you use it to write your letters. You may prefer a different arrangement, differnt margins, or need to insert some printer commands. You might also like to put your favorite greeting and salutation in the master.

To use the LETTERFORM file. load Editor. LF <ENTER>. DSK1.LETTERFORM <ENTER>. After the file finishes loading, edit lines 8, 10-12, 14 & 33 to reflect the data for your letter. Function 9, SF <ENTER>. DSK1.filenamexx <ENTER> using a filename of your choice as your first save. For my filenames, I use the first four letters of the addressee's last name followed by the current 6-digit date.

Start your letter by overwriting line 17. Use insert (function 2 or function 8) periodically to avoid overwriting the original line 31 which is only a flag to keep you from writing into the letter's ending. It is a good idea to function 9. SF <ENTER> (the filenamexx is retained) periodically in order to keep a fresh version of your file saved on disk. After the save, you are returned to the point where you were before the save.

is working on some articles for us, so we can look forward to info that will help our machines be faster or more versatile for a very reasonable outlay. Steve has been with HUG since the beginning and is an invaluable asset to the group.

There is always room for YOUR article so let us hear from YOU. It doesn'thave to be a book all tips and tricks are always appreciated.

Carl Clark
President

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********************************
*                              *
*    SOUTH SIDERS MEETING      *
*    SECOND-----THURSDAY       *
*    AFTER THE MEETING         *
*         MONTHLY              *
*      CALL 786-3270           *
*      FOR LOCATION            *
*                              *
********************************
```

```
###################################
#                                 #
#       PASTE UP PARTY            #
#    HELP GET THE NEWSLETTER      #
#            OUT                  #
#  FIRST THURSDAY EACH MONTH      #
#    AT BOB STAHLHUT'S HOUSE      #
#         CALL 856-4962           #
#                                 #
###################################
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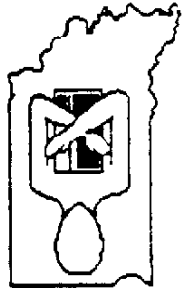
APPLICATION FOR MEMBERSHIP

Below you will find an application for membership to the Hoosier Users Group. Active membership entitles you to the Newsletter, up and download on the HUGbbs, attendance and voting rights at regular club meetings, access to the HUGger Library of Programs, special club activities and special guest speakers for one year. Subscribing members will receive the **NEWSLETTER** only.

Make check or money order payable to **Hoosier Users Group.** Send completed application to:

HOOSIER USERS GROUP
P.O. Box 2222
Indianapolis, IN 46206-2222

(Cut on dotted line)

Check One:

Active Member

New: $20 _____
Renewal: 15 _____

Subscribing Member

New: $10 _____
Renewal: 7.50 _____

Amount Enclosed: $ _____

_____   D _____
S _____

Name: _____ Today's Date: _____

Address: _____ Apt. # _____

City: _____ State: _____ Zip: _____

Phone: (_____) _____-_____

Interests/Comments: _____