



MICRO INNOVATIONS' HARD DISK DRIVE AND E.O.S. PROGRAMING

by Allen Smith

As of the beginning of 1993 I've learned that our ADAM community is still shrinking. The N.I.A.D. Newsletter is reducing the number of issues by half for the year (ED. NOTE: actually we have reduced from 10 to 6 issues a year and will not devote one issue specifically to a catalog listing as we have done in past years.) and another terrific supporter / programmer has given up do to problems within her user group.

I've heard others make the statement that 'when someone within the ADAM community ends their support, someone else steps in.' Perhaps that has been true in the past, but the older our ADAM gets the less likely that statement remains true.

I sometimes think of switching to another system, but then take stock of the time and expense invested in this system. I also looked at how much more difficult and expensive other systems would be; this always brings me back to the ADAM system.

Our ADAM may not be the fastest or the most modern, but it really can accomplish just as much as other systems costing three times as much. ENOUGH EDITORIALIZING: the purpose of this article is to acquaint the ADAM user with the Micro Innovations' Hard Disk Drive (HDD) and ADAM'S Elementary Operating System (E.O.S.). Almost every article I've read regarding a HDD has related it to the T-DOS system. Rightfully so; T-DOS is a fabulous system.

Recently I purchased a M.I. HDD with the T-DOS system installed. I'm starting to discover just how much more one can do with ADAM using T-DOS, instead of the standard E.O.S. programs, and T-DOS compatible programs such as SUPERCALC, dBASE II and WORDSTAR which were once reserved only for the IBM and APPLE computers. Well, for those of us late bloomers guess what we have within our grasp?

However, before discovering T-DOS I mainly used ADAM'S E.O.S. programs (SmartBASIC, ADAMCalc, SmartLOGO, SmartFILER, etc.). If boot-up time between program swappings is becoming a pain, if you're concerned with tape or floppy drives overheating, or if one megabyte (1Mb) of expansion ram isn't enough then a HDD is the way to go. The storage / retrieval speed is remarkable! Not to mention how much storage space you will have.

Micro Innovations (M.I.) provides excellent instructions regarding the use of their product. I purchased a 20 megabyte unit which was configured as follows:

- A) Four drives (partitions) equalling 10Mb for T-DOS [programs included].
 - B) Ten drives (partitions) equalling 10Mb for E.O.S. (the 0 partition contains BOOT programs to call up ADAMCalc, SmartLOGO, etc.).
- NOTE: FILE MANAGER has been pre-installed.

By using FILE MANAGER you can install your E.O.S. programs and their files on any one of 10 partitions. I would not use the 0 partition; this is the BOOT area; if you corrupt this area the HDD WILL CRASH and become inoperable. I've already discovered that!

The instructions will walk you through slight E.O.S. program modifications to make their use more compatible with the HDD. Once completed each E.O.S. program will boot in less than one to two seconds. Changing between SmartBASIC, ADAMCalc and SmartLOGO takes roughly the same amount of time without tape or floppy disk swapping.

The HDD documentation provides you with a list of what E.O.S. programs will and will not operate on the HDD. I've yet to verify the entire list, but what has been verified is enclosed in the article. The HDD

unit replaces tape drive two as the storage device. That's not to say tape drive two becomes worthless just that it's use becomes very limited. Also, the HDD unit utilizes certain areas of ADAM's memory pertaining to it's voice / sound ability (as do the expansion cards). This means that you will loose the use of the memory cards as RAM disks and that some E.O.S. programs will loose the ability to generate sound.

Each E.O.S. partition can be 'INITIALIZED' to allow for a 20+ block directory. I've discovered that ADAMCalc, SmartLETTERS and FORMS and SmartLOGO will not operate properly (if at all) with anything larger than a five block directory. SmartBASIC gave me some operational problems with a seven + block directory. DO NOT place more than one E.O.S. program per partition. This means DO NOT place ADAMCalc and SmartLOGO on the same partition. ADAM will get confused as to which program you want booted. (ED. NOTE: This should not be a problem as the BOOT FILE tells the system what file to load, i.e. CALC.FL will tell the system to load the BASICPGM file and LOGO.FL will tell it to load the LOGO file). Each E.O.S. program should occupy it's own partition. I placed ADAMCalc (and it's files) on partition one; SmartLETTERS and FORMS on partition two, SmartLOGO on partition three and SmartBASIC occupies partitions four through nine.

Only under SmartBASIC is one allowed to CATALOG throughout each partition by typing: "catalog d2 (remember your HDD is now tape drive two), volumes 0-9"; [example: CATALOG D2,V0 or CATALOG D2,V2; etc].

Programs that I've used:

(1) ADAMCalc:

As long as the partition you have placed this on is limited to a four block directory you should not have any problems.

(2) SmartLETTERS and FORMS:

Being a novice programmer I had a little trouble understanding the modifications stated in the instructions. The second change required involves the 'BOOTWRIT' program. It requires you to change byte 76 (4ch) to another number using the FILE MANAGER program. Byte 76 should read 09 00 before the change. This pair of numbers was located at byte 77 (4dh) on mine. Once all of the files on this media were copied to partition two and the modifications made, everything operated as it should. However the cursor seems to hesitate (stick) when using the arrow keys for it's movement. You cannot move to other partitions. All of your work must remain within the partitions you installed this media on. Do not worry about running out of storage space, there will be plenty of it.

(3) SmartLOGO:

I try to spend most of my computing time with SmartLOGO. Unlike other art producing programs this one requires you to use your programing imagination. The graphics can be quite stunning while creating animation. Too bad the work space is limited to about 5K of material. I used partition three for this one. As mentioned earlier, you can only stay within the partition you have SmartLOGO installed on. The only true draw back to using SmartLOGO with the HDD is that you loose all sound capacity, COMPLETELY! That means the SmartLOGO library you have will require you to edit out all of the sound routines; what a pain!

The only other solution would require a memory expansion card and Hexace's 'MEMDSK for LOGO' package. To use this package properly you will need to power down your HDD. Doing so would give you the use of your memory card as a RAM DISK and return tape drive two to it's full use. The RAM DISK may not be a permanent storage device, but

you can use SmartLOGO to it's fullest potential.

(4) SmartBASIC V1.0:

Every program that has been written using SmartBASIC V1.0, whether saved as an 'A' or 'H' file, seems to function as it should. Even programs containing music and / or sound operates properly. Example: On one of my public domain tapes a program exists called "xmas". I copied this to a HDD partition. Each xmas song within this program operated as it should. I have noticed that on occasion, when trying to BRUN a 'H' file, that I receive a 'SYNTAX ERROR' message. By typing 'NEW' and pressing 'RETURN' then BRUNing the program again everything executes as it should.

So many SmartBASIC programs have been given new life by using the HDD. For example, three programs created by STRATEGIC SOFTWARE function so much better on a HDD. These are MicroWORKS, SignSHOP and PaintMASTER. With a slight program modification each operates more efficiently and with much greater speed.

MicroWORKS MODIFICATIONS:

This package really does not require any changes. Each program within the MicroWORKS package already supports tape drive two. Repeating, ALL of the programs and their files must be on the same partition. Even though tape drive two is fully supported you CAN NOT switch between partitions while in the MicroWORKS programs.

SignSHOP MODIFICATIONS:

SignSHOP Picture Editor Program: After you have saved all of these files, change the following lines;

```
1045 PRINT "LOAD PICTURE FROM HARD DISK"
1070 PRINT "SAVE PICTURE TO HARD DISK"
1320 IF co$="3" THEN dr$=",d2"
1750 IF co$="6" THEN dr$=",d2"
```

Once this is done resave.

SS.OBJ (SignSHOP master program):

Make the following changes;

```
1310 VTAB 14: HTAB 2: PRINT "3 - LOAD PICTURE FROM H.D.D."
1380 IF pn=3 THEN dn$=",d2"
10070 PRINT chr$(4);"run "+fi$+"",d2"
```

PaintMASTER MODIFICATIONS:

It has been quite a while since I've used this program. After examining the master program (PM.OBJ) the only change I've made, that I can find, involves the following line:

```
10060 IF p6>73 then d=2: GOTO 10090
```

When running this program you are asked which drive to read or write to. ALWAYS save or load your picture to the TAPE. You WILL get strange results if you try to use the floppy disk. Also, I changed this program to a 'H' file using Walter's cruncher program. Watch how fast it loads now! The program's running speed remains the same but the loading and saving time of your art work is unbelievable.

The two programs that I own by ADAMzap (MicroTalk and Zoran III) not only function perfectly on the HDD, but the loading speed is amazing.

The FILE MANAGER program copies both of these programs to the HDD without any problems. Remember to copy SmartBASIC to the same partition. When you boot SmartBASIC these programs will load themselves and operate just as they do on the tapes and floppy drives. Put each of these on their own partition with SmartBASIC. Putting them on the same partition will confuse ADAM as to which one to load and run. You can also create a menu program that will be loaded and then give the user the option as to which program they want to run.

EVE's Speech Synthesizer / Clock Calendar works without any problems. The HDD makes the task of using programmable speech more enjoyable; the speech is instantaneous. No longer do we wait while the shell program loads the machine language program to generate the speech. The HDD operates with RAM DISK speed.

The Hurricane Tracking program (public domain) operates so much better and quicker once copied to a HDD partition. The sound is the only thing missing.

The following programs were tested at Micro Innovations and were stated in their documentation as to being operational: JKL Utilities, Disk Doctor, E.O.S. File Indexer, SmartFILER, VideoTunes, ADAMLink and SmartWRITER.

At this time I do not own JKL Utilities, VideoTunes or any of the ADAMLink programs but I have tested Disk Doctor, E.O.S. File Indexer and SmartFILER with negative results.

Inquires have indicated that SmartFILER CAN NOT be booted from the HDD, but that the database you create could be stored on a HDD partition. I have not had any success as of yet with storing or retrieving any databases that I've created.

SmartWRITER - (without sound):

The boot screen for E.O.S. will allow you to select the partition you will work from. Once you boot SmartWRITER you can store / retrieve files without any problems. Remember which partition you're working from so you do not lose your files. I would pick a partition only for SmartWRITER then INITIALIZE that partition (see the enclosed documentation) with the title 'WRITER'. That way when you select the partition that contains the SmartWRITER files, the name of that partition will verify what your looking for.

Micro Innovations listed three software programs that WILL NOT operate at all. They are:

PowerPAINT:

The expansion RAM driver software was overwritten by the HDD drivers. In other words a conflict of operational routines prevent this software from working. (ED. NOTE: A special patch is available through ADAMLink of Utah as well as other Digital Express Inc. software that was patched for use on Hard Disk Drives.)

SmartBASIC V2.0:

Overwrites the E.O.S. The HDD units are configured for SmartBASIC V1.0. There is a boot program installed in the unit for calling up SmartBASIC V2.0, but I've yet been able to get it to work.

NewsMAKER and ADAMTalk:

WILL NOT function. Both are written in SmartBASIC V2.0. This also applies for other programs that use SmartBASIC V2.0.

DISK MANAGER:

Overwrites E.O.S. I do not own this software, so I haven't tested it.

A HDD unit operates much like a record player. There is a small permanently installed disk; just hovering above this disk is an arm that reads and writes magnetic images while traveling across the disk. If you shake, hit or pickup the HDD unit while in operation you WILL CRASH the unit making it inoperative. This is a delicate piece of equipment; treat it that way.

Do not worry about overheating. The unit has a cooling fan installed. It's possible that overheating could occur, but I haven't had any problems yet and I leave my unit on almost all day.

Your questions and inquiries should be made through ADAM outlets that carry this product. You can contact Micro Innovations directly; Mr. Gordon is extremely patient and helpful.