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The Newsletter of the Chicago TI99/4A Users Group

NOVEMBER 1995

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Where to find it this month....

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Table of Contents		Page 3
Disk Managers for the TI	Jan Alexandersaon	Page 4
FFM	Don Jones	Page 5
The Myarc HFDC Card	Jan Alexandersson	Page 8
The 1995 Chicago TI/9640 Faire	Hal Shanafield	Page 17

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DISK MANAGER FOR TI-99/4A (Written for the Swedish user group PROGRAMBITEN 91-1) by Jan Alexandersson, Springarv{gen 5, S-142 61 TR]NGSUND, Sweden

There are several good disk managers for T:-99/4A. I have tried to compare the six most used programs:

- Ti Disk Manager 2 module .
- Ottawa DM 1000 version 3.5
- Myarc DM V version 1.30 for HFDC
- John Birdwell Disk Utilities 4.2
- Funnelweb Disk Review 40 column
- Funnalweb Disk Review 80 column

There are bugs in many versions of DM1000, so don't use earlier or later version than 3.5. Funnelweb has an improved version of DM1000 v.3.5 which is the best for the ordinary user.

It is important to be able to use the same drive as source and copy if you only have one drive. All managers can handle this except FW DR80 which needs two drives. FN DR40 can copy single files (FCTN-C) with a single drive, but "Tag" of several files needs two disk drives.

Density is single, double or quad. Notice that DM1000 cannot bandle DS/QD.

A file have a file header and a number of data sectors. The first 32 files will always store the file headers on sector 2-33, but if more files are used, also higher sector numbers are used. All disk managers (except DM1000) will first write the file header and then the data sectors. If you use DM1000 with file copy to copy TI-FORTH then you will find that the copy cannot be used because one large file needed low sectors for data when all high sectors were occupied. The file header will then be placed after the data sectors even though the file header will be on a low sector number.

The programs read and write files by using file access or sector access routines in the disk controller card. File access with Myarc HFDC work wrong (fragmented files will be corrupted) so only use disk manager with sector read for the hard disk controller.

You can rescue a deleted file with recover file if you haven't written any other file on these free sectors.

FW Disk Review can simultaneously copy from one drive to 8 other

Page 4

drives.

Sweep disk will release all sectors and files on sector 0 and 1 as if it was a new formatted disk. There will be no test of bad sectors. Don't use sweep disk if you are uncertain if the disk may have bad sectors.

TI OTTAWA MYARC DISK FWEB FWEB DM 2 DM1000 DM V UTIL DR40 DR80 3.5 1.30 4.2 4.31 4.31

Number of DSK 1-3 1-8 1-9.WDS 1-9.A-Z 1-9 1-9 Single drive in/out YES YES YES YES (YES) - Density S.D S.D S,D,Q S,D,Q S,D,Q FILE copy file YES YES YES YES YES YES header before data YES - YES YES YES YES read/write file?? sector sector sector? file file sectors per pass 45 40 58 40 7 59 copy with rename YES - - YES YES YES copy overwrite test - - YES - - - move file - YES YES - delete file YES YES YES YES YES YES recover file - YES - YES YES YES view D/V80 + D/F80 - YES* YES YES YES YES view all D/V + D/F - - YES YES YES YES view INT + PROGRAM - - - YES YES view Myart G6 + G7 - - - - YES protect file YES YES YES YES YES rename file YES YES YES YES YES YES DISK catalog YES YES YES YES YES printer control code - YES - YES - rename disk YES YES YES YES YES YES multifile copy YES YES YES YES YES YES files per pass one one several one one one destination number 1 1 1 1 8 8 copy used sectors - YES - YES - copy all sectors - YES TES YES - sectors per pass - 104 57 39 - format YES YES YES YES YES YES multidisk format - YES - YES - sveep disk - YES - - YES YES TEST read test YES - YES YES YES YES write test YES - YES - - -SECTOR EDIT - - - YES YES YES

* = FW-version of DM1000 will not view DIS/FIX 80

PROGRAMMABLE FLASH MEMORY

A Ruview....

Programmable Flish Memory, hereafter referred to as *PFM*, is a medification option for the Myarc Geneve 9640 that is available only through Cecure Electronics. I have had this modification on my Genny for about a year now, if I remember correctly.

Page 5

What does *PFM; do for me and why would anyone want to pay the money to have it installed? It replaces your G.98 EPROM, and it boots your system without a floppy, hard drive, or RAM disk. This means that you run your Genny without any other cards in the box! I realize that you can't do much without the other cards, but you would at least be able to enter into native M-DOS mode and, if you have a Flash-disk installed, you could actually run some programs. *PFM* also allows you to EASILY reprogram it with any new or modified version of M-DOS without removing it from its socket. I can remember times when I had loaded a bad or corrupted copy of some version of M-DOS, and trying to get my system straight was enough to give my the blues. For some of us, it meant pulling out our Myare HFDCC in order to change the CRU address and replacing a TI or Myarc FDC so that the system would look at another device other than the hard disk. (If the DOS on the hard disk would only lock the system up, you couldn't get the system to look at another version of M-DOS on another device. So getting the system going again was a big hastle.) With *PPM* you will never have that problem again. In addition to being able to boot from *PFM*, you can also boot any alternative version of M-DOS from a RAM disk (up to 3.2 meg in size), a 1.44 meg HPDCC floppy disk, a CorCosp floppy disk, a Myarc FDCC floppy disk, a TI FDC floppy disk, or your first Myarc HFDCC (MFM) hard disk! (Once you have *PFM* installed, you no longer need to use the file named LOAD/SYS; the routines for this file are built into *PFM*.) On normal/standard Geneve systems, \$YSTEM/\$YS must be on the 1st 256K of any RAM disk and you can only use up to a 720K floppy disk. As you can see, *PFM* really simplifies the process of booting your system; it also gives you greater flexibility and provides you with numerous options which you would not otherwise have.

There is also a version of this modification called **ppm** plus (this is the version which I have). Having the PLUS version give you a 128K Flash-disk. What is a Flash-disk? It is a non-volatile memory RAM disk that is built onto your Genny board. It requires no batteries for backup, as the data is written to an EPROM! No device CRU addresses are used! Ne valuable card slots are used (I personally have NO empty slots left)! It's very fast and small (it is less than 1.2 sq. in. in sixe. You can program it with the files you vant; you have over 500 sectors available. There is an easy to use menu when you wish to reprogram this area.

Let me briefly (stop laughing) try to explain how I personally use *PFN*: If I merely turn my system on, it is quickly booted from the built-in *PFM* PLUS unit. If I don't wish to boot the version of M-DOS that is programmed into the *PFM* memery, I merely hold down the space bar. Instead of booting the system, I receive a memu. The menu has the following options:

- Boot BIOS
- R Ramdisk
- HFDC Card

- F FDC Card L Load PIM DSK
- If I enter the "H", my system will boot from the BIOS chip, that is to say the version of M-DOS which is programmed into the memory of my *PFM*.

If I enter the "R", the "H", or the "F", I get another screen saying, "Select File Extension F1 Thru F10 or D Default." What does this mean. It means that on any particular device (RAM disk, hard disk, or floppy disk), I can have up to TEN different versions of M-DOS with special file extentions in addition to a default version. The default file has the name which we have learned to accept: "SYSTEM/SYS". My alternative files could be named as "SYSTEM/F01", "SYSTEM/F02, etc. up to "SYSTEM/F10". This allows me the option of having different versions of M-DOS on the same storage device which are accessed by using one of the ten function keys on your keyboard, and it makes it super easy to change whatever I have loaded into my system. It also makes it super simple to test out a new version of M-DOS, and even if the file is corrupted during the process of transfer, it's extremely easy to flush it with another version that we know is functional.

After entering either a file extension or D for the default file, when loading from either a RAM disk or a FDC card, you then get a screen with the following options: "Update SYSTEM/SYS Program Area of BOOTROM (y/n)?" If you are sure that this is the version of M-DOS that you want to boot from your BIOS chip, then you enter the "y" and this writes the chosen DOS into *PFM*'s memory. If you enter the "n", the system does not reprogram the BlOS chip, and, instead, it begins the execute the DOS, usually looking for an AUTOEKEC file an any related batch files. If you chose to enter H instead of R or F, you get an option screen saying, "Select H for Hard or F Floppy Load". This allows you to load from either the Myarc HFDCC's first hard disk or first floppy disk, and, as I said above, 1.44 meg disks are supported here! After that screen, you then receive the same screen that entering the "R" or the "F" gives you, as explained above, and you also have the option of writing this version of M-DOS to your *PFM*'s memory.

There is a final option of the first *PFM* screen; it is used only when you wish to load new files into your *PFM* Flash-disk. This Flash-disk is totally separate from the BIOS chip, and is a memory location that functions exactly the same as a RAM disk with one significant difference: Files are written to the Flash-disk ONLY from this screen, and they are written in bulk, not as single files. This causes no problem or inconvenience if you are working with those files that you use the most and change the least. I am currently trying to decide exactly which files I want to install onto my Flash-disk. I am considering the following often used files: a.) MY-Word, EXEC, EA, Directory Manager, my main menu files, BACKUP MISER, ARCHIVER, DISKU, QDZ, XCOPY, CYA, and maybe my AUTOEXEC file. When considering which

files I want to have on my Flash-disk, I need to be very realistic and highly discriminating, as I only have 128K (a little over 500 sectors available to me in the memory area) therefore, I may not be able to place all of these files onto my Flash-disk, but the choice is totally mine. In my system, I have named my Flash-disk as DSKB or device J:, and this works out just fine. I might also mention that work is being done so that we may be able to eventually have the option of a 512K Flash-disk. I really hope that this does come to fruition. It would mean that I would be able to have my GPL files, my Advanced BASIC files, my Super BASIC files and all of my menu files, that are currently on my HRD, on my Flash-disk!

From all that I have said above, it should be clear that I feel that *PFM* and *PFM PLUS is a way cool mod for your Genny. It is very tough! Also, the only thing that you lose is a swan. This is because the swan graphic information is on the G.98 EPROM which is removed for the installation of *PFN*. Also, as *PFN* loads your DOS so quickly, you don't need a graphic of anything to keep your mind and eyes busy while it's loading. The cost of *PFM* is \$75.00. *PFM* PLUS is an additional \$50.00. In addition to all this, there is the option of adding an additional 384K of CPU RAM to your Genny. The cost of this option is an additional \$100.00, but because of a drop in the cost of chips, Cecure can give you a 10% discount if purchased with *PFM* PLUS. The extra 384K means that you have over 917K of total CPU RAM of on board memory. These are static RAM chips which do not require memory refreshing. This will then allow you to have as internal, volatile RAM disk of up to 1500 sectors or and extra large print buffer of up to 400K + or extra large arrays in N-DOS BASIC programs. This mod works with the Myarc 480K card or the 504K memory card. Memory pages CO - EF are used. It works with or without *PFM* and *PFM* PLUS.

Is it worth it? I think that it is. In fact, I feel that *PFM* is the best thing since sliced bread! This is a very great thing, and it is only available from Cscure Electronics. The hardware work was done by Don Walden and the software work was done by Jim Schroeder, a fine programmer who has done more than anyone else for the Horizon RAM disk.

A the time of the writing of this article, there are some problems with *PFM* working with SCSI, but the problems are now being worked on. I am confident that a solution will be found.

In conclusion, it may be said that *PFM* should stand for Pure ****ing Magic, because, that's exactly what it's like for me!

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MYARC HFDC HARD DISK CONTROLLER
 (Written for the Swedish user group PROGRAMBITEN 88-4 and 89-1)

by Jan Alexandersson, Springarv [ren 5, S-142 61 TR | NGSUND, Sweden

A new card from Myarc can control both hard disks and ordinary floppy drives with a TI-99/4A. A Geneve can only use it with hard disks! Up to 3 hard disks, each with up to 134 Mbytes, and 4 floppy drives with up to 720 kbytes each can be used.

The card is sealed but the connectors are brought out on the back of the card. You get two connecting cables for the hard disk and a 70 page manual and 3 disks: Disk Manager V, Genere MDOS and Geneve GPL+Myword. You can use the first disk manager only with a TI-99/4A.

You can choose any CRU-address between >1000 and >1F00 (16 different).

FLOPPY DISK CONTROL

The disk drives are connected to the same connector as used in the TI-controller for internal drives. Notice that the extra contacts for external drives on the Tl are missing from the Myarc. All other connectors are used for hard disks so don't hook floppies up to them.

You can use up to four drives which will be DSK1-4 on CRU >1100 and DSK5-8 on all other CRU-addresses. You can use two disk controller cards at the same time. I have used Myarc on CRU >1000 and TI on CRU >1100 which works well. TI will control DSK1-3 and Myarc DSK5-8. The latter are to be strapped as if they were DSK1-4 but will be addressed as DSK5-8 by all programs.

There are DIP-switches for selecting the following items for all four drives individually:

- 40 tracks, 18 ms step time, max 360 kbytes
- 40 tracks, 8 ms step time, max 380 kbytes
- 80 tracks, 2 ms step time, max 720 kbytes

It is possible to use disk formats between 90 kbytes and 720 kbytes:

- SS/SD 90 kbytes 9 sectors/track TI-original drive
- DS/SD 180 kbytes 9 sectors/track Max with TI-card
- SS/DD 180 kbytes 18 sectors/track TI-original drive **
- DS/DD 360 kbytes 18 sectors/track Corcomp and Myarc
- DS/QD 72D kbytes 18 sectors/track

Format marked with ** should be avoided for maximum interchange-ability between different TI-users. You can use up to 180 kbytes with the original TI-drive but it is better to change to double sided drives with 360 kbytes which also have 180 kbytes DS/SD, the most common type among TI-99/4A users. You can get a new half height drive for USD. 90. Earlier versions of the disk

manager, could also use 16 sectors/track (320 and 640 kbytes).

5.25 inch QB (quad density = 80 tracks/side) can read 180 kbytes SD and 360 kbytes DD but can only write QD. An 80-track drive has a read/write head of very small width compared to a 40-track drive. You can have the following cases:

1. tracks from wide head on a fresh disk 2. tracks from small head on a fresh disk 3. tracks from small head written over wide head tracks

The first two cases can always be read by both types of drives. In the third case you get read errors with a wide head drive and a rather uncertain operation with a small head drive if the head is somewhat off center of the track. You can also use 3.5 inch 720 kbytes drives.

Sector zero for a 720 kbytes QD drive will use blocks of 512 bytes which is the smallest unit you can use. This means that the file header takes 2 sectors and the data sectors are even in number so the file will be i-2 sectors longer than on a 5D or DE disk.

MYARC DISK MANAGER V

The disk manager is on a disk and works fine and will completely replace TI DM 2 and DM 1000. It can initialize, copy and test disks. Files can be copied, erased and protected. Catalog will also show the number of sides, density and sectors/track and the length of a PROGRAM file in bytes. A comparison with DM 2 and DM 1000 shows the following:

TI OTTAWA MYARC DM 2 DM1000 DM V

Number of DSK 1-3 1-8 1-9 FILE copy file YES YES YES sectors per pass 45 40 58 copy with rename YES - copy overwrite test - - YES move file - YES YES delete file YES YES YES recover file - YES list D/V80 + D/F80 - YES YES list all D/V + D/F - - YES protect file YES YES YES remove XB-protection - YES rename file YES YES YES DISK multifile copy YES YES YES files per pass one one several copy used sectors - YES copy all sectors - YES YES sectors per pas: - 104 57

init with test YES YES YES
init without test - YES multidisk init - YES sweep disk - YES catalog YE: YES YES
printer coatrol code - YES set disk protection YES YES remove disk protect - YES rename disk YES YES YES
TEST read test YES - YES
write test YES - YES

Multifile copy has its own command which is missing in DM 1000 but exists in DM 1000 modified for Funnelweb. DM V also warns you if you try to copy a new file over an old file by the question: File name already exists, Do you want to overwrite (Y/N/All). You can choose Y er N for every old file. If you choose All then all will be copied without any more questions. This is similar to Replace String in TI-Writer. Several small DM 1000. You can also use DM V with Horizon RAM-disks as DSK1-9. This is the first disk manager that can handle DSK9 which is

SUBDIRECTORIES ON FLOPPY DISK

A disk can only use 127 files regardless of how it is fermatted. It is possible, apart from the ordinary catalog (root), to create three subdirectories (DIR) which can hold 127 files each. The disk can then in total contain 508 files because the root can also have 127 files. Each subdirectory has a header which takes one sector. All unused sectors can arbitrarily be used by the than Horizon MENU.

A file in a DIR can be called by DSK1.SUBDIR.FILENAME or DSK.DISKNAME.SUBDIR.FILENAME and a file in the root by DSK1.FILENAME or DSK.DISKNAME.FILENAME. The name of the DIR can be 10 characters long but you should use as short name as possible so it can be within the INPUT length.

If you have four 90 kbytes disks then you can easily transfer these to the root and 3 DIR. All four disks have individual catalogs so the same file name can exist four times on the disk. Myare DM V has a special FIND command that will list all places where a particular file name is used.

Another use can be when you write assembler programs and source and object code are saved to different DIRs and the PROGRAM-file is saved to the root. A C99-programmer can create DIRs for C-code, AL-source code and AL-object code and use the root for PROGRAM-files.

NEW BASIC COMMANDS

You can use OLD, SAVE, OPEN, DELETE and LIST in the usual way but also with DIR like SAVE DSK1.XB.CAME.

There are seven new CALLs which can be used in BASIC command mode and RUN of a program. For Extended Basic you can use them only in command mode.

CALL FILES decides how many open files there can be on the disk drives. The maximum number is 9.

CALL ILR is similar to CALL INIT in the Editor/Assembler-module.

CALL LR("DSK1.OBJECTFILE") is similar to number 3 LOAD and RUN in the KA-module. The command loads an object file in DIS/FIX 80 format. It must be used together with CALL IER.

CALL LLR("START") is similar to CALL LINK in the EA-module and starts a program as number 4 RUN in the EA-module. It must be used together with CALL LE.

CALL MDM will load DM V from DSK1.

CALL DT will set the clock. You can also do this with OPEN #1: "TIME", INTERNAL, FIXED and PRINT #1: SEC; MIN\$, HR\$, DAY\$, MON\$, YR\$. You can read the clock with INPUT. This is a hardware clock so it will operate correctly also with 50 Hz and during access to external devices. It has no batteries so it must be set every time you start the computer.

CALL DIR(1) or CALL DIR("DSK1") shows the catalog. CALL DIR ("DSK1.SUBDIR") shows the catalog for the subdirectory. A good thing is that the length of the PROGRAM-files is shown in bytes both for Basic and Assembler.

In the same way as for the TI-card you can read the catalog by opening a file with OPEN #1: "DSK1.", INPUT, RELATIVE, INTERNAL where "DSK1." can be replaced by "DSK1. SUBDIR." to get the catalog for a DIR. Notice that the dot must be used here but not in CALL DIR. When you read this file you get:

INPUT #1: "DISK\$, ZERO, TOTAL, USED INPUT #1: "FILE\$, FILETYPE, SECTORS, LENGTH

There is some differences between TI and Myarc. TOTAL is 360 and 720 for Myarc when TI has 358 and 718. Myarc shows the length also for PROGRAM-files when TI shows 0 for these. Myarc has a new FILETYPE=6 for subdirectory and FILETYPE=7 for emulate.

A thing that was unknown to me is that files opened with OPEN and DISPLAY have a maximal length of 150 according to the manual, but can handle 156 when I test it. The same is true for the TI-card. You can also open a file with RELATIVE 400 and space for 400

Page 11

records is reserved from the start (see XB manual p140). This will store all records close to each other on the disk which speeds up search of a record. The same thing works both with the Myarc-card and the TI-card. If you open the file a second time with RELATIVE 1000 then Myarc will reserve more space on the disk which the TI-card will not do.

HARD DISK

Up to three hard disks can be used. Each hard disk is connected with an individual address cable and a common data cable. You can use up to 134 Mbytes per hard disk. The best size is 20 Mbytes which is the usual size for most personal computers. The cost in Sweden is about SEK 2000 + VAT. The mest common type is from Seagate:

- ST-225 20Mbytes 65ms 5.25inch - ST-125 20Mbytes 35ms 3.5 inch
- The hard disk must have a ST506/412 interface but RIL cannot be used. Many 32 Mbytes drives have RLL so avoid these. If you want a bigger drive then you must choose 40 Mbytes. You can get a removable 5.25 inch frame for a 3.5 inch drive.

The PE-box cannot power the hard disk so you must get another power supply (+5V and +12V). The critical voltage is 12 V from which a 5.25 inch needs about 2.5 A and a 3.5 inch needs 2.0 A.

Format of the hard disk takes 4 minutes including test for a 20 Mbytes ST-125 drive. After formatting I got Used 66 sectors ?ree 78654. With my earlier EPROM H6 I had 2 bad sectors (used 70 free 78650) and with reformat after a week I had no bad sectors (used 68 free 78652). I hope these 2 extra sectors (more than the manual) are no bug. New with EPROM Hil is that it reserves a number of sectors (default 2048) for file headers and directories which will speed up the search and loading in the same way as Mike Dodd's MCOPY for floppy disks. The noise from the hard disk is much less with this new EPROM. The very fast format is done with test at the same time. I am somewhat suspicious about this but I have no bad sectors today so I cannot try it. If you have a hard drive with bad sectors than you can compare the number of bad sectors after format and after a special test program that takes 20 minutes. Myarc says that they use multiple sector I/O in the first case but not with the test routine. It is possible that there is some kind of track-reading in the first case which is not suitable for TEST. The test of the hard drive does a read and write test without destroying data so when you start it you may not break. A small bug in DM V format of hard drives forces you to have it loaded from DSK1 even when you have changed reload to DSK5.

Rach DIR takes 4 sectors and files are typically one sector longer than on a floppy disk according to the catalog.

The bard disk has a root directory and subdirectories to any number of levels. The root and each subdirectory can have 127 files + 114 DIR. These new DIR can also have 127 files + 114 DIR and so on. This means that you can call files by WDS1.GAME.XB.PB.LANDER or WDS.NAME.GAME.XB.PB.LANDER.

The Myarc card also has 32 kbytes RAM (bankswitched). There is always space for 11 open files so CALL FILES decides only the number of files on the floppy disks. The remaining files i.e. usually 11-3=8 can be opened at the same time on the hard disk.

In Micropendium Mar/89 there is a program in assembler for parking of a hard disk. Parking means that you position the read/write heads in a place where you have no data.

EMULATION OF DSK1. DSK AND DSK1-FILE

Some programs need the files to be on DSK1. You can create a subdirectory DSK1 so that the file can be loaded from hard disk even when it is called by DSK1.CMARA1. All other use of DSK1 is directed to the floppy disk. You can also use subdirectories below DSK1 without WDS1. I have used DSK1.FW.CFG which is good when the input only allow a small number of characters. If You use this DSK1-emulation then you should use the physical drive DSK1 as little as possible. All access to DSK1 goes first to the hard disk and then to the floppy drive. This can slow down some programs considerably which can be seen with Spellcheck or sorting with TI-BASE. Use your old 90 kbytes as DSK1 and use your bigger drives for DSK2-8. Usually DSK1 is only needed for copy protected disks like MG Explorer, MG Diskassembler, MG Diagnostics and Turbo-Pase'99 (only from TI or Corcomp). All other programs can be placed in the DSK1-emulation (max 127 files, size not important) or if possible with another path to the hard disk. All file names in the DSK1-emulation cannot be reached on the floppy disk in drive 1.

Programs like Multiplan call files as DSK.TIMP.MPBASE. In this case you create a subdirectory DSK which directs the call to the hard disk. Under the DSK subdirectory you create a TIMP subdirectory where you put all the files for Multiplan.

There is a third emulation called File Emulation for DSK1 (CRU >1100 only) which is an exact sector for sector copy of a disk stored under one single file name. This works well with FORTH which accesses sectors directly without files. Several such emulations can be stored simultaneously on the hard disk but only one can be active at the same time. When it is active all calls will go to the hard disk including from a sector editor. Also ordinary disks can be stored in this emulation. The search goes first to this File Emulation and if the file is not there then the search goes to the DSK1 emulation. There will be no access to the physical DSK1. When this file emulation is active then drive 1 becomes DSK2 and drive 2 becomes DSK3.

Page 14

PROBLEMS

The Myarc IFDC was delivered to me with EPROM H6 (+DM V 1.21) and later I sent it back to USA for repair and change to EPROM H11 with DM V 1.29. Myarc replaced a socket for one chip that prevented the clock from operating. I sent the card to USA as "SMALL PACKET" insured air mail. You should always investigate the terms for small packet because this is the cheapest way to send cards (Texaments and DIJIT use it but not Myarc).

If you don't use a hard disk then the first access to DSK1 will take 45 seconds before anything happens. With a connected hard disk this problem disappears but you should not buy the HFDC card without a hard disk.

In a letter to me from Myarc they say that some Fujitsu drives are marginal drives and may not be compatible with the Myarc HFDC especially those with stamped steel frames (zinc discast is OK).

Back-up of hard disk only works to DSK1-3 and not to DSK5-8. CALL MDM only works on CRU >1100 or if you have the MDM5-file in the DSK1-emulation on the hard disk. You must always load MDM5 from DSK1 the first time and then change in SETUP of RELOAD of DM V to your disk number like DSK5 or a path on the hard disk like WDS1.MYARC. It is a good idea always to have several disks ready with different paths so you can get the disk manager if something goes wrong with the DSK1-emulation. MDM5 is sensitive to the load path and I have experienced two problems but the usual load with Editor/Assembler or IB DSK1-LOAD is OK:

- Directory-Utility-Complete-Catalog can crash the screen because it never waits for input prompt (XB-FW-MDM5 or GK-FW-MDM5).
- When DM V is completely loaded then the screen is locked and no key can be used (TW-UTILITY-MDM5).

You cannot set the clock from DM V start menu but if you set it from Basic then it can be used to mark files and directories.

Mysic writes SD-sectors to the disk with deleted data marks F8 instead of FB for a TI-controller. ID/DATA SEPARATORS will be 00.

Another problem comes when you copy disks. When the Myarc writes a sector to disk it does not do a read of the same sector for checking. The problem is the same with both DM 1000 and DM V when the Myarc HFDC is used. It is thus very important to verify the disk when you format it. DM V always verifies but DM 1000 has the option not to do it. A TH-controller always does a READ after each WRITE of a sector. I find this much more secure. Myarc confirms this in a letter to me and says that MS-DOS works in the same way without a READ after WRITE. Can someone who knows IBM PC confirm this.

After long tests with DM V then I have decided not to use Myarc HFDC for DS/SD 180 kbytes. I have tested it with four different drives TEAC, Fujitsu(2) and Mitsubishi with the same bad result. The comprehensive test takes 10 minutes per loop and I run up to 10 loops which takes more than two hours. With single density (SD) the computer will always (several on each drive) lock-up after 1-5 loops. With DS/DD 360 kbytes I have run 10 loops (twice) on all drives without any problems (total 80 loops). DS/QD 720 kbytes also works perfect. I am not sure if the fault is in Myarc or in the disk drives. Is Myarc too fast or the drives too slow or will 50 Hz mains slow down the TI-99/4A (CALL SOUND and interrupt clock is 20 % too slow).

DS/QD 720 kbytes floppy drives show different numbers of sectors for a file with CALL DIR and DM V but I don't think it is any problem. If you save a very short text from TI-Writer to a QD-disk it will have an extra sector (apart from the problem above) compared to a Save File to a SD- or DD-disk. When this bigger file is copied to SD or DD then the file is still too big but I don't think it is a real problem. I will investigate this more in the future.

I have seen reports about heat problems with other Myarc cards. Myarc has a sealed card with no cooling of the voltage regulators. One Geneve user in Sweden had a real problem so he has decided to move the card far away from the warm AC/DC-converter (don't use slot i), remove the rard sealing and change the AC-setting to 240 V instead of 220 V. I have also seen concern from Australia about the Myarc 512 kbytes RAM disk and a possible need for an extra heatsink. The mains voltage in Europe will be 230 V according to a new standard before the end of 1995. Sweden must increase from 220 to 230 V and England must decrease from 240 to 230 V.

FUTURE EXPANSION

Myarc has prepared the card for tape streamer and 1.44 Mbyte floppy drives. Software for these is not delivered with the

A tape streamer is an easy way to back-up a hard disk. The price is about SEK 3200 + VAT in Sweden so you may instead want to buy a second hard disk. DM V has routines for back-up to floppy disks but you need a lot of them for a full hard disk. Each file has a back-up flag so you need only to save changed files to the floppies.

A DS/RD 3.5 inch drive can store 1.44 Mbytes and has 80 tracks/side and 36 sectors/track. HD stands for High Density. These drives cost 20 % more than 720 kbytes 3.5 inch and the floppy disks cost more than double. Today there is no economical reason to buy 1.44 Mbytes. The disks will store max 508 files if you use the root and three subdirectories.

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Sep 81: Tips for new hard disk users
Oct 81: Hard disk backups and downloads
Dec 81: Using HFDC emulate files
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Oct 81: Selecting a hard disk drive

Dec 81: Access time of hard disks

The 13th Annual Chicago TI International World Faire was held at the Evanston Public -Library on Saturday, October 28, 1995. While not as large as in years past, the event seemed to be a success to those who attended. There were the usual seminars, at which a number of brand-new products debuted, proving once again that Chicago is the place for innovation. Many of the traditional vendors were there, along with lots of. user groups, as well as a couple of new vendors. " This was the first time in several years that the Faire was not held in an "official" hotel, but the high cost of hotels and meeting rooms forced us to take advantage of low-cost alternatives. The attendees and vendors took it all in stride. All in all, it was a success. Especially for the group, since we made hundreds more than the last couple of years.

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Discussions are already underway about the planning for next year's Faire. We welcome input from all interested parties. I want to thank everyone who helped, especially Gary Cox, who coordinated the publicity --Hal Shanafield

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