



MEMORY PLUS
V 3.1

256/512K Memory Plus

----- NOTICE -----

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INTRODUCTION

The Corcomp Inc. MEMORY PLUS card has the capability to save and load programs or files just like you would when using a disk drive. The difference, however, is that the MEMORY PLUS is accessed much faster. The MEMORY PLUS card has a built-in RANDISK MANAGER that allows you to copy files, format, rename, and catalog both your MEMORY PLUS as well as your disk drives. The MEMORY PLUS can be configured as DSK1, DSK2, DSK3, DSK4 or DSK5 while always retaining the name DSKR. The MEMORY PLUS can be configured with either 256K or 512K of memory. In addition, a second MEMORY PLUS can be installed giving you a total of 1 million bytes of memory.

The MEMORY PLUS is available as a stand alone unit (SAU), which connects directly to the TI console, or as an expansion card for the TI Peripheral Expansion Box. The MEMORY PLUS P-BOX card will function as both a 32K memory expansion card and a randisk. You must, therefore, remove your 32K Memory expansion card from the P-BOX. The MEMORY PLUS card will then have 224K (256K card) or 480K (512K card) available for randisk.

The SAU version has the feature of allowing the use of an additional 32k card giving you a total of either 256K or 512K of Randisk. The SAU is therefore ideally suited for the CORCOMP MICRO EXPANSION SYSTEM. A jumper located on the card is provided so that you can use two MEMORY PLUS cards. Two MEMORY PLUS SAU's can be used or one SAU and one P-Box version card.

All MEMORY PLUS products have the added feature of retaining its memory as long as the wall mounted power supply remains plugged into an AC power outlet.

The MEMORY PLUS can simply be thought of as an extremely fast disk drive. It will not, however, increase your actual program space. As an example, an extended basic program that takes 30 seconds to load may only take 10 seconds to load when using the MEMORY PLUS. With the 512K version of the MEMORY PLUS you can save over 1900 sectors which is 1.5 times more than a double sided double density drive. With this capability you may want to store all your utility programs, TI Writer, Editor Assembler, Multi plan etc. all in the MEMORY PLUS for later use without the need of searching through diskettes.

INSTALLATION

WARNING : BEFORE ATTEMPTING TO INSTALL OR REMOVE ANY PERIPHERAL CARD, WAIT AT LEAST TWO (2) MINUTES AFTER TURNING OFF THE SYSTEM POWER. THIS WILL AVOID DAMAGING YOUR EQUIPMENT.

STAND ALONE UNIT

The MEMORY PLUS SAU is to be installed next to the console. All other peripherals are to be installed to the right of the MEMORY PLUS SAU. There is no need to remove your 32K Memory Expansion card with the MEMORY PLUS SAU. A 12V DC power pack is provided that plugs into the rear of the MEMORY PLUS SAU. It may be best to find a convenient AC outlet separate from where the computer is plugged in to allow the power to remain on the MEMORY PLUS SAU while power to the computer is turned off.

P-BOX CARD

The MEMORY PLUS card is to be installed into the TI Peripheral expansion box and can be placed in any available slot. **YOU MUST REMOVE THE 32K MEMORY EXPANSION CARD FOR THE MEMORY PLUS TO FUNCTION.** The MEMORY PLUS will then function as a 32K expansion memory and 224K Ram disk (480K for the 512K version). This card has been designed to function without a case. It can also be installed with or without the power pack plugged in. However, if you do turn power off on the P-Box without the power pack plugged in, all data will be lost in the MEMORY PLUS card.

OPERATION

When the MEMORY PLUS is first powered on the computer automatically formats the MEMORY PLUS. It will check to see whether the card is 256K or 512K and whether a 32K memory expansion card is installed (MEMORY PLUS stand alone only). The MEMORY PLUS is now ready to read and write files. If power to the MEMORY PLUS remains on and you follow the proper power on and off sequence then the format and data will be retained.

The switch on the front of the MEMORY PLUS SAU and the back of the MEMORY PLUS (P-BOX) is a WRITE PROTECT switch that insures that the TI 99/4A does not glitch the MEMORY PLUS memory when power is turned on or off. This can be analogous to making sure that your disk drive doors are open when the system is turned on or off which would prevent any chance of destroying your

diskette. In addition, a 512K card has 524,288 bytes of dynamic memory. All it takes is one byte to be lost and your program will not run. So to insure that no data is lost in the MEMORY PLUS you must follow the proper sequence.

MEMORY PLUS SAU

Power up:

- * Switch on the front of the MEMORY PLUS SAU in the "up" position
- * Turn power on to all peripherals
- * Turn power on to computer console

Power off:

- * Switch on MEMORY PLUS SAU in the "down" position
- * Turn power off on computer console
- * Turn power off on peripherals

Once the MEMORY PLUS SAU has been switched off it must be reset by placing the switch on the SAU in the up position and then either reinstall a cartridge which will cause a system reset or turn the console off and then on again.

MEMORY PLUS P-BOX CARD

Power up

- * Turn power on to all peripherals
- * Turn power on to computer console

Power off

- * Press the switch located on the rear of the MEMORY PLUS card
- * Turn power off on computer console
- * Turn power off on peripherals

A two pin connector is provided on the back of the P-Box card next to the write protect switch that can be wired to a remote write protect switch.

Once the system is powered up the MEMORY PLUS title screen will be displayed. By pressing the enter key the TI Title screen will be shown. If a CORCOMP Disk Controller card is installed then the MEMORY PLUS screen will flash and then the Disk Controller screen will be displayed.

SELECTING CONFIGURATION

The MEMORY PLUS can always be accessed as DSKR. On the initial power up it is selected as DSK5. The configuration can then be changed through TI Basic or TI Extended Basic by typing the following:

DELETE "SD.X"

Where X is any number 1 to 5. The command DELETE in this case does not mean that you are actually deleting something but allows the access of the DSR routines within the MEMORY PLUS. If for example you select the MEMORY PLUS to respond to DSK1 and you already have a disk drive configured as DSK1 any time you attempt to access DSK1 the MEMORY PLUS will be selected, not the disk drive. The MEMORY PLUS will retain the drive number even after the console is turned off and on and you follow the proper power on and off sequence. If there are two MEMORY PLUS cards in the system then the second card will always be selected as DSK6 and can never be changed.

Two MEMORY PLUS cards may be installed into the system allowing you to store up to 1 million bytes of memory. You can install two MEMORY PLUS SAU's or one SAU and one P-BOX card. The SAU that is closest to the TI99/4A console must be configured as DSK6. This can be done by first removing the four screws located on the bottom of the chassis. Then after lifting the cover up locate the jumper labeled J5. Move the jumper to the "B" position. Replace the cover and the four screws. The next card whether its an SAU or a P-BOX card must have its jumper in the "A" position. The jumper on the P-BOX card labeled J1 must always be in the "A" position. The card with the jumper in the "B" position can only be accessed as DSK6.

LOWER CASE CHARACTER SET

The MEMORY PLUS has the feature of adding lower case characters with descenders to your program. By simply inserting DELETE"LOWER" into a BASIC or EXTENDED BASIC program you can gain access to the lower case character set. Once the program is stopped or you are returned to the TI title screen the characters will return to the standard TI format.

SAVING AND LOADING PROGRAMS

The SAVE command is used to store a program onto the MEMORY PLUS. The format is:

SAVE device.program-name

The device can be DSK1-6 depending on the configuration set by the DELETE"SD.X" command. The program-name can be up to 10 characters in length, and include any character except the period and the space character.

The OLD command is used to load a program from the MEMORY PLUS. The format is:

OLD device.program-name

The device and program-name is that specified in the SAVE command.

In addition, you may specify the volume name instead of the device number as shown below:

OLD DSK.RAM.COLORDEMO

The computer will search the MEMORY PLUS and the disk drives until the one is found that has the volume name RAM and program name COLORDEMO.

NAMING FILES

The file-name may be from one to ten characters long. The file-name may be any combination of characters except the space or the period.

FILE PROCESSING

The OPEN, CLOSE, EOF, PRINT, RESTORE, and DELETE are the main statements that are used when accessing files.

OPEN - Prepares a TI BASIC program to use data files stored in the MEMORY PLUS. If a file does not exist then one will be created. If the file does already exist then you must specify the file's exact characteristics in the OPEN statement, otherwise an error will occur. The OPEN statement has the following format:

**OPEN /file-number:"device.file-name"[,file-organisation]
[,file-type][,open-mode][,record-type]**

The file-number and the device.file-name must be included in the OPEN statement. The other information

**#file-number:"device.file-name"[,file-organization]
[,file-type][,open-mode][,record-type]**

The file-number and the device.file-name must be included in the OPEN statement. The other information may be in any order and may be omitted. If omitted the computer will assume certain defaults as described below.

***file-number** - The number assigned to a file by the OPEN statement. File numbers may be any number from 1 to 255 or numeric expression. It can not be a file number that is already open, however.

***device.file-name** - The device refers to the device where the file is stored. The MEMORY PLUS can always be selected as DSKR. DSK1-5 (DSK6 for the second MEMORY PLUS card) are also valid depending upon how you have configured the MEMORY PLUS. The file-name can be any valid file name. The diskette name may be used instead of the device name as shown below:

OPEN #1:"DSK.RAMS.FILE1"

The computer will load the file FILE1 from the MEMORY PLUS as long as the MEMORY PLUS has the name RAMS.

***file-organization** - Records in a file can be accessed either sequentially or randomly. When records are accessed sequentially they are read or written one after the other. Records accessed randomly can be read or written in any order, including one after the other. To indicate which access method you wish to use, enter either SEQUENTIAL for sequential accessing or RELATIVE for random accessing. If the file-organization is not indicated, the default will be SEQUENTIAL.

***file-type** - Files can be stored on diskette either in easily readable ASCII characters or in machine-readable binary form. ASCII is normally used for information that is going to be printed or read from a display. Binary records are usually preferred when space and speed are the concerns of the programmer.

To specify that you wish the file to be in ASCII format, enter DISPLAY. The length of a DISPLAY type record is limited to approximately 150 bytes. To specify the binary format, enter INTERNAL. If the file-type is not indicated, the default is DISPLAY.

***open-mode** - This entry instructs the computer that the file may be both read and written upon (UPDATE), may only be read (INPUT), may only be written to (OUTPUT), or may only be added to (APPEND).

When a file is marked as protected, it cannot be written to and may only be opened for input. Also, APPEND mode can only be specified for VARIABLE length records. If you do not specify an open-mode, the default is UPDATE. NOTE: If an unprotected file already exists on a diskette, specifying an open-mode of OUTPUT to the same file name writes over the existing file with the new file. You can prevent this by opening in the update mode and reading all the existing records so that you move to the end of the file or by using the RESTORE statement with the proper record number.

***record-type** - File records may be all the same length (FIXED), shorter records are padded to make up the difference. Any records that are longer will be truncated to the proper length. If the record is a display format and the record is larger than the specified record size then it will be truncated with the remainder falling into the next record on the file. Files that have FIXED-length records are processed faster than files with VARIABLE-length records but usually take up more space in memory.

It is also possible to specify a maximum length of a record by following VARIABLE or FIXED with a numeric expression. The maximum length for a VARIABLE file is 254 bytes, and the maximum for a FIXED file is 255 bytes. If you do not specify a record length, the default is 80 bytes.

RELATIVE files must have a FIXED-length. If you do not specify a record-type for a RELATIVE file, the default is FIXED 80.

record-size - Internal files with numeric expressions must have a minimum record length of 9. Internal files with string expressions must have a minimum record length of 2.

EXAMPLES:

OPEN #1:"DSKR.DEMOS"

Creates or reopens a file in the MEMORY PLUS named DEMOS. The file-type is SEQUENTIAL in the UPDATE mode with DISPLAY format and VARIABLE length records having a maximum length of 80 bytes.

OPEN #3:"DSK1.DEMOS",RELATIVE,INTERNAL,OUTPUT,FIXED

Creates or reopens a file in the MEMORY PLUS (if DELETE "SD.1" has been performed) named DEMOS. The file-type is RELATIVE in the OUTPUT mode with INTERNAL format and FIXED length records having a maximum length of 80 bytes.

OPEN #43:"DSK5.TESTER",INTERNAL,FIXED 10
Creates or reopens a file in the MEMORY PLUS named TESTER. The file-type is SEQUENTIAL in the UPDATE mode with INTERNAL format and FIXED length records having a maximum length of 10 bytes.

CLOSE - The CLOSE statement discontinues the association between a file and a program. To use the file again you must use an OPEN statement. The CLOSE statement has the following format:

CLOSE #file-number

The file-number is the number that was used in the OPEN statement to open the file.

INPUT - The INPUT statement allows you to read data from the MEMORY PLUS files. It can only be used with files opened in INPUT or UPDATE modes. The INPUT statement has the form:

INPUT #file-number [,REC record-number]:variable list

The file-number and variable-list must always be included in the INPUT statement. The record-number may optionally be included when reading random-access files.

* file-number - The number assigned to a particular file by the OPEN command.

* record-number - The record-number refers to the record on the file which you want to read.

The record-number can only be specified for RELATIVE files.

* variable-list - The variable list is the list of variables into which you want the data from the file to be read. It consists of strings and numeric variables separated by commas.

EXAMPLES:

INPUT #1:X\$ Puts into X\$ the next value available in the file that was opened as #1

INPUT #5:A\$,B,C\$ Puts into A\$,B, and C\$ the next three values from the file opened as #5

INPUT #65,REC 24:NAMES\$
value

Puts into NAMES\$ the first value of record number 24 of the file that was opened as #65

PRINT - The PRINT statement allows you to write data to MEMORY PLUS files. It can only be used with files opened in OUTPUT, UPDATE, OR APPEND modes. The PRINT statement has the form:

PRINT #file-number [,REC record-number]:variable list

The file-number and variable-list must always be included in the PRINT statement. The record-number may optionally be included when reading random-access files.

* file-number - The number assigned to a particular files by the OPEN command.

* record-number - The record-number refers to the record on the file which you want to read. The record-number can only be specified for relative files.

* variable-list - The variable list is the list of variables into which you want the data from the file to be read. It consists of strings and numeric variables separated by commas.

EXAMPLES:

PRINT #1:X\$ Puts X\$ into the next position of the file that was opened as #1

PRINT #5:A\$;B;C\$ Puts A\$,B, and C\$ into the next record in the file that was opened as #5

PRINT #65,REC 24:NAMES\$ Puts NAMES\$ into record number 24 of the file that was opened as #65

PRINT #2:A:B:C, Puts the values of A,B and C into the next three positions in the file that was opened as #2. The comma after C creates an impending print condition.

EOF - The EOF (end-of-file) function indicates whether there is another record to be read from a file. The EOF function has the following form:

EOF(file-number)

The value of the file-number must correspond to the number of an open file. The EOF function always assumes that the next record is to be read sequentially even if you are using RELATIVE files. The value of EOF is as follows:

0	Not at the end of the file.
1	At the end of the file

EXAMPLES:

PRINT EOF(2)

Prints a value of 0,1, or -1, depending on where you are in file #2.

IF EOF(6)=1 THEN 250

If you are at the end of file #6 then go to line number 250.

RESTORE - The RESTORE statement is used to position you at a specified record in a file. The statement has the following form:

RESTORE #file-number [,REC record-number]

The file-number must be specified in the RESTORE statement when it is used with files. The record-number may optionally be included.

* file-number - The file number is the number assigned to a particular file by the OPEN statement.

* record-number - The record number indicates which record on the file you want to access. A record number is only allowed with RELATIVE files. If no record-number is specified the the file pointer will be positioned at the first record in the file.

EXAMPLES:

RESTORE #2

Resets the file pointer of file #2 to the first record. The next INPUT or PRINT statement referring to the file will access the first record.

RESTORE #4,REC 14

Sets the file pointer to the fourteenth record of file number. 4. The next INPUT or PRINT statement will access record 14.

DELETE - The DELETE statement is used to both delete files and gain access to additional commands of the MEMORY PLUS. When accessing files it has the general form:

DELETE "device.file-name"

The device refers to the drive or MEMORY PLUS number where the file is located. The file-name can be any valid file name. Refer to page 5 for information on other DELETE commands.

RAMDISK MANAGER ver 3.1

The RAMDISK MANAGER program functions for both the MEMORY PLUS and the the Disk Drives. Since the RAMDISK MANAGER is located in memory on the MEMORY PLUS card it is an extremely fast loading program.

There are four ways to load the RAMDISK MANAGER.

1. Basic or Extended Basic command mode or Basic program

Type: "CALL RAMGR"

2. Extended Basic program

Type: 100 CALL INIT
110 CALL LOAD("RAMGR")

3. TI Editor/Assembler Load and Run Option

Type: "RAMGR" for file name

4. TI Mini Mem Cartridge, Load and Run Option

Type: "RAMGR" for file name

Once the RAMDISK MANAGER is loaded the following menu will be displayed:

MANAGEMENT SYSTEM 3.1

Galen A. Read

RAM DISK is DSK5.

- 1 File Commands
- 2 Format Disk
- 3 Select Ram Drive #
- 4 Rename Disk
- 5 Test Memory Plus

To exit the RAMDISK MANAGER press FCTN - + from this screen.

File Commands

When File Commands is selected the display will prompt you to select a drive number 1-6 or R. A catalog will then be displayed for the selected drive. The following commands can then be used :

FCTN - 4 : Breaks the current operation.

FCTN - 6: Execute Commands

FCTN - 8 : Returns to the prompt that allows selection of drive number

FCTN - 9 : Returns to the main RAMDISK MANAGER MENU

FCTN - 0 : Prints the catalog

FCTN - - : Quit RAMDISK MANAGER

FCTN - X : Moves the cursor down the screen

FNCT - E : Moves the cursor up the screen

CTRL - C: Copy all files

CTRL - X : Displays next page of file names

CTRL - E : Displays previous page of file names

The following shows the layout of the Catalog:

DSK1.RAM-DISK				4 FILES	
PAGE 1 OF 1				U=102	F = 1946
CMD	FILENAME	TYPE	SIZE	P	
C	ASSM1	PRG	33		
	ASSM2	PRG	20		
	EDIT1	PRG	25		
	TESTER	D/V 80	21	Y	

FO TO PRINT

With the catalog displayed you can enter a file command for a selected file. For example, placing a "C" in front of the file name will copy that file to the selected drive, and a "D" will delete that file. The following is a list of available file commands:

- T - Can be used in conjunction with "U" or "R". A "TR", for example, will temporarily unprotect a file so that you can rename it.
- M - This copies a file then deletes the file from the main diskette.
- U - Removes file protection.
- D - Deletes an unprotected file.
- R - Renames an unprotected file
- P - Sets file protection on.
- C - Copies file to destination diskette.

More than one file command can be performed to any selected file. Placing a "TRC" on the command line and renaming a protected file will cause that file to be temporarily unprotected, renamed, reprotected and copied using the new file name on both diskettes.

Pressing FNCT-0 will allow you to print the catalog after prompting you for:

- 1 PIO
- 2 RS232
- 3 OTHER

Pressing 1 or 2 will begin printing immediately using the standard TI default settings. Pressing 3 will allow you to enter a device name such as RS232.BA=4800 or DSK2 LIST.

FORMAT DISK

Allows you to select the density, number of sides, number of tracks, name, and whether to verify the format. The prompts are as follows:

DRIVE # : 1 - 6, or R
DISKNAME : (ten characters)
TRACKS : 40
DENSITY : S or D
SIDES : 1 or 2
VERIFY? : Y or N

With verify off no sector verification will be done.

The following chart shows the size of the formatted MEMORY PLUS:

MEMORY SIZE	SIZE IN SECTORS
224K	896
256K	1024
480K	1920
512K	2048

SELECT RAM DRIVE

This function is similar to the DELETE"SD.X" command from BASIC. You select the drive number (1-5) designation for the MEMORY PLUS. The new drive number designation will then be displayed on the main title screen of the RAMDISK MANAGER. If the MEMORY PLUS has its hardware jumper set up as DSK6, however, it cannot be changed.

RENAME DISK

This function allows you to change the name of diskette in the selected disk drive or the name of the MEMORY PLUS. By selecting the appropriate drive number, or "R" for MEMORY PLUS, the current diskette name will be displayed. You then type up to ten characters for the new name and press the ENTER key. The name will then be changed and the main RAMDISK MANAGER menu will be displayed.

TEST MEMORY PLUS

The test will first show the amount of RAM that is available for ramdisk and whether a 32K memory expansion card is currently installed. You then have the option on whether to proceed with the test or not. If you proceed with the test all information that was in the MEMORY PLUS will be lost. A complete diagnostic will then be made of the MEMORY PLUS to insure proper operation. The entire test takes about 3 minutes. Once complete you must press the ENTER key to return to the RAMDISK MANAGER menu. You must also reformat the MEMORY PLUS since all sector information was lost during the test.

Technical Description

The MEMORY PLUS has the ability to change its drive number to DSK1-5. If the MEMORY PLUS is selected as DSK1 then a disk drive that has been configured for DSK1 will not be selected. This is true for a majority of the software available. However, some software programs do not follow the standard TI convention for DSR links. The result will be that even though your MEMORY PLUS has been selected as DSK1, for example, the program will still select the disk drive configured as DSK1. The Disk Manager provided with the CORCOMP DISK CONTROLLER will not catalog the MEMORY PLUS since the Manager does not use the standard DSR Link. There is no easy way to solve this problem short of modifying the application software.

If problems occur such as lost or scrambled data the problem may be due to improper power on and off procedures. Refer to the OPERATION section of this manual.

The MEMORY PLUS is initially selected at CRU >1000. A jumper on the circuit board allows you to change the CRU location to >1400 therefore allowing the use of a second MEMORY PLUS card or other ramdisk cards.

256K upgrade to 512K

If the MEMORY PLUS CARD is installed with 256K it may later be user upgaded to 512K. However, CorComp will only warranty the card as a 256K card. To install the RAM chips turn power off on the system and wait 2 minutes before proceeding. Remove the MEMORY PLUS SAU from the side of the console and remove the top cover by removing the 4 screws on the bottom of the chassis. Install eight (8) 256K X 1 dynamic ram integrated circuits into locations U17 to U24. Make certain that the pin 1 orientation is the same as the other IC's on the board. Reassemble the chassis. For the MEMORY PLUS P-box card remove it from the peripheral box and install eight (8) 256K X 1 dynamic ram chips into location U12 to U19.

IN CASE OF PROBLEMS

If a problem should occur or if you have any questions please contact us at:

CorComp Inc.
2211-G Winston Rd.
Anaheim, Ca. 92806
(714) 956-4450

CORCOMP, INC. LIMITED WARRANTY

CorComp warrants the MEMORY PLUS PRODUCT which it manufactures to be free from defects in materials and workmanship for a period of 120 days from the date of purchase.

During the 120 days warranty period CorComp will repair or replace, at its option any defective products or parts at no additional charge, provided the product is returned, shipping pre-paid to CorComp. The Purchaser is responsible for insuring any product so returned and assumes the risk of loss during shipping, all replaced parts and products become the property of CorComp.

RETURN MATERIAL AUTHORIZATION (RMA) NUMBER

Any CorComp product which is returned to CorComp for any reason must reference a RMA number. A RMA number will be issued to a customer after the following information has been given to the Customer Service Department:

1. CorComp product model number.
2. Product serial number or date code.
3. Description of system configuration.
4. Name and telephone number of technical contact in case additional information is required.

All products shall be returned to CorComp freight prepaid. Note: If the customer does not contact the Customer Service Department for a RMA number, and the package arrives at CorComp, the package will be returned to the sender, freight collect and the product not repaired.

SHIP TO:

2211-G Winston Road
Anaheim, CA 92806

WARRANTY COVERAGE

This MEMORY PLUS PRODUCT is warranted against defective materials or workmanship. THIS WARRANTY IS VOID IF PRODUCT HAS BEEN DAMAGED BY ACCIDENT, UNREASONABLE USE, NEGLIGENCE, IMPROPER SERVICE OR OTHER CAUSES NOT ARISING OUT OF DEFECTS IN MATERIALS OR WORKMANSHIP.

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LEGAL REMEDIES

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

You cannot put the Myarc and CC 512K cards in the same PEBox. The Myarc card pages its memory over the standard 32K areas, and it cannot be mapped out. It is always active. The CC card pages its memory over the same 32K, but all the memory on the card can be paged out by activating a CRU bit. Thus, when you have two CC RAMdisks in the PEBox, the DSR of the one at >1400 can turn off the one at >1000. Since the Myarc cannot be turned off, a CC at >1400 would conflict.

If you pulled all the memory off the CC and stuck in a new -- not written -- DSR, you could use it as a DSR-only card. What utilities the DSR would have would be up to the author, but it would really be wasting the hardware when a simple DSR-card is easy to build.

There is a possibility that the Myarc card can be modified to disable 32K, but it would require a new DSR to shut it off at the proper time. It would be a lot of trouble.

A DSR card is simply a card with an EPROM that pages in DSR (>4000) space. It adds additional functions to the operating system. Maybe new calls, like the CALL FILES of the floppy disk controllers. Or it could add CALL INIT, CALL LOAD, and CALL LINK functions to standard TI BASIC without the need of a cartridge like E/A, XB, or MiniMemory. Maybe it would add hi-res graphics that could be used from standard TI BASIC or TI XB.

It could also include low-level routines that could be accessed by GPL or assembly programs. The DSR on the card would be limited to working with what was available in the system, since it is just assembly language or data space.

Some of the sideport cartridges use DSR space. In fact, a DSR can take over the system with its powerup routine -- a la P-code card or CorComp FDC. It may include a system wide diagnostic. There are lots of uses for such a card.

Jeff