SD Drive for MSX User's Manual

Repro-factory 2015

Based on MMC/SD drive by Yeongman Seo
Board Design by Metalgear2
Produced by Repro-factory

The SD Drive is a kind of MSX Disk Drive.
It works as normal MSX disk drive, but it is compact and much faster than FDD.

Minimum Requirements

For use with MSX DOS 1 : MSX1 with RAM 64KB.

For use with MSX DOS 2 : MSX2 with RAM 128KB.

Initialize the SD card
SD Drive support 16MB to 2GB memory card.
If you want to use FAT16 formatted card, you should remove MBR of card and format card as one FAT16 drive on a PC.
When booting a FAT16 SD Card, system will boot on the embeded DOS-ROM.
Type FAT16.COM to load the FAT16 driver and be able to use the SD Card.

Standard Initialisation procedure:
-Leave SD card slot empty.
-Insert SD Drive in any MSX SLOT. Any primary or extended SLOT can be used.
-Turn on MSX, and wait until MSX-DOS prompt appear.
- type 'INSTALL [return]'
- Insert new SD card in SD slot, and follow installer instruction.
- System Disk A will be visible on Windows PC's Card-Reader. You can transfer MSX files between PC and MSX via System Disk A.
- For System Disk B, you may select built-in Flash-Disk or memory card.

Be carefull, some low cost sd card may not work properly with this interface. So use only brand high quality SD Cards.

SD Drive does not use generic MBR and use its own partition table. SD System installer builds partition table during initialization. First partition is called by System Disk A. This is FAT12 drive. And it begins at physical sector zero.
System Disk A is also visible on PC Windows Card Reader. You can transfer files via System Disk A.

COVOX Module
The embeded COVOX module enable you to play 8bits PCM file directly from the MSX Memory without the need of any other hardware.
You can found multiple PCM player over Internet.

Floppy Disk Drive Emulation.

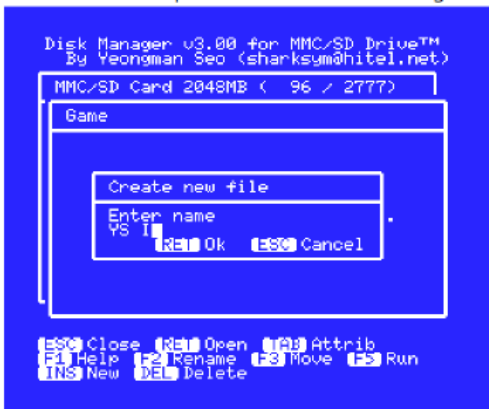You can import .DSK files and run them as virtual FDD to play games. Most .DSK files are compatible. To import .DSK files :

- first you have to copy the files on the SD Card, from a PC.
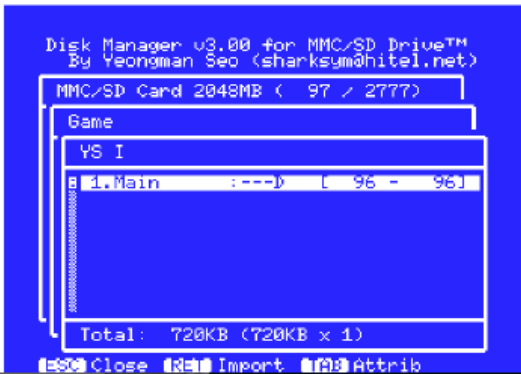- Boot on the SD Card and launch DISKMAN. Type DISKMAN [return]
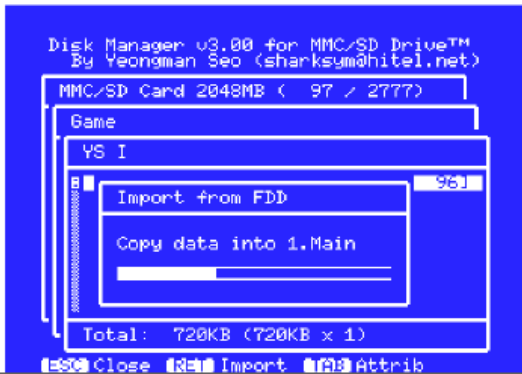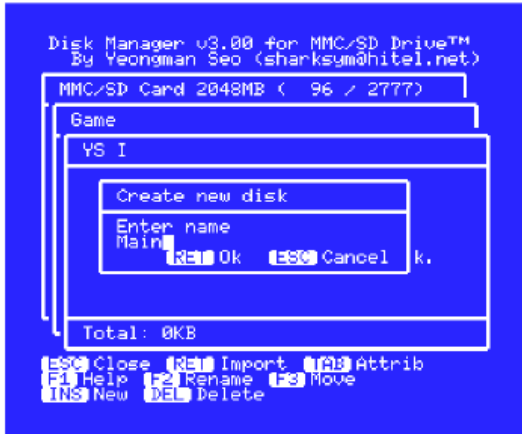

With Diskman, create Folder, then import .DSK inside those folder.

At first screen, press « INS », then enter the name of the Folder « Game »
Open it, by pressing « return », then press « INS » to insert .DSK files

Enter the name of the Floppy disk you will import « YS I », then choose the media type « 2DD »

Type the name of the Floppy Disk « Main », press « Return », select from where you will import the disk.
From a .DSK file, or from the floppy disk drive itself.
Choose « *.DSK », enter the name of the drive « A », then choose the good file, and import it.

With F5 key you can choose how to start the game you just import.

Choose « Set disk & reset system ».
This will reset computer, and boot on the virtual floppy disk you just import.

Even if you turn off your MSX, the bootup is configured to boot on the virtual floppy.
If you want to come back to the normal boot sequence, press « DEL » at the boot sequence.

If you have imported a multi-disk game.
When the game is asking you to change the floppy disk with a message like « Change disk, and Press space start »
Press « stop+Space », then press the number key of the disk you want to start, from 1 to 9.

In Diskman. You may have to set some parameters.

ONE-Drive:
This method is simulating traditional one drive boot from DOS1.
It provides quite similar effect that pressing CTRL key during boot from FDD.
It is done by pressing SHIFT key during boot from MMC/SD Drive.
Or you can store ONE-Drive mode option in DISKMAN.

Turbo Mode:
You can force to use CPU turbo mode.
If MSX is Panasonic's WX/WSX, 5.37MHz clock mode will be enabled.
Or R800 turbo mode can be enabled for MSXturboR.
This mode can be enabled also during boot.
To enable this, hold 'T' key during disk boot

Banking Protection:
If this option is enabled, SCC banking address is not visible for software.

Only protection switch address is visible.
In this mode, SCC sound does not work.
But this may solve some copy protection issue.
This mode can be enabled also during boot.
To enable this, hold TAB key during disk boot.

Slowdown Speed:
SD Drive is normally 10 times faster than FDD at read/write disk.
Due to a fast read time, some 2DD based game does not work correctly.
They do not check correctly busy state of VDP and assume game is running on slow FDD.
So, extra delay time for CPU/VDP is needed.
If this option is enabled, MMC/SD BIOS use HW v1.0 driver.
HW v1.0 driver is slower than normal v2.x driver.
This will reduce speed 130KB/S to 40KB/S.
(Generally FDD transfer speed is about 10KB/S.)
This solves most problems about mishandling VDP command.

Use Hot-Key
Disk Change (RUN, STOP) – Only work during disk r/w.
Disk No.0 (NUM0, 0)
Disk No.1 (NUM1, 1)
Disk No.2 (NUM2, 2)
Disk No.3 (NUM3, 3)
Disk No.4 (NUM4, 4)
Disk No.5 (NUM5, 5)
Disk No.6 (NUM6, 6)
Disk No.7 (NUM7, 7)
Disk No.8 (NUM8, 8)
Disk No.9 (NUM9, 9)
Disk User (NUM/, U) – No.0 to User are only work during Disk-Change.
Disable DOS2 (INS) – Only work during boot.
Disable ROM-Banking (TAB) – Only work during boot.
Use HW v1 driver (Z) – Only work during boot.
ONE-Drive (SHIFT) – Only work during boot.
Reset Drive A: (DEL) – Only work during boot.
Enable Turbo (T) – Only work during boot.

Software Description

INSTALL.COM
- Install MMC/SD System.
- Initialize MMC/SD Partition table, and format System Disk A & B.

DISKMAN.COM
- Import disk sectors from FDD or DSK image file.
- Exchange partition of drive A:
- Execute drive A: disk

XCHGMMC.COM
- It is used for exchange MMC/SD card on slot1 or slot2.
- Update disk information after exchanging card.

XCHGDRVB.COM
- Toggle drive B: between built-in Flash-Disk and System Disk B on MMC/SD card.

Attention.
Even if this cartridge is based on SD 2.2 from yeongman seo, all features of the original Cartridge are not implemented.
<u>**Use this SD cartridge as mass storage device only.**</u>
Other features you may found in this manual are guaranty.

Doc 1.2
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