

MMC64 for Newbies V1.0

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** Plugins and BIOS files mentioned in the article may be downloaded at:
<http://www.c64reloaded.com> **

** For updates and/or corrections please email me at the address above **

The MMC64 is a flashcard-based mass storage unit developed by Oliver Achten and produced by Jens Schönfeld of Individual Computers. It accepts either MMC or SD cards and connects to the cartridge port of the C64/128/128D/SX-64. Once connected, you are able to read any FAT-16 formatted card up to 4GB in size. When connected to a C128 or C128D, it automatically boots you into C64 mode. The unit has a built in pass-through cartridge port, flash jumper, JTAG port (only intended for factory use), and clock port. The clock port allows you connect items such as the RR-NET, a networking card which gives you access to an intranet, and will provide for future expansion.

The built-in and flashable BIOS with integrated file browser provides an easy solution to access any data which is stored on the flash card. Once the computer is powered on, you will see a blue option screen with several choices: F1-Start File Browser, F3 Edit Configuration, F5- Upgrade BIOS, and F7-Exit To Basic. All System files are located in a directory named: SYSTEM64. Other directories may be created to store other C64 related files. ie. GAMES, UTILITES, etc... The integrated file browser allows you to play SID files with its built in SID player, load and run .prg files (single loading files), and write D64 files to a Commodore floppy drive. Currently, the size is limited to a file of 202 blocks or smaller. Since all programming documentation is made public, including sample sources for reading/writing single blocks and reading files using the BIOS, there are many plugins which are constantly being developed by coders and released as freeware.

Plugins are supported with the MMC64 by simply placing the appropriate plugin file in the /SYSTEM64 directory. Listed below are the plugins which are available during the writing of the article. Since most of the plugins come with a readme or help file I will not go into detail of all the command functions of the individual plugins.

MMC64 Picture Plugins v1.2 - by Oliver Achten: Displays pictures of different formats (Koala - *.koa, Doodle - *.dod, Advanced Art Studio - *.ocp, Interpaint (Hires) - *.iph, Hi-Eddi - *.hed, Art Studio - *.art, Paint Magic - *.pmg)

MMC64 *.ani plugin v1.1 - by Oliver Achten: Play-back *.ani files used by the IDE64 module

D64 Writer Plugin v0.92 - by Kratznagel: Writes a standard D64 image back to a 1541 or compatible floppy device in about 80 seconds

D64 Reader v0.5 by Oliver Achten: Read a disk inserted into your 1541 drive to a disk image on your card.

CRT Plugin - by Graham/Oxyron: Run CRT (cartridge) images directly on a real C64 instead of an emulator.

MMC Browser v0.4+ - by TNT/Beyond Force: MMC64 File Browser supports 1351 mouse or paddles + many other features with optional Autoboot.
RAW Plugin - by TNT/Beyond Force: Playback raw unsigned 8-bit samples.
Text viewer Plugin v0.02 - by fieserWolf / METALVOTZE: 40 column text viewer.
Text viewer Plugin v0.09 - by fieserWolf / METALVOTZE: 80 column text viewer.
SidWatcher (siw) plugin for MMC64 v0.03 - by fieserWolf / METALVOTZE: Play .siw files which are ordinary .sid (PSID) files renamed.
DreamLoad - by Doc Bacardi (still being developed) - A mutiload file system. A converter will be released to convert from a .D64 image to the supported .DFI format

Since the BIOS is flashable it is very easy to upgrade to a new version once it is released. All you have to do is place the new .upd file in the /SYSTEM64 directory, turn on your Commodore and hit F5 to upgrade. There have been many improvements and bug fixes since the initial release of the MMC64. The first available BIOS was version v0.96 and the most current version is v1.01. There has also been an alternative replacement BIOS v0 released by Sasq. If for any reason a BIOS upgrade goes wrong a backup disk in .prg and/or D64 image can be used to revert back to a previous BIOS version.

MMC64 FAQ's:

Q: What is the difference between a MMC and SD card?

A: Speed, Durability (SD is Thicker), write-protection (on SD card), copyright protection (MMC has 7 pins vs. 9 on a SD card)

Below is a speed comparison:

MMC = 2.5MB/sec

SD = 10MB/sec

MMC Plus = 52MB/sec

High Speed SD = 20MB/sec

Q: Does the MMC64 clockport interfere with the RR clockport?

A: Both clockports can be used simultaneously

Q: Does the IDE 64 work with the MMC64?

A: Yes, in a sense. You can not read/write from one to another but they use different I/O locations so they should work together.

Q: Does the MMC64 work in the SX-64?

A: It has been reported to work in some systems but not others. One problem may be the inferior quality ribbon cable used in some SX-64's. Replacing the ribbon cable with a quality one MAY fix the problem. (Requires soldering)

Q: Does the MMC64 work in C128 mode?

A: Currently, no. The MMC64 boots you automatically into C64 mode. But, it use's the 2Mhz mode whenever possible which makes reading files and directories smoother than on a C64.

Q: Can the Retro Replay be used with the MMC64?

A: If using the the MMC Browser plugin it is possible.

Q: Will the MMC64 work with the SuperCPU?

A: Yes, but untested.

Q: Why won't my flash card work?

A: The card has to be formatted for FAT16 or sometimes referred to as FAT in Windows XP. (Or check the other FAQ's below)

Q: What size flash card can be used with the MMC64?

A: Any size up to 4GB can be used. On a card smaller the 32mb you may need to use a special format command: `format [drive letter]: /FS:FAT /V:MMC64 /Q /X /A:512` or `format [drive letter]: /FS:FAT /V:MMC64 /Q /X/A:1024`

Q: Can a card larger than 4GB be used?

A: Therethically yes. But, it will have to be supported in the software.