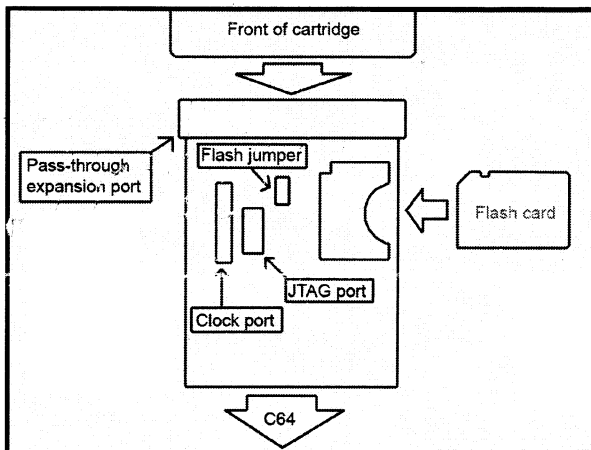


MMC64 Instruction Manual

1. Hardware Installation

Insert the MMC64 into the Expansion port of your C64/C128. Make sure that the components on the MMC64 are facing upwards. Now you can insert a FAT16 formatted Secure Digital / Multimedia flash card into the card slot on the upper right side. Turn on your machine, and after a short while, the blue BIOS title screen appears.

The following picture illustrates how to utilize the different ports of the MMC64.



If you are using the pass-through expansion port, mind the correct orientation of the card! On a C64/C128, the side that normally faces up (label side) must face to the user. On an SX64, the label side of a cartridge in the passthrough port must face down.

Leave the Flash jumper open for normal operation. Do not use the JTAG port, it is only intended for factory use. The clockport is for the RR-Net Ethernet card only. There is only one way to connect the RR-Net card, it does not fit the wrong way round. Make sure that you hit both pin rows, and never connect the card shifted!

2. Using the MMC64

The MMC64 is equipped with a built-in BIOS to provide an easy solution to access the data which is stored on the flash card. After power-on, you see the blue option screen with the following choices:

f1 – Start filebrowser

Press the f1 key to start the file browser. The C64 is now reading the data stored on the flash card. The directories are displayed on the left side of the screen, files are displayed on the right side of the screen. You can now navigate through the file structure of the card using the **RIGHT SHIFT CRSR UP/DOWN CRSR LEFT/RIGHT** keys. You might have to get used to using the right shift key with the cursor keys. The left shift key has a different function: It speeds up the repeat rate of the cursor keys, so you can navigate to the desired file faster. While browsing on the left side, pressing **RETURN** changes directories. **RETURN** on the right side of the screen causes different actions which are determined by the file-extension.

PRG	C64 executable files. Load & start instantly.
SID	C64 sound files. Loaded and played using the built-in soundplayer.
D64	Disk image files. Can be written back using a 1541 compatible drive.

If the file extension differs from the types shown above, the filebrowser tries to load a plug-in module associated with the file type. Plug-in modules are stored in the **SYSTEM64** directory which has to be created by the user manually in the main directory.

When pressing **R**, the filebrowser tries to load a special plugin to read the contents of a floppy disk and store them as a D64 file on the flash card. This plugin is currently under development, please check the individual Computers website for updates. [this information: march 2005]

You can leave the file browser anytime by pressing the **RUN/STOP** key.

f3 – Edit configuration

Press the f3 key to enter the configuration menu. You have the following options:

F1	MMC64 bios on startup	Enables & disables the BIOS on power-up. The BIOS is always enabled by pressing the LEFT SHIFT key on power-up.
F3	Autoboot on startup	On power-up, the MMC64 tries to load and start a boot file which is placed into the SYSTEM64 directory. This option enables & disables this behaviour.
F5	Save & exit config	Saves the configuration permanently on the MMC64 card. You will have to set and reset the FLASH jumper on the MMC64 in order to finish this procedure.
F7	Exit without saving	Exit the configuration menu without saving the changes made.

f5 – Upgrade BIOS

Press the f5 key to upgrade the built-in BIOS on the MMC64. You have to place a special BIOS upgrade file into the **SYSTEM64** directory. After pressing f5, please follow the on-screen instructions very carefully to avoid complications.

f7 – Exit to BASIC

Press the f7 key to leave the MMC64 BIOS, and return to BASIC. This procedure also enables any hardware which is plugged into the pass-through expansion connector of the MMC64. For compatibility reasons, you can de-activate the MMC64 completely by pressing the f7 and **LEFT SHIFT** key simultaneously.

3. Useful keys

General	SHIFT + f7 C= C= while loading A PRG file	Exit BIOS and disable the MMC64 Disables autostart on power-up Disables autostart after loading the PRG file
Filebrowser	CRSR LEFT SHIFT RIGHT SHIFT ENTER RUN/STOP	Move up/down/left/right accelerate cursor movement Toggle cursor direction Change dir / load file Exit filebrowser
Soundplayer	+ - RETURN CTRL SPACE C= RUN/STOP	Play previous / next tune Restart tune Fast forward Blank screen Volume boost (for silent tunes) Exit songplayer

4.Preparing a flash card

The file browser only supports the FAT16 filesystem. This is the standard filesystem that the Windows operating system chooses when formatting a card. If you are using an alternative operating system like Linux or Amiga OS, please choose FAT16 as a filesystem.

Only 8+3 filenames are supported. If you're using the VFAT extension, long filenames will be cut off after 6 characters, and extended with a number.

Copy your favourite files to the card using your favourite file commander. If you are making a card with the High Voltage SID collection, you should skip on PSID files, they are not supported by the player. SID and RSID files are supported.

Before removing the flashcard from the writer, you **MUST** choose 'eject' from the context menu (right-click the volume on the windows desktop). This will tell the computer to write all memory buffers to the card. If you pull the card out of the reader/writer too soon, you risk data loss!

5. last words

Writing D64 images is slow at the moment. Very slow! Since the rom space for the BIOS is very limited on MMC64, there was no space to implement a fast formatter or even a fast disk writer. However, this does not mean that MMC64 is inferior to other solutions. The Plugin system allows replacing the built-in D64 writer by an external program that is located in the SYSTEM64 directory. Since today's flash cards are much larger than any rom/eprom chip that we could put on the MMC64 hardware, this is the most flexible method of giving you up-to-date hard- and software at an affordable price.

All programming documentation for MMC64 will be made public. This includes sample sources for reading and writing single blocks, for reading files using the BIOS, and more. If you want to adapt any software to MMC64 and have any questions, don't hesitate to ask!

We're happy to announce that Christoph 'Doc Bacardi' Thelen will implement MMC64 routines in his 'Dreamload', and that the scene group 'remember' will be using that adapted version of Dreamload for their next releases.

Visit Individual Computers webpage

<http://www.ami.ga>

for infos, upgrades and plug-ins !

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