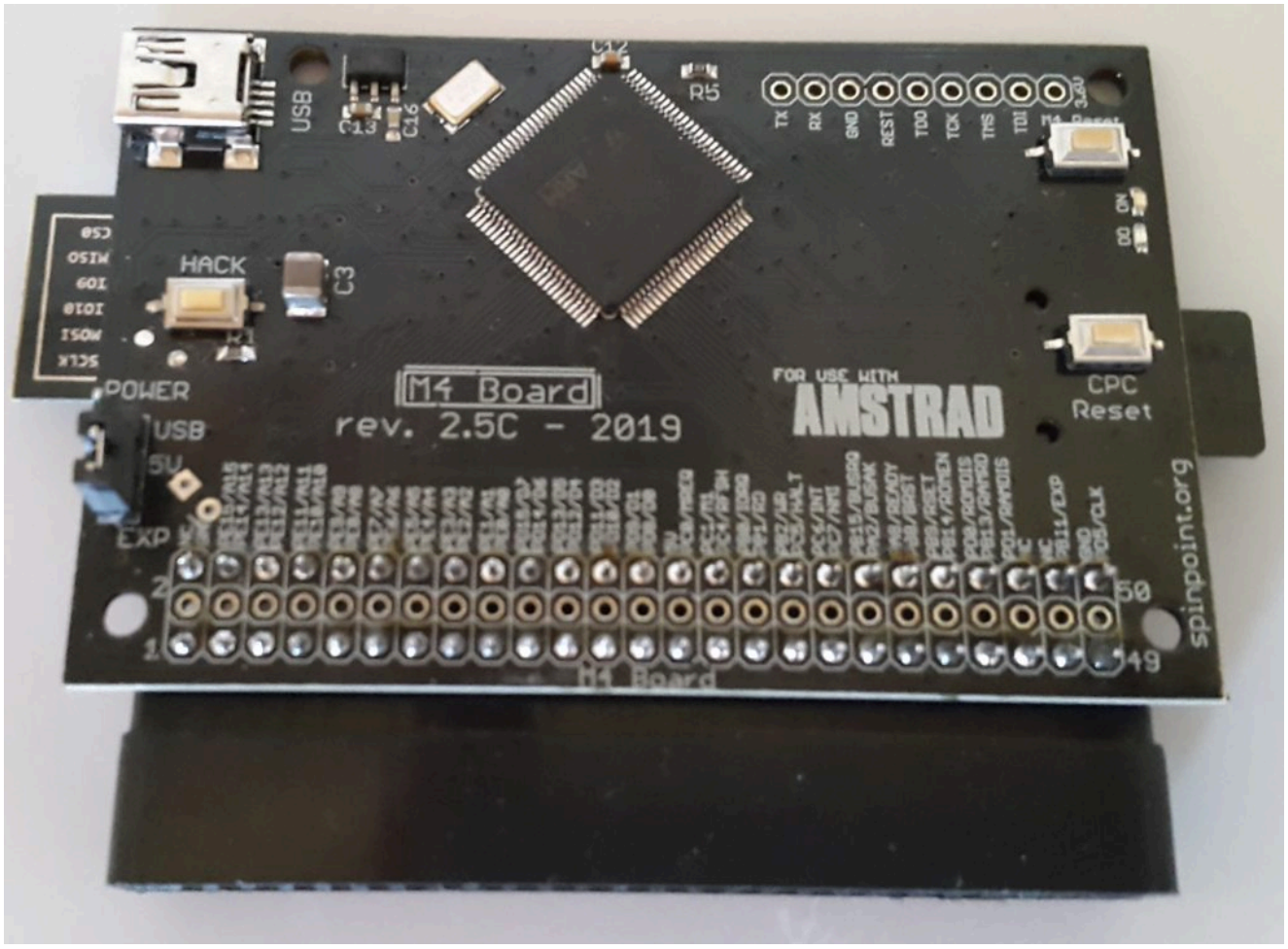
M4 Board v2.x

Firmware v2.0.8

M4 Interface Card for Amstrad CPC / CPC Plus

Extended User Manual

31-10-2024



Created by Duke, the developer of M4 board and firmware, text version of general information

Additional chapters and PDF version of the Manual by Csaba Toth

INTRODUCTION

The M4 Board is an expansion card, which enables WIFI access for the Amstrad CPC computer and (bi-directional internet access). It provides a Romboard, a realtime clock and an SD-Card slot for mass storage. You can load Basic files (BAS), disk images (DSK), cartridge images (CPR) and load ROM files (BIN, ROM) to 31 slots.

INTRODUCTION OF BUTTONS

Right upper button << Card Reset >> (hot restart) - when using, the machine remains the last used directory, mapped disk, etc.

Note, that in CTR mode (when a cartridge file is used), this button will NOT restart the machine, only the cartridge app/game will be restarted.

Right bottom button: **<< CPC Reset >>** (cold restart) - it will restart the machine. Afterall, the machine does not remain the last used directory or mapping, the current directory will be the root directory.

Left << HACK >> button: launch Hack menu.

SETUP of the M4 Board

Insert a microSD card to the M4 Board.
Copy the DSK, CPR, ROM, BIN or BAS files to the card.
Boot up the CPC.
The SD card's file system can be used natively with **SAVE**/**LOAD**/**RUN**/**CAT** etc. commands.
Note, that **LOAD**/**SAVE** behave normally, if you don't specify an extension, it will be auto added (., .bas, .bin).
.bak files will be created if you overwrite a file with the **SAVE** command.
For further commands, see the ***RSX COMMANDS*** part.

If you wish to use the card on its web interface, romboard, realtime clock or download stuff from the internet, then you have to setup the network connection.

FILE SYSTEM

The microSD card is addressable with drive letter **C:**

The microSD card should be formatted to FAT16 or FAT32 partition - FAT32 is preferred to use. The file system supports up to 2048 files per folder.

File names will be listed in 8.3 format for native compatibility.

Directories will be listed with their full name if less than 17 characters. If the directory name length is longer, then short directory names will be used.

When listing a directory/catalog, directories will have a **>** character in front of the directory name.

FILE LISTING

Use **|ls** command to list the files of a directory by using long file names. It is only limited by the current screen mode (using one column listing for **ls** command, while the ordinary **cat** command uses two column listing). Use this command instead **|dir** to get the long file names and use them directly.

You can pause the directory listing by pushing once the **<< Escape >>** key, and pushing space for continuing the listing. You can interrupt the listing by pushing the **<< Escape >>** key twice.

You can also use **<< Cursor >> and << Copy >>** keys for quick file name entering - it has no problems with special and symbol characters.

POWERING the board

The M4 Board can be powered directly from the CPC or via USB power supply (5V). There is one single jumper on the board, to set this.

If you set a jumper to **EXT pins**, then it will use the CPC's power supply. If you set the jumper to **USB pins**, then it will getting power via the USB socket.

Notice: If you're using **MX4 motherboard** with plugged in M4 board, then you must use an external power supply, either directly to the M4 or the MX4.

STATUS LEDs

- **ON** LED: indicates with **blue** led if the board is getting power source.

- **DD** LED: Disc Drive - it will be flashing by **green** when reading from / writing to the SD card.

FIRST STEPS

When starting the M4 Board in our Amstrad CPC, make a folder called „**M4**" to the microSD card, which are automatically created these three files in the root of the card:

- **romconfig.bin**

- **romslots.bin**

- **config.txt**

Later you can modify the configuration files if you need it.

Then take out the microSD and edit the file(s) on a PC. Check chapter **M4reconf** for more.

Example of content for the CONFIG.TXT file (optional to use)

```
ssid=wifi_SSID_name
pw=wifi_password
name=CPC
dhcp=1
dns1=8.8.8.8
dns2=8.8.4.4
tz=1 ntp=ntp.inet.tele.dk
```

EXECUTING FLOPPY IMAGES (.DSK)

cat or **|ls** (long file names) - it will list the current directory's content

|cd,"DSK" - enter the directory which contains DSK floppy image files

cat or **|ls** (long file names) - it will list the current directory's content

|cd,"name.DSK" - it will open/mount the floppy image. DO NOT USE Space character after the file name!

cat - it will list the image content (files)

run"DISC" - to execute the program / game. (Note, that for files with file extension .BAS, you don't have to use the extension e.g. in case of "**DISC.BAS**". In case of files which are not using the .BAS extension, you have to use the file extension, e.g. "**GAME.BIN**".)

Important!

After reset / hot start the computer, the mounted floppy will be still active and mounted, therefore you can list it again with cat command, execute again, etc.

If you want to change the disk, first you have to step out from the directory:

|cd,".." - step up to the parent directory

or

|cd,"/" - step to the root directory

USING MULTIPLE FLOPPY IMAGES (.DSK)

For multiple floppy discs, there is a way to use them. For this, you need to extract all files of every disc images into the same directory on the microSD card.

Use the **|DSKX** command to extract files on the CPC. All files off all images should be extracted to the same given path.

|DSKX,"somedisk1.dsk","/mypath" - Extract files from DSK image

|DSKX,"somedisk2.dsk","/mypath" - Extract files from DSK image

|DSKX,"somedisk3.dsk","/mypath" - Extract files from DSK image

|DSKX,"somedisk4.dsk","/mypath" - Extract files from DSK image

and continue with the necessary disks.

EXECUTING CARTRIDGE FILES (.CPR)

cat or **|ls** (long file names) - it will list the current directory's content

|cd,"CPR" - enter the directory which contains CPR cartridge files

cat or **|ls** (long file names) - it will list the current directory's content

|CTRUP,"name.cpr" - it will upload the cartridge file to the M4 board's flash memory. DO NOT USE Space character after the file name!

|CTR - to start the uploaded cartridge image

An alternative solution is in case of not starting a CPR file is the following:

cat or **|ls** (long file names) - it will list the current directory's content

|cd,"CPR" - enter the directory which contains CPR cartridge files

cat or **|ls** (long file names) - it will list the current directory's content

|CTRUP,"name.cpr" - it will upload the cartridge file to the M4 board's flash memory. DO NOT USE Space character after the file name!

|cd,”name.cpr” - enter CPR cartridge file

cat or **|ls** (long file names) - it will list the current CPR cartridge file’s content

run,”DISC” or other .BAS, .BIN file to execute.

Important!

After reset / restart / turn-on/off the computer, the uploaded cartridge content will remain until you don’t upload another CRT image to the M4 board.

AUTOSTART COMMANDS, FILES

If you make a file called "**AUTOEXEC.BAS**" in the root of the microSD card, the file will be autostarted every time when the CPC will be turned on.

This is useful for making custom settings, like setting of screen mode, colors, mapping a drive or enter into directory or executing a software, etc.

Here you can use any basic commands in this file that you want. It’s a Basic file only that will be automatically launched. See the Amtrad User manual for basic commands.

Example:
Enter commands in each numbered line e.g as
10 mode 2
20 ink 1,26
30 cd,”DSK”
40 |ls
Then you have to save the file with the command: **save"autoexec.bas**

Notice: This should be done on the CPC itself, not in notepad on PC, unless you manually add the correct fileheader.

M4FE - DISK NAVIGATION Front-end for M4

M4FE is an application designed to serve as a front-end for the M4 Board for the Amstrad CPC and Amstrad Plus range of computers. It's available as a ROM.
https://www.cpcwiki.eu/index.php/M4FE_-_A_front-end_for_M4

Features

- Directory browsing using keyboard and/or joystick with support for up to 64k entries per directory.

- Application launching with support for CPC BASIC files, Binary files or SNA snapshots.
- Text file viewing. Automatic for ASCII files or manual for any other type.
- File searching
- DSK to Disc transfering
- This application is distributed as a ROM, which means it needs to be installed in either a software ROM slot in the M4 itself or a ROM Box attached to your system.

To run the application type the following command at the BASIC prompt: **|M4FE**

DISK NAVIGATION SOFTWARE OPTIONS

8 bit Disk Menu

There is a disk navigation program (disk name **DISC.DSK**) to avoid all the typing for changing directories.

https://github.com/cpcbegin/cpcdiskmenu

DISC.BAS by Joe Halsteadand Takis Kalatzis

There is another small directory navigation software called **DISC.BAS**

http://www.cpcwiki.eu/forum/amstrad-cpc-hardware/amstrad-cpc-wifi/msg134659/#msg134659

Instructions for use :

- save it in the **root folder** of the SD card, use cursor keys for navigation
- **<< Space >>** gets inside directories or selects a file for Load,Run.
- Cancel lets you select another file
- "**O**" key gets out of a directory
- Since the original program used, **CAT** command and this has not been modified, it probably will not work well with cards having hundreds of files.

M4 explorer

Access the software from web archive:

https://web.archive.org/web/20181113190515/http://amstrad.esy.es/menu/m4explorer.zip

YANCC (Yet Another Norton Commander)

YANCC is a file manager and can be loaded and started from rom binary mapping.

https://www.octoate.de/tag/yancc/

Use the following commands to configure and start the YANNC:

|SD

|A

|YANCC

|LAUNCH

Copy and extract the **yancc.dsk** image to the CPCwith the command:

|dskx, "yancc.dsk", "/yancc"

Then enter the path

|cd, "yancc"

Then execute the software

RUN "config.bas"

Afterwards when the updated **YANCC-CP.ROM** file made, upload it the created ROM files to the required ROM slots on the M4 board and upload the rom binaries to the M4 board's rom slots.

|romup, "yancccc-cp.rom", 3 (or whatever ROM slot)

|romup,"launch.rom", 10 (or whatever ROM slot)

File launcher for YANCC

There is another file launcher which is based on YANCC.

https://www.cpcwiki.eu/forum/applications/yet-another-norton-commander-clone/

Disk Navigation from Android system

Navigate and run stuff from your Android phone by Frange:

https://github.com/Frange/Amstrad-M4-Board

M4reconf

A native CPC program to write romslots.bin and romconfig.bin with the romboard (to use other M4 rom configuration).

https://www.cpcwiki.eu/index.php/M4reconf

Unpack the m4reconf.bin to the **/M4** directory of the microSD.

Copy whatever **romslots.bin** and **romconfig.bin** you want to use to the **/M4** directory as well.

Run"m4reconf.bin" - execute the file

Power up the CPC and done.

Structure for romslots.bin & romconfig.bin under m4 directory are: **romslots.bin**
It contains 32x raw rom data (no headers). To locate a rom in the file, use this command:

offset = slot * &4000

Content of the romconfig.bin ROM
Header:

int totalRoms; // 32 (early versions of the firmware had only 16)
int m4RomNum; // M4 rom to map rom number 0-255
int m4RomEnable; // M4 rom enabled
int romRangeStart; // start mapping roms from
int lowerEnable; // lower rom replacement enabled
int lowerSlot; // which slot maps lowerrom (0-31)
unsigned int reserved[2]; // set to zero for now

Then for each rom (repeated 32 times):
char updateflag; // 0 = no rom present (or disabled),
1 = rom present (enabled),
2 = New rom will be flashed into M4 internal flash,
3 = remove rom
char name[32]; / name of rom to be displayed in web interface

USING RSX COMMANDS

It has the same commands as the original AMSTRAD CPC system, ie. load, save, run, openin, openout, cat etc. However handling of directories, accessing WiFi and more some RSX commands were added and some of the commands usability have been extended.

Notice on CPC's with Basic 1.0 (CPC464), RSX commands work in a different way, you can't pass the parameters directly to the rsx. You will have to carry out via a variable.

For Basic 1.0 (464 CPC computers) to change the current directory to a subdirectory called "**DISCS**". Type: **A$="DISCS":|cd,@A$**

Or make it much more easier to navigate for basic 1.1 users a prompt was build into **|cd** command. You can press **|cd** and **<ENTER>** then you type or use cursor copy for the proper name.

On basic 1.1 it would be: **|cd,"DISCS".**

With the M4 board you can replace the lower rom, so you can use Basic 1.1 on CPC464 too.

There is a small program for CPC464 to do this for you, you can download it from the CPC if you have setup the WiFi:

a$="spinpoint.org/cpc/ROMUP464.BIN"

|httpget,@a$

or you can download it via your web browser:

http://www.spinpoint.org/cpc/ROMUP464.BIN and copy it to the microSD card.

Execute it with the following command:

RUN"ROMUP464

It will also set M4 rom slot to 7, which is best for compatibility with games. You can change it from the web interface again.

CD - Change dir, as known from DOS, you can use it like:

|cd,"games - it will go to the subdirectory games, but you can also do

|cd,"games/batman" – it will go directly to another sub-directory.

|cd,".." – it will go out by one directory level to the main directory

|cd,"/ - it will take you to the root of the sd card.

Note, that DSK files are read only. You can use DSK files as a folder, ie.

|cd,"robocop.dsk" - it will take you inside the DSK file as it was a folder.

|cd,".." and afterall it will take you back, out of the directory to the main directory

Note, that it's also possible to use command **|CD** and go into a converted CPR cartridge image (CPC+/GX4000 compatible cartridge files) similar to when using DSK images.

CTR - Execute a cartridge file (CPR), which was flashed to the M4 board. Available for CPC PLUS only!

|CTR

CTRUP - Upload a cartridge image file to the M4 flash. Format can be either plain binary dump or .CPR format. Available for CPC PLUS only!

|CTRUP,"cartimg.cpr"

COPYF - Copy file, src file, dest file. Paths can be used too. (for microSD only)

|COPYF

FCP - Copy files between the microSD card and floppy drive(s).

|FCP,"MYFILE.BIN", "A:" – it will copy MYFILE.BIN to drive A.

Important! You can also address microSD card with drive letter **C:**

|FCP,"A:MYFILE.BIN", "C:" - it will copy MYFILE.BIN to the current directory in microSD.

There is one wild card option, "*" to copy all files from a disc or directory.

|FCP,"A:*","C:" – it will copy all files on disc **A:** to the current directory of the SD card (**C:**).

REN - Rename and old file name to a new file name

Just like with CPC discs, you can also use it to rename a file or move a file / folder from a directory to an another directory / path.

|ren,"robocop.dsk","robot.dsk" renames the file from the current directory to a newer file name.

|ren,"games/robocop.dsk","robocop.dsk" moves the file from the games directory to another path.

|ren,"/games","/apps" renames the directory to an another directory name.

ERA - Erase a file or folder.

Wildcards can be used to delete multiple files/folders.

|era,"*.bak" – it will erase all .bak files in current directory.

|era,"games/r*.d?k" – it will remove all matches under games directory.

MKDIR - Create a directory in the current directory or in a remote directory.

|mkdir,"games/discs" - creates a subfolder under games directory.

DISC - Switch to AMSDOS (floppy discs) if present

|DISC

SD - Switch to M4 (microSD) - it is useful e.g. after you used the tape, etc.

|SD

Note, that SD card can be addressed as drive **C:**

SNA - Start a SNAPSHOT image made by an emulator.

|SNA,"FRANKIE.SNA"

DIR - Display directory, similar to cpc discs, you can add wildcards to it, unlike the cat command.

|dir,"games/discs/b?t*.dsk"

DSKX - Extract files from DSK image.

|dskx,"somedisk.dsk","/mypath" - all files will be extracted to given path.

LS - Display directories as long file names. Max. length depends on the screen mode. Same parameters as **|dir** can be used.

|ls,"games/discs/b?t*.dsk"

TAPE - Switch to tape. Use **|SD to** switch back to M4 (microSD).

|TAPE

TIME - Displays current time if the NTP time server was configured properly and the card has internet access.

|TIME

NETSET - see **NETWORK CONNECTION** chapter

NETSTAT - Will display current status of network connection

|NETSTAT

HTTPGET - Download a file from the internet to the current directory. Parameters are url:port/name. If no port is specified then port 80 will be used automatically.

|httpget,"spinpoint.org:80/battro.dsk"

or **|httpget,"spinpoint.org/battro.dsk"** will also work.

HTTPMEM - Downloads a file from the internet to the memory. Max file size at once is 0x4000 bytes. However an offset can be specified, so more can be read in chunks.

Parameters are **url:port/name, memory address, size to read**

|HTTPMEM,"spinpoint.org/cpc/FIST.BIN",&C000,&4000

|HTTPMEM,"spinpoint.org/battro.dsk, offset=0x10000",&8000,&1000 - This will read from offset 0x10000 into the file.

M4ROMOFF - Disable M4 rom until the next power cycle. Use this if you want to access the real floppy drive or start a CPC+ cartridge.

|M4ROMOFF

M4HELP - Displays the roms 1-32.

|M4help,romnumber - lists commands for the given rom.

ROMSOFF - Without parameters, all roms of the M4 board are disabled until the CPC is rebooted or the M4 **<< Reset >>** button was pressed.

Optional parameters are **"except rom number", "reset" (0 = do not reset, 1 = do reset).** By using these it's possible to disable all roms except one.

|ROMSOFF,6,1 – this will disable all other roms than rom 6 and reset the CPC.

VERSION - Displays current firmware version of the Cortex M4 microcontroller and the ESP WiFi (ESP8266 module).

|VERSION - There are two firmware entries, the general version (**M4FIRM.BIN** for the MCU) and the ESP version (**ESPFIRM.BIN** for WiFi module).

UPGRADE - upgrade the M4 board's firmware.

There are two firmware files for the M4 board simultaneously, the **M4FIRM.BIN** file for the MCU and the **ESPFIRM.BIN** file for the WiFi module

Let's download latest upgrade from: https://www.cpcwiki.eu/index.php/M4_Board#Firmware.

To perform the firmware update, both files should be updated at the same time. Unpack and copy the files on a PC to the root of the SD card and insert the SD card to the M4 board.

|UPGRADE - Upgrade process will start and the board will display again once finished.

Afterwards you need to restart the M4 board by the **<< Reset >>** switch or turning power off/on the CPC.

ROMUP - Upload rom binary file to a rom slot.

|ROMUP,"UTOPIA.ROM",15 - this will upload Utopia rom to slot 15

Notice that **ROMUP** only works with files present on the microSD card, not from floppy disc.

ROMSET - Used to enable or disable rom (must be uploaded already).

|ROMSET,15,0 – this will disable the rom slot 15.

|ROMSET,15,1 – this will re-enable it.

ROMUPD - Will apply rom modifications (new roms will be flashed into M4 flash, without reboot need)

|ROMUPD

GETPATH - Getting and showing the current / selected path.

|GETPATH – it will show "m4" when the "A:\m4"-directory is selected.

LONGNAME - Shows the complete long file or directory-name.

E.g. "**cat**" displays "**ROMCON~1.BIN**", but

|LONGNAME, "ROMCON~1.BIN" will shot "**romconfig.bin**".

UDIR - No use in plain BASIC. Usage: **|UDIR**

WIFI - Use wifi

|wifi,0 - to turn off WiFi

|wifi,1 - to turn the WiFi back on.

Note about wildcards:

Files are using file extensions, so when filtering files via wildcards, you typically use the *.* format.

Directories do not have extensions, so you only need to use * for directories.

Valid wildcards are „*” (asterix) and „?” (question mark).

ROMS

By default M4 Board rom is mapped as ROM 6, this is for highest compatibility with games/demos/applications.

Note, that if your CPC supports overriding ROM 7, you should change it in the web interface, as it provides better compatibility.

If your CPC6128 does not support overriding ROM 7, a modified lowerrom was made to give virtually the same compatibility as using physical rom 7.

It's possible to map it as another ROM or disable it using the web interface.

Not all CPC6128's will allow to "override" rom7, and the board will keep resetting the CPC if that is the case. Fix this if the WiFi is not configured on the board.

Configuration of rom slots/files:

Create an **„m4**" folder in the root of the microSD card

|MKDIR,"M4"

enter the directory

|cd,"m4"

and create a plain text file named "**config.txt**"

Carry out a similar network settings in your WiFi router:

ssid=dd-wrt
pw=hackaway
name=CPC664
dhcp=0
ip=10.0.0.37
nm=255.255.255.0
gw=10.0.0.1
dns1=8.8.8.8
dns2=8.8.4.4
tz=1
ntp=ntp.inet.tele.dk

You need to change SSID and password to match your Router/AP. And use IP numbers that fit your network.

Then power on the M4 board in the CPC.

Type the IP address you gave the board into your browser, in URL format as **http://ipnumber.** Then the web interface will show up.

Now go to "**Roms**" under "**M4 Rom Config**"

Set the **Rom** number to ie. **6.** Then push to **Go** to "**Control**" and press **M4 reset**.

You can also use the how-to for make this: http://cpcwiki.eu/index.php/M4_Board#Various_files

How to use ROMS and config the M4 Board

CPC464:

Rom slot 0: This is reserved by BASIC ROM internally in the CPC, it can be replaced with the romboard, but it must be an another BASIC rom!

Rom slots 1-7: Free to use

Rom slots 7-31: These slots are NOT initialized by the standard system. Use a modified lowerrom (FW316) or booster rom (uploading in a slot below 8) to initialize these roms at startup.

It is highly recommended that you insert the M4 rom in slot 7, this will give you best possible compatibility with games.

CPC664/CPC464+/CPC6128+:

Rom slot 0: This is reserved by BASIC ROM internally in the CPC, it can be replaced with the romboard, but it must be an another BASIC rom!

Rom slots 1-6: Free to use

Rom slot 7: Reserved by AMSDOS disc rom internally in the CPC, it can be overwritten with ie. ParaDOS or other disc rom, if access to disc drive is still wanted.

Rom slots 8-15: Free to use

Rom slots 16-31: These slots are NOT initialized by the standard system. Use a modified lowerrom (FW316) or booster rom (uploading in a slot below 8) to initialize these roms at startup.

It is possible to set M4 rom to the slot 7 for the best compatibility, however you will lose simultaneous disc drive and SD card access. If you wish to keep both M4 and floppy disc drive too, then set M4 rom for the slot 6.

CPC6128:

Rom slot 0: This is reserved by BASIC ROM internally in the CPC, it can be replaced with the romboard, but it must be an another BASIC rom!

Rom slots 1-6: Free to use

Rom slot 7: Reserved by AMSDOS disc rom internally in the CPC, it CANNOT be overwritten on most of CPC6128 systems, with the exception of MC20C (iirc) motherboard. DO NOT use this slot!

Rom slots 8-15: Free to use

Rom slots 16-31: These slots are NOT initialized by the standard system. Use a modified lowerrom (FW316) or booster rom (uploading in a slot below 15) to initialize these roms at startup.

It's recommended to set the M4 rom to the slot 6.

M4 ROM SLOT

To upload a rom in the same slot as M4 rom is set to, it's possible, but it will only be active, if you type the command **|M4ROMOFF**.

Lowerrom

If the "**Lower-rom enabled**", you must upload a lower rom binary to the corresponding slot or the machine will reset/freeze.

It is recommended to use ie. slot 31 for lowerrom replacement, because if you want to disable it, the slot will not be initialized during the ordinary system configuration (and lowerrom should not be initialized like a normal rom = freeze).

If you are using a CPC6128 model and having problems with game compatibility it is recommended to use the modified lowerrom for the M4 board and put the M4 rom in the slot 6. Get thee modified lowerrom here: http://www.cpcwiki.eu/index.php/M4_Board

For other machines, simply set M4 rom to slot nr. 7. Otherwise, if you want to use floppy disc drive type **|M4ROMOFF**

Upgrading Basic v1.0 on CPC464 to Basic V1.1

Both basic and lowerrom must be replaced or it these will not work. Download ie. the roms for the CPC6128 from here: http://www.cpcwiki.eu/index.php/ROM_List

Upload OS rom to e.g. slot nr. 31 and tick "**Enable lower-rom**" and set it to slot 31.

Upload BASIC 1.1 rom to slot 0.

Access to the M4 Board via PC browser

With the CPC and the M4 Board turned on, the front-end of the expansion can be accessed, which will allow to configure or control a few features. To access it, enter the following URL in the browser:

http://CPC (assuming the righ name according the settings)

On the screen you can upload files from the PC to the microSD card through the **File** menu or reset the CPC machine from the **Control** menu or make changes to the configuration from the **Settings** menu**.**

Upload ROM files

On the same screen, **Rom Slots** are listed from 0 to 31. In slot nr. 0 you have to configure the Basic

v1.1 rom, in slot nr. 8 the AMSDOS 0.5 and for the slot nr. 31 the lower rom modified (by Duke) of the 6128 machine.

There are a multitude of possible ROM configuration combinations. Click to the **<< Roms >>** button and configure it.

You have to address the URLs, where the card should download the roms from - some examples are presented here:

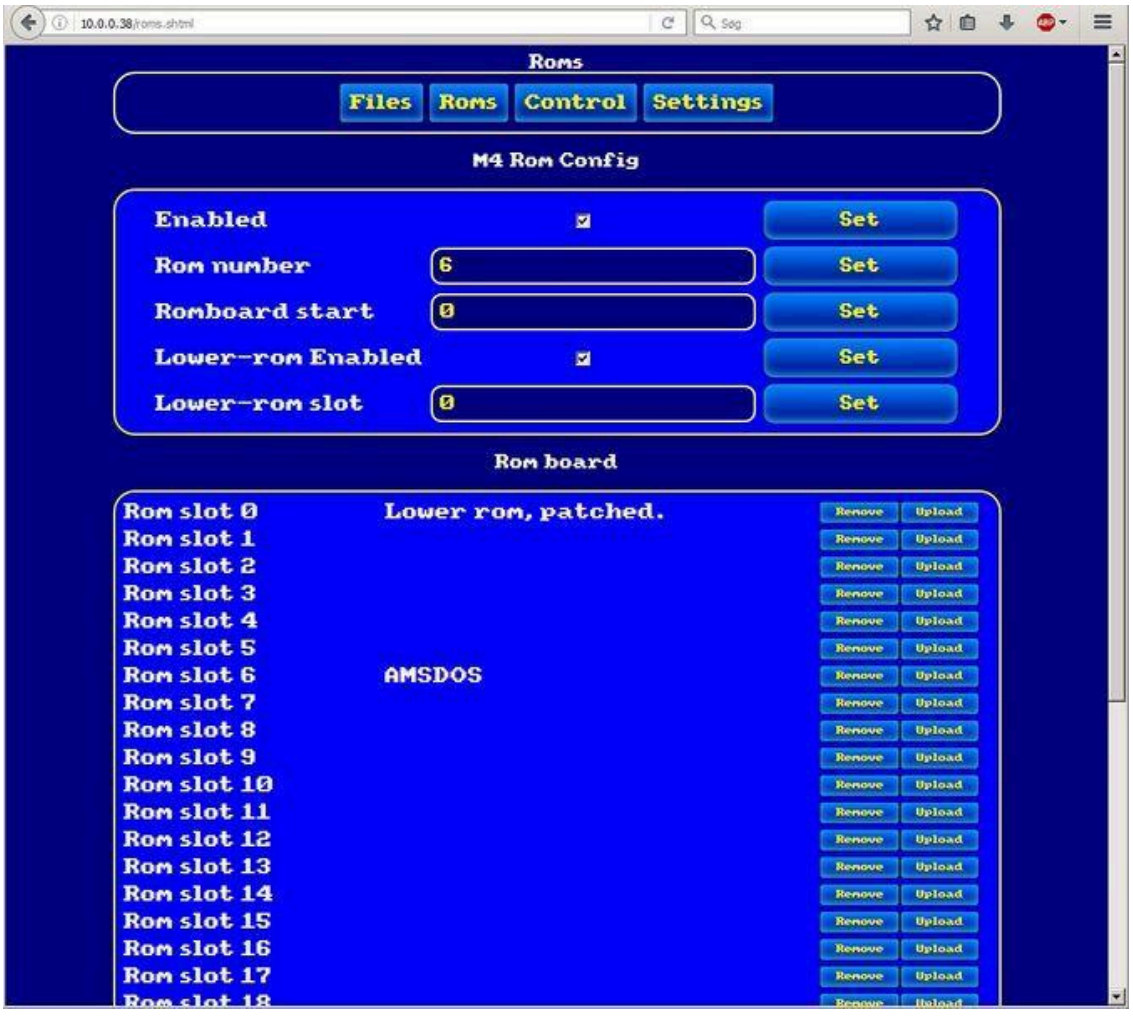
Slot 0: http://www.cpcwiki.eu/imgs/ae/BASIC1.1_%286128_Spanish%29.ROM

Slot 8: http://www.cpcwiki.eu/imgs/7/7d/AMSDOS_0.5.zip

Slot 31: http://www.cpcwiki.eu/imgs/f/fc/Os6128_mod_spanish.zip

To upload the roms one by one, you have to click to the **<< Uploads >>** button that appears next to the slot.

Add a **Slot name**, then **Browse** the rom file and click to the **<< Upload >>** button.



USING A MODIFIED ROM

Modified lower ROM for CPC6128

File: **Lower6128_mod.zip** (**os_mod.rom**)

It is useful for users who cannot override AmsDOS (ROM slot 7) with the M4 ROM, using this patched lower ROM, M4 ROM must be in ROM slot 6. It will be initialized instead of rom slot 7 and provide better compatibility with games and higher high memory area (himem). It's recommended to upload the original AMSDOS (or Parados) rom binary to the rom slot 6, then it will be available when typing **|M4ROMOFF.**

English version: http://www.cpcwiki.eu/imgs/f/f7/lower6128_mod.zip

Auto Installer versions of modified lowerrom

Download the desired autoinstaller (file: **M4LOW-EN.BIN**) and place it on your microSD card and then simply execute it to install and enable the modified lowerrom into rom slot 31.

RUN"M4LOW-EN.BIN

ROM download from: http://www.cpcwiki.eu/imgs/4/43/m4low-en.bin

FutureOS ROM

16 KB XROM for FutureOS with full support for the M4 SD card.
https://www.cpcwiki.eu/index.php/FutureOS

It provides a (G)UI with function:
- **RUN**
- **TYPE** (files, pictures, headers)
- **REN**ame (files or create directories)
- **ERA**se files and
- **Copy** from different origins to one target (floppy, M4, HD20 hard-disc).

- **DIR**ectory enter into to listing

All DIRectories are displayed in a sorted way.
Two **DIR**ectories are displayed at the same time (right and left)

SymbOS

SymbOS with M4 support, allowing you to transfer files to/from real floppy discs, download from internet, chat on IRC and more:

http://www.cpcwiki.eu/forum/applications/symbos-cpc-updates-and-infos/msg137192/#msg137192

FIRMWARE UPGRADE

Updating (or downgrading) a firmware is done by unpacking the update zip file to the root directory of the microSD card (from a PC).

Then insert to the M4 and power up the CPC/M4 board.

After about 20 seconds it should be updated.

Verify with **|version** RSX command.

The latest firmware version can always be obtained via **|upgrade** command (no need to use PC, as long as CPC is setup to the internet).

Download latest version: http://www.spinpoint.org/cpc/M4FIRM_v208.zip

The updates can manually be downloaded from here: http://www.cpcwiki.eu/index.php/M4_Board

NETWORK CONNECTION

If you wish to use the web interface, romboard, realtime clock or download stuff from the internet.

You need to setup the network connection.

It's done via the rsx command **|netset,"<insert parameters>"**.

Usage: **|netset,"<insert parameters>"**

Example of network connection and usage, using DHCP and a WiFi SSID:

|netset,"name=CPC6128, ssid=NETGEAR, pw=12345678, dhcp=1, dns1=8.8.8.8, dns2=8.8.4.4"

This is enough to set up the internet connection. You can alter the rest of the settings from the web interface of the M4 Board.

First type: **|netstat** to see if you are connected, or there's is an error. If connected, it will display your IP address.

You can type this into your web browser or the netbios name directly, and access the rest of the configuration from there under settings.

When using netbios name, make sure you type it like this:

http://CPC6128 (remember the URL)

It might take a bit the first time as your computer will have to associate the netbios name to the IP.

Similar when using the IP address:

http://192.168.1.20 (what you use or got from **|netstat** command)

After the initial setup this is all saved to the microSD card in the **/m4** folder in the **config.txt** file.

Settings can be altered manually with a text editor.

At the next power cycle these settings will be read and the CPC will automatically connect to the internet.

Using a static IP address is recommended, this will make the board connect almost instantly.

Parameters

name	netbios name, only use UPPERCASE letters and numbers.
ssid	your wireless accesspoint/router name (remember name is case sensitive).
pw	password for your wireless ap/router.
dhcp	0=disable DHCP and use static ip settings, 1=use DHCP (static IP settings are ignored)
ip	static ip number for your CPC
gw	gateway for your network
nm	netmask for your network (usually 255.255.255.0)
dns1	dns server, you can use ie. 8.8.8.8 (google dns)
dns2	dns server backup, you can use ie. 8.8.4.4 (google dns)
ntp	ntp time server, this will be used to retrieve time
tz	time zone, can be +/- 12, set it to your time zone
start	when start is set to 1, settings are not applied yet.

Note, that if your parameters are longer than 255 chars (cpc basic line limit), then you can issue the command twice.

The XFER CPC M4 tool

Command-line tool that allow to send files and receive from an M4 Board. Possibility to add an AMSDOS header too.

https://www.cpcwiki.eu/index.php/CPC_M4_xfer_tool

xfer -u ipaddr file path opt	Upload file, opt 0: no header add, 1: add ascii header, 2: add binary header (specify start and exec addr. in hex)
xfer -d ipaddr file path opt	Download file, opt 0: leave header, 1: remove header
xfer -f ipaddr file slot name	Upload rom
xfer -c ipaddr file	Upload cartridge image (.CPR/.BIN)
xfer -x ipaddr path+file	Execute file on CPC
xfer -y ipaddr local_file	Upload file on CPC and execute it immediatly (the sd card must contain folder '/tmp')
xfer -p ipaddr	Start (plus) cartridge
xfer -s ipaddr	Reset CPC
xfer -r ipaddr	Reboot M4

E.g. if your M4 has IP address 192.168.1.11, the following code will run zynaps from given directory.

xfer -x 192.168.1.11 /games/zynaps/zynapsex.bas

Want to leave it again you could reset the cpc by:

xfer -s 192.168.1.11

In a development environment the idea is you ie. do the following to your makefile:

xfer -u 192.168.1.11 mycode.bin / 0 (to upload the file after compilation, additional files could be uploaded too)

xfer -x 192.168.1.11 /mycode.bin (to execute it)

Remote files can be basic/binary or SNA (emulator snapshot format).

If you are deving roms, they can be remotely uploaded too :

xfer -f 192.168.1.11 yancc.rom 3 "YANCC" (upload to slot 3)

xfer -f 192.168.1.11 launcher.rom 4 "The Launcher" (upload to slot 4)

xfer -r 192.168.1.11 (Reboot M4 for changes to take effect)

TELNET clients

Download the Telnet client directly to your CPC via:

|httpget,"spinpoint.org/telnet.bin"

Simple telnet client for M4:

http://www.cpcwiki.eu/forum/applications/telnet-client-for-cpc/

ANSI telnet client M4EWEN by Fergus Leen:

https://github.com/fergusleen/m4ewenterm

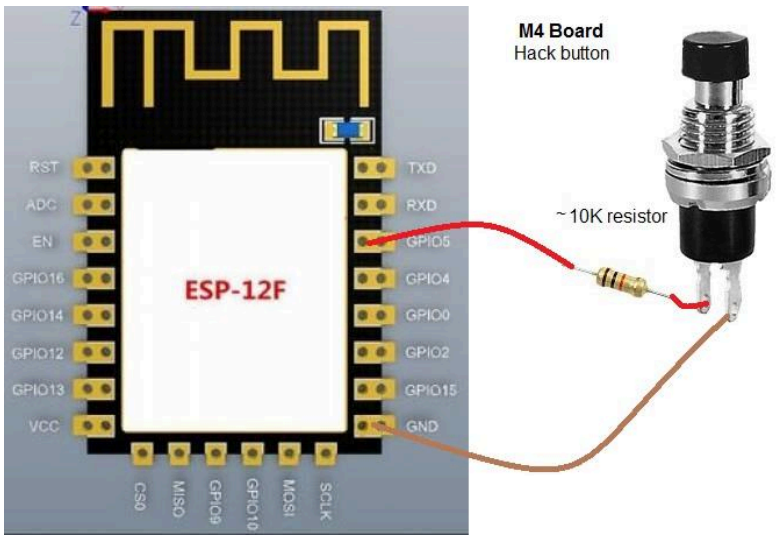
HACK mode

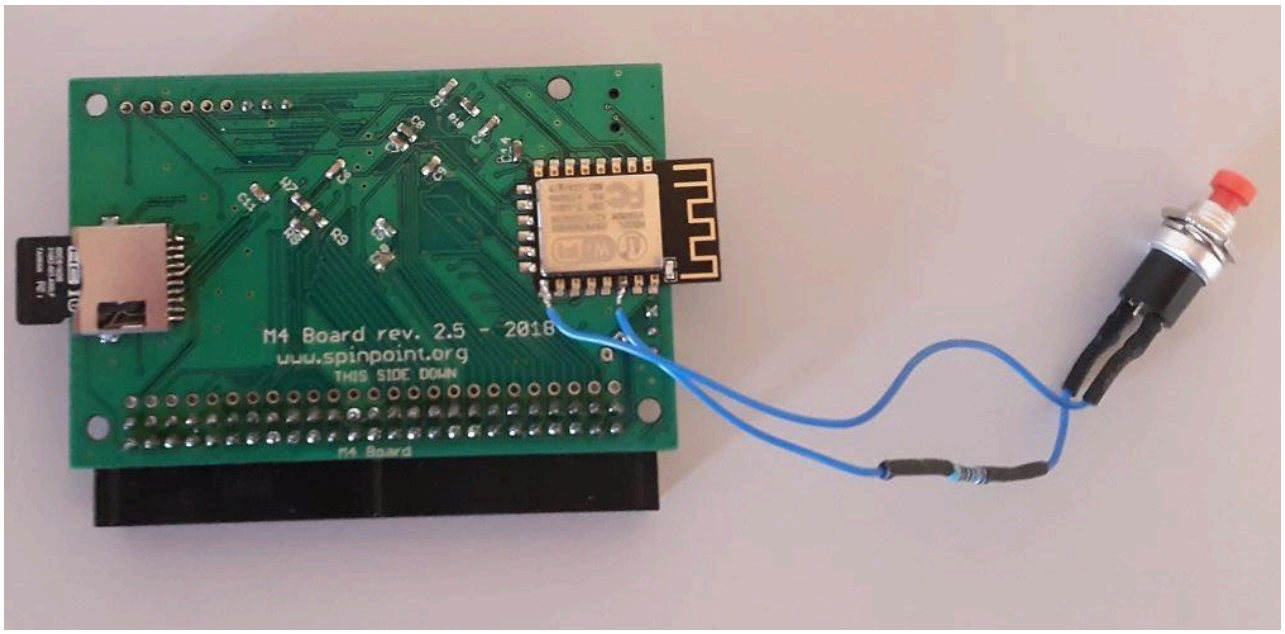
Using the Hack menu with the left **<< HACK >> button**.

It requires to solder two wires to the M4 board PCB (to the WiFi module).

Install only at your OWN risk. You can just launch hack menu from the Web UI.

Instructions for the soldering are here.





Create your own HACK MENU for M4:

https://github.com/M4Duke/m4hackmenu

TROUBLESHOOTING

- If somehow the card does not starting or something goes wrong after making configuration changes. Take the microSD card into a PC and delete the files in **/m4** directory, take the power of the board, re-insert microSD and set it up again.
- Similar to this if you misconfigured the ROM slots or the execution of the rom binary is not proper, and the machine is freezing when you start it. Then just remove the SD card and delete the **/M4** directory on it and insert the card again to the M4 board. Then after restarting the machine, the board will regenerate the standard configuration files and will be running again properly.

- Dirty edge connectors: If any odd issues, like resets, freeze, graphic glitces etc. make sure your edge connector is cleaned. It can be root of many problems, if it's not properly cleaned.

APPENDIX

All further information of development, assembler programming, registers see the current **m4info.txt** file of the board.

https://www.spinpoint.org/cpc/m4info.txt