Heber MultiPi user manual and operational guide

80-23322-2

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CONTENTS

1 INTRODUCTION

Thank you for your interest in the MultiPi System, we hope you find this manual useful for both assembly and use of your MultiPi.

If you have any questions about the Heber MultiPi that are not covered by this manual, please do not hesitate to contact support@heberltd.freshdesk.com

Or visit the Heber website www.heber.co.uk

For orders and updates please see https://shop.heber.co.uk/Multi-Pi/

If you have purchased a fully assembled Heber MultiPi system in a 3D printed enclosure, please see section below.

If you have purchased a bare board only and intend to install your own Raspberry Pi CM4 module (or compatible CM4 module) then please jump to section 3 below to complete the assembly.

2 MULTIPI ASSEMBLED SYSTEM CHECKS

Please check that your MultiPi system is assembled as per the images below.

The Heber MultiPi system uses an embedded Raspberry Pi CM4 module with 4GB of RAM and onboard Wifi+Bluetooth. An external antenna is provided to extend the range of the Wifi.

The CM4 module has a high quality heatsink with thermal pads, an optional 40mm fan can be fitted in the enclosure if desired, but a fan is not required for normal operation.

MultiPi can boot from either USB (any port), Micro SD or the PCIe X1 slot.

It is recommended to use MicroSD or the first setup, then decide if you wish to use a PCIe mass storage 'cartridge' or a USB drive for user content.

If you are using a PCIe boot device, please make sure the Micro SD card is removed.

2.1 MultiPi Connectivity – external ports and expansion

The MultiPi is designed to be used as a classic gaming console, but it is also a fully configured Raspberry Pi computer, almost anything you can do with a Raspberry Pi 4, you can also do with the Heber MultiPi. The MultiPi has a number of upgrades over the standard Raspberry Pi 4 –

A PCIe X1 expansion port is included – this port can be used for many different expansion upgrades, including high speed mass storage (PCIe M.2 NVMe SDD or a USB 3.0 PCIe expansion card.
Many other PCIe x1 cards are also available. We recommend using the PCIe slot for a mass storage boot device in the form of a front cartridge.

A 3D printed enclosure for a standard NVMe to PCIe x1 slot is available from our Printables account - https://www.printables.com/@Multisystem/models

You can select and use your own M.2 PCI SSD in this adaptor.

Heber have also included a universal Pi-IO cartridge expansion port at the back of the MultiPi, this has all the standard 40pin I/O from a Raspberry Pi along with USB2.0 (internal port 7) and various voltage supplies. – Please note this Pi-IO cartridge expansion is not compatible with similar Multisystem products using the same cartridge connector.

At the back of the MultiPi are all the user ports –
From left to right –

DC 5V power input (See power supply section below).
HDMI0 – Default Digital HDMI video output.
HDMI1 – Second screen, span or clone HDMI video output.
Composite video output – can be configured for use in Raspberry Config file.
Ethernet – Ethernet port – active.
Ethernet POE – Power Over Ethernet output connector.
USB 2.0 Ports 5 & 6.

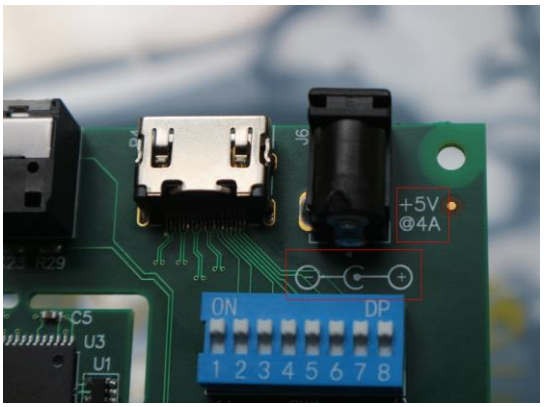
The front of the MultiPi has four more USB 2.0 ports, the Micro SD card boot slot and a power switch.

2.2 MultiPi power supply

Power is supplied to the MultiPi by a DC barrel jack +5V @ 2A or greater and recommended to be 4A if many USB devices such as SSD's are also being connected.

A 5V 4A Meanwell power supply is recommended. It must be 5v but you can use a higher current if the 4A Meanwell PSU is not available.

If you source your own power supply, check that centre pin is marked as Positive (+5V) the outer connection will be Ground (GND).



The MultiPi has a number of protection devices and circuits to help with overload, overvoltage, overcurrent and thermal protection.

If you get close to the 4A limit of the recommended power supply, then the thermal overcurrent fuse should trip out to help protect your power supply and MultiPi board. This 'Polyfuse' should self-reset after some time being switched off.

2.3 MultiPi Connectivity - internal ports and expansion

Internal USB port 7 is also connected to the expansion slot – if an internal USB 2.0 device is fitted to this connector, the expansion port should not also be used for USB connection. MultiPi cartridge modules that use USB will have a plastic pin to stop connection of the internal USB 2.0 port at the same time.

An internal fan can be fitted to Connectors for 5v or 3.3v operation as required.

2.4 Connecting up for HDMI Output (recommended for first setup)

As a minimal setup a HDMI screen supporting Full HD resolution should be used.

Connect up a USB keyboard and optional USB mouse to the back two USB ports.

A USB Joypad / Joystick is also often useful for retro gaming, connect one or more now to the front USB ports.

Connect up the DC power jack – making sure it's from a 5V power adaptor.

You are now all ready to use MultiPi, but first you will need to setup an SD card.

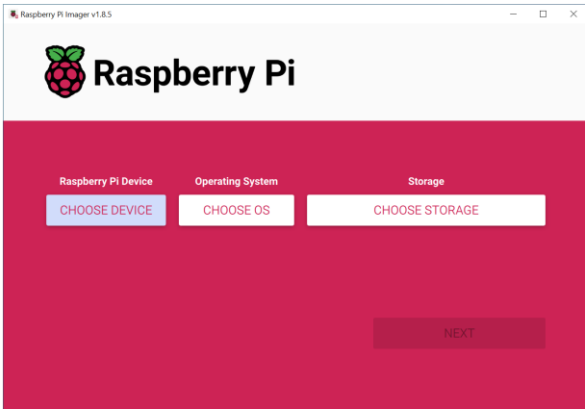
2.5 Installing O/S and retro game emulation software.

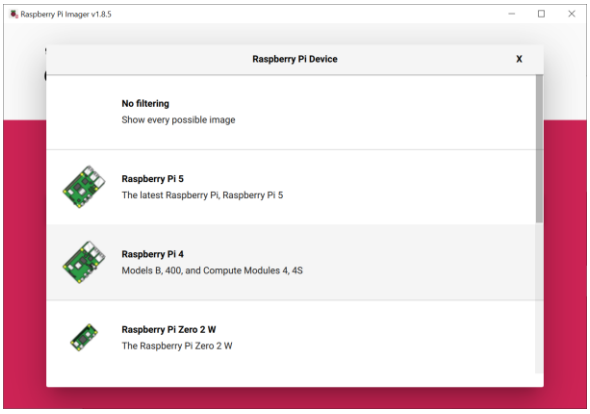
You have a choice of a large number of ready-made Raspberry Pi installations, both for computing and also specifically for Retro Gaming, classic Arcade emulation and various dedicated systems etc.

We have outlined steps below for three different commonly used and recommended operating systems for Retro Gaming and Raspberry Pi computing. (Recalbox, RGBPi and Raspberry Pi O/S).

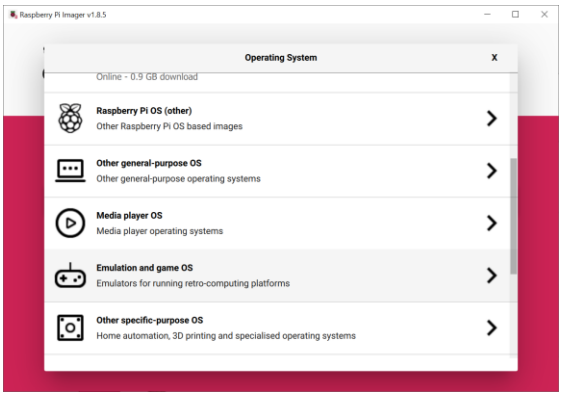
2.6 Install and setup of Recalbox emulation software

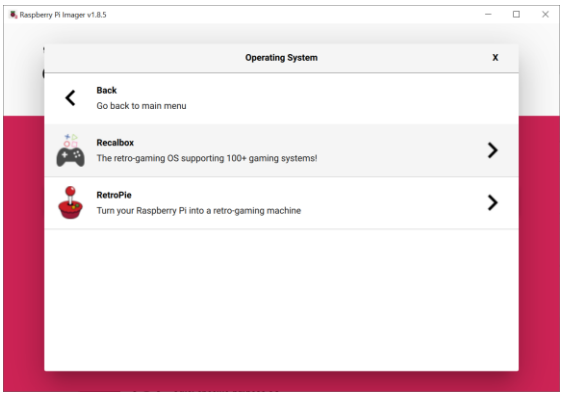
First download and run the Raspberry Pi Imager - https://www.raspberrypi.com/software/



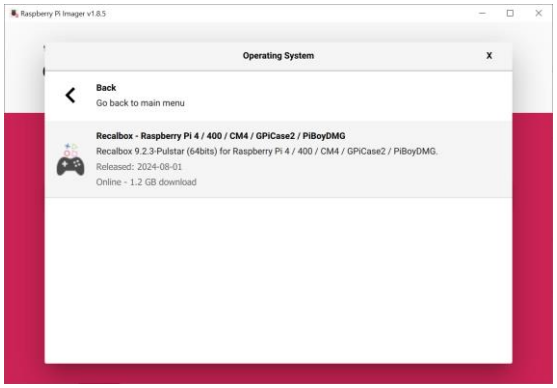


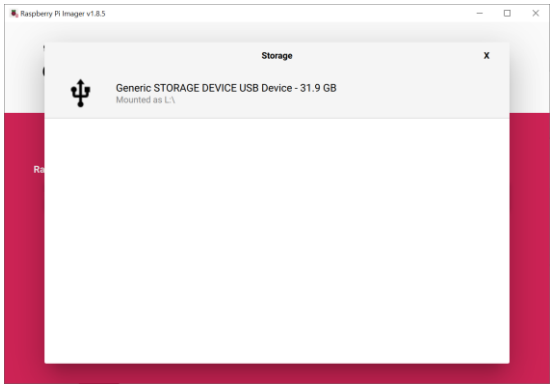
Click, choose device and pick the Raspberry Pi 4 (Compute module 4).



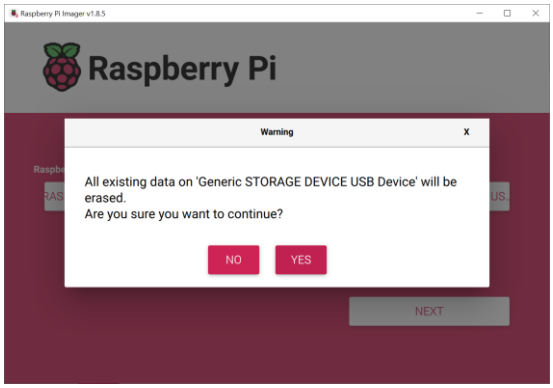


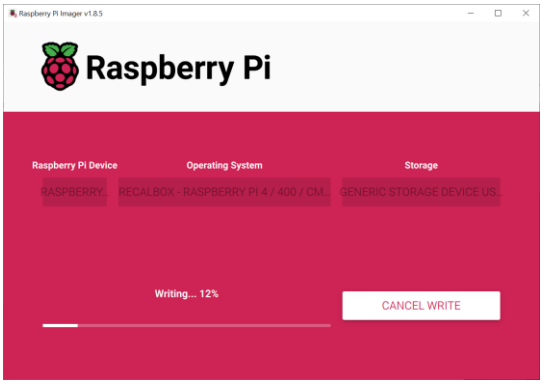
Now you can click on Choose OS, scroll to Emulation and game OS and then select Recalbox





After selecting Recalbox, choose your storage (micro SD card you wish to use).

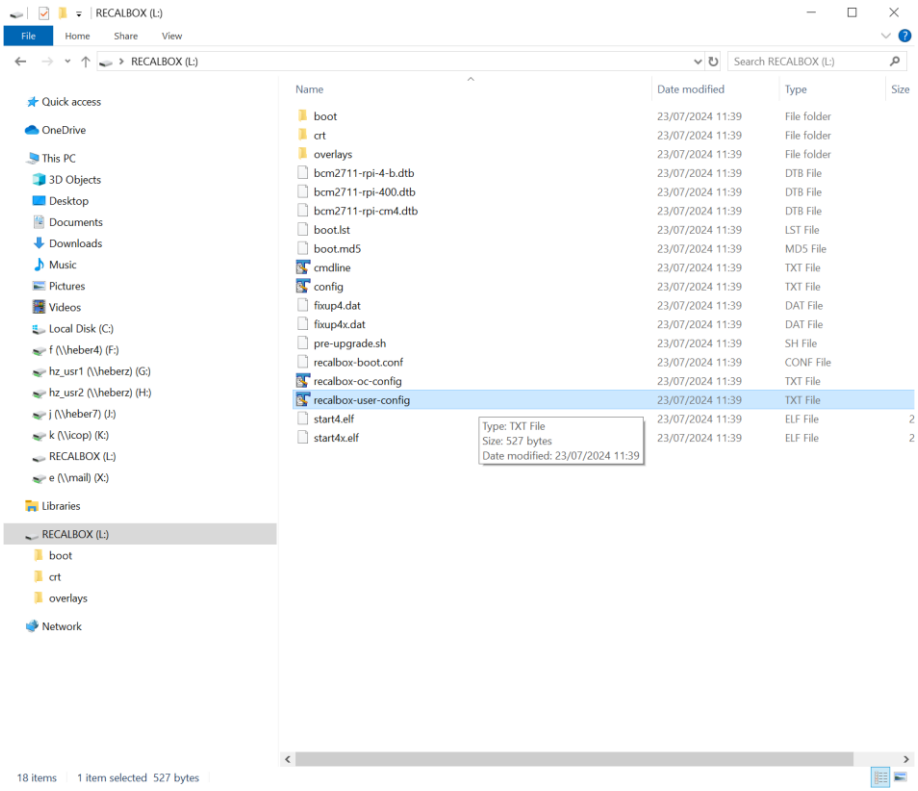




Make 100% sure you are going to write to the correct storage device and then wait for the image to be written to the SD card (or another boot device if USB or NVMe is used instead).

After the SD image is correctly written to the card, eject the card and then insert again as you need to add one configuration line to the SD card for the CM4 module operation.

Browse to the SD card and select ‘recalbox-user-config.txt’ Load this file into Notepad / Wordpad / Textpad for editing.



Below shows the user config for Recalbox, you can enable various options in this file.

Most importantly, before you can run the SD card in MultiPi, you will need to add the following line highlighted below -

```
# Change to your needs

# uncomment if you get no picture on HDMI for a default "safe" mode
#hdmi_safe=1

disable_overscan=1

# uncomment to force a specific HDMI mode (this will force VGA)
#hdmi_group=1
#hdmi_mode=1

# Sound output. Set to 0 or comment for autodetect, 1 for DVI, 2 to force HDMI.
#hdmi_drive=2

config_hdmi_boost=0

# uncomment for composite PAL
#sdtv_mode=2

# uncomment for lirc-rpi
#dtoverlay=lirc-rpi

# uncomment if you have chinese TV display and display is garbled or slow
#hdmi_ignore_edid=0xa5000080


[cm4]
# Enable host mode on the 2711 built-in XHCI USB controller.
# This line should be removed if the legacy DWC2 controller is required
# (e.g. for USB device mode) or if USB support is not required.
otg_mode=1
```

```
# Change to your needs

# uncomment if you get no picture on HDMI for a default "safe" mode
#hdmi_safe=1

disable_overscan=1

# uncomment to force a specific HDMI mode (this will force VGA)
#hdmi_group=1
#hdmi_mode=1

# Sound output. Set to 0 or comment for autodetect, 1 for DVI, 2 to force HDMI.
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# uncomment for lirc-rpi
#dtoverlay=lirc-rpi

# uncomment if you have chinese TV display and display is garbled or slow
#hdmi_ignore_edid=0xa5000080

[cm4]
# Enable host mode on the 2711 built-in XHCI USB controller.
# This line should be removed if the legacy DWC2 controller is required
# (e.g. for USB device mode) or if USB support is not required.
otg_mode=1
```
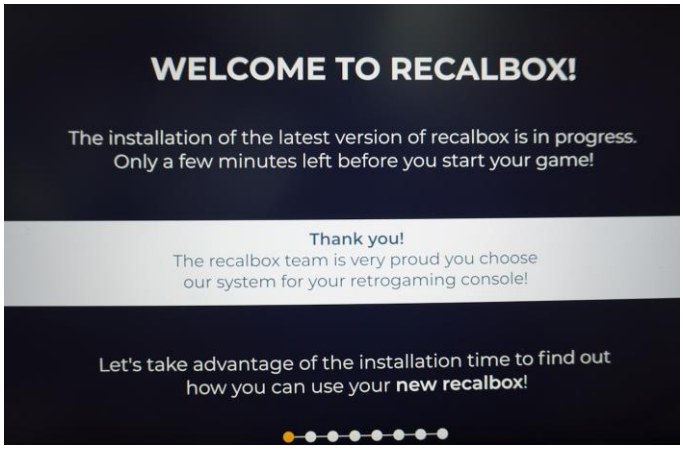

Copy and paste the above text in red above and add it to the recalbox-user-config.txt file as described above.

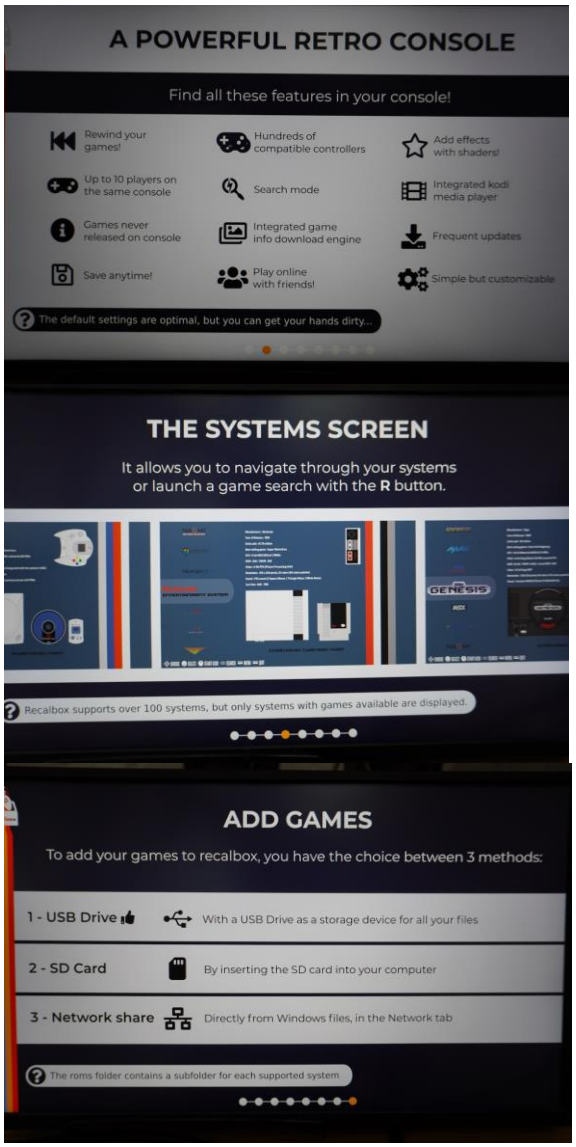
This enables the CM4 USB Hub on MultiPi.

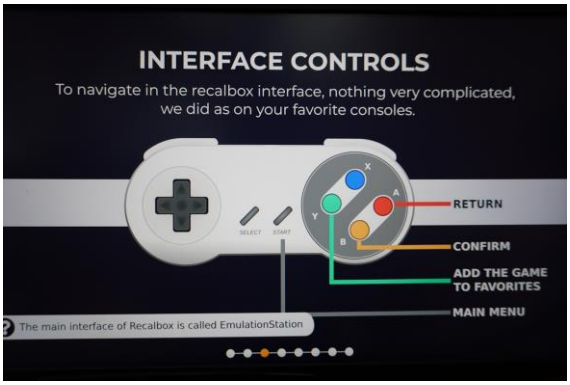
2.7 Recalbox install and setup -

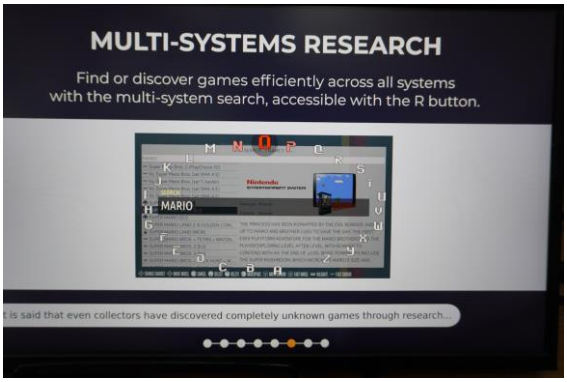
Now you can insert the SD card into MultiPi and switch on.

Recalbox will now install and setup for a standard HDMI video output.









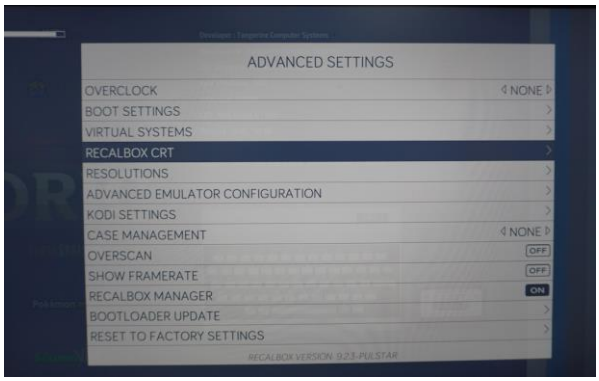
INITIALIZING INTERFACE...

When installed, you should see a menu screen on the HDMI output, similar to the above. Recalbox is now ready to use.

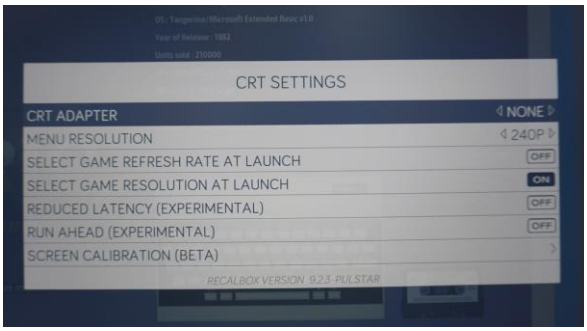
2.8 Enabling Analogue RGB output (requires MultiPi Analogue Cartridge) -

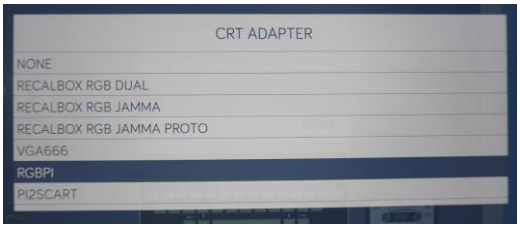
You can use the HDMI output for Recalbox, alternatively if you have a CRT monitor, euro-SCART enabled TV or another type of analogue video display, you can use the MultiPi Analogue Cartridge.

Here is how to enable the MultiPi Analogue Cartridge for use with Recalbox –



In the Recalbox menu, navigate to advanced settings and then select Recalbox CRT.

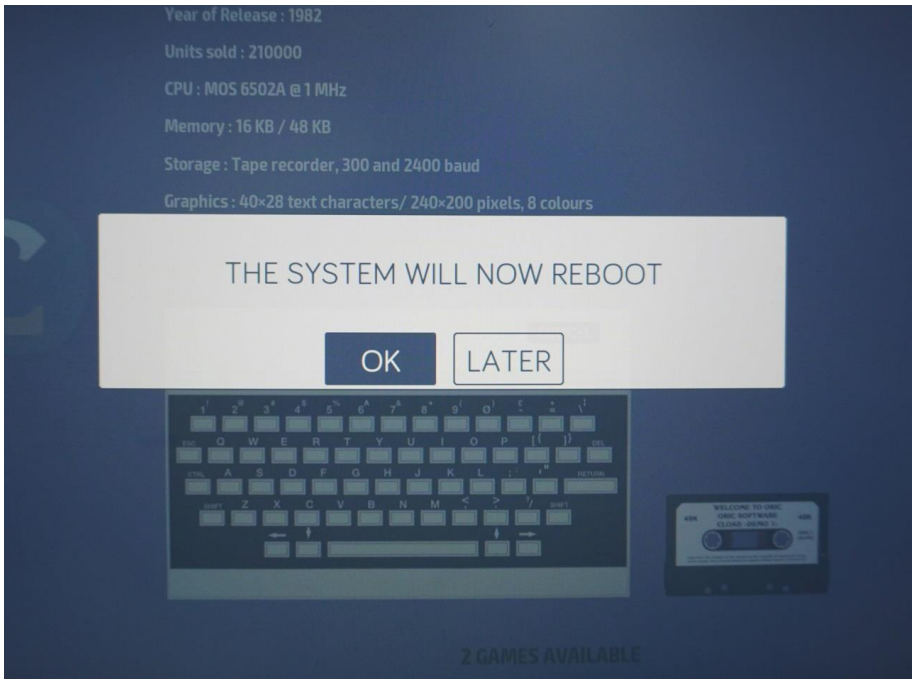




Select CRT adaptor and then select RGBPi – MultiPi Analogue caretridge & MultiPi JAMMA are compatible with any O/S install or emulation software that can use the RGBPi video overlay for analogue video output.

For info - This uses the VGA666 driver in Mode 6 and also diverts analogue audio PWM Mode 2 to pins 18 & 19 of the GPIO. – the common setup for this configuration is called RGBPi for the CM4 & Raspberry Pi 400 computers.

You can select a resolution for the analogue video output on both SCART and VGA ports. It's recommended to use 240p for SCART TVs or arcade monitors.



Now exit from the menus and the system will reboot and install the RGBPi driver and settings for the MultiPi Analogue video cartridge.

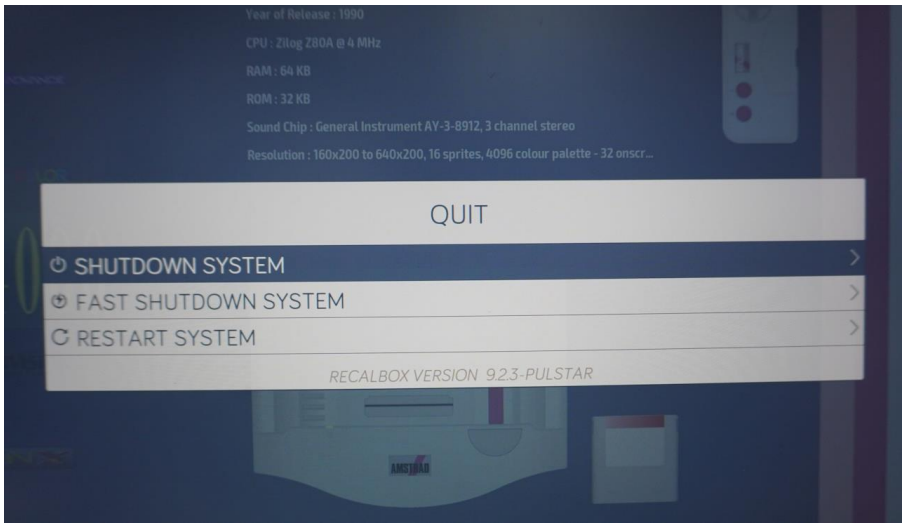
Recalbox supports RGBPi and will automatically install the following device overlay and settings into the configuration after the following above options are selected. You should not need to do anything other than restart as shown above.

The details for the RGBPi driver settings are included here if you want to experiment using them on any other Raspberry Pi O/S build or emulation software package –

File - recalbox-crt-config.txt

```
#device=rgbpi
dtoverlay=recalboxrgbdual-thirdparty,mode6
audio_pwm_mode=2
dtoverlay=audremap,pins_18_19
```

Heber has a build of AdvancedMAME that can use RGBPi analogue driver overlay support, please see the Heber MultiPi / MultiPi JAMMA GitHub for further details.



Do also remember to shutdown the system after use, the green power LED will flash 10 times, then it's safe to turn off the power switch to your MultiPi.

2.9 Alternative Retro gaming O/S – RGBPi -

One of the many alternative operating system for retro gaming is RGBPi and it's designed to run with the MultiPi Analogue cartridge only. If you want so switch between HDMI and Analogue video, then Recalbox above may be better for you. However, if you only want to run all original analogue resolutions of the original hardware using a CRT TV via SCART or VGA, then RGBPi O/S is a really great choice.

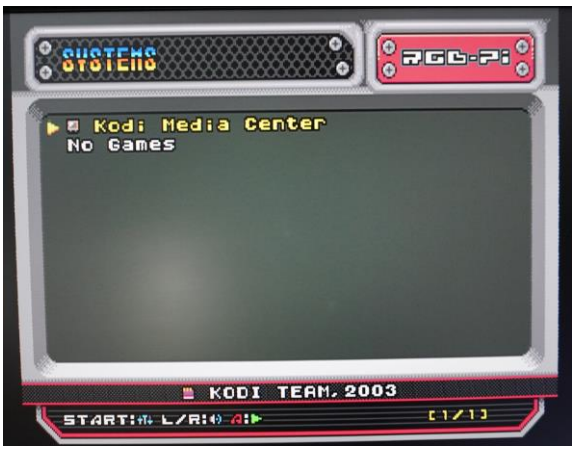
It's also super easy to setup and use on MultiPi –

All you need to do is download the RGBPi O/S - https://www.rgb-pi.com/#os

Install the image onto a micro SD card, size of your choice with a suitable imager software.

Then after the image is completed, insert into the MultiPi system and power on –

You will get analogue 240p video output on SCART/VGA and analogue stereo sound via the phono jacks of the analogue cartridge. This is designed to be used on a CRT TV.



Setup via the options menu, including the option to use Kiosk mode (handy for Arcade machines).

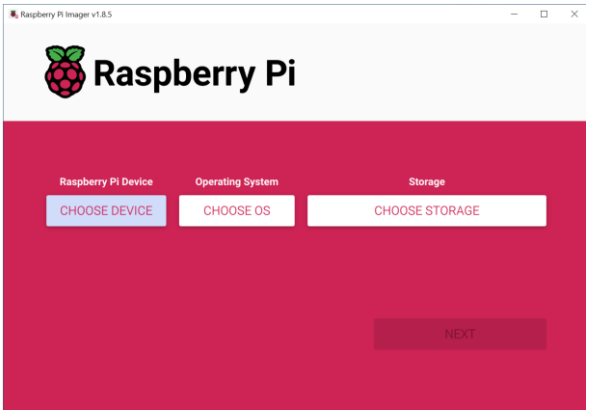
RGBPi supports a lot of different consoles and computers, including MAME Arcade game emulation. You will need to add your own retro-games, then enjoy!

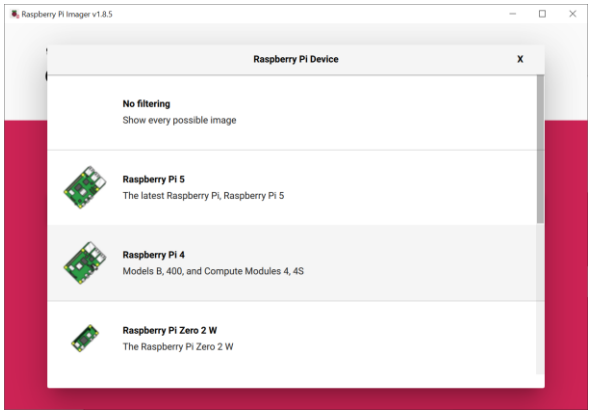
2.10 Raspberry Pi O/S

You may also wish to install the standard Raspberry Pi O/S onto MultiPi.

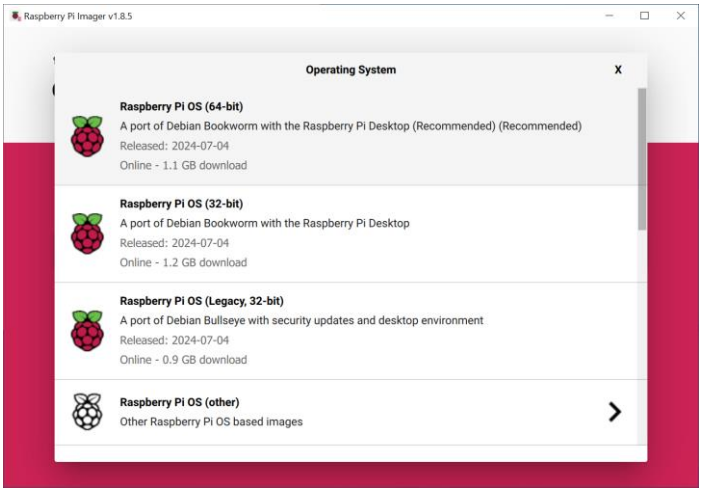
This is a straightforward process, detailed in the steps below –

Download and run the Raspberry Pi Imager - https://www.raspberrypi.com/software/



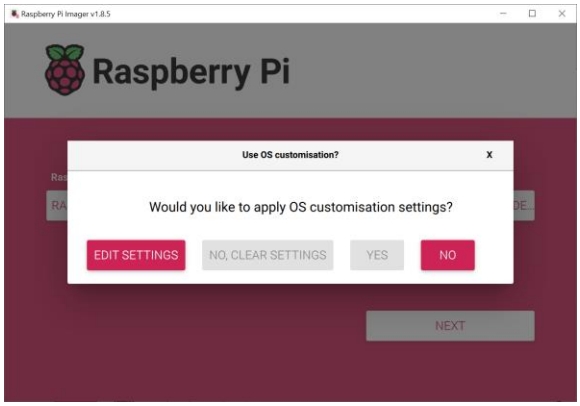


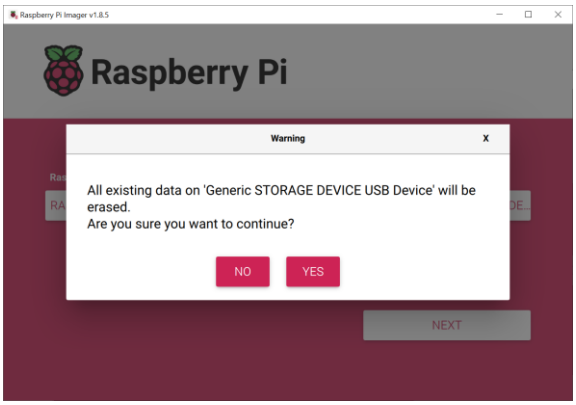
Click, choose device and pick the Raspberry Pi 4 (Compute module 4).



Select the Raspberry Pi OS (64bit) (Recommended)

You are welcome to try out any other Raspberry O/S on the MultiPi, we have tested both 32bit and 64bit operating systems from the Raspberry Pi Imager software.





Choose a storage option for the MicroSD card you wish to image, then select No to OS customisation settings and confirm the warning message - yes.

When the card is ready, insert into the MultiPi and follow the setup procedure for the O/S.

The O/S is now ready for general use via HDMI.

If you also wish to use the Analogue video output cartridge in Raspberry Pi O/S, please add the following to the raspberry Pi config.txt file for bootup. – Note the file below is for the 64bit Raspberry O/S.

Add the sections below in green, edit the parts in bold to set the desired resolution, and comment out (disable) the parts below in orange.

```
# For more options and information see
# http://rptl.io/configtxt
# Some settings may impact device functionality. See link above for details

# Uncomment some or all of these to enable the optional hardware interfaces
#dtparam=i2c_arm=on
#dtparam=i2s=on
#dtparam=spi=on


# Settings for MultiPi & MultiPi JAMMA
# SPI off
dtparam=spi=off
#Uart off
dtparam=uart0=off
dtparam=uart1=off
# Enable audio (loads snd_bcm2835)
dtparam=audio=on
dtoverlay=audremap,pins_18_19
# Remove the color test/rainbow screen
disable_splash=1
gpio=2-9,12-17,20-25=a2

dtoverlay=vc4-fkms-v3d-pi4
max_framebuffers=2
dpi_group=2
#Select one of the following dpi modes –
dpi_mode=87 #uncomment for SCART CRT TV 240p mode and allow use of hdmi_timings lower down in this file
#dpi_mode=16 #uncomment and set the number for the desired DMT mode, this takes precedence over hdmi_timings
```

```
#see other screen resolution modes below for further details.
dpi_output_format=0x6
enable_dpi_lcd=1
display_default_lcd=1

#---------------- dpi_mode line VGA ---------------------
#---> 640x480 60hz    dpi_mode=4
#---> 800x600 60hz    dpi_mode=9
#---> 1024x768 60hz   dpi_mode=16
#---> 1280x768 60hz   dpi_mode=23
#---> 1280x800 60hz   dpi_mode=28
#---> 1280x960 60hz   dpi_mode=32
#---> 1280x1024 60hz  dpi_mode=35
#---> 1360x768 60hz   dpi_mode=39
#---> 1366x768 60hz   dpi_mode=81
#---> 1400x1050 60hz  dpi_mode=42
#---> 1440x900 60hz   dpi_mode=47
#---> 1600x1200 60hz  dpi_mode=51
#---> 1680x1050 60hz  dpi_mode=58
#---> 1920x1080 60hz  dpi_mode=82
#---> 1920x1200 60hz  dpi_mode=69
#---> 1920x1440 60hz  dpi_mode=73
#---------------- dpi_mode line SCART ----- only applicable when dpi_mode=87
#240p@60
hdmi_timings=320 1 4 30 46 240 1 4 5 14 0 0 0 60 0 6400000 1
#288p@50
#hdmi_timings=384 1 16 32 40 288 1 3 2 19 0 0 0 50 0 7363200 1
#576i@50
#hdmi_timings=768 1 24 72 88 576 1 6 5 38 0 0 0 50 1 14875000 1
#480i@60
#hdmi_timings=640 1 24 64 104 480 1 3 6 34 0 0 0 60 1 13054080 1
#480p@60
#hdmi_timings=640 1 24 96 48 480 1 11 2 32 0 0 0 60 0 25452000 1
#288p@50 #for SCART TV RGB output
#hdmi_timings=384 1 16 32 40 288 1 3 2 19 0 0 0 50 0 7363200 1

# End of Settings for MultiPi & MultiPi JAMMA - Analogue video output to SCART / VGA



# Additional overlays and parameters are documented
# /boot/firmware/overlays/README

# Automatically load overlays for detected cameras
camera_auto_detect=1

# Automatically load overlays for detected DSI displays
display_auto_detect=1

# Automatically load initramfs files, if found
auto_initramfs=1

# If using Analogue Video output cartridge for MultiPi make sure the settings below are disabled.
#DRM VC4 V3D driver
#dtoverlay=vc4-kms-v3d
#max_framebuffers=2

# Don't have the firmware create an initial video= setting in cmdline.txt.
# Use the kernel's default instead.
disable_fw_kms_setup=1
```

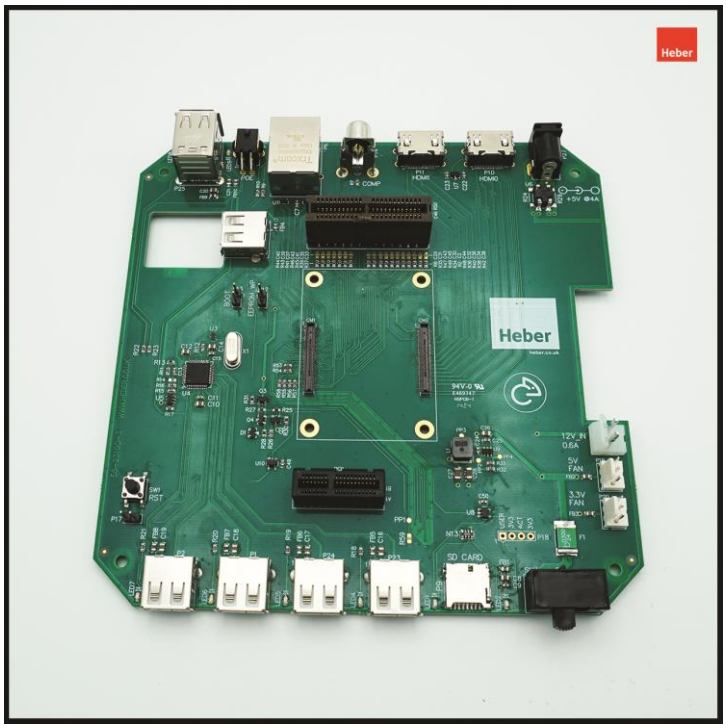
```
# Run in 64-bit mode
arm_64bit=1

# Disable compensation for displays with overscan
disable_overscan=1

# Run as fast as firmware / board allows
arm_boost=1

[cm4]
# Enable host mode on the 2711 built-in XHCI USB controller.
# This line should be removed if the legacy DWC2 controller is required
# (e.g. for USB device mode) or if USB support is not required.
otg_mode=1

[cm5]
dtoverlay=dwc2,dr_mode=host

[all]
```

2.11 Booting from an NVMe (PCIe x1) storage device.

If you wish to boot from an NVMe (PCIe x1) storage device / SSD you can use almost any PCIe to M.2 adaptor. We have tested and recommend the Waveshare board shown below. This can accommodate various size M.2 modules.

A 3D printed enclosure for this MultiPi front cartridge is available via our Printables - https://www.printables.com/@Multisystem/models

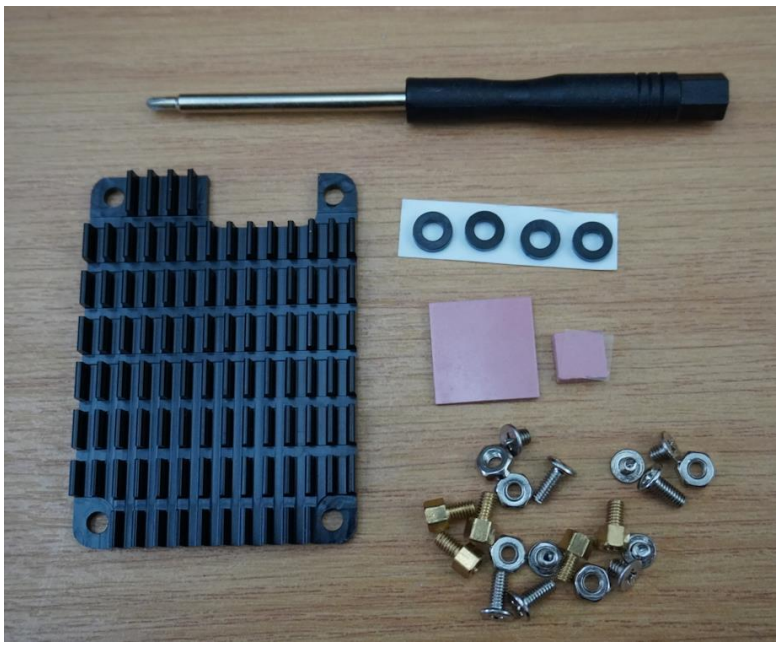
3 BARE BOARD ASSEMBLY - FITTING YOUR OWN CM4



If you have purchaced a MultiPi board without a CM4 module, the following information below may be useful for fitting either a Raspberry Pi CM4 or a compatible CM4 module from another supplier.

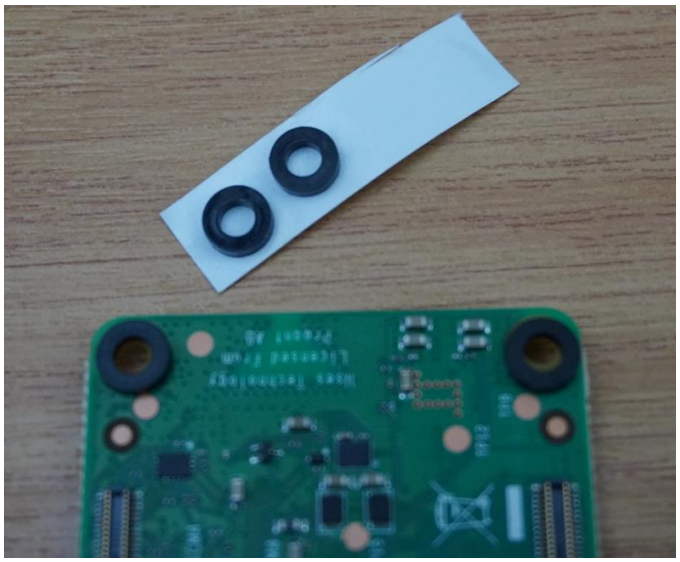
3.1 Recommended tools

You should only require a Phillips Number 1 screwdriver to install and setup your MultiPi.
If you have printed your own enclosure, you may also require snips. Tweezers or small pliers will also assist with assembly. Retro snack is not essential, but is very highly recommended.

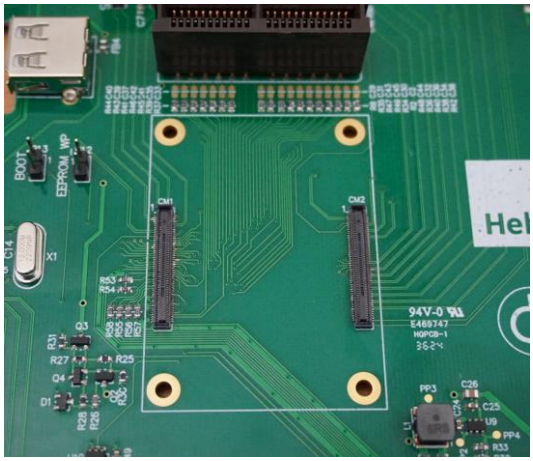


A good quality heatsink is required for the Raspberry Pi CM4 module, if you are using an alternative compatible CM4 module, please check with the manufacturer if a suitable heatsink or fansink is available.

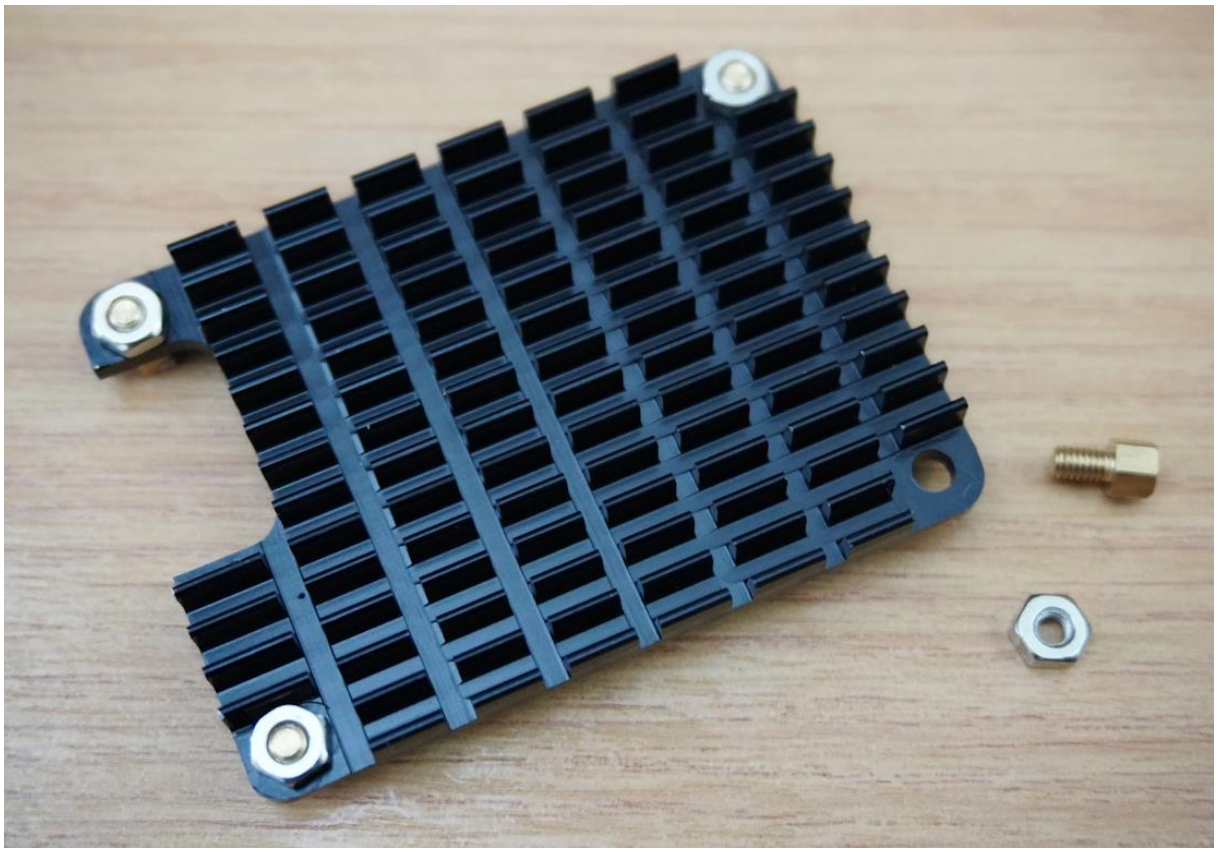
We recommend the Waveshare CM4 heatsink pack as shown above.



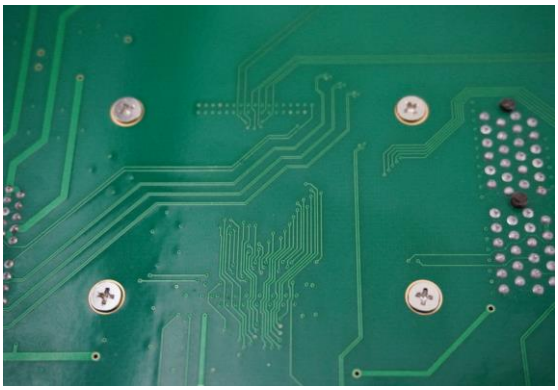
Fit the plastic spacers to the underside of the CM4 module on the M2.5 mounting holes, they will stick to the PCB



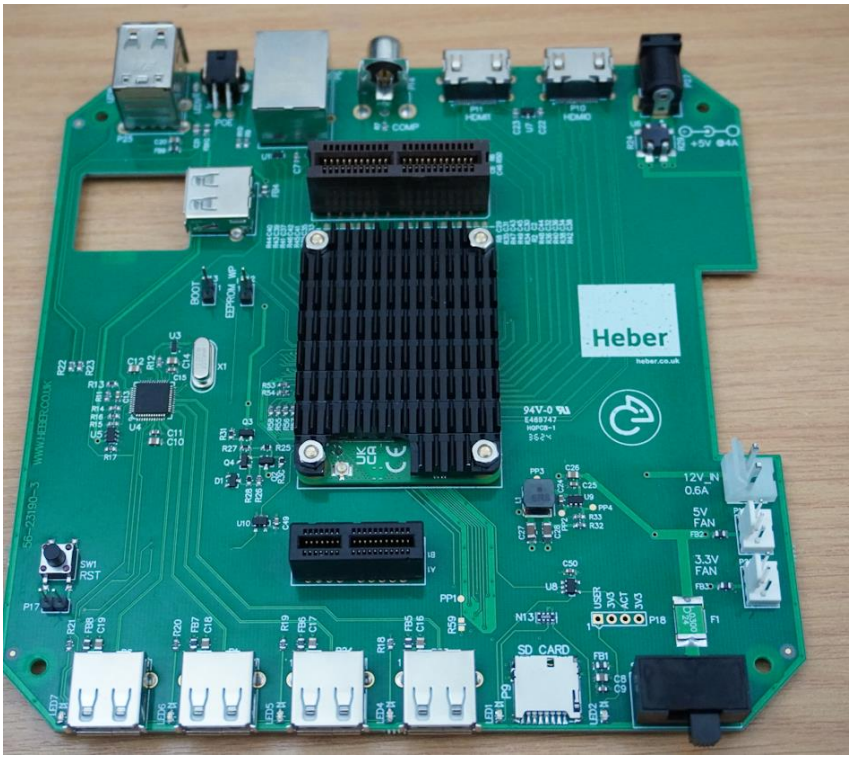
Place the CM4 module onto the MultiPi motherboard, push down on either side of the module connector areas, you should feel the module click onto the matching connectors.



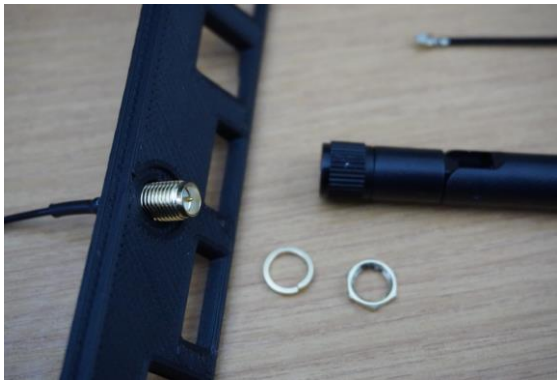
Fit all four brass hex spacers along with M2.5mm nuts to the heatsink as shown above.

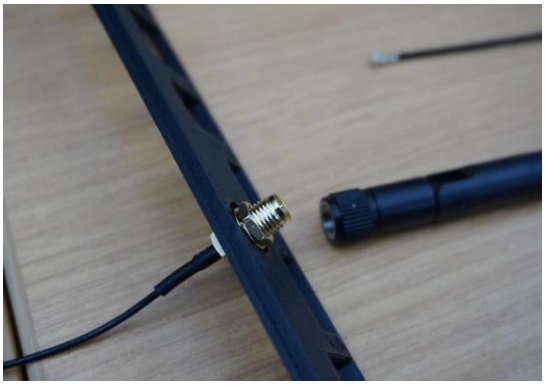


Now use the four longest M2.5mm bolts to secure the heatsink to the MultiPi motherboard and CM4 Module.

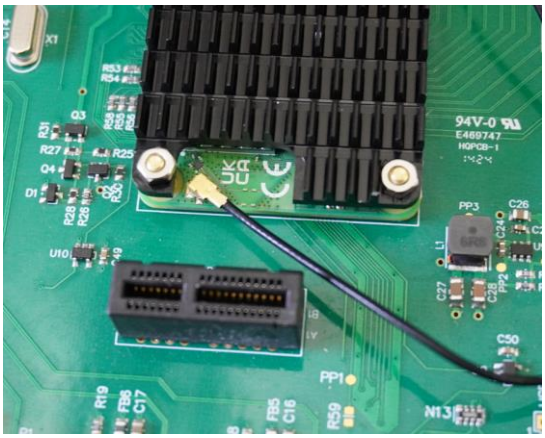


The MultiPi should now have the CM4 module fitted as per image above.

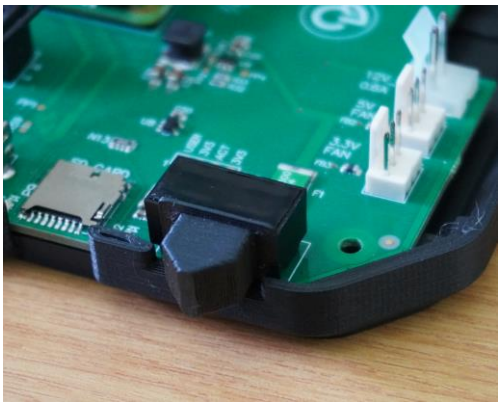




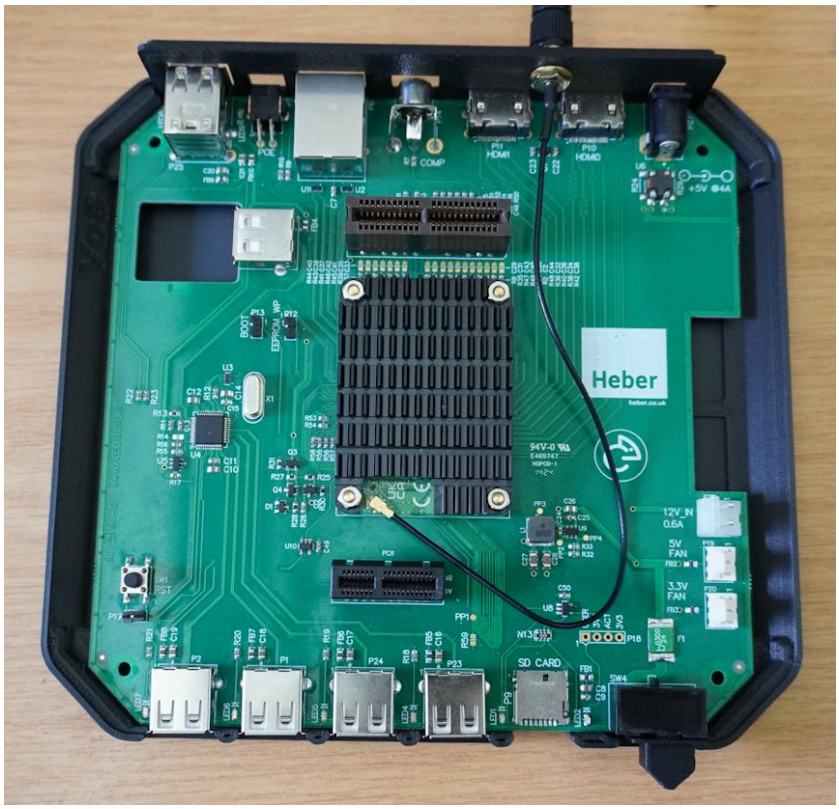
Fit the official Raspberry Pi WIFI Antenna to the MultiPi backplate as shown.



Fit the MultiPi board into the MultiPi 3D printer enclosure base along with the backplate, then push the SMA antenna connector onto the CM4 module as shown above.



Fit the 3D printed power switch cover.



The MultiPi system should now look like this.

You can now fit 4 x M3 nuts into the top half of the 3D printed MultiPi enclosure, these use nut traps. Slide in each nut into the slot, these are nut traps, the nuts will be pulled up into the nut trap slots when the lid is first fitted with M3 x 20mm bolts.

Push in each M3 nut into the traps as shown above.

Make sure all four nuts are fully pushed in; they should hold themselves in place while you fix the lid to the base.

Screw the 20mm M3 bolts from the base into the nuts trapped in the lid, they will pull into place and become tight.

You can then fit any labels for the MultiPi, cartridge covers or analogue cartridge.

Now follow the steps in section 2 to get an SD card setup with an O/S image.

Don’t forget to now eat your retro snack if you selected that option at the start.

4 TECHNICAL REFERENCE

Here are some useful technical details about the MultiPi. Please also check our GitHub pages for other further information and useful documents. - https://github.com/Heber-co-uk

4.1 Using the RGB SCART connector -

If you wish to use the RGB Euro SCART on the MultiPi Analogue Cartridge you will need a good quality SCART cable, ideally where all 21 pins are connected and the cable has a dedicated shield connection.

NOTE:- Japan has a different 21pin SCART connector – they look the same, but are wired VERY differently! please make sure you are using a RGB EURO SCART display device.

4.2 RGB SCART Output or VGA cable-

The aim for SCART is to be able to display the MultiPi video output on a CRT TV or devices accepting RGB Euro SCART.

The MultiPi SCART connection is only compatible with the European 21 pin standard, not the Japanese 21 pin connector, as they have a different pin output.

For technical reference the SCART sync output is automatically combined from the VSync and HSync signals, this combined sync is then connected to the SCART Composite sync output via a 68 Ohm resistor.

The VGA output port has separate VSync and HSync signals.

You should use either the VGA output port or the RGB SCART connection to your desired analogue video monitor. If you are using 240p (CGA) video output via the VGA port into a VGA style monitor, the analogue VGA output may be outside the range that your VGA monitor can display. A modern flat panel LCD with VGA input will often display 'out of range'.

If you have a multi sync monitor you may be able to see the output, but as stated the VGA and SCART outputs should not be used at the same time.

If you have the video display at settings higher than 640 x 480, for the analogue output it is also highly unlikely that the SCART device / TV will display this signal correctly.

4.3 MultiPi 3D Printed Enclosure -

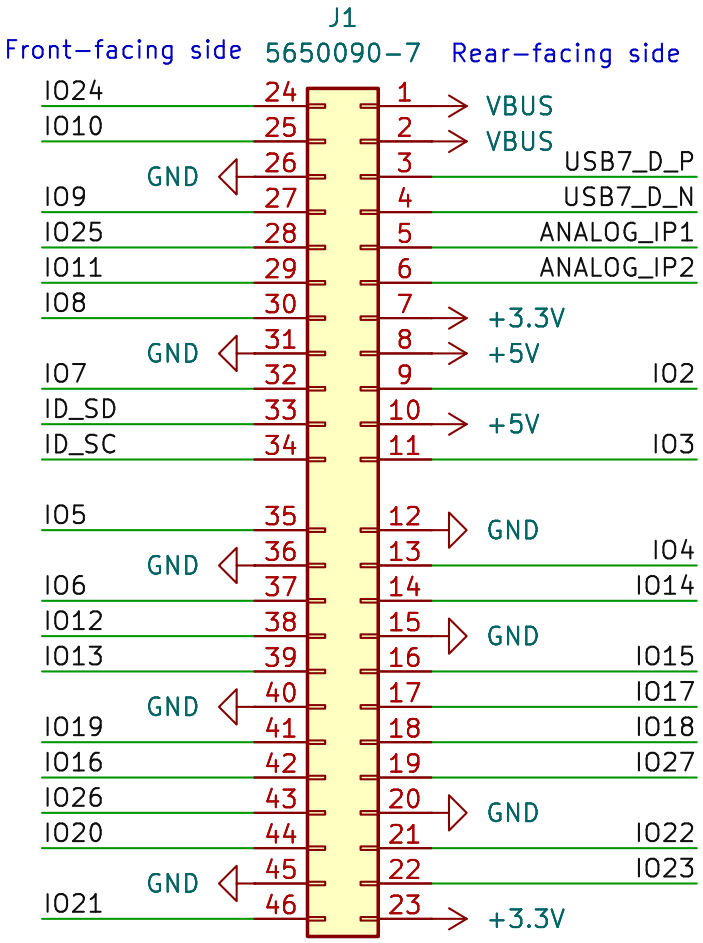
Files for the MultiPi 3D printed enclosure can be found on the Printables website –

https://www.printables.com/@Multisystem/models

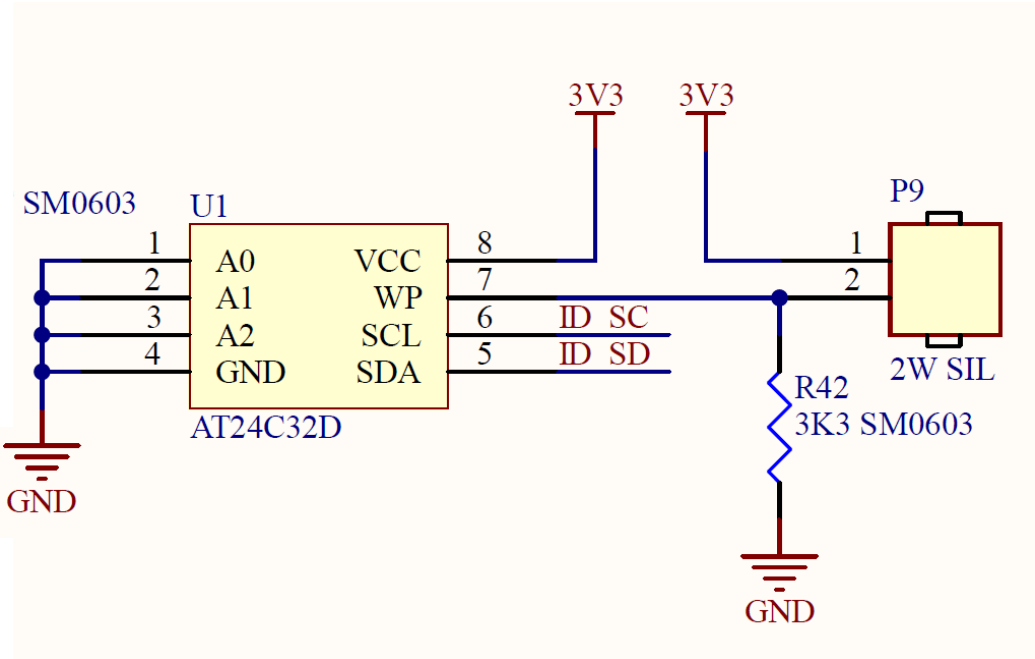
4.4 MultiPi Expansion port connections (Raspberry Pi I/O + USB) -

The Analogue video cartridge is the first cartridge expansion for the MultiPi, we plan to make more and you can also make your own, just like a 'Raspberry Pi hat' but in the convenience of a cartridge form-factor.

Here are the connection details -



The Heber Raspberry Pi Analogue Pi-IO cartridge has an identification EEPROM (24C32 - 32Kbit) fitted for detection, it is recommended that alternative cartridges also use an EEPROM connected to the ID_SD & ID_SC connections above. Analogue cartridge EEPROM configuration is shown below.



5 GENERAL ADVICE & WARNINGS FOR OPERATION

5.1 FAQ

5.1.1 Why does the SCART output not work with my 'TV' / Monitor / Arcade?

Usually for the following reasons –

1- You are using incorrect settings for the VGA666 overlay driver, see information in section 2 above.
2- Some emulators will run at higher resolutions, these will most often display fine on a modern VGA and HDMI, but not for a 15Khz CRT screen / monitor).
3- The SCART output provides a high quality RGB signal to a European RGB SCART input of a consumer TV (CRT/LCD) and other SCART Devices or SCART switchers that can switch the RGB signals etc.

A SCART to Composite cable / S-video cable or adaptor as shown above, will not work.

If you have a TV or display device that is expecting to see a Composite signal (Yellow RCA Style phono cable) or an S-video mini-Din connection, please be aware that the SCART has an RGB only output along with stereo analogue sound.

If you wish to use a composite video output, you can set this option in the Raspberry Pi config.txt file. sdtv_mode=2

Please note that setting the video output to be sdtv, the HDMI video output will be turned off.

5.1.2 Sync issues with LCD / Plasma / OLED / multisync / trisync / BVM / PVM CRT

The SCART port is intended for standard consumer SCART to SCART connection to a CRT TV.
We have tested as many CRT TV combinations as possible along with testers around the world.

The SCART output should work with more modern LCD / Plasma and OLED screens that still have a SCART input port, but it's impossible to test all possible combinations and displays that may support the SCART standard or not.
We have aimed to make the SCART output conform to the specification and be as compatible as possible on a wide range of consumer and professional CRT displays, but if you find a unit that does not seem to work, please get in contact as we will do our best to help you.

A number of CRT displays, often Professional video monitors (PVM) or Broadcast monitors (BVM) have manual sync settings, or allow all manner of signals to be connected – often not directly by a SCART-to-SCART cable but via SCART to BNC or SCART to VGA or SCART to some other connector for example.

5.1.3 Analogue Audio sound output is not working

It is quite normal for a new O/S install to default to digital HDMI sound output.

The Raspberry Pi CM4 does not have a dedicated analogue audio output, but it can be configured to use Pins 18 and 19 of the GPIO. We have connected up the analogue cartridge stereo output via these pins. They must be configured in the config file to work.

If you can't get analogue audio (stereo sound) from the Analogue cartridge phono jacks, please check you have the following commands in the config.txt

```
# Enable audio (loads snd_bcm2835)
dtparam=audio=on
dtoverlay=audremap,pins_18_19
```

You may also need to select the analogue audio output in your O/S or emulator application, this is usually 'headphones' but can be also listed as other analogue outputs.

5.1.4 I have installed a different operating system or emulator and now USB is not working

If you install an operating system, emulator or software package and the USB ports do not light up with green LED's when devices are connected (not operating), then it's probably that the software is not designed for the CM4 version of the Raspberry Pi.

Add the following into the config.txt and that should enable the USB and USB Hub on the MultiPi.

```
[cm4]
# Enable host mode on the 2711 built-in XHCI USB controller.
# This line should be removed if the legacy DWC2 controller is required
# (e.g. for USB device mode) or if USB support is not required.
otg_mode=1
```

5.2 General feedback and contact us

We want to hear any ideas or feedback you have for the MultiPi range of systems.

That can include thoughts on the 3D printed enclosure, design usability and general enjoyment of the system, whatever you want to say, please feel free to get in contact. support@heberltd.freshdesk.com

Or visit the Heber website www.heber.co.uk

For orders and updates please see https://shop.heber.co.uk/Multi-Pi/

If you need any community support you can visit the RMCretro community Discord chat server at https://discord.gg/RMCretro - This is a wonderful community that can help answer questions from other MultiPi owners and people using other Heber products.

Tweet us @MultisystemFPGA Show us your setup and how you are using the MultiPi.

5.3 declarations of conformity

"Hereby, Heber Ltd declares that the radio equipment type 01-23302-1 & 01-23303-1 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://heber.co.uk/standards/

"Hereby, Heber Ltd declares that the radio equipment type 01-23302-1 & 01-23303-1 is in compliance with S.I.2017/1206. The full text of the UK declaration of conformity is available at the following internet address: https://heber.co.uk/standards/

Retro Collective