

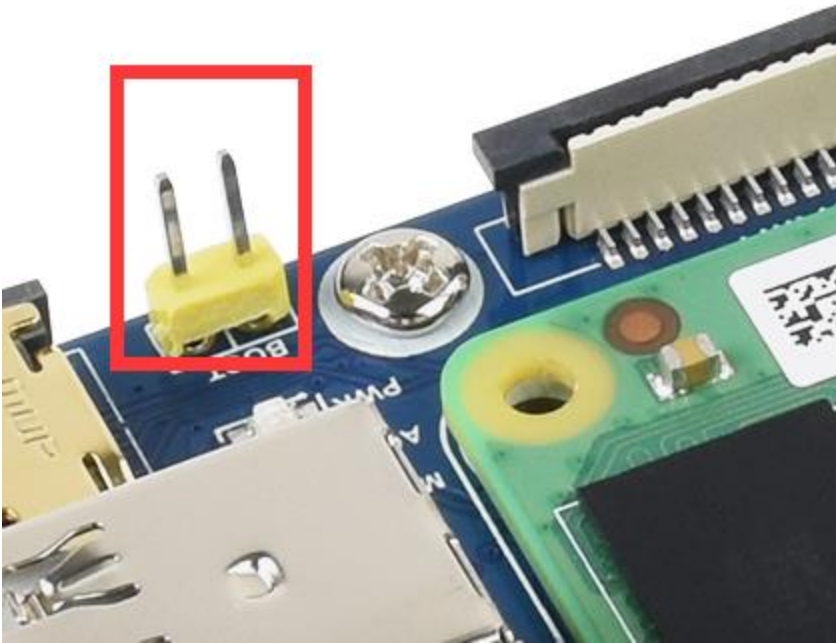
## Mini Base Board for Compute Module 4

- 1: This model only supports a 5V fan and cannot work with the 12V fan. Please confirm the fan voltage before connecting.
- 2: The DSI Display Port is connecting the DSI0 interface of the CM4, and doesn't use the DSI1 display interface.
- 3: The Type C interface can be used for the power supply or USB SLAVE interface for burning the image.
- 4: In order to ensure the normal power supply of CM4, please do not connect other devices when using the Type C interface to burn the image.
- 5: It needs to use a 5V 2A power supply for CM4. Otherwise, problems such as automatic shutdown, frequency reduction, etc. may occur.
- 6: When using the M.2 interface, please use the matching screws. Using screws of other lengths may cause the CM4 core to be damaged by the screws.
- 7: The module doesn't have any protection circuit, please do not short-circuit the power supply.
- 8: USB2.0 is closed by default, if you need to open it, you need to add `dtoverlay=dwc2,dr_mode=host` in `config.txt`.
- 9.HDMI1 uses a flat cable output, if you need to use it, you can purchase an HDMI adapter.
- 10.This expansion board does not support the POE function.

### [Download Image for CM4](#)

Operate according to the CM4 version you are using

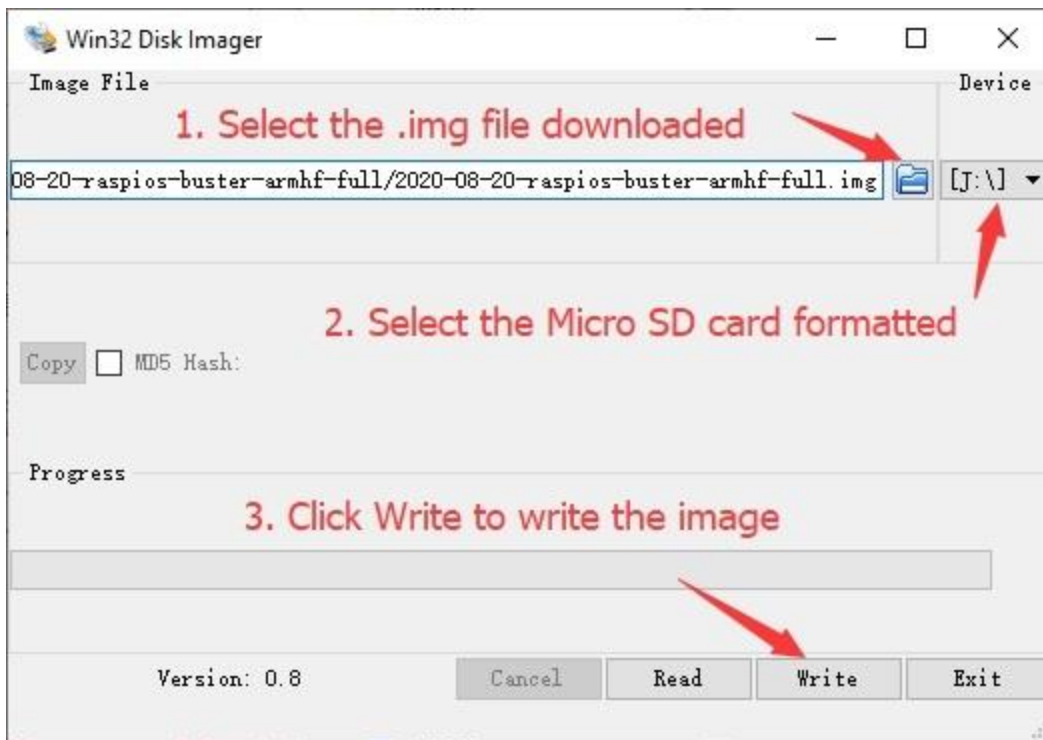
- If you use Compute Module 4 Lite, you should write the image to SD card just like common Raspberry Pi.
- If your use the eMMC version, you need to connect the CM4 to PC by Micro USB cable, Download the [rpiboot tools](#) and install it, run `rpiboot.exe` as administrator to install drivers and startup tools.
  - After the CM4 has been correctly installed on the IO board, using a jumper cap connect the BOOT pin on the IO board to the ground (GND) signal. Then use the USB Type-C cable to connect the USB Type-C interface of the IO board to your PC. The computer will recognize it as a BCMxxx device. In this case, running the rpiboot software and the PC will automatically recognize the eMMC of the CM4 as a U disk
  - Note: After installing RPiboot\_Setup, there will be a rpiboot software. You need to run rpiboot software every time when you connect this device to the computer, to make the computer recognize the device as a U disk



Format SD card: You need to format the MicroSD card or the eMMC by SDFormatter.exe software.



4、 Write image: You need to write the image to Micro SD card or the eMMC by Win32DiskImager.exe software. Select the image file and click "Write". Please DO NOT format it after formatting.



5、 Booting: For the CM4 Lite version, insert the Micro SD card into the card slot and connect the 12V power adapter. The power indicator will turn red, and the ACT will turn green and blink while booting. For the CM4 eMMC version, you need to remove the jumper of nRPI\_BOOT J2 (disable eMMC Boot) on the IO board, and then power on the IO board again.

【Note】 :

If you failed to write the eMMC, please try with the following steps:

- User Windows 10 PC instead of Windows 7 or Linux. It seems that Windows 7 or Linux PC is not stable for eMMC writing.
- Check your CM4, make sure that it is the eMMC version which has one more eMMC chip compare to the LITE version.



CM4 Lite without WiFi



CM4 Lite with WiFi



CM4 with eMMC, without WiFi



CM4 with eMMC and WiFi

- Note that you need to connect 12 power adapter to the Power port.
- Please change a USB cable for a try and make sure that the cable is data accessible.
- Change the USB port of the PC and try it again.
- Try to restart your PC.
- Re-connect the CM4 for a try.
- Try with other PCs.

## USB2.0

In order to save power, the USB interface of the CM4 is disabled by default. If you need to open the USB interface, please add the following line to the end of the config.txt:

```
dtoverlay=dwc2,dr_mode=host
```

And then reboot the system.

## FAN

The PWM pin of the FAN is connected to the GPIO18 of the CM4 board.

# CSI DSI

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CSI and DSI are disabled by default. When using the camera and DSI, it will occupy three I2C devices: I2C-10, I2C-11, and I2C-0.

- Open a terminal and run the following commands:

```
sudo apt-get install p7zip-full
wget https://www.waveshare.com/w/upload/4/41/CM4_dt_blob.7z
7z x CM4_dt_blob.7z -O./CM4_dt_blob
sudo chmod 777 -R CM4_dt_blob
cd CM4_dt_blob/
#If you want to use both cameras and DSI0
sudo dtc -I dts -O dtb -o /boot/dt-blob.bin dt-blob-disp0-double_cam.dts
#If you want to ue both cameras and DSI1
sudo dtc -I dts -O dtb -o /boot/dt-blob.bin dt-blob-displ1-double_cam.dts
```

- And then connect the cameras and DSI display

- 1: Please power off the IO Board first before your connection.
- 2: Connect the power adapter after connecting the cameras and DSI display
- 3: Wait a few seconds before the screen boot up.
- 4: If the DSI LCD cannot display, please check if you have added /boot/dt-blob.bin. If there already has the dt-blob.bin, just try to reboot.
- 5: The camera needs to be enabled by raspi-config, enter sudo raspi-config on the terminal, choose Interfacing Options->Camera->Yes->Finish-Yes and reboot the system

- Test the Cameras:

Test camera0:

```
sudo raspivid -t 0 -cs 0
```

Test camera1:

```
sudo raspivid -t 0 -cs 1
```

**【Note】 :**

- HDMI1 is disabled if you use DSI interfaces for displaying, even if you just compile the corresponding files without connecting to the DSI screen, please note it.
- If you want to enable the HDMI1, please remove the dt-blob.bin file with the command:

```
sudo rm -rf /boot/dt-blob.bin
```

And then turn off IO Board and reboot it.

## Document

- [Schematic](#)
- [CSI Camera Reference](#)
- [DSI Display Reference](#)

## 3D Drawing

- [3D Drawing](#)

## Demo codes

- [Dt files](#)
- [Demo codes](#)

## Software

- [Panasonic SDFormatter-Formatting SD card](#)
- [Win32DiskImager-Writing SD card](#)
- [putty](#)