BIGTREETECH

Pi V1.2

User Manual

CONTENTS

Revision History

Version	Revisions	Date
01.00	Original	2022/12/29

Product Profile

BIGTREETECH Pi v1.2 has the same size and the same mounting hole location as Raspberry Pi, with 2.4GHz WiFi built in.

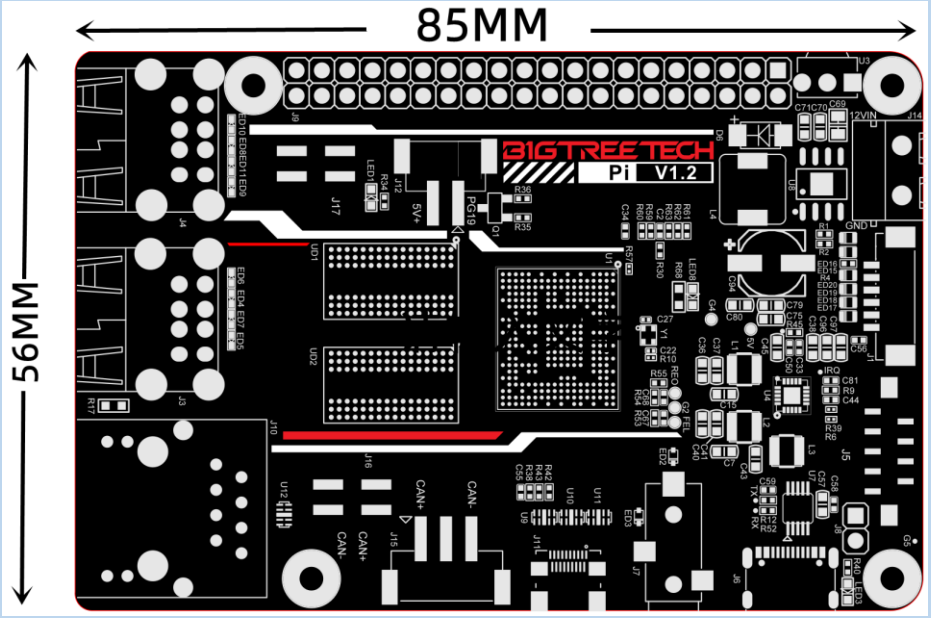
Feature Highlights

1. CPU: ALLWINNER H616, Quad-core Cortex-A53 @1.5GHz
2. GPU: Mali G31 MP2, Support OpenGL3.2
3. RAM: 1GB DDR3L SDRAM
4. Display: HDMI2.0A Port, 4K Supported
5. 4 x USB 2.0 Ports
6. Fast Ethernet + 100Mbps WiFi
7. Audio: 3.5mm Jack
8. 40-pin GPIO
9. Display: SPI Port
10. ADXL345 Port
11. Onboard connecting port for USB To CAN Module.
12. Built-in IR Receiver
13. The mounting holes are in the same location as Raspberry Pi.

Specifications

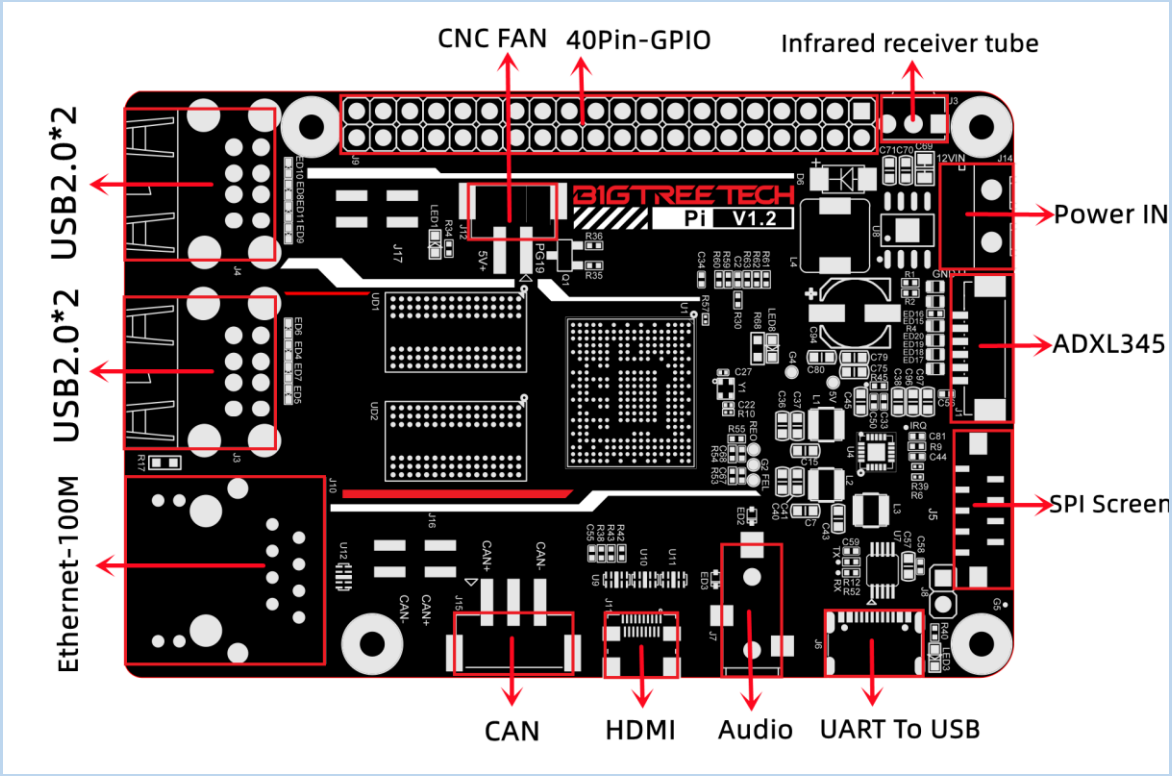
1. Product Dimensions: 85 x 56 mm
2. Mounting Size: 64 x 49.4 mm
3. Type-C Input Voltage: DC 5V±5%/2A
4. Input Voltage of Power IN Terminal: DC 12V-24V
5. Pi v1.2 Output Voltage: 3.3V±2%/100mA
6. Pi v1.2 WiFi: 2.4G/802.11 b/g/n Wireless LAN

Dimensions



Peripheral Port

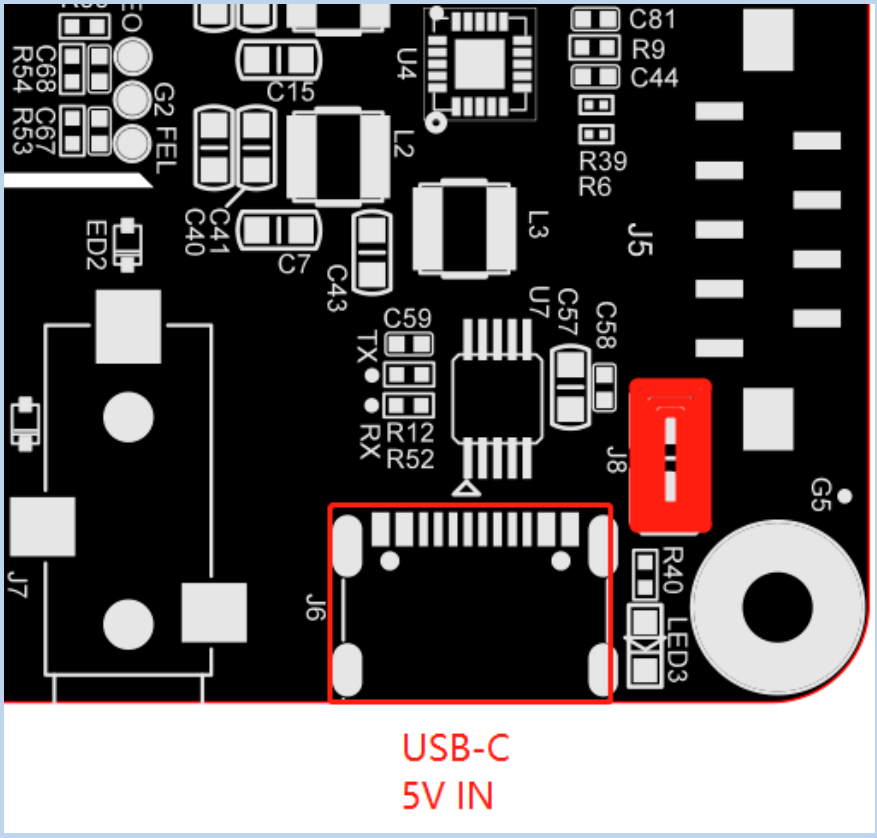
Connector Diagram



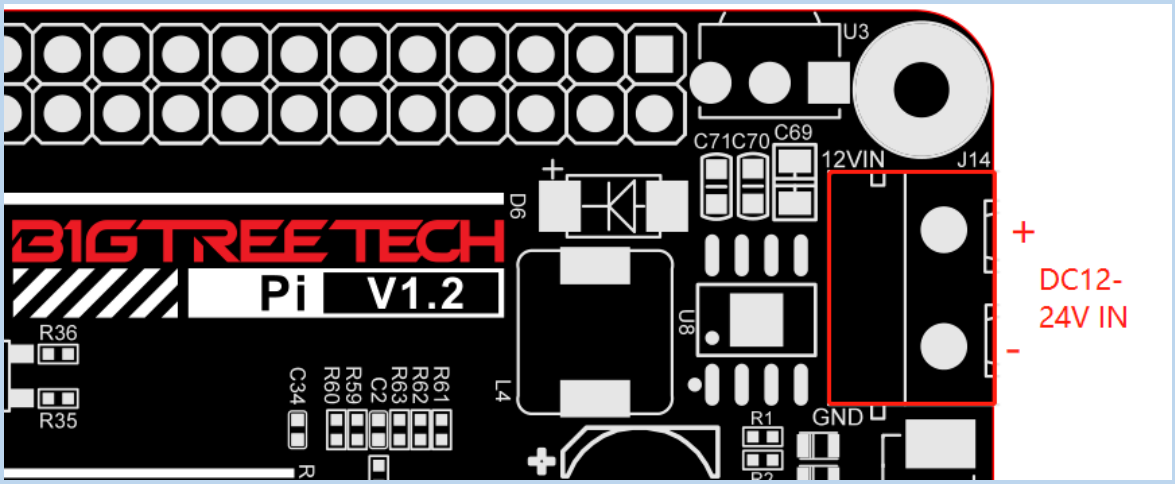
Connection Description

Power Supply

USB Power Supply: The SOC's UART converts USB signals through WCH340E. Connect this port to the PC to monitor Pi startup via the serial port tool, and identify faulty parts if there are any.



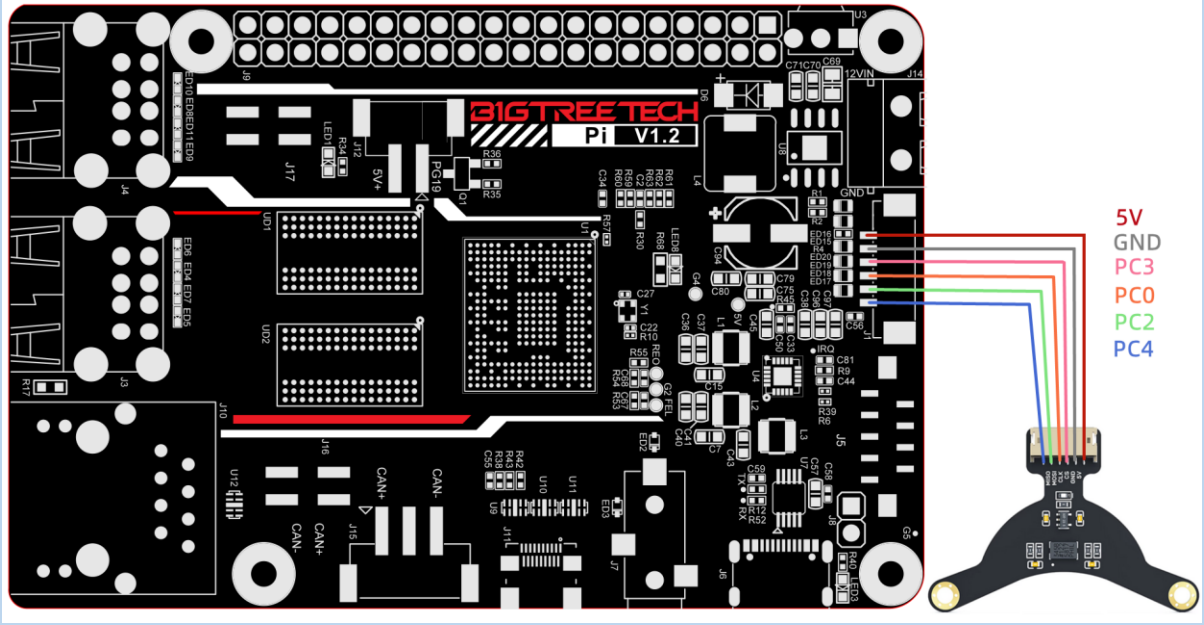
DC12-24V:



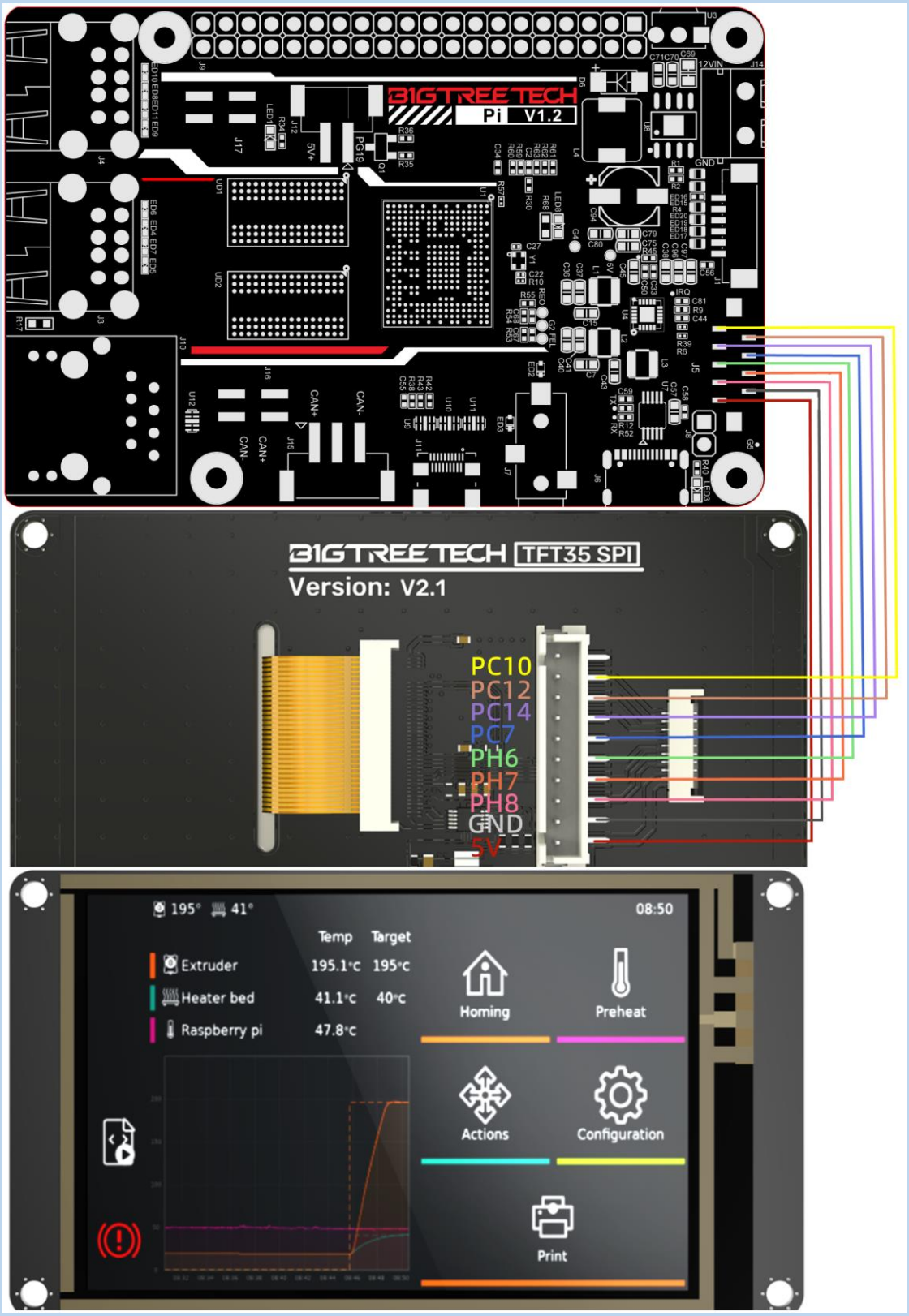
40 pins GPIO

40Pin-GPIO								
BTT Pi	CB1-eMMC	CB1	CM4		CM4	CB1	CB1-eMMC	BTT Pi
3.3V	3.3V	3.3V	3.3V		5V	5V	5V	5V
PC3	NC	NC	GPIO 2 (I2C1 SDA)		5V	5V	5V	5V
PC0	NC	NC	GPIO 3 (I2C1 SCL)		GND	GND	GND	GND
PC7	PI14	PC7	GPIO 4 (GPCLK0)		GPIO 14 (UART TX)	TX	TX	TX
GND	GND	GND	GND		GPIO 15 (UART RX)	RX	RX	RX
PC14	PI15	PC14	GPIO 17		GPIO 18 (PCM CLK)	PC13	PI7	PC13
PC12	PI6	PC12	GPIO 27		GND	GND	GND	GND
PC10	PI4	PC10	GPIO 22		GPIO 23	PC11	PI5	PC11
3.3V	3.3V	3.3V	3.3V		GPIO 24	PC9	PI3	PC9
PH7	PH7	PH7	GPIO 10 (SPI0 MOSI)		GND	GND	GND	GND
PH8	PH8	PH8	GPIO 9 (SPI0 MISO)		GPIO 25	NC	NC	PG13
PH6	PH6	PH6	GPIO 11 (SPI0 SCLK)		GPIO 8 (SPI0 CE0)	NC	NC	PG12
GND	GND	GND	GND		GPIO 7 (SPI0 CE1)	PG8	PI11	PI9
PC2	NC	NC	GPIO 0 (EEPROM SDA)		GPIO 0 (EEPROM SCL)	PG7	PI10	PI10
PC4	NC	NC	GPIO 5		GND	GND	GND	GND
PI5	PI9	PG6	GPIO 6		GPIO 12 (PWM0)	PG9	PI12	PI6
PI14	NC	NC	GPIO 13 (PWM1)		GND	GND	GND	GND
PC6	PI1	PC6	GPIO 19 (PCM FS)		GPIO 16	NC	NC	PG11
PC15	PI13	PC15	GPIO 26		GPIO 20 (PCM DIN)	PH10	PH10	PH4
GND	GND	GND	GND		GPIO 21 (PCM DOUT)	PC8	PI2	PC8

ADXL345 Wiring

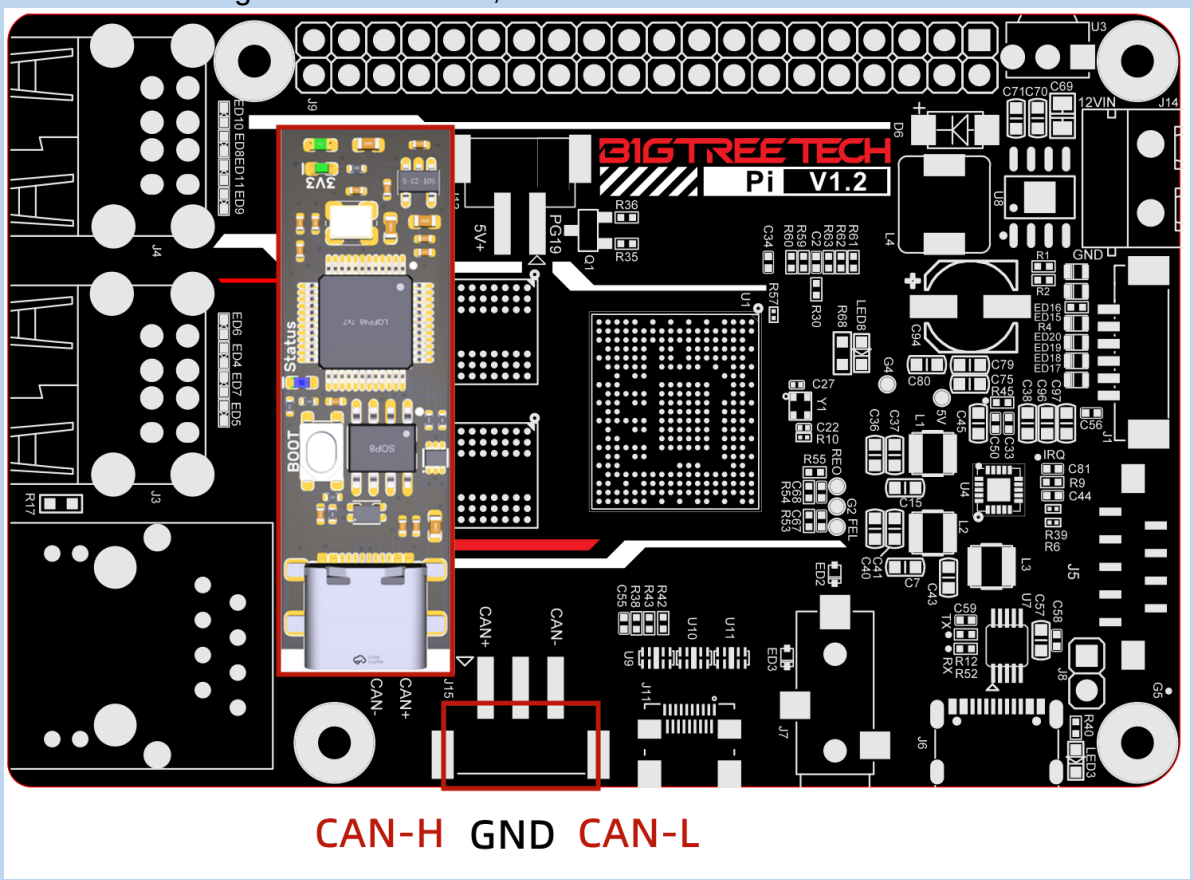


SPI Display Wiring

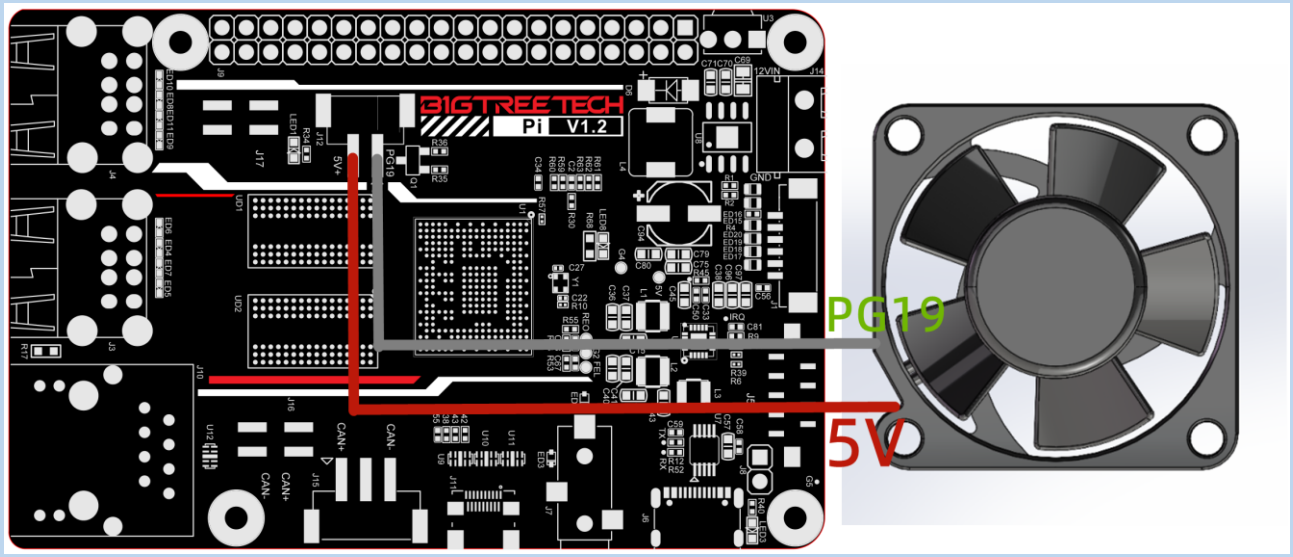


Connecting a USB To CAN Module

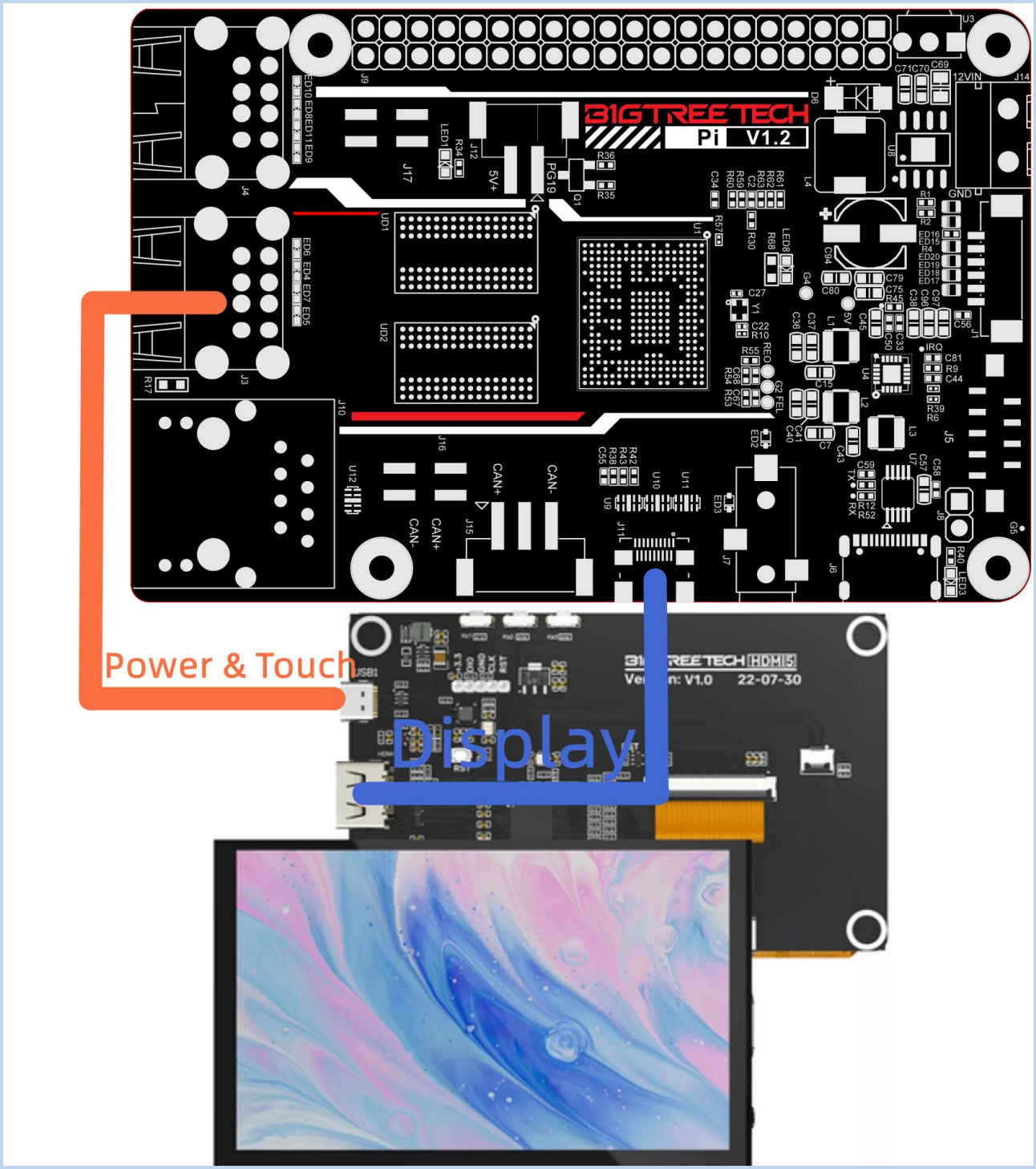
Note: when using the U2C module, the SOC's USB2 is used for communication.



Fan Wiring



HDMI Display Wiring



OS Writing

Download OS Image

Please download and install the OS image we provided:
https://github.com/bigtreetech/CB1/releases

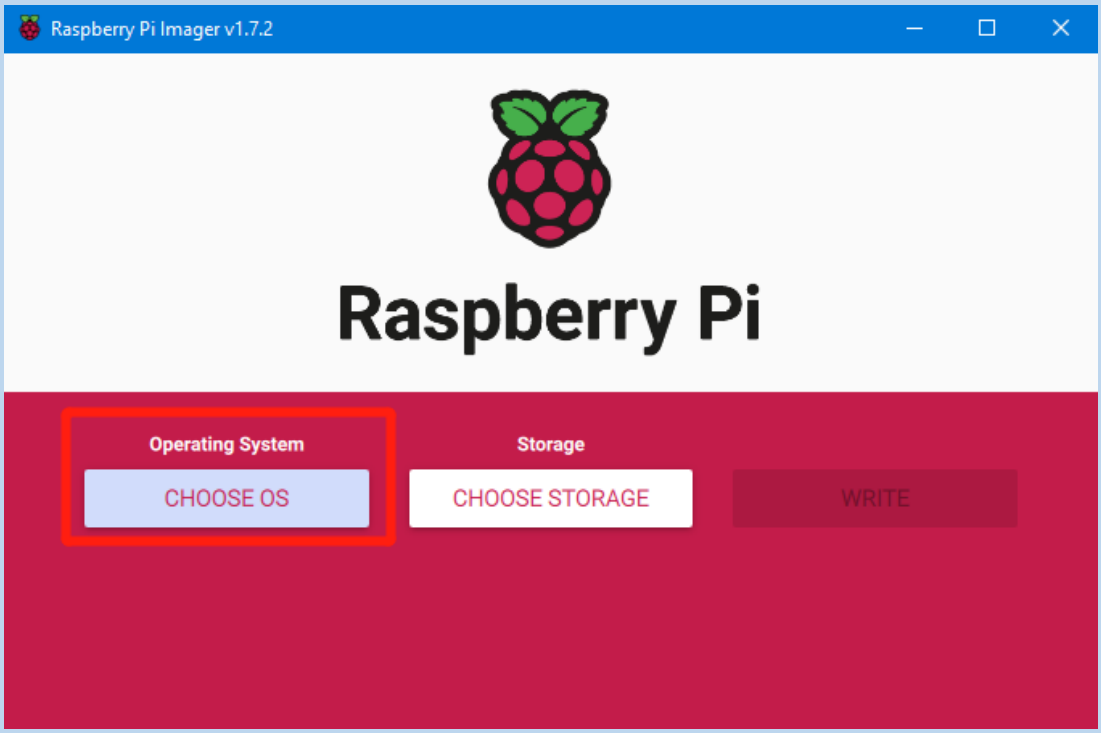
Download and Install Writing Software

Install the official Raspberry Pi Imager: https://www.raspberrypi.com/software/
balenaEtcher: https://www.balena.io/etcher/
Choose one of the above software to download and install.

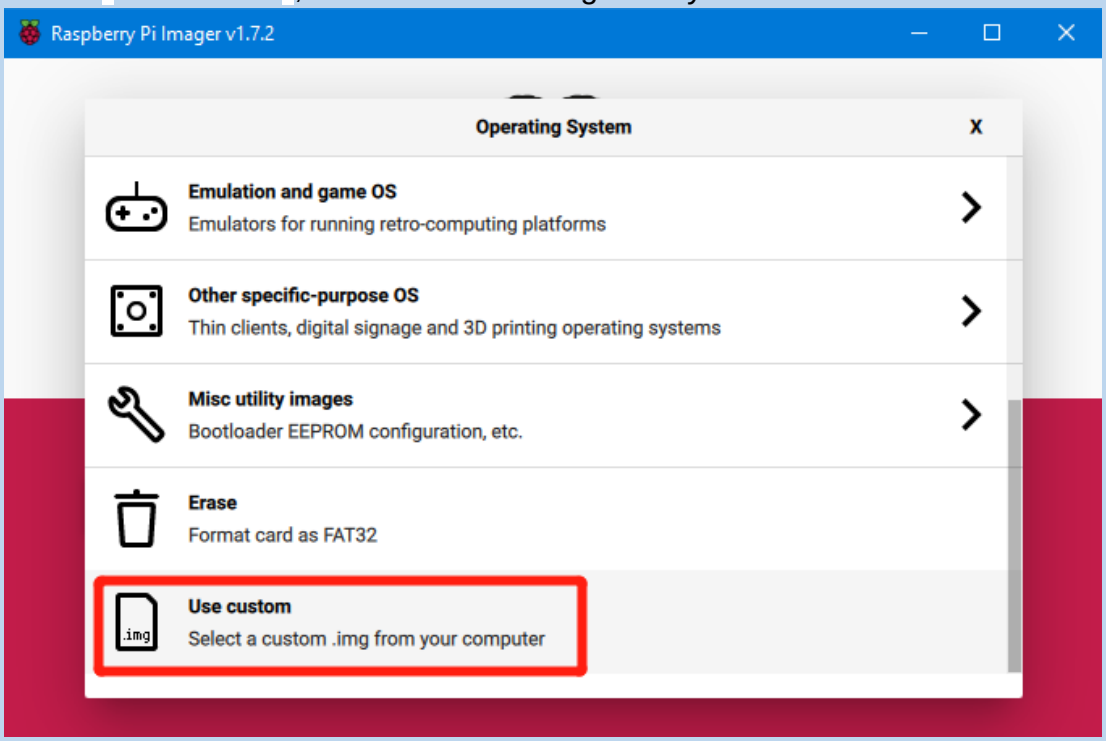
Start to Write OS

Using Raspberry Pi Imager

1. Insert a microSD card into your computer via a card reader.
2. Choose OS.

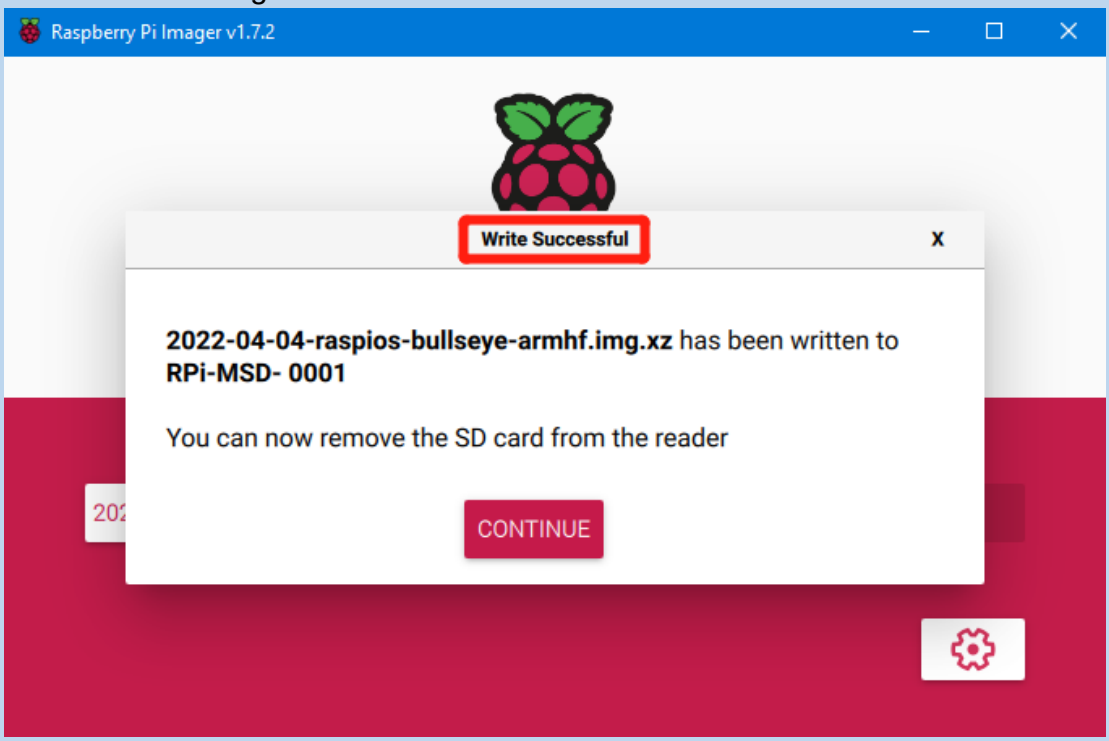


3. Select "Use custom", then select the image that you downloaded.



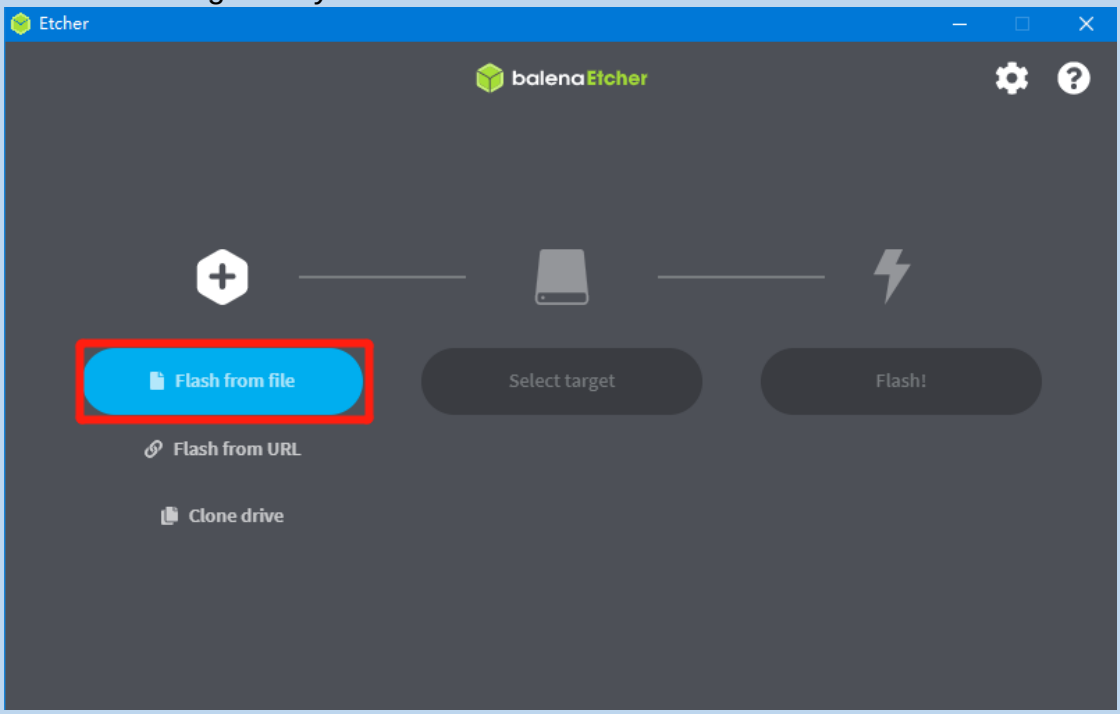
4. Select the microSD card and click "WRITE" (WRITE the image will format the microSD card. Be careful not to select the wrong storage device, otherwise the data will be formatted).

5. Wait for the writing to finish.

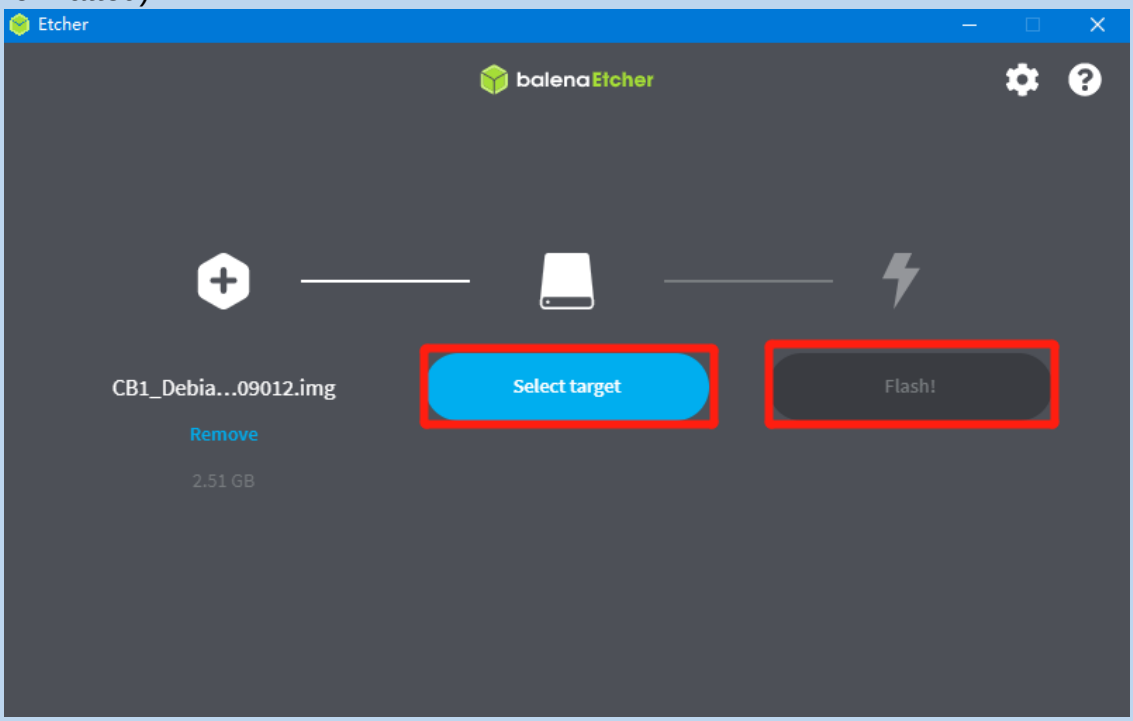


Using balenaEtcher

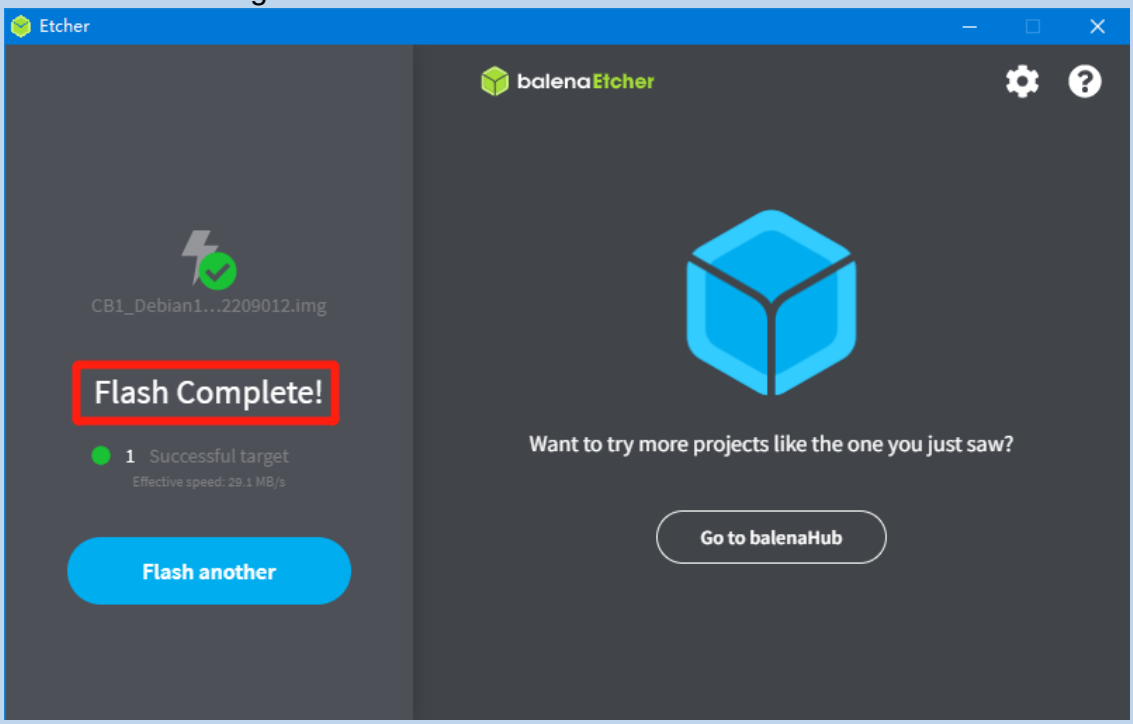
1. Insert a microSD card into your computer via a card reader.
2. Select the image that you downloaded.



3. Select the microSD card and click "WRITE" (WRITE the image will format the microSD card. Be careful not to select the wrong storage device, otherwise the data will be formatted).



4. Wait for the writing to finish.



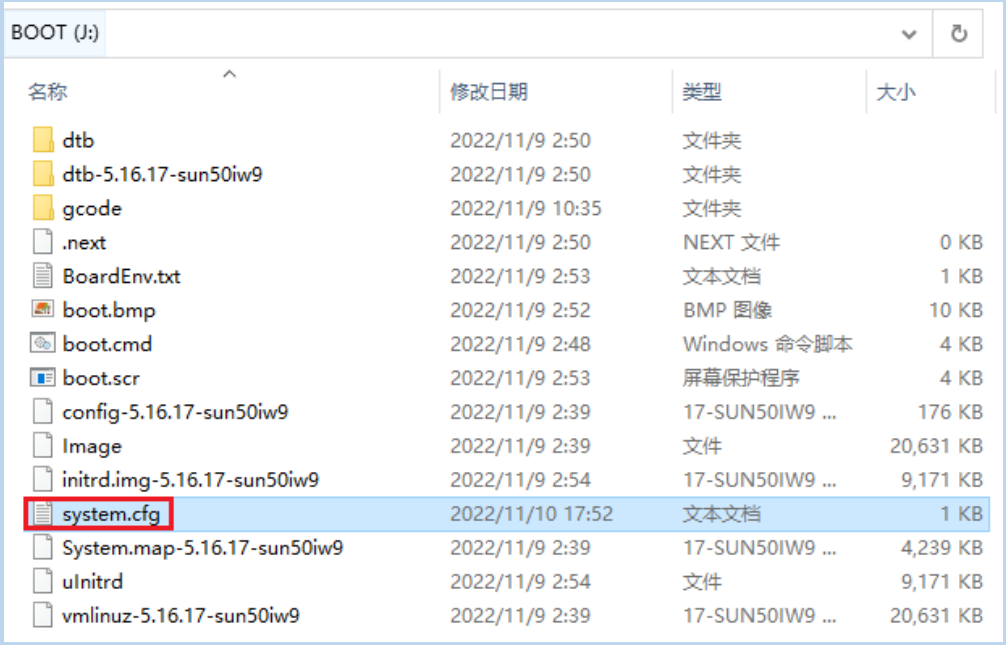
Network Configuration

Wired Network

For wired networks, no additional settings are needed. Just plug and play.

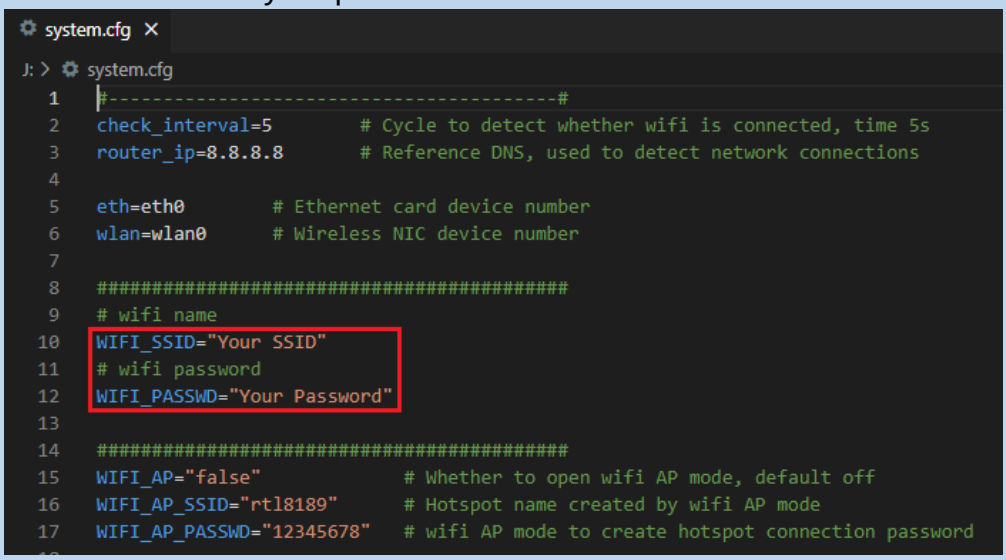
WiFi Setting

After the OS image writing is completed, the microSD card will have a FAT32 recognized by the computer, find "system.cfg".



Open it with Notepad, replace WIFI-SSID with your WiFi name, and

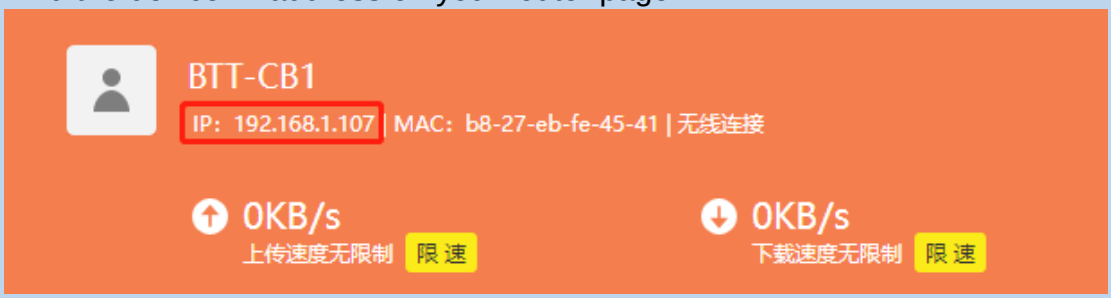
PASSWORD with your password.



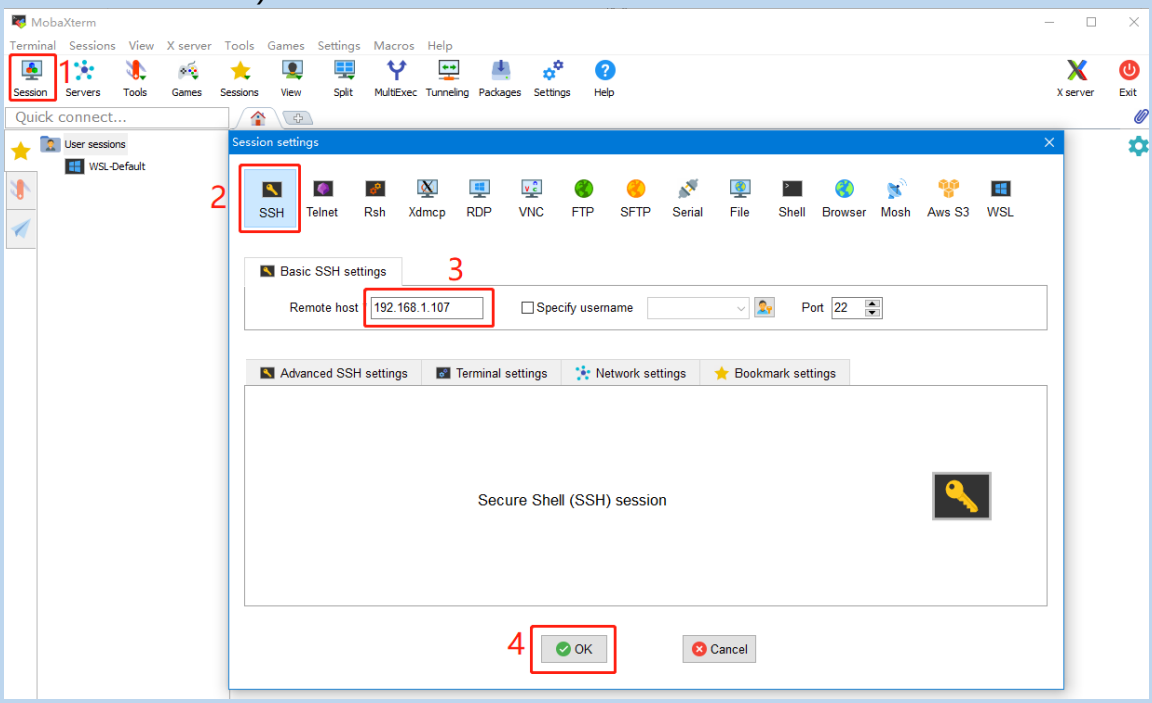
Configure the Motherboard

SSH Connect to Device

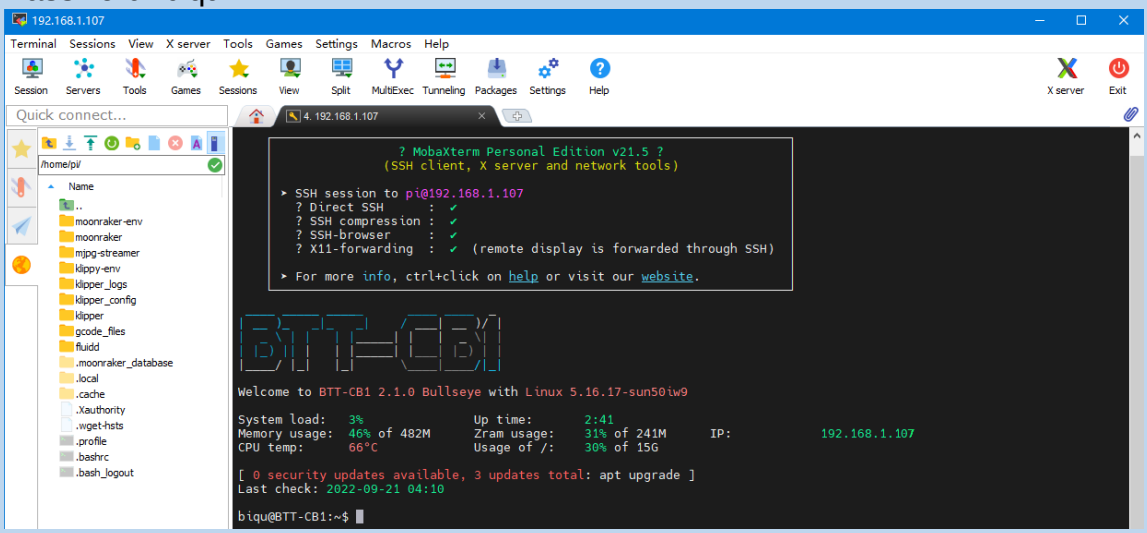
1. Install the SSH application Mobaxterm：https://mobaxterm.mobatek.net/download-home-edition.html
2. Insert the microSD card into the motherboard, and wait for the system to load after powering on, approx. 1-2min.
3. The device will automatically be assigned an IP address after successfully connecting to the network.
4. Find the device IP address on your router page.



5. Open Mobaxterm and click "Session", and click "SSH", enter the device IP into the Remote host, and click "OK" (Note: your computer and the device needs to be under the same network).



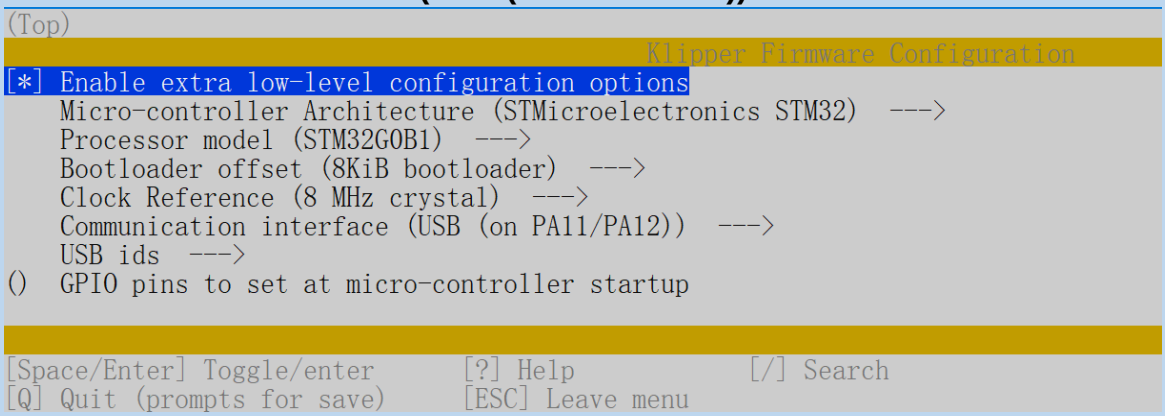
6. Login
   Login as: biqu
   Password: biqu



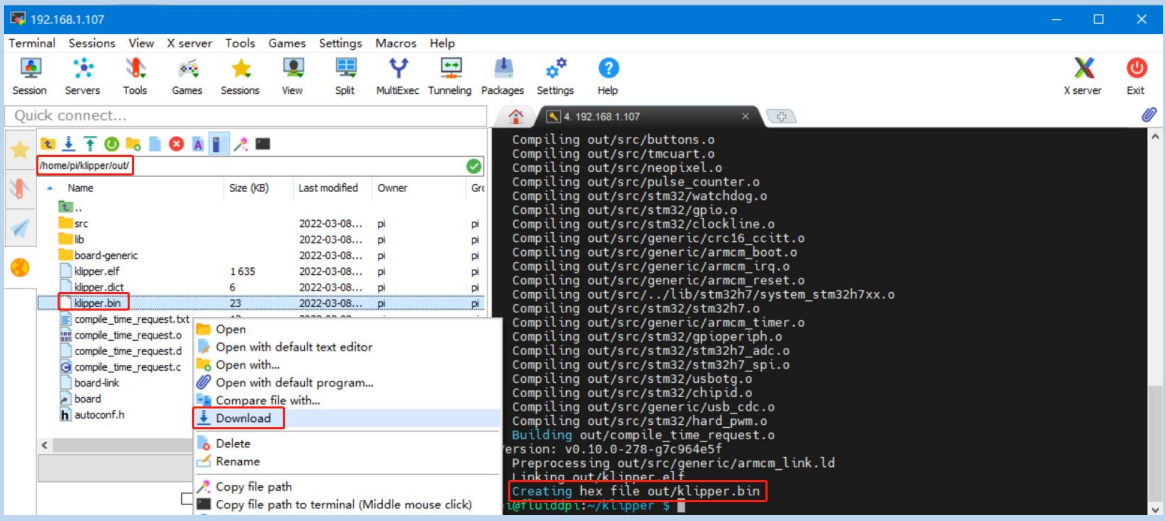
Compile MCU Firmware

1. After SSH is successfully connected to the device, enter in the terminal:
   cd ~/klipper/
   make menuconfig
   The firmware is compiled based on the motherboard configuration, here we take Manta M4P as an example:

   *** [*] Enable extra low-level configuration options**
   *** Micro-controller Architecture (STMicroelectronics STM32) --->**
   *** Processor model (STM32G0B1) --->**
   *** Bootloader offset (8KiB bootloader) --->**
   *** Clock Reference (8 MHz crystal) --->**
   *** Communication interface (USB (on PA11/PA12)) --->**



2. Press 'q' to exit, and "Yes" when asked to save the configuration.
3. Run **make** to compile firmware, 'klipper.bin' file will be generated in the **home/pi/klipper/out** folder when **make** is finished, download it onto your computer using the SSH application.



Cautions

Pay attention to the heat dissipation of Pi. If the running application consumes too many system resources, it will get hot quite serious.

If you need other resources for this product, please visit https://github.com/bigtreetech/ and find them yourself. If you cannot find the resources you need, you can contact our after-sales support.

If you encounter other problems during use, feel free to contact us, and we are answering them carefully; any good opinions or suggestions on our products are welcome, too and we will consider them carefully. Thank you for choosing BIGTREETECH. Your support means a lot to us!

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.