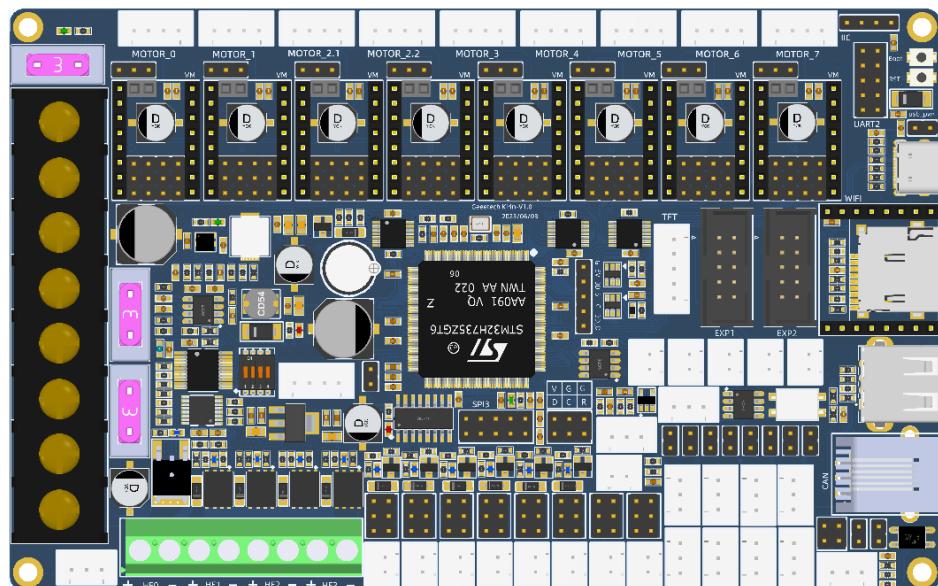


GEEETECH Kirin V1.0
Motherboard instruction manual V1.0
(20230808)



Shenzhen Getech Technology Co., Ltd.

1. Matters needing attention

- 1) Please read this manual carefully before use to ensure that you can fully understand the interface definition, functions, and use methods of this motherboard.
- 2) When configuring a Kirin motherboard for the first time, remove all jumper caps from the motherboard first, and then install jumper caps according to your requirements.
- 3) When installing the driver module, it is strictly prohibited to install the driver module according to the color of the connector. Be sure that the pin definition of the driver module is consistent with the pin definition of the motherboard socket. It is strictly prohibited to install the driver module in the opposite direction, otherwise it will cause damage to the motherboard and the driver module.
- 4) Please make sure that all the wiring is correct before you power on the motherboard to avoid damage caused by wiring errors.
- 5) Pay attention to electrostatic protection when touching the motherboard with your hands to avoid damaging it.
- 6) The main power supply (PWER_IN) of the main board should not exceed 28V.
- 7) When using fans of different voltages, protect these from causing short circuits on the other motherboards of the 3D printer;
- 8) When using 5V fans, please be sure to pay attention to, do not short-circuit 5V and 12V or 5V and 24V, otherwise it will cause serious consequences of Kirin motherboard damage, if you do not use 5V fans, please do not install 5V protection jumper;
- 9) The buzzer has a layer of stickers when leaving the factory, please tear off the stickers when using the motherboard, otherwise it will cause the buzzer to sound small and affect the use experience.

2. Introduction to the motherboard

Geeetech Kirin motherboard is a 3D printer motherboard launched by Geeetech that supports up to 8 channels up to 60V stepper motor. The main control adopts STM32H723ZGT6. It has a rich interface and up to 550Mhz main frequency, which can run Marlin, Klipper and other firmware. Is a 3D printing enthusiasts to meet the needs of a variety of DIY multi-function with the general motherboard.

Compared with other similar motherboards on the market, Kirin V1.0 has made a lot of optimization in power filtering, short circuit protection, Raspberry PI power output, maintainability, etc., so as to ensure the stable and reliable work of Kirin motherboard.

3. Motherboard Features

Geeetech Kirin V1.0 has the following features compared to other motherboards of the same type:

- ◆ The MCU adopts ARM Cortex M7 32-bit STM32H723ZGT6, the main frequency is up to 550MHz, and the flash memory capacity is up to 1MB;
- ◆ Support Marlin2.0, Klipper, RRF firmware;
- ◆ Motherboard support A4988, DRV8825, LV8729, ST820, TMC2208, TMC2209, TMC2226, TMC5160A and other driver modules;
- ◆ The motherboard supports sensorless limit configuration (sensorless);
- ◆ 8 way motor drive, using pluggable module design;
- ◆ The 8-way motor drive module can choose the voltage separately, you can choose 24V voltage input, you can also choose the maximum 60V voltage;
- ◆ 8-way motor drive can use different models of drive modules at the same time;
- ◆ Support 6 way limit switch, 2 way broken material detection plate;

- ◆ Support 4 way hot end heating rod;
- ◆ 1 CANBUS bus interface, using 6P6C RJ11 interface;
- ◆ BL_Touch interface;
- ◆ 1 onboard Micro SD card slot, which can be used for local printing of G-code, firmware upgrade;
- ◆ Reserved RGB light strip interface;
- ◆ Onboard 32KB EEPROM (ATMEL AT24C32);
- ◆ Support LCD12864 screen;
- ◆ Support serial screen, require the user to adapt;
- ◆ Onboard USB Host interface, can be used to connect the U disk;
- ◆ Reserve SPI interface, users can expand a variety of peripherals;
- ◆ Reserved WIFI module interface, users can add their own;
- ◆ Support 8 fans, of which 6 are PWM control fans, 2 are normally open fans, each fan supports 5V, 12V, 24V voltage selection;
- ◆ On-board MX31865 chip, the default support 2/4-wire PT100/PT1000, users can also support 3-wire PT100/PT1000 by changing the resistance;
- ◆ Online printing using the current popular Type-C interface, easy to use;
- ◆ The output current of the 5V power chip can reach 8A, which can directly supply power to the Raspberry PI;
- ◆ 5V power output voltage compensation, when the Raspberry PI full load will not produce low voltage alarm;
- ◆ 5V power supply is designed with protection pin and protection diode to prevent short circuit between 5V and 12V or 24V during use, resulting in damage to the motherboard;
- ◆ Drive module power filter capacitor adopts 100V high voltage capacitor, the use is more reliable and stable;
- ◆ High power MOS tube is used in hot end and hot bed MOS tube, and heat dissipation is optimized, stable and reliable;
- ◆ Onboard automotive level pluggable fuse, quick and convenient replacement;
- ◆ After printing the shutdown interface, with the corresponding function module, the power of the 3D printer can be turned off after the model is printed, which is safe and power-saving;
- ◆ Power off and continue to play interface, with the corresponding module, can be used after the main power off, the print head will be lifted from the model a certain height, to prevent the nozzle will burn the model;
- ◆ Motherboard support USB-DFU function;

4. Hardware specifications

Geeetech Kirin V1.0 Main hardware specifications:

processor	ARM Cortex M7 32-bit STM32H723ZGT6, 550MHz, 1MB flash memory
Motor Drive	Compatible with A4988, DRV8825, LV8729, ST820, TMC2208, TMC2209, TMC2226, TMC5160A and other drive modules
Main power input	DC 12~28V
Motor power input	DC 12~60V
Hot bed power input	DC 12~28V
Hot end maximum current	65A
Hot bed maximum current	90A
Raspberry PI power supply maximum output current	5A
Stepper motor drive	Pluggable drive modules such as A4988, DRV8825, LV8729, ST820, TMC2208, TMC2209, TMC2226, TMC5160A, etc
Number of electric drives	Moto_1, Moto_2.1, Moto_2.2, Moto_3, Moto_4, Moto_5, Moto_6, Moto_7
Limit switch	8 lines, all 3-wire limit switch interfaces

Cut-off detection	Support at least 2 broken material detection sensors
Temperature sensor	Supports 5 NTC100k thermistors and 1 PT100/PT1000 thermistors
Display	LCD12864, LCD2004, serial touch screen, etc
Fan	8 fans, 6 of which are PWM controlled and 2 impossible to control
PC Communication	Type-C interface, CAN can be configured as serial port, USB protocol, CAN protocol
CAN bus interface	RJ11, 6P6C
EEPROM	Atmel AT24C32, 32KB
Storage	Micro SD
Buzzer	Onboard, stickers need to be removed when using
Motherboard Dimensions	160mm*100mm
Mounting dimensions	153.6 mm * 93.6 mm
Motherboard weight	176g

5. Motherboard interface description

1) Motherboard Power Supply (PWER_IN)

The Geeetech Kirin V1.0 mainboard power supply and stepper motor power supply (MOTOR_PWR_IN) are separated. The input voltage ranges from 12 to 28V. Figure 5-1 shows the power ports on the GEeeTech kirin V1.0.

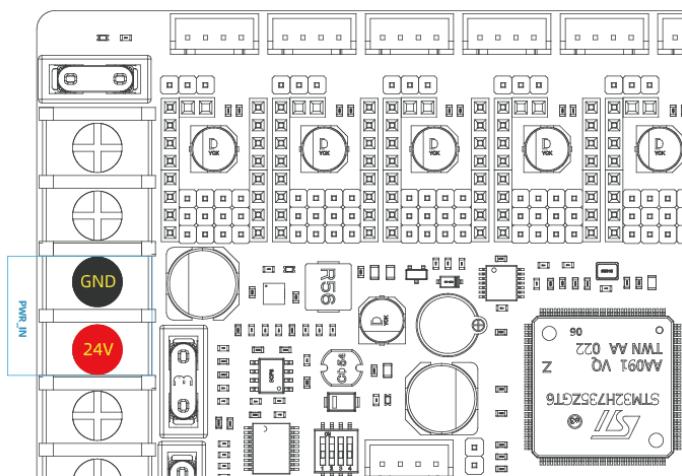


Figure 5-1

2) Stepper motor Power supply (MOTOR_PWR_IN)

Geeetech Kirin V1.0 stepper motor supports high voltage input, so the stepper motor power supply adopts separate design, and the voltage input voltage range is 12~60V. The mainboard power interface is shown in Figure 5-2 below. Please note that the positive and negative terminals of the stepper motor power supply cannot be connected incorrectly, otherwise the Kirin mainboard will be damaged.

Note that when powering the stepper motor independently, it is necessary to install the jumper as shown in the picture below. There is a 20A fuse on the path of the stepper motor power supply (MOTOR_PWR_IN). Please note that the total current of the stepper motor cannot exceed 20A.

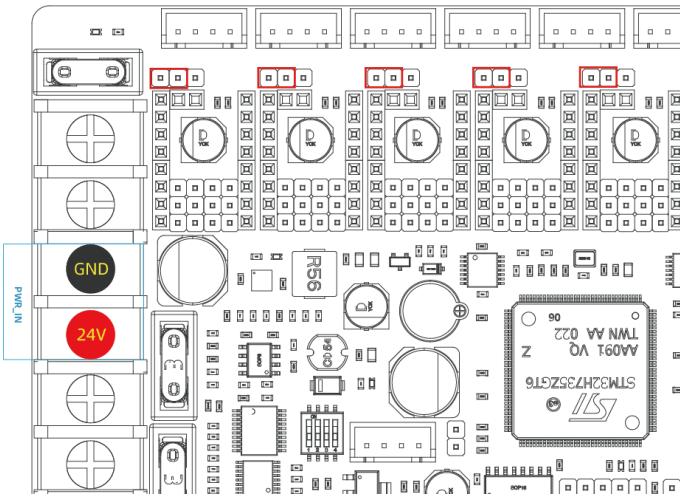


Figure 5-2

At the same time, the user can also use the motherboard power supply (PWER_IN) to power the stepper motor, you need to install the jumper as shown in Figure 5-3:

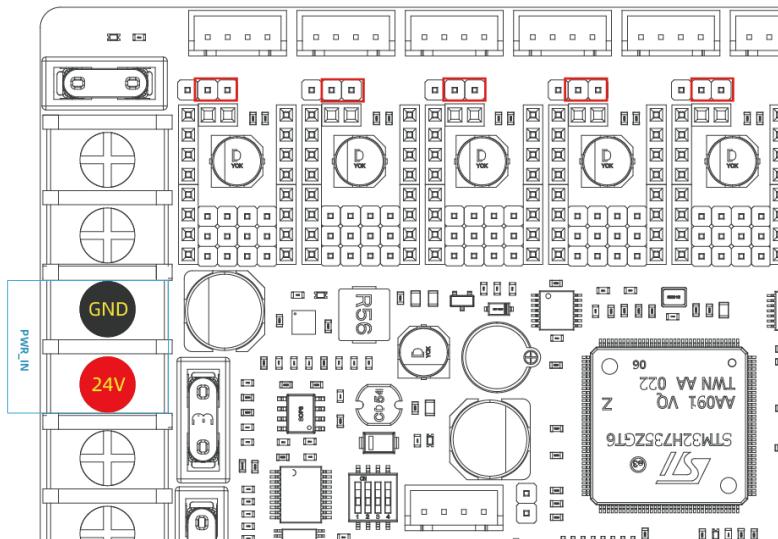


Figure 5-3

3) Hot bed power input (BED_PWR)

Geeetech Kirin V1.0 hot bed power supply adopts separate design, the voltage input voltage range is 12~28V, the maximum can pass 15A (15A fuse, the maximum can pass 90A current) current, the hot bed power input interface is shown in Figure 5-4 below, please note that the positive and negative terminals of the hot bed power supply cannot be connected incorrectly. Otherwise, the Kirin motherboard will be damaged.

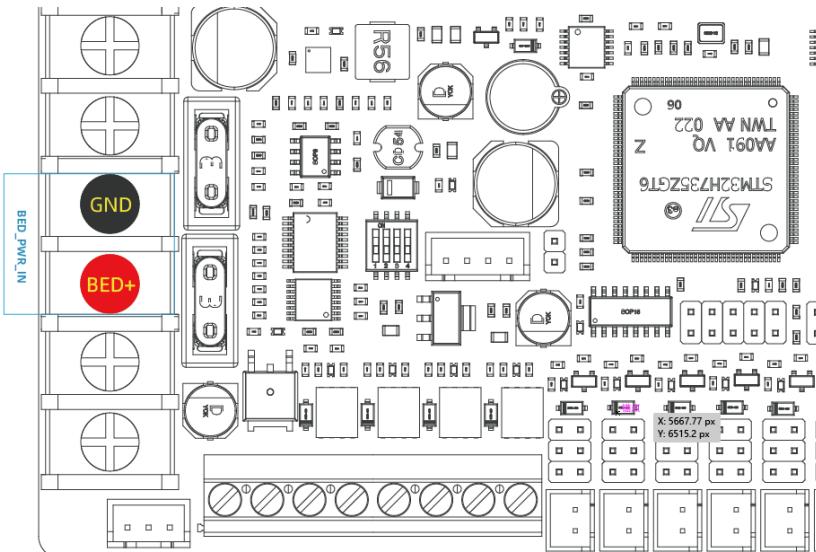


Figure 5-4

4) Hot bed Power Output (BED_OUT)

The Geeetech Kirin V1.0 hot bed power output terminal is shown in Figure 5-5. The maximum output current of the GEEETech Kirin V1.0 hot bed power supply is 15A, and the maximum output current of the hot bed MOS tube is 90A. Please note that the positive and negative terminals of the GEeeTech power supply should not be connected incorrectly. Otherwise, the Kirin motherboard will be damaged.

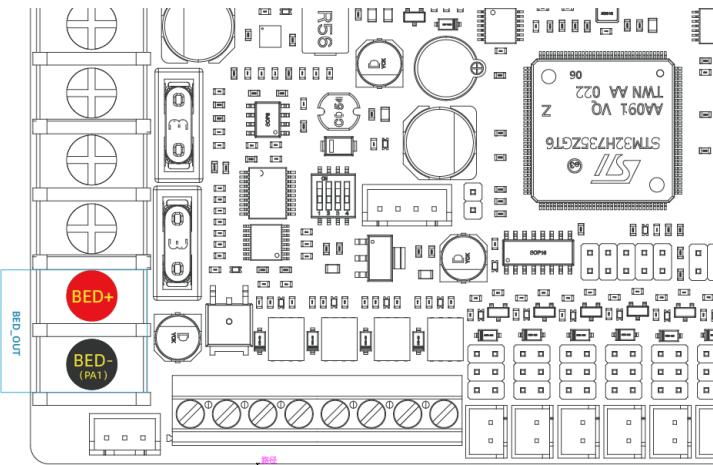


Figure 5-5

5) Hot end heating rod power supply (HE0/HE1/HE2/HE3)

Geeetech Kirin V1.0 has four hot-end power supplies, as shown in Figure 5-6. The MOS tube of each hot-end power supply can output a maximum current of 65A. Do not use heating rods exceeding this power. The four hot bed power supplies are connected to the main board power supply (PWER_IN), so the maximum current cannot exceed the PWE3R_IN fuse current.

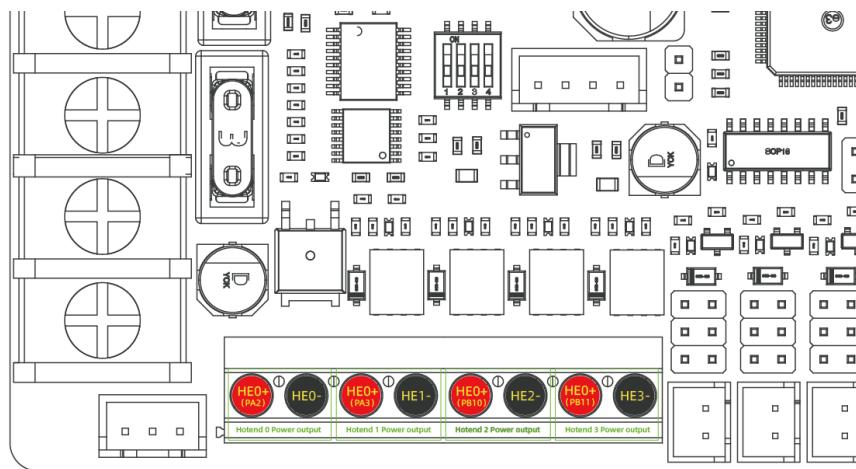


Figure 5-6

Figure 5-7 shows the interface definition:

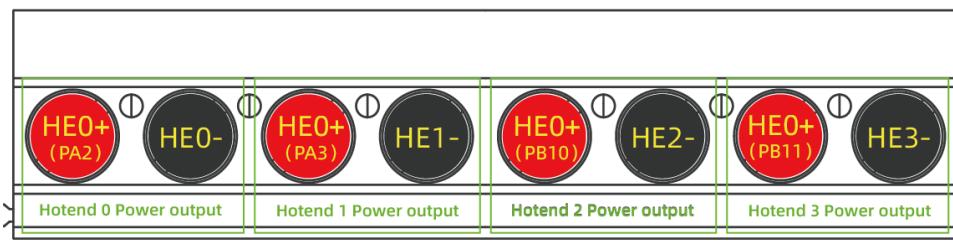


Figure 5-7

6) Limit switch (broken material detection)

Geeetech Kirin V1.0 has a total of 8 3-wire limit switches, as shown in Figure 5-8, which are X-MIN, Y-MIN, Z-MIN, X-MAX, Y-MAX, Z-MAX, E-MIN, EMAX. The power supply voltage is 5V, and the photoelectric limit switch can be connected. Can also be connected to the material break detection sensor as required.

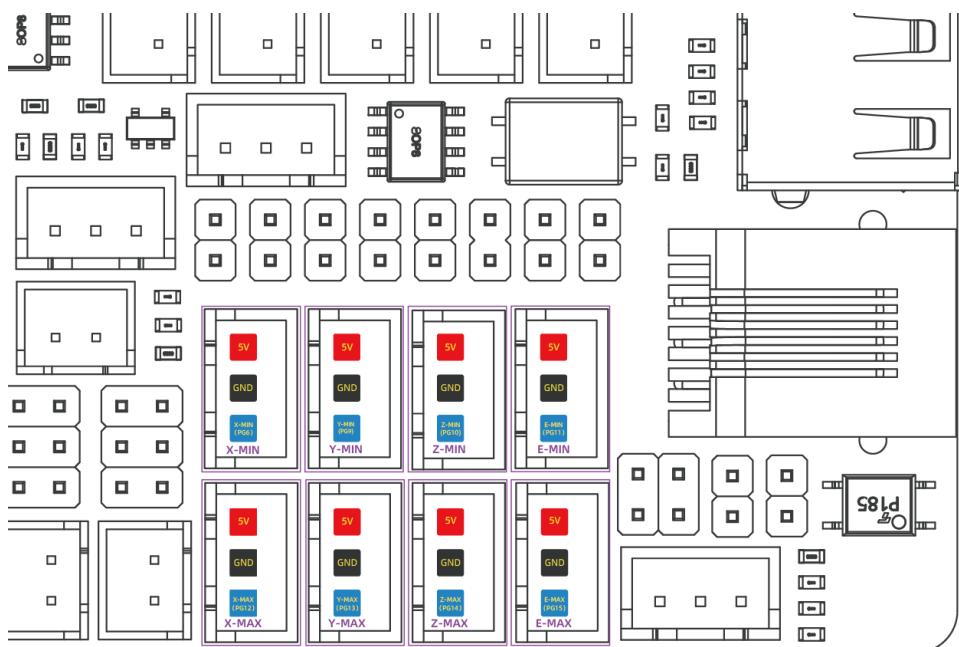


Figure 5-8

Figure 5-9 shows the interface definition:

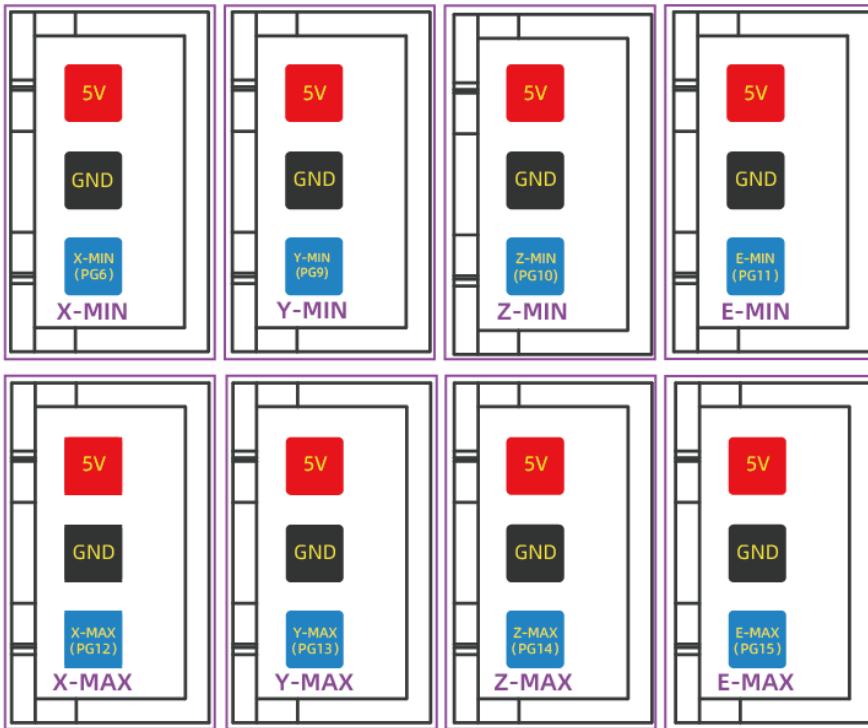


Figure 5-9

- 7) Fan ports can be controlled

The Geeetech Kirin V1.0 has six PWM controlled fan interfaces, namely FAN0, FAN1, FAN2, FAN3, FAN4, and FAN5, as shown in Figure 5-10.

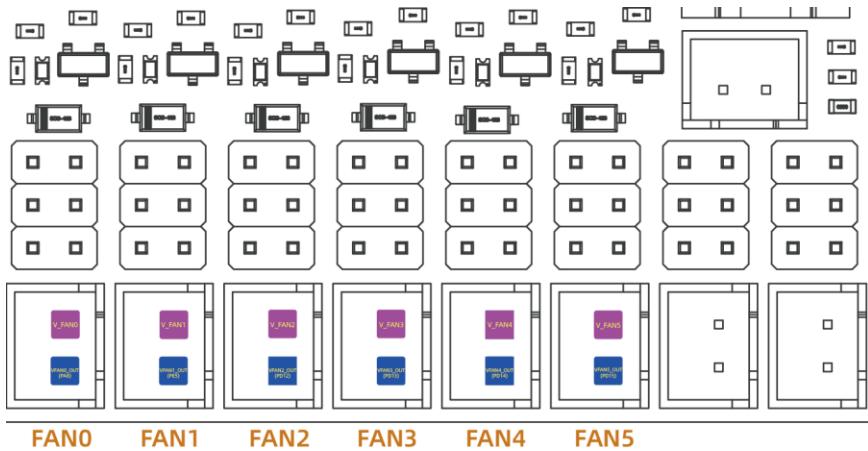


Figure 5-10

Figure 5-11 shows the interface definition:

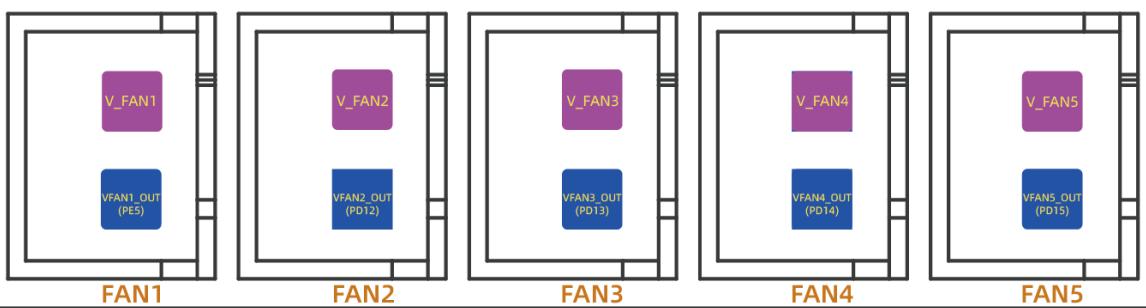


Figure 5-11

Each fan can be supplied with a 5V, 12V, or 24V power supply, as shown in Figure 5-12, and only one jumper can be installed on a fan at any one time:

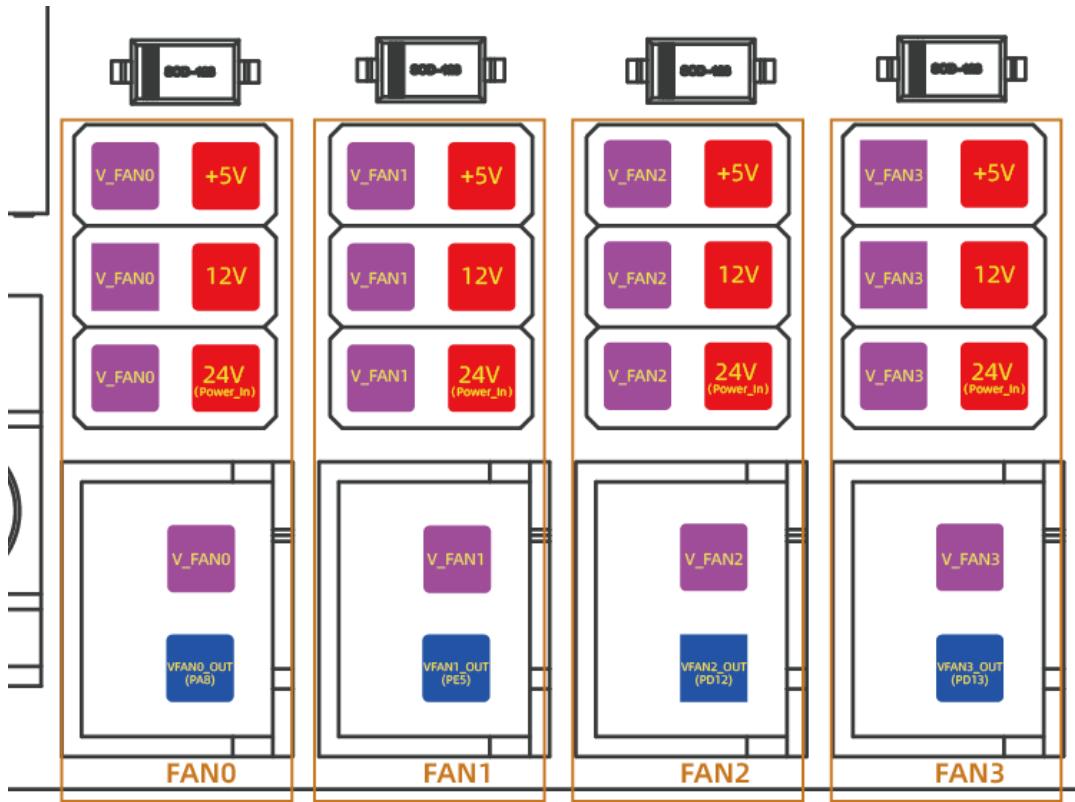


Figure 5-12

Note:

Because the 5V, 12V, and 24V voltage selection pins of the fan are very close to each other, do not short-circuit 12V, 24V, and 5V, otherwise the Kirin motherboard will be damaged and difficult to repair. For the safety of the Kirin motherboard, we design 5V protection jumper. If you want to use the 5V fan, you need to install this jumper, as shown in Figure 5-13. If you do not use the 5V fan, do not install this jumper.

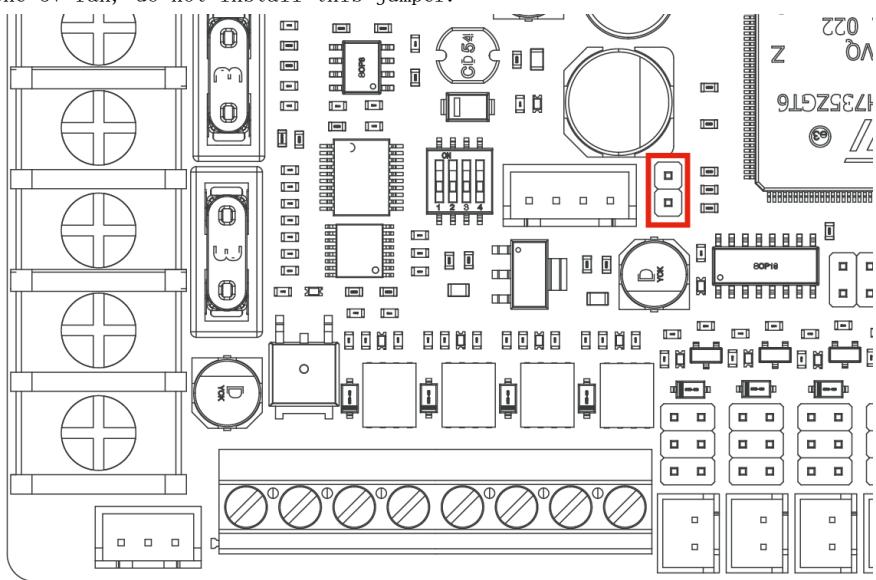


Figure 5-13

- 8) Fan ports cannot be controlled

The Geeetech Kirin V1.0 has two uncontrollable fan ports, FAN6 and FAN7, as shown in Figure 5-14. The two fans can also be configured with 5V, 12V, and 24V voltages. For details, see How to use the Controllable fan.

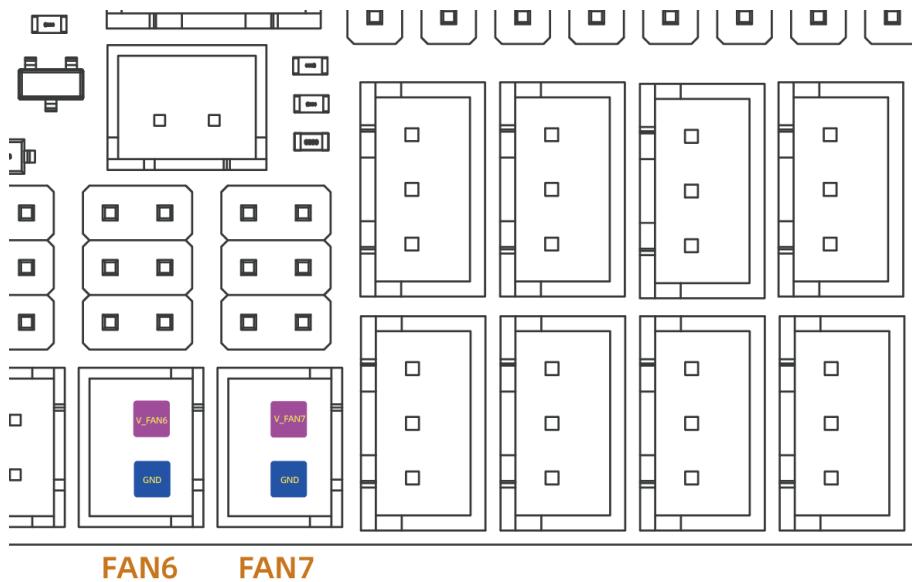


Figure 5-14

Figure 5-15 shows the interface definition:

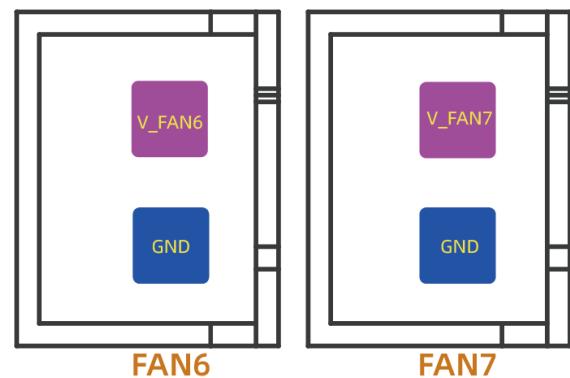


Figure 5-14

- 9) Hot bed Thermistor (NTC)

The Geeetech Kirin V1.0 hot bed temperature sensor port is shown in Figure 5-15. It can connect to 100K NTC.

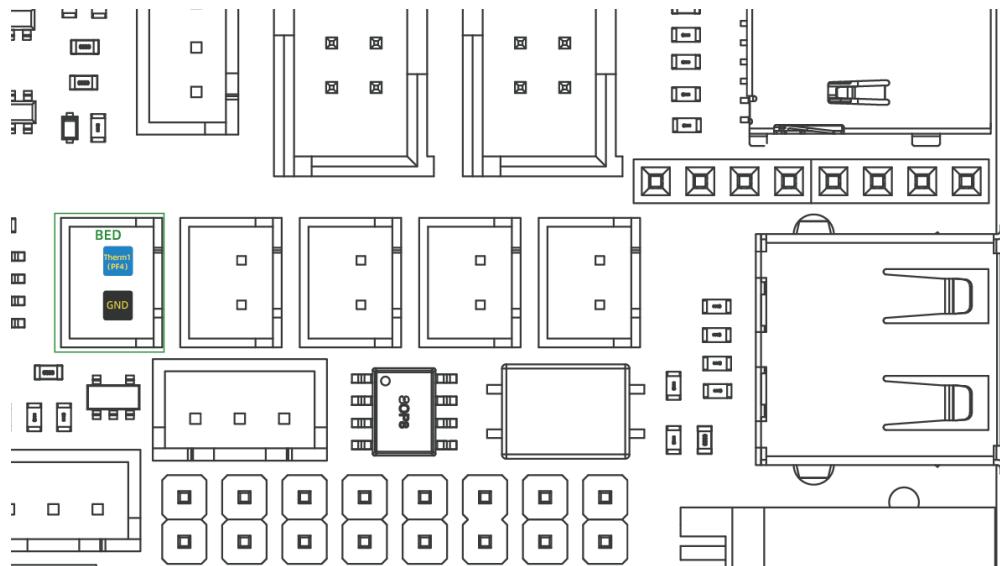


Figure 5-15

Figure 5-16 shows the interface definition:

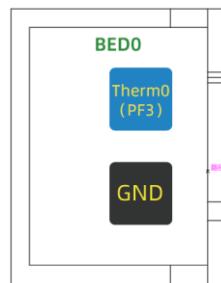


Figure 5-16

10) Hot-end Thermistor (NTC)

The Geeetech Kirin V1.0 has 4 hot-end thermistor interfaces HED0, HED1, HED2 and HED3, as shown in Figure 5-17, which can access 100K NTC.



Figure 5-17

Figure 5-18 shows the interface definition:

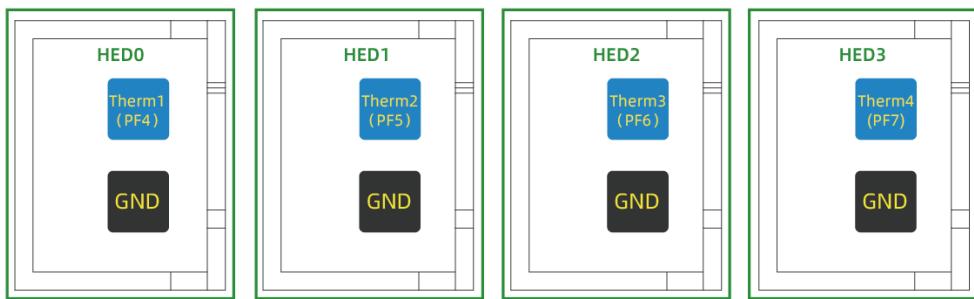


Figure 5-18

11) BL-Touch interface

Geeetech Kirin V1.0 has designed the BL-Touch interface, shown in Figure 5-19, which allows users to install BL-Touch as well as similar hot-bed levelling sensors.

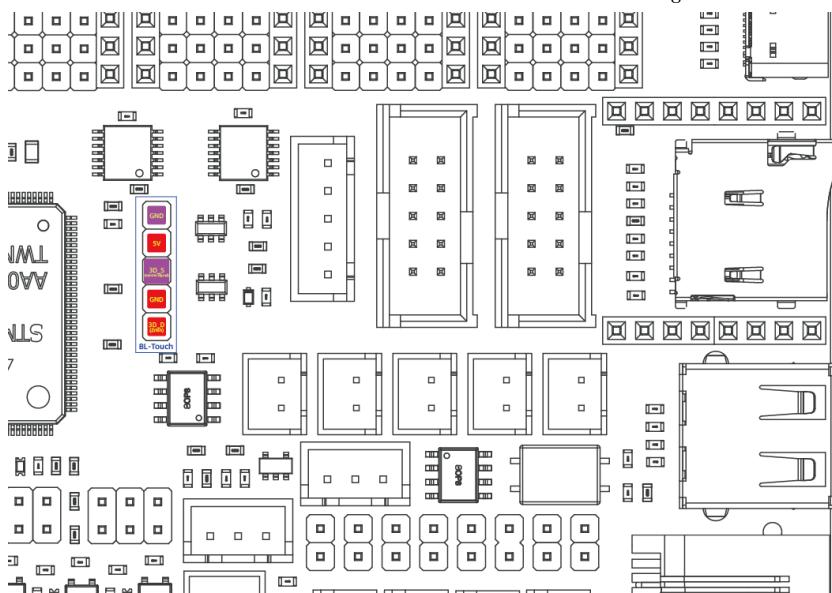


Figure 5-19

Figure 5-20 shows the interface definition:

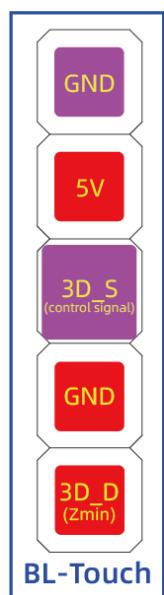


Figure 5-20

12) LCD12864 Screen interface

Geeetech Kirin V1.0 supports the LCD12864 screen. Figure 5-21 shows the interface. You can purchase the GEEETECH Mini 12864 screen or the screen with the same interface from other manufacturers.

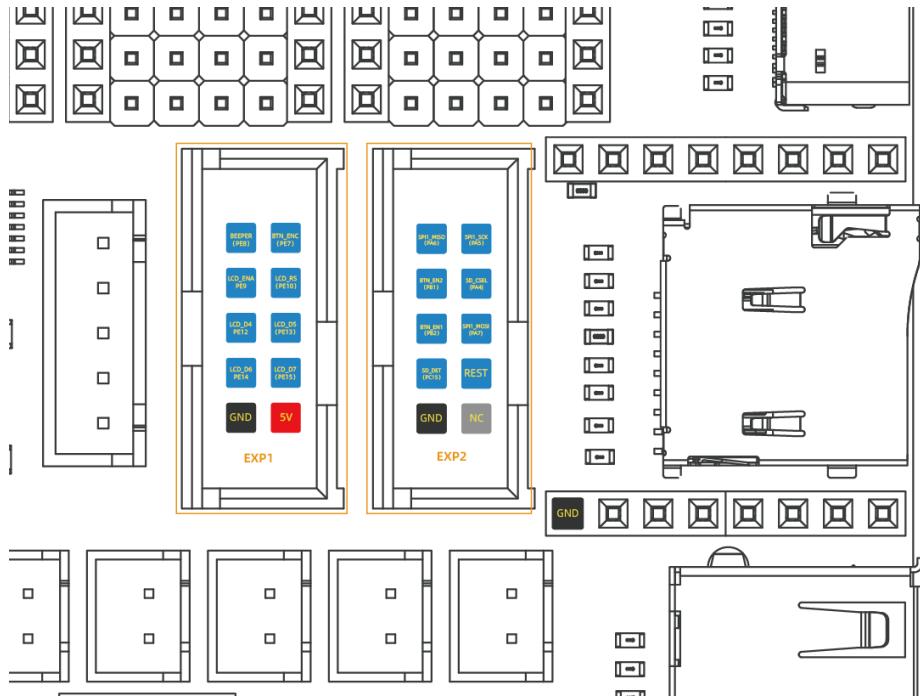


Figure 5-21

Figure 5-22 shows the interface definition:

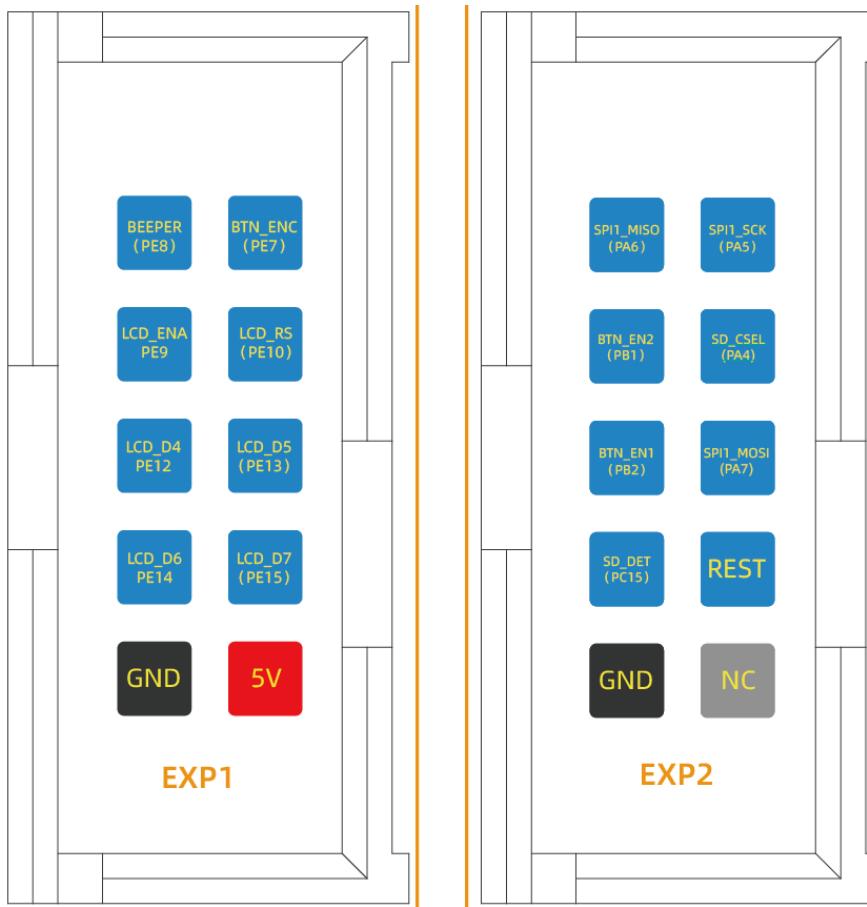


Figure 5-22

13) Serial screen port

Serial port ports are reserved on the Geeetech Kirin V1.0, as shown in Figure 5-23. The serial port ports support 5V power supply. You need to adapt the serial port screen protocol in the kirin mainboard firmware.

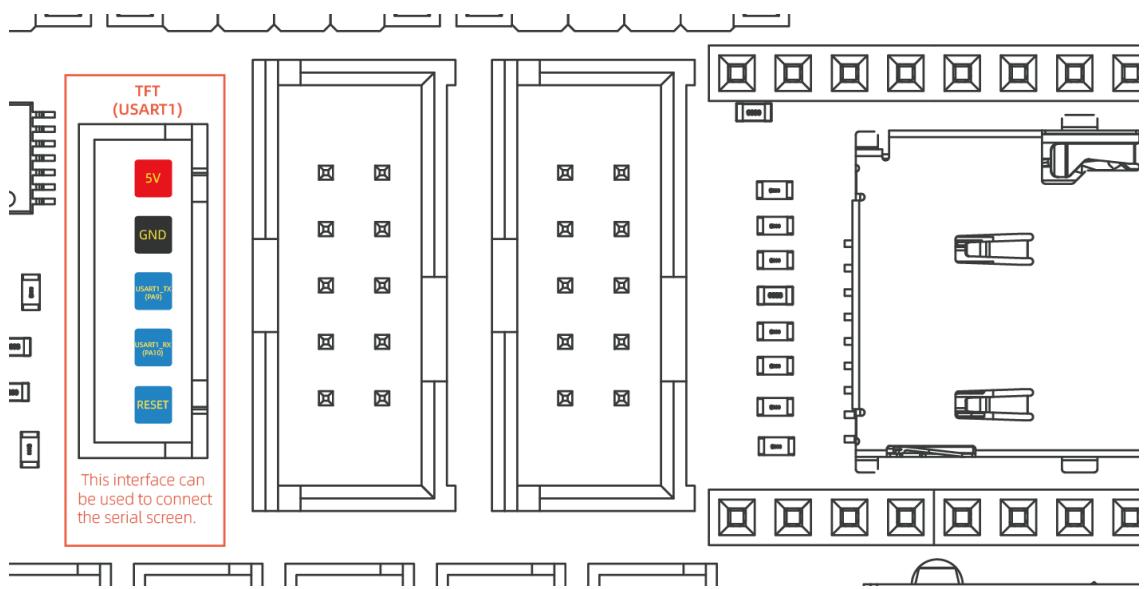


Figure 5-23

Figure 5-24 shows the interface definition:

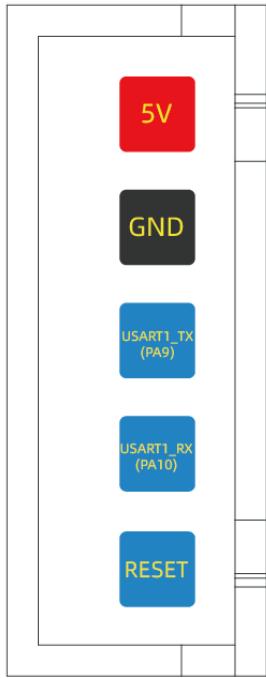


Figure 5-24

14) RGB indicator with interface

The Geeetech Kirin V1.0 board reserves a Neopixel light strip port, as shown in Figure 5-25. The Geeetech Kirin V1.0 board provides a maximum current of 5V/1.5A. Do not exceed 1.5A, otherwise, the normal operation of the KirIN will be affected.

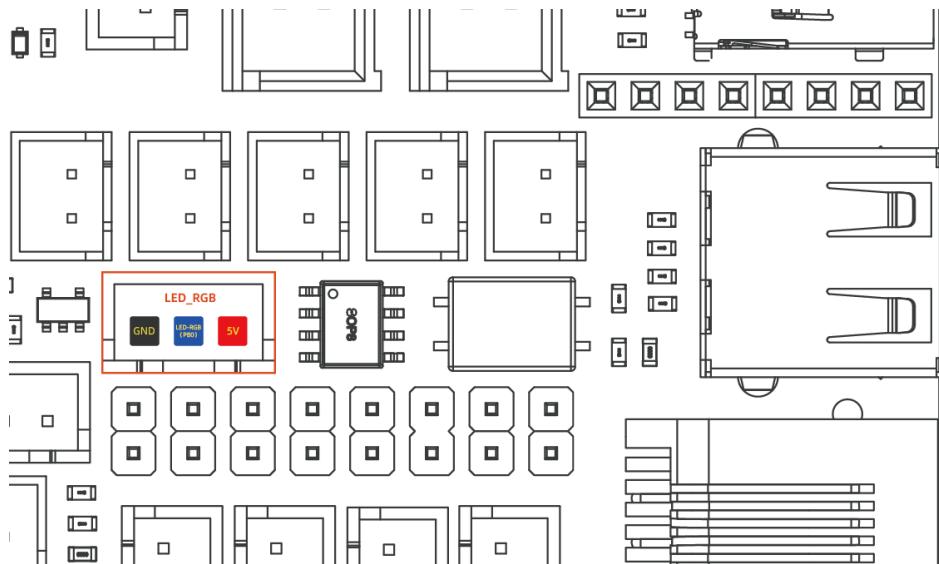


Figure 5-25

Figure 5-26 shows the interface definition:



Figure 5-26

15) USB-A port

Geeetech Kirin V1.0 has A USB-A port, as shown in Figure 5-27. This port is USB Host, which can be used to connect a USB flash drive, etc., or power other devices through this port.

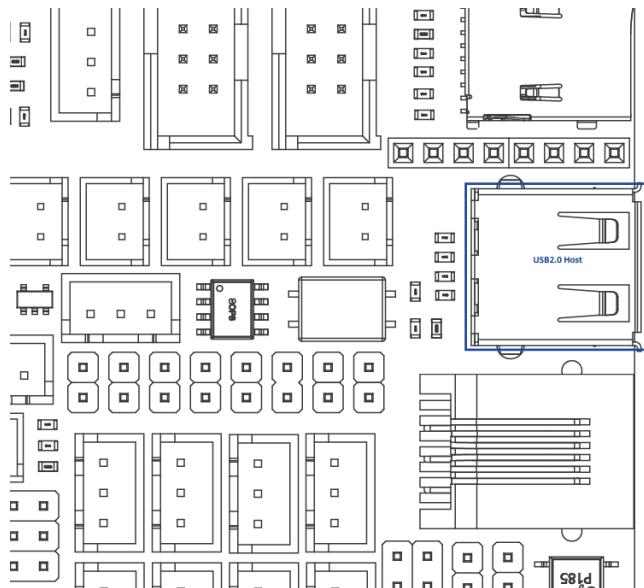


Figure 5-27

16) Type-C USB port

Geeetech Kirin V1.0 has a Type-C USB port, as shown in Figure 5-28. This port can be defined as UART, USB2.0, CANBUS function by firmware. For details, refer to the STM32H723ZGT6 user manual.

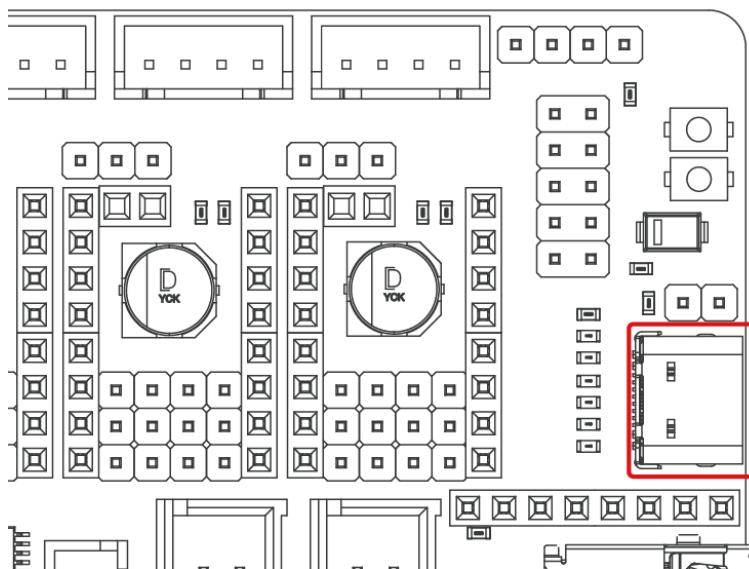


Figure 5-28

17) USB Power Supply

In order to facilitate user debugging, Geeetech Kirin V1.0 designed the motherboard power supply switching, when debugging the motherboard, the user can directly take power from the USB through the jumper cap, as shown in Figure 5-28, you can not use the AC 115V/230V switching power supply to make the motherboard work normally.

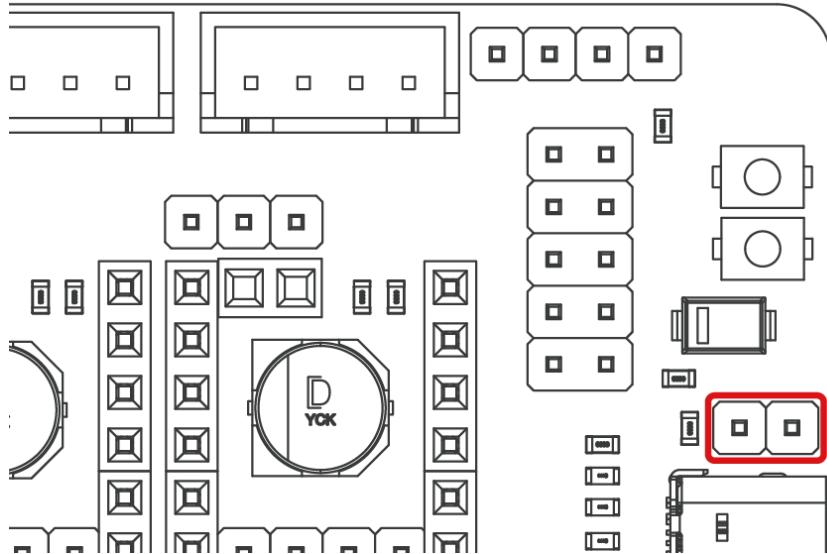


Figure 5-28

Note that the jumper should be unplugged when using the switching power supply.

18) Probe interface

Geeetech Kirin V1.0 has a hot-bed levelling probe port, as shown in Figure 5-29. It can be connected to inductive proximity sensors and capacitive proximity sensors.

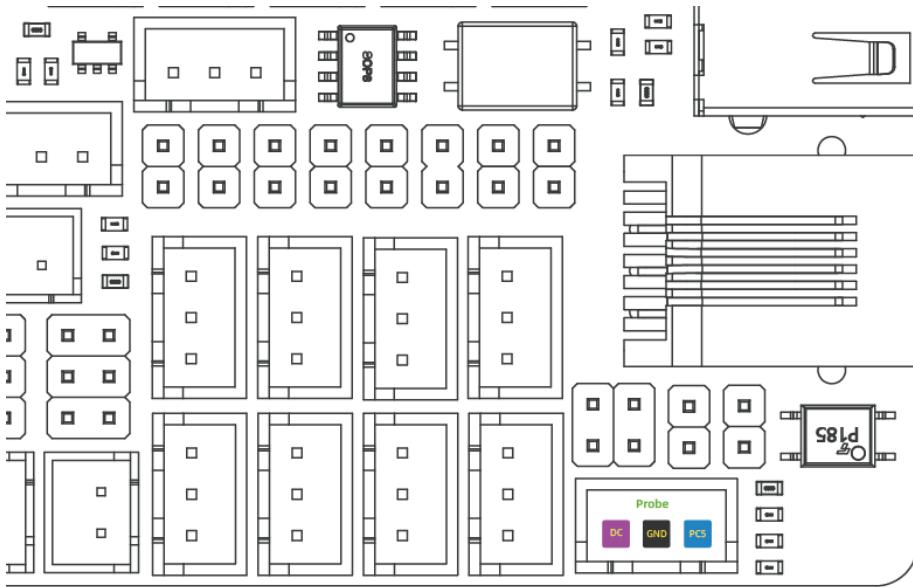


Figure 5-29

Figure 5-30 shows the definition of interfaces.

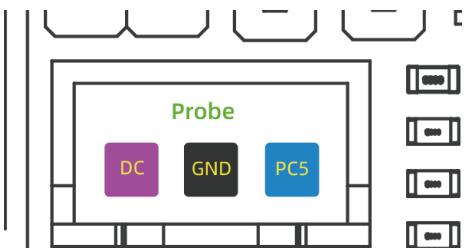


Figure 5-30

Kirin V1.0 can provide 5V, 12V, and 24V voltages for the probe sensor. Users can select the voltage by jumper, as shown in Figure 5-31. Note that only one jumper can be installed at any time, otherwise the motherboard will be damaged.

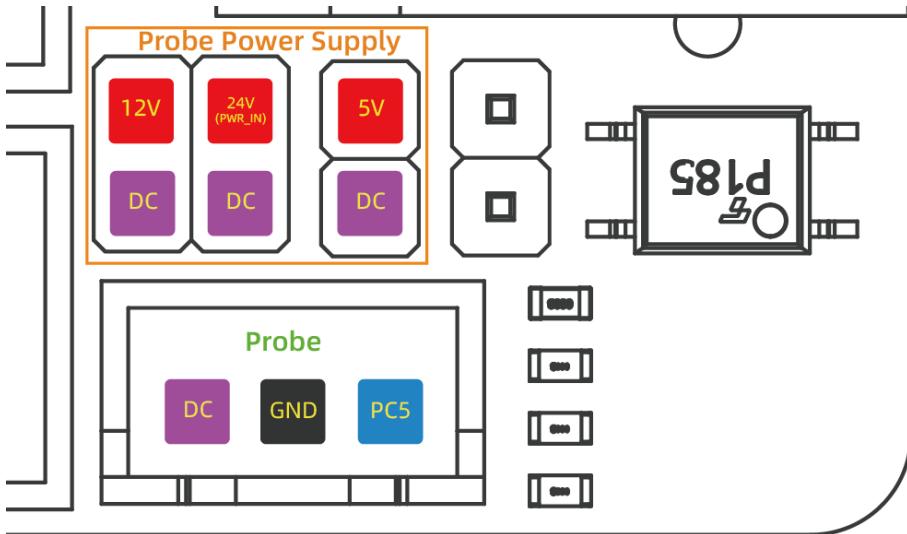


Figure 5-30

Probe sensors are usually available in PNP and NPN types, and Kirin V1.0 supports the selection of both sensor types via a jumper, as shown in Figure 5-31:

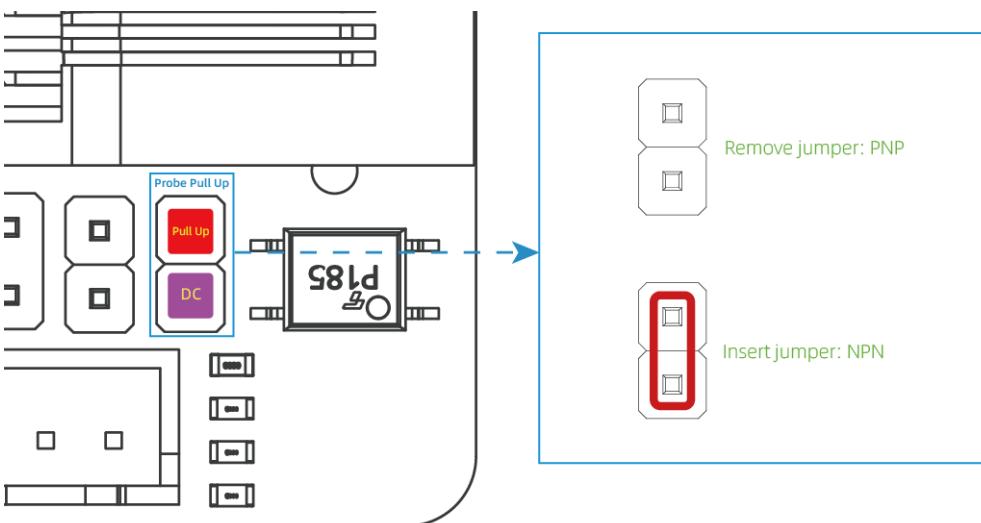


Figure 5-31

19) PT100/PT1000 temperature sensor

Geeetech Kirin V1.0 supports 2-wire, 3-wire, and 4-wire PT1000/PT1000 temperature sensors. Figure 5-32 shows the port positions. However, you need to adjust the DIP switch on the kirin according to your sensor type. By default, the kirin motherboard supports 2-wire and 4-wire PT1000/PT1000

temperature sensors.

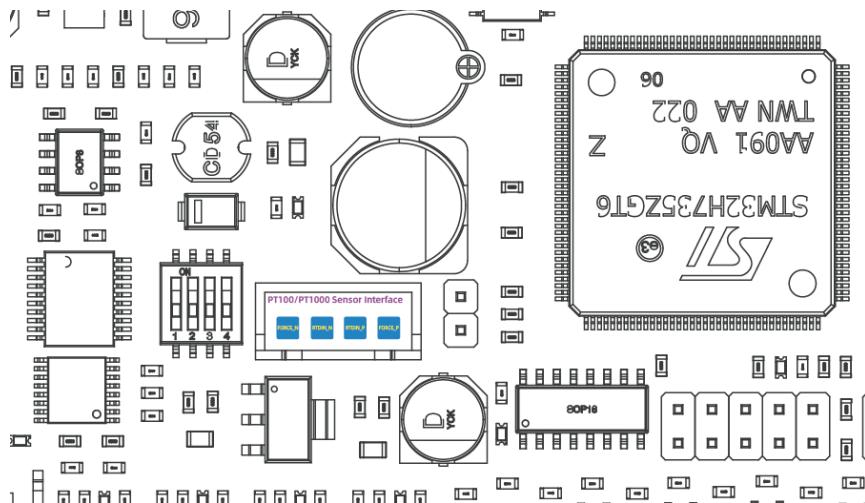


Figure 5-32

Figure 5-33 shows the interface definition:

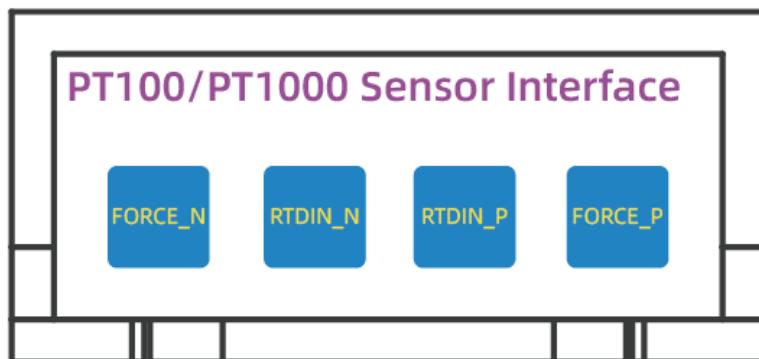


Figure 5-33

Different PT100/PT1000 temperature sensors need to be set by dip switch, the position of the dip switch is shown in Figure 5-34:

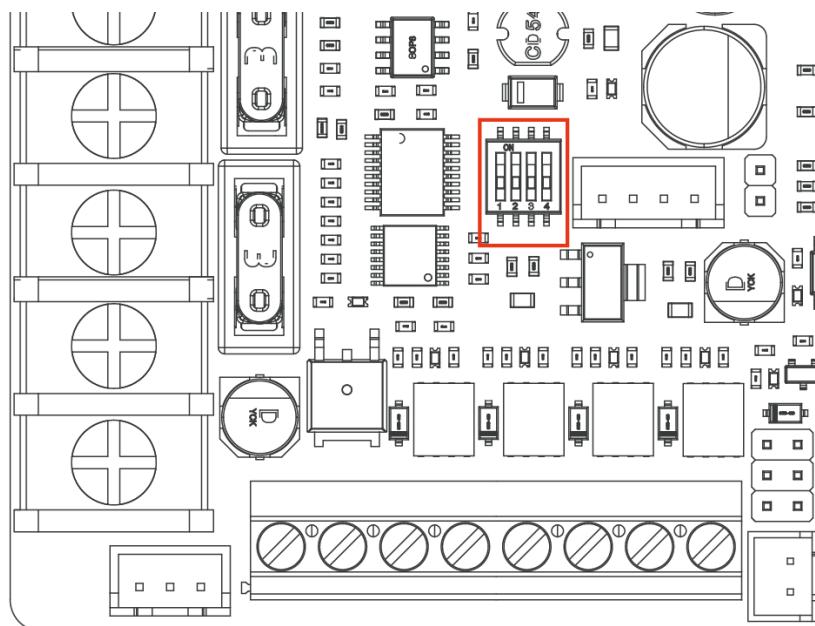


Figure 5-34

Figure 5-35 shows the type of sensor corresponding to the dip switch:

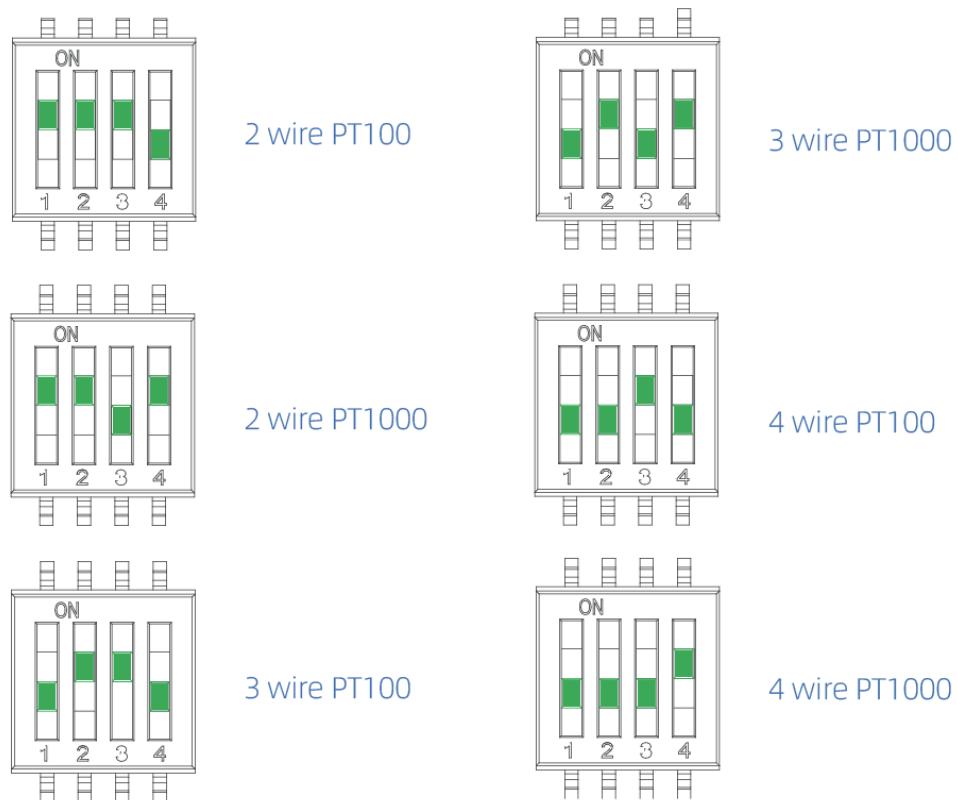
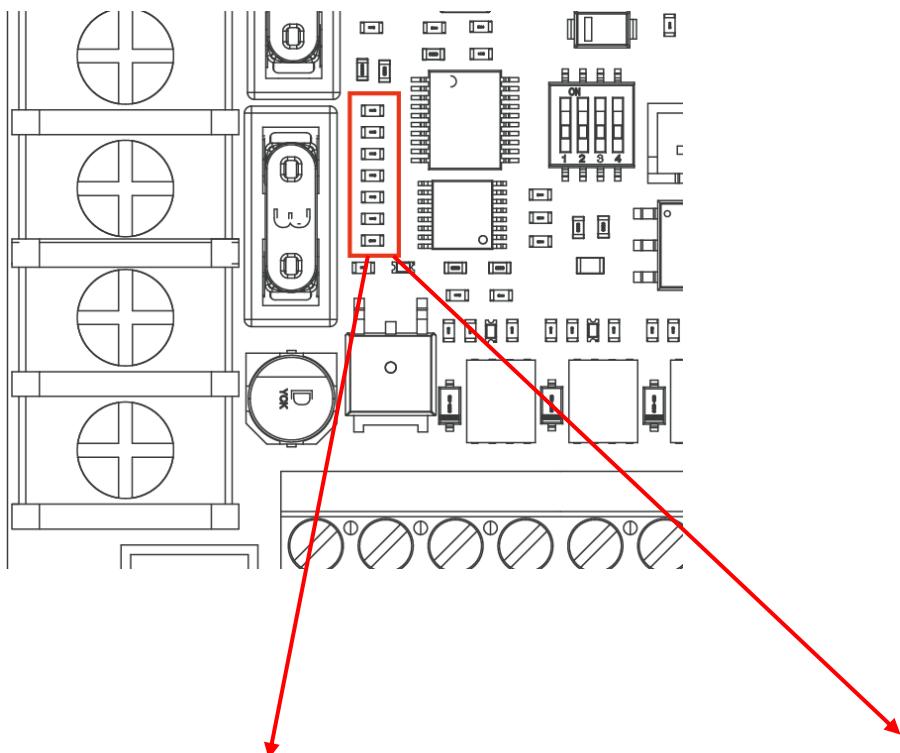


Figure 5-35

To use the 3-wire PT100/PT1000 temperature sensor, you need to adjust a resistor on the kirin motherboard, Kirin factory default welded R118 resistor, at this time kirin supports 2 wire and 4 wire PT100/PT1000 temperature sensor, if the R118 resistor is moved to the position of R116, Then the kirin supports the 3-wire PT100/PT1000 temperature sensor. For details, see Figure 5-36.



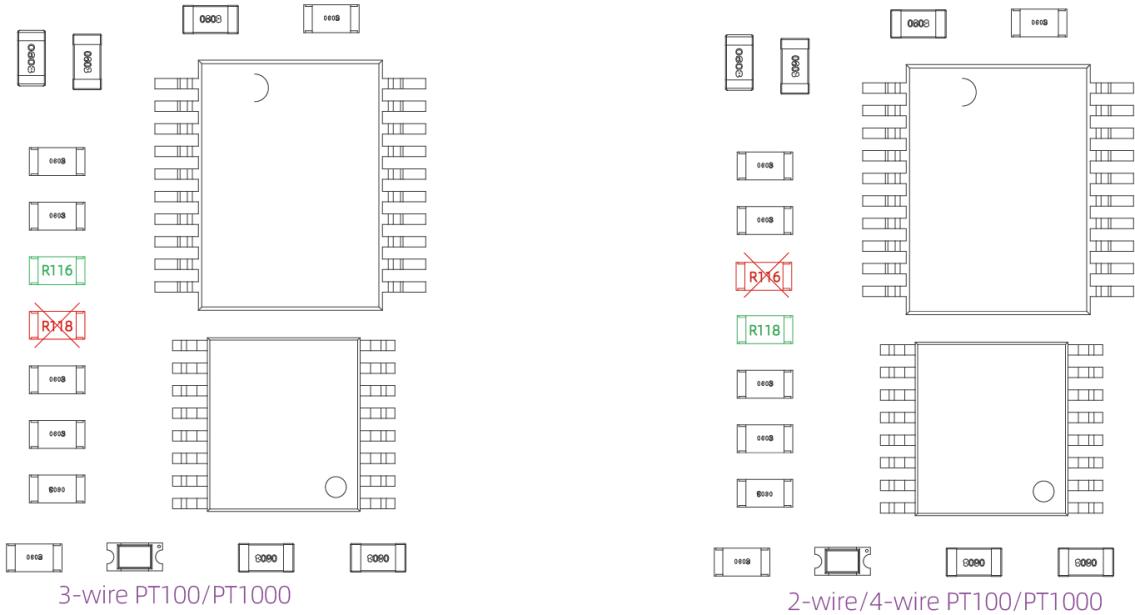


Figure 5-36

When using 3-wire PT100/PT1000 temperature sensor, the user must have soldering iron and welding experience with soldering iron to operate, otherwise it is recommended to use 2-wire or 4-wire PT100/PT1000 temperature sensor.

20) Instructions for stepper motor drive

When using Geeetech Kirin V1.0, the user can install a different type of stepper motor drive, but this requires the user to modify the configuration in the firmware to achieve this, and also requires the firmware to support the use of different types of stepper motor drive modules.

Please note:

Before installing the driver module, it must be noted that the pin of the module and the motherboard are correctly corresponding before installation. It is strictly prohibited to install the driver module with the color of the plastic connector of the module. Figure 5-37 shows the definition of the driver module socket on the motherboard:

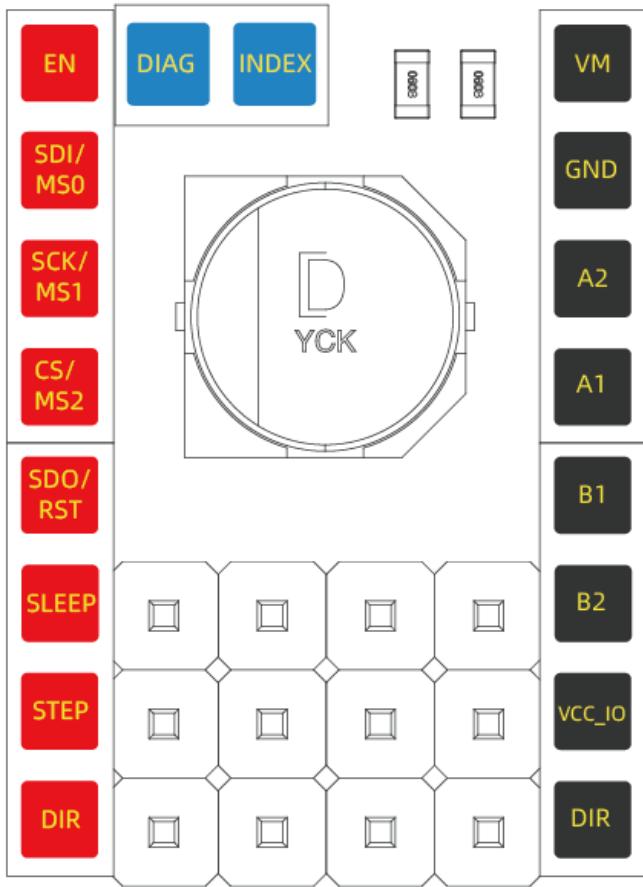


Figure 5-37

21) Motor Drive Module breakdown (Microstep Resolution)

A4988, DRV8825, LV8729, ST820 drive modules need MS1, MS2 and MS3 adjustment subdivision, TMC2208 and TMC2209 drive modules only need MS1 and MS2 adjustment subdivision. High level requires installation of jumpers, low level does not require installation of jumpers. Figure 5-38 shows the positions of the jumpers for MS1, MS2, and MS3:

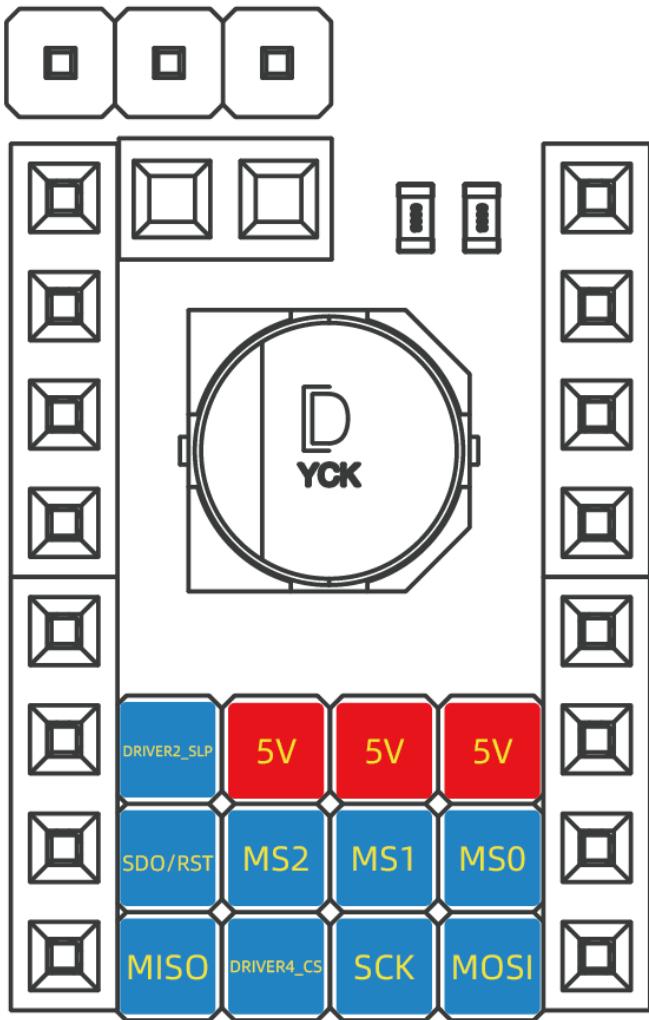


Figure 5-38

22) STEP/DIR mode

A4988, DRV8825, LV8729, ST820 and other modules can be subdivided by the jumper selection, they are MS0, MS1, MS2, as shown in Figure 5-39, connect the jumper for high level, do not need to connect the jumper for low level.

When using the A4988, DRV8825 modules, the RST and SLP must be shorted in order to work properly.

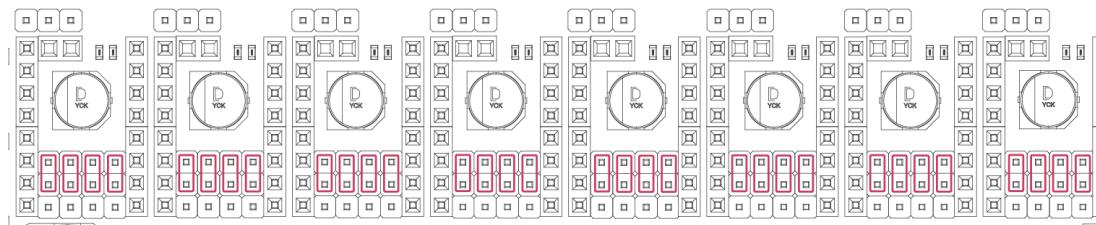


Figure 5-39

23) UART Mode

When the stepper motor driver module uses the driver working in UART mode, it needs to install the jumper as shown in Figure 5-40:

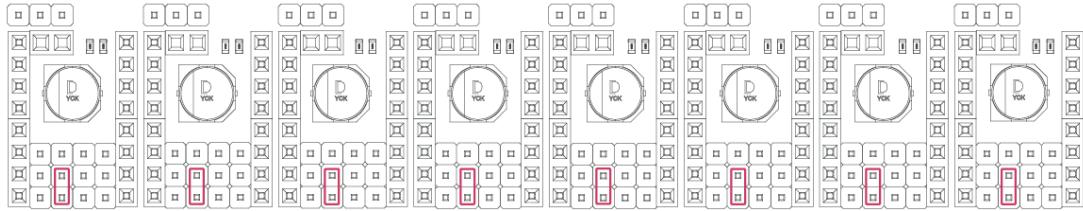


Figure 5-40

24) SPI pattern

When the stepper motor driver module uses the driver working in SPI mode, it needs to install the jumper as shown in Figure 5-41:

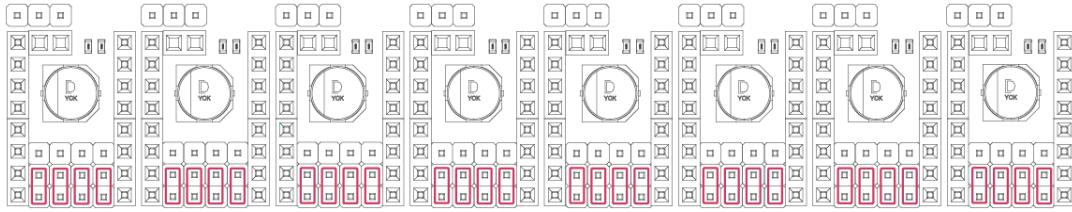


Figure 5-41

25) Sensorless limit function (Sensorless Homing)

When using the sensorless homing function of the TCM2209 and TMC2226 driver modules, install jumpers according to Figure 5-42:

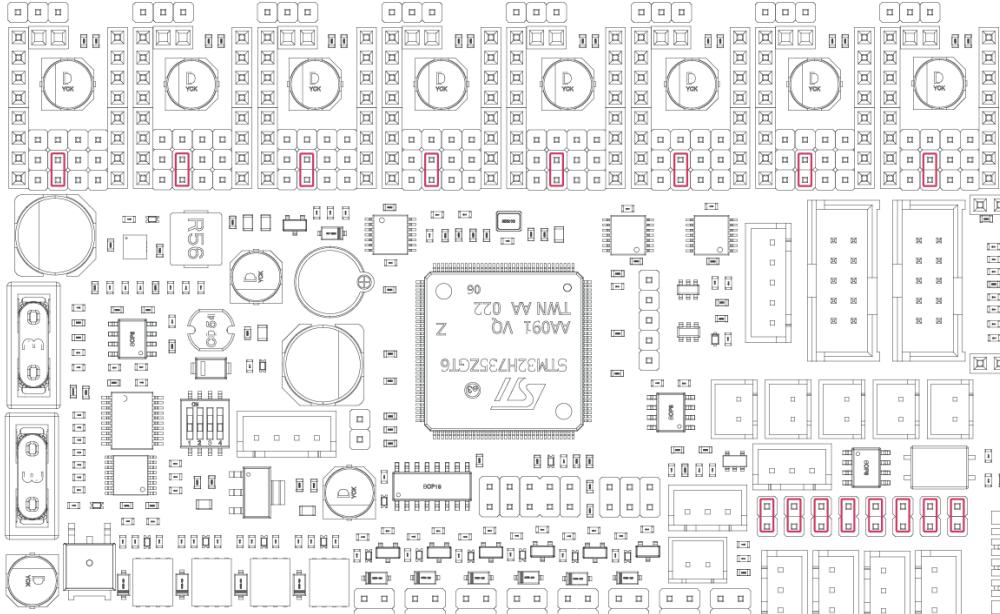


Figure 5-42

26) I2C expansion port

The Geeetech Kirin V1.0 mainboard reserves an I2C port, which can be used to connect devices such as sensors. Figure 5-43 shows the position of the port:

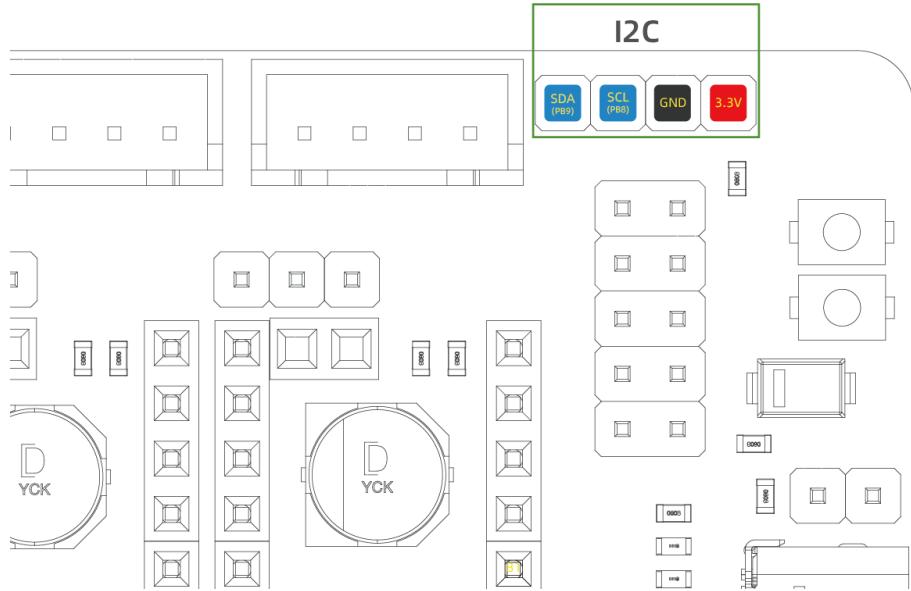


Figure 5-43

Figure 5-44 shows the definition of ports:



Figure 5-44

27) Uart expansion port

The Geeetech Kirin V1.0 mainboard reserves the UART2 port, which can be used to connect serial devices. Figure 5-45 shows the positions of the ports:

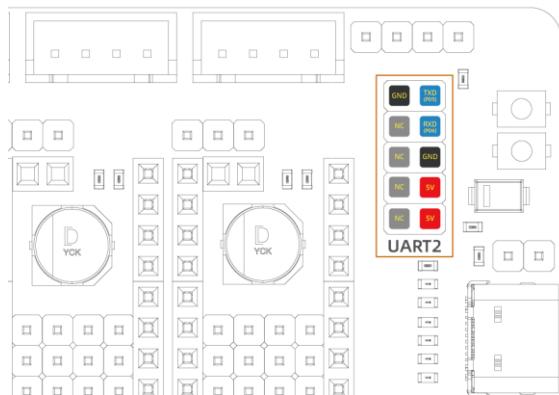


Figure 5-45

Figure 5-46 shows the definition of ports:



Figure 5-46

28) SPI extension interface

The Geeetech Kirin V1.0 mainboard reserves SPI ports, which can be used to connect sensors and other peripherals. Figure 5-47 shows the positions of the ports:



Figure 5-47

Figure 5-48 shows the ports.



Figure 5-4

Warm reminder:

Geeetech provides detailed definition drawings of kirin V1.0 motherboard Interface, please go to Geeetech github or Geeetech official website to download, the file name is Geeetech Kirin V1.0 Interface Description

6. Connect the Raspberry PI

Geeetech Kirin V1.0 supports the Klipper connection to the Raspberry PI online printing, and users can connect to the Type-C port of the kirin via either USB port of the Raspberry PI, as shown in Figure 6-1:

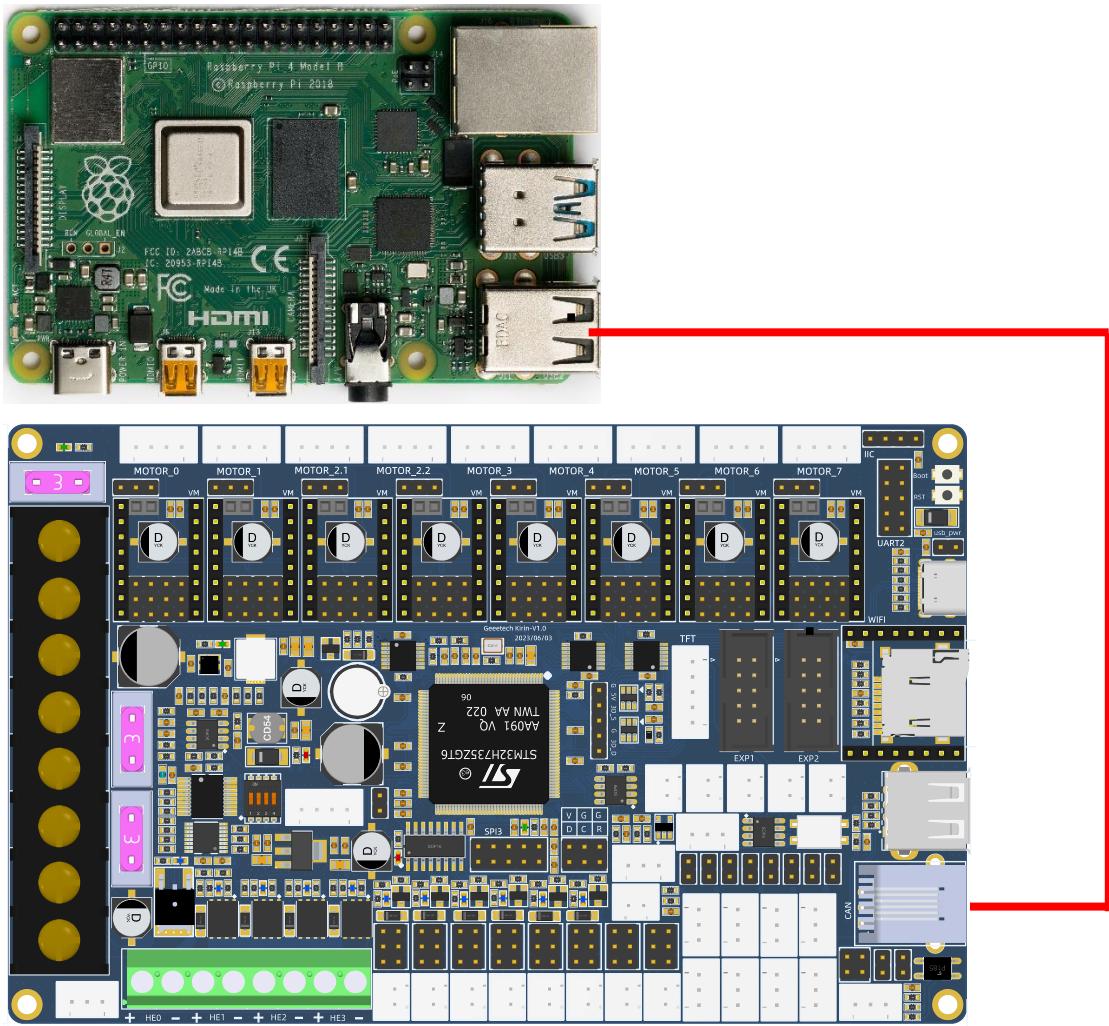


Figure 6-1

7. Motherboard LED Definition

There are a total of 16 leds on the Geeetech Kirin V1.0 motherboard, and their positions are shown in Figure 7-1:

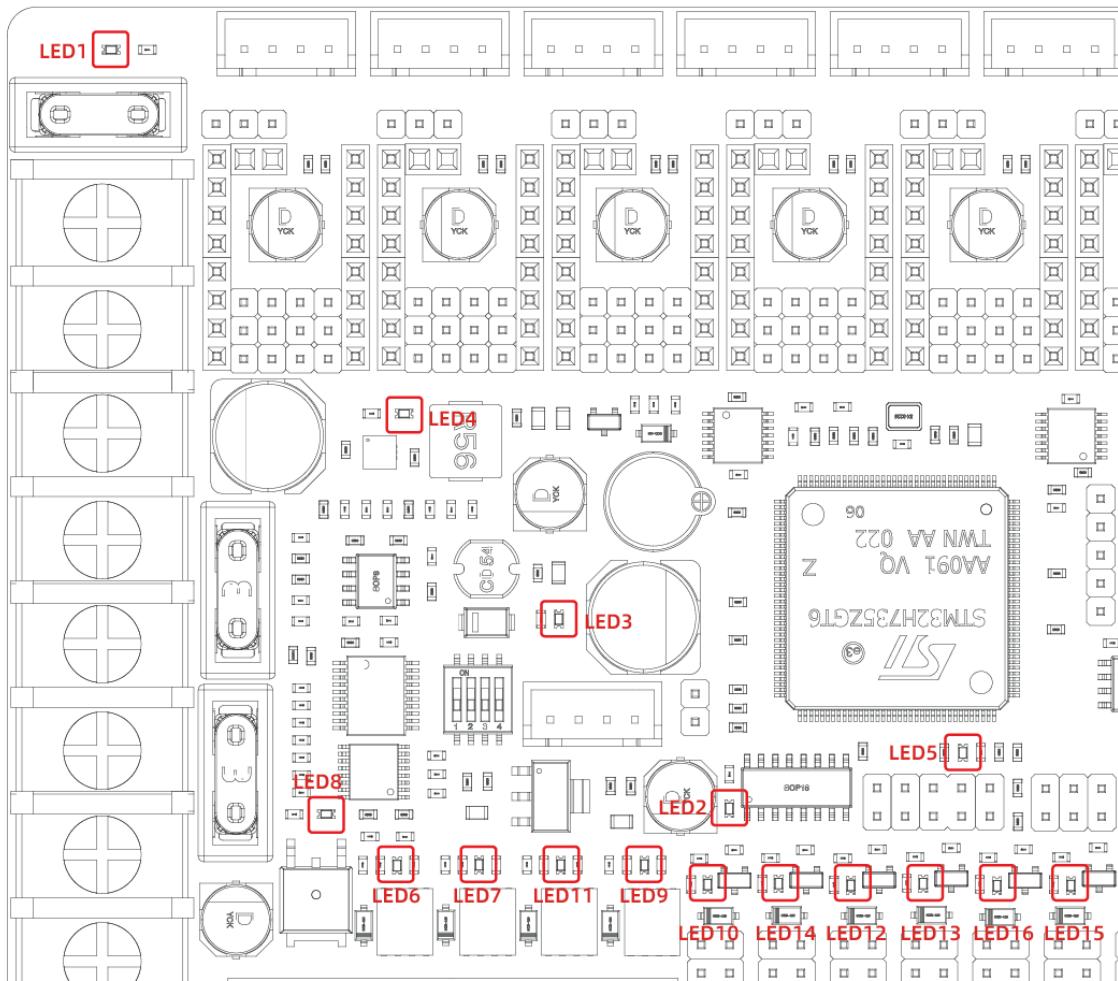


Figure 7-1

- 1) LED1, green, Motor Independent Power (Moto_PWR) indicator.
- 2) LED2, red, 3.3V power indicator.
- 3) LED3, red, 12V power indicator.
- 4) LED4, green, main power (PWER_IN) indicator.
- 5) LED5, green, working status indicator.
- 6) LED6, green, hot end 0 indicator, when the heating rod is not connected or the heating rod is not working, LED6 is not on. When the hot end 0 starts to heat up, the PWM signal of the hot end 0 will drive the LED5 to start blinking.
- 7) LED7, green, hot end 1 indicator light, not connected to the heating rod or heating rod is not working, LED7 will not light. When the hot end 1 starts heating, the PWM signal of the hot end 1 will drive the LED7 to start blinking.
- 8) LED8, green, hot bed indicator light, LED8 does not light when the hot bed is not connected or the hot bed is not working. When the hot bed starts to heat up, the PWM signal of the hot bed will drive the LED8 to start blinking.
- 9) LED9, green, hot end 3 indicator light, not connected to the heating rod or heating rod is not working, LED9 will not light. When the hot end 3 starts to heat up, the PWM signal of the hot end 3 will drive the LED9 to start blinking.
- 10) LED10, green, fan 0 indicator light, LED10 is not on when the fan is not connected or the fan is not working. When FANO starts working, the PWM signal of FANO will drive the LED10 to start

blinking.

- 11) LED11, green, hot end 2 indicator light, LED11 does not light when the heating rod is not connected or the heating rod is not working. When the hot end 2 starts to heat up, the PWM signal of the hot end 2 will drive the LED11 to start blinking.
- 12) LED12, green, fan 2 indicator light, LED12 is not on when the fan is not connected or the fan is not working. When fan 2 starts working, the PWM signal of fan 2 will drive the LED12 to start blinking.
- 13) LED13, green, fan 3 indicator light, when the fan is not connected or the fan is not working, the LED13 is not on. When fan 3 starts working, the PWM signal of fan 3 will drive the LED13 to start blinking.
- 14) LED14, green, fan 1 indicator light, LED14 is not on when the fan is not connected or the fan is not working. When fan 1 starts working, the PWM signal of fan 1 will drive the LED14 to start blinking.
- 15) LED15, green, fan 5 indicator light, when the fan is not connected or the fan is not working, LED15 is not on. When fan 5 starts working, the PWM signal of fan 5 will drive the LED15 to start blinking.
- 16) LED16, green, indicator of fan 4, LED16 is not on when the fan is not connected or the fan is not working. When fan 4 starts working, the PWM signal of fan 4 will drive the LED16 to start blinking.

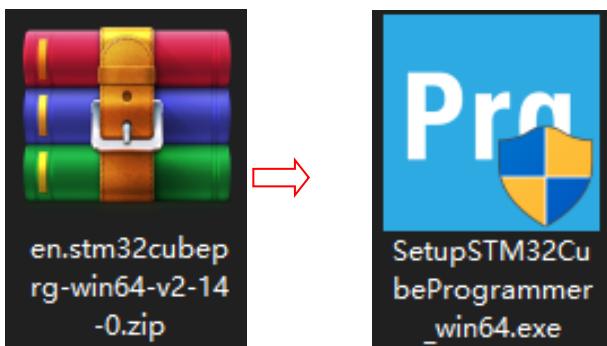
8. Bootload

Geeetech Kirin V1.0 will burn Bootload in advance when it comes out of the factory.

If the user finds that the firmware cannot be upgraded through the TF card or the kirin V1.0 motherboard cannot work normally during use, the Bootload program may be lost or damaged.

If users need to burn Bootload, they need to prepare a Type-C data cable, a computer, and the stm32cubeprogrammer software tool in advance (you can visit Geeetech's Github homepage and download related software tools from the Geeetech-Kirin project). <https://github.com/Geeetech3D>), which of the following is the basic steps.

- 1) This section uses windows 64Bit as an example to describe how to install the Stm32cubeprogrammer.



- 2) Double click SetupSTM32CubeProgrammer_win64.exe, as shown in Figure 8-1, start to install the software, click Next:



Figure 8-1

- 3) Go ahead and click Next as shown in Figure 8-2:

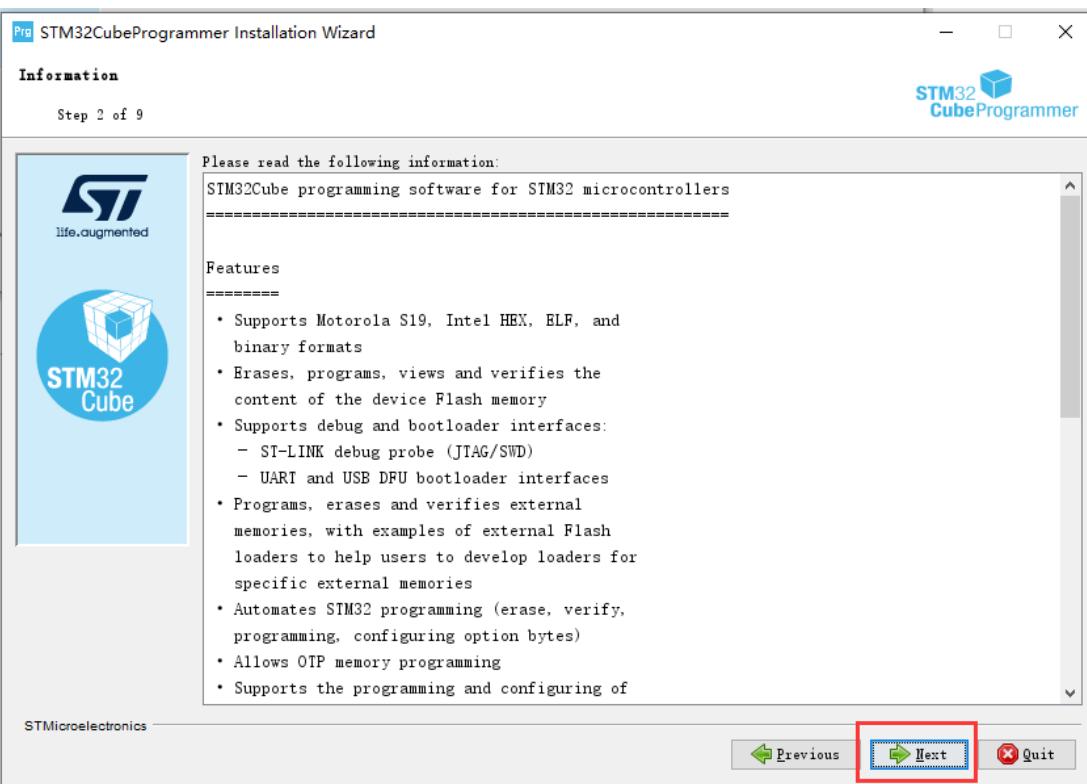


Figure 8-2

- 4) Check I accept... , as shown in Figure 8-3, then click Next:

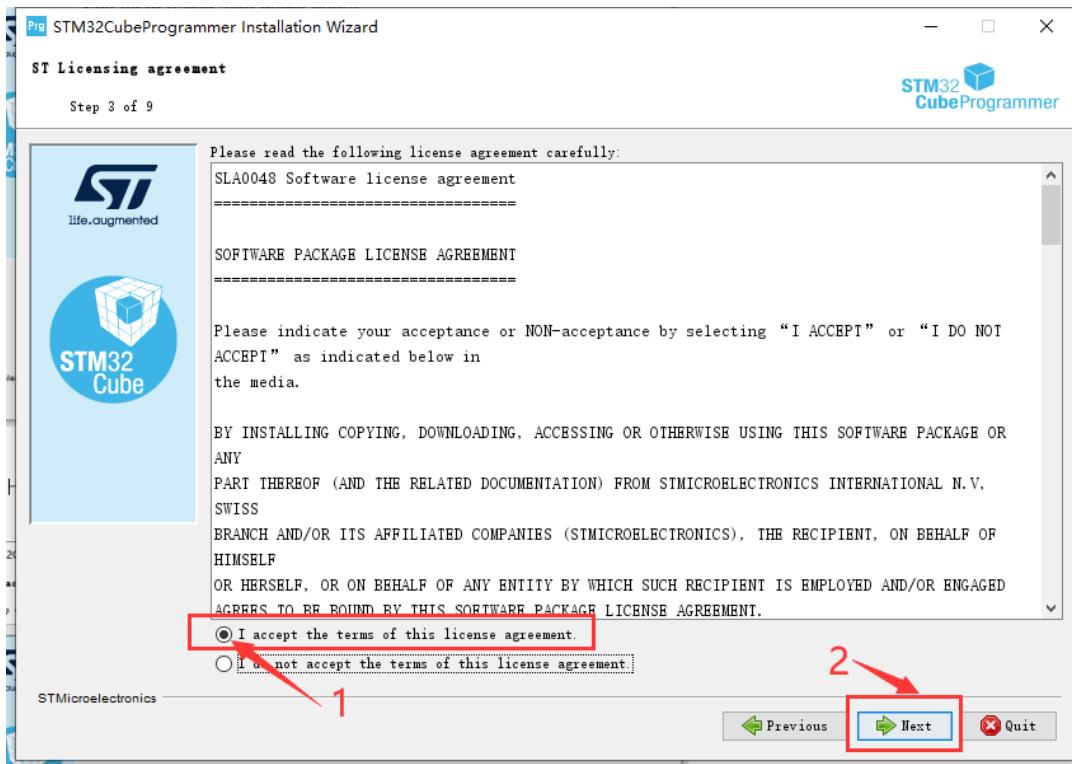


Figure 8-3

- 5) Check the box I Have... , as shown in Figure 8-4, then click Next:

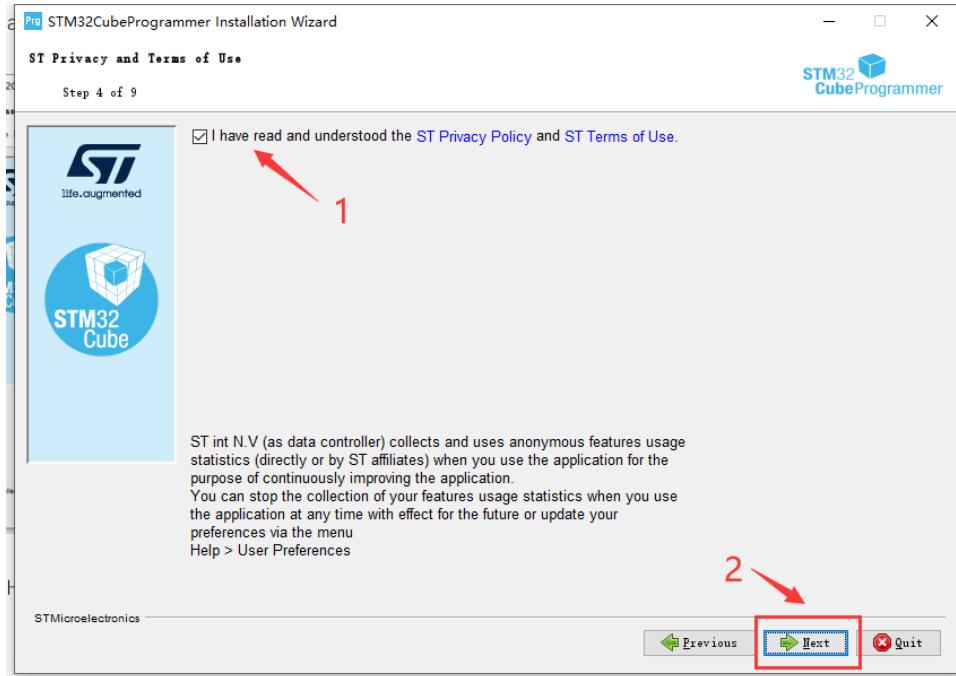


Figure 8-4

- 6) Select the appropriate installation path, as shown in Figure 8-5, and click Next:

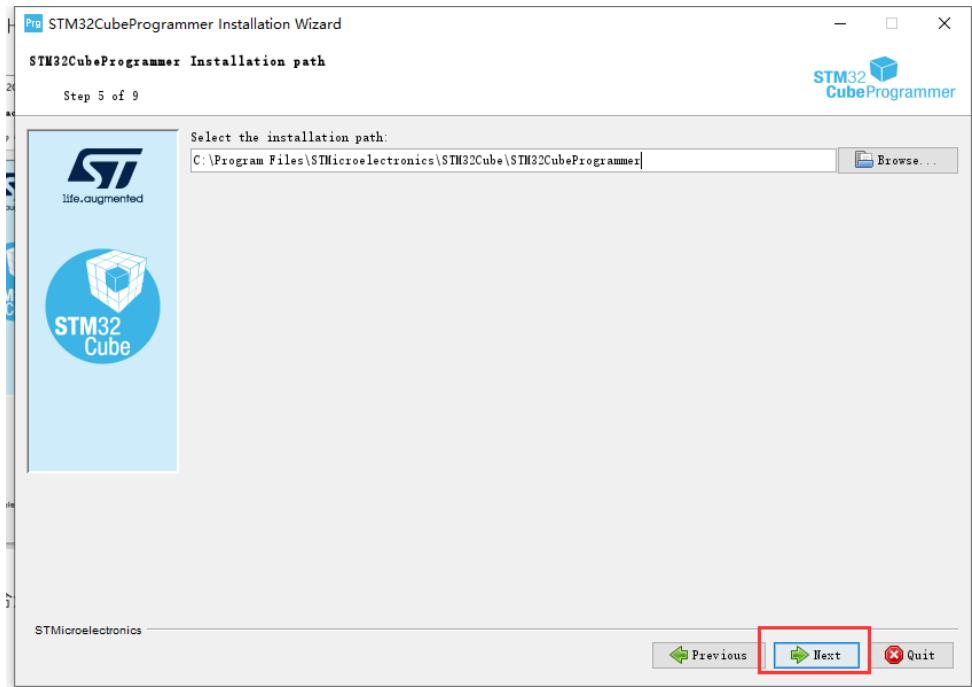


Figure 8-5

- 7) Check them all, as shown in Figure 8-6, then click Next:

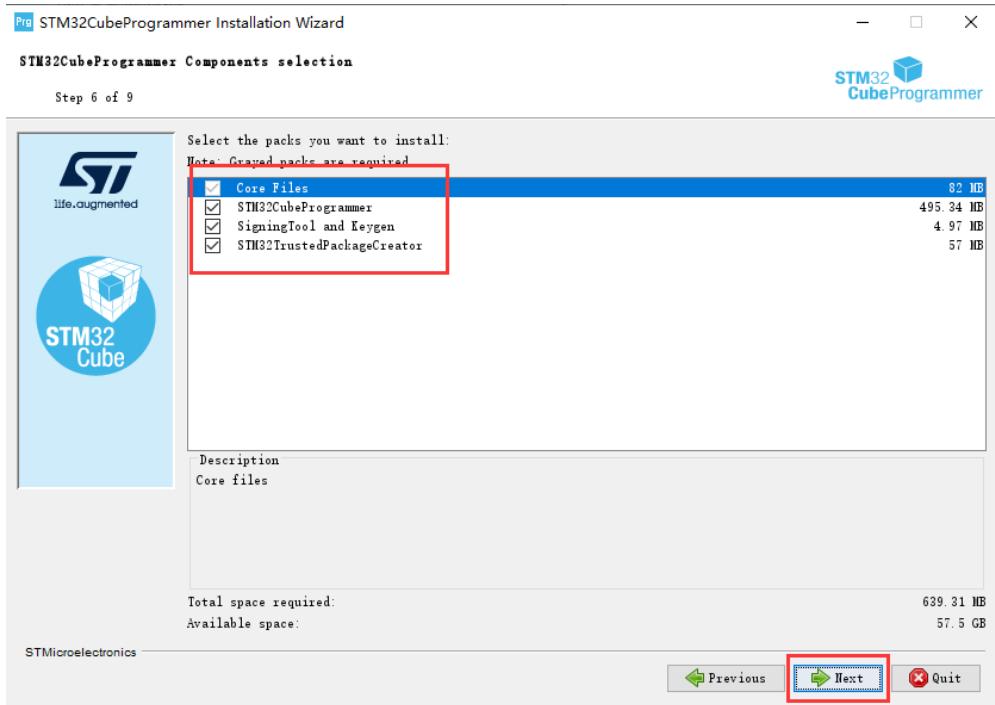


Figure 8-6

- 8) At this point, SetupSTM32CubeProgrammer starts to install automatically and a confirmation dialog box pops up, as shown in Figure 8-7, click Next:

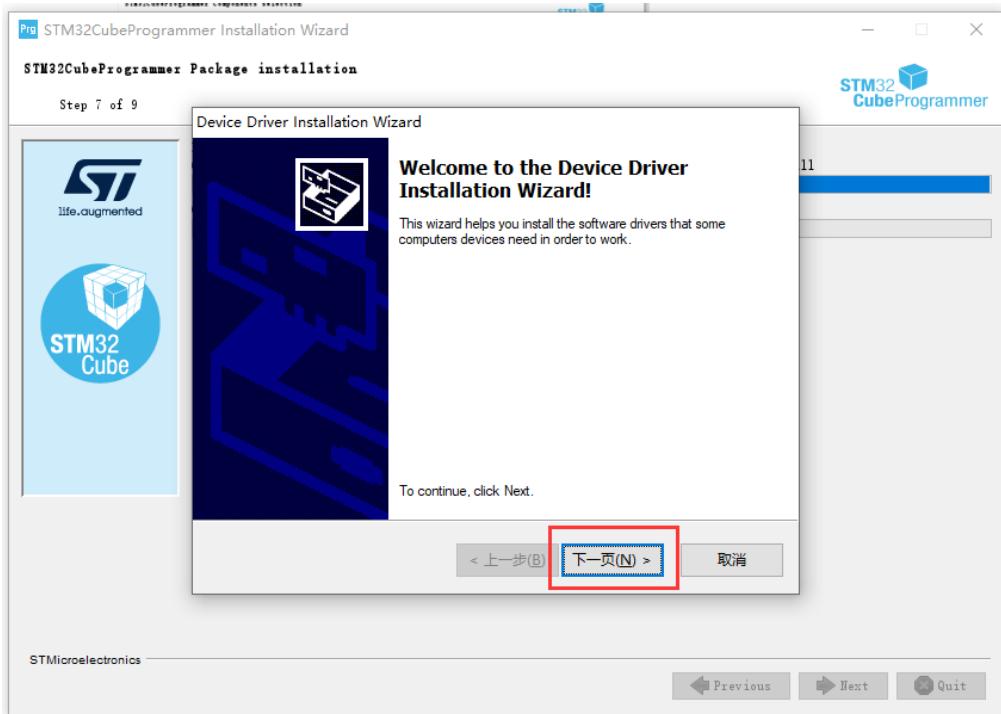


Figure 8-7

- 9) Click "Done" as shown in Figure 8-8

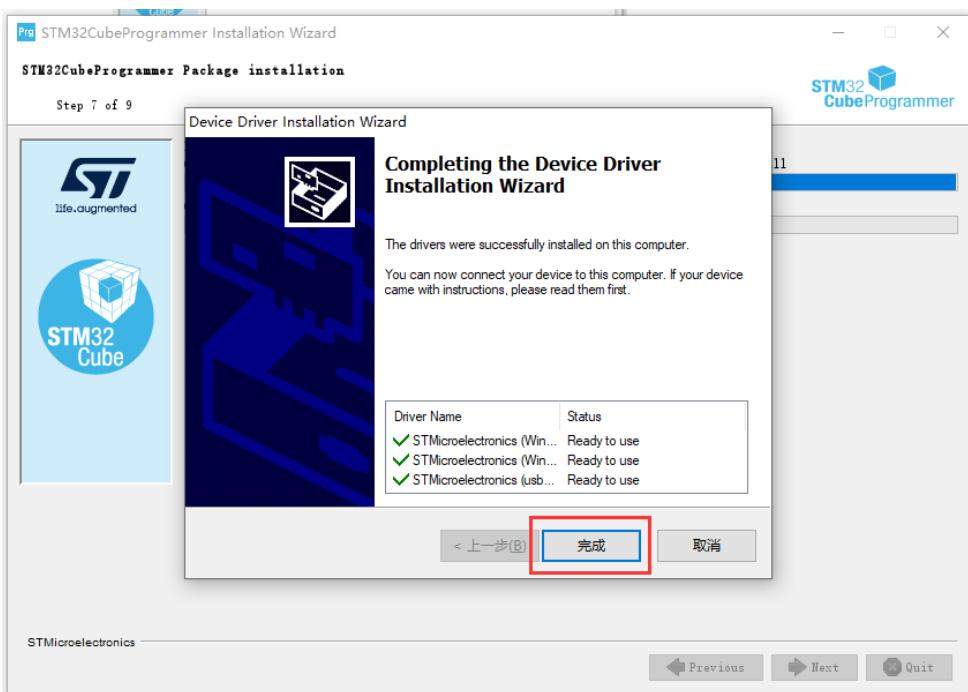


Figure 8-8

- 10) Go ahead and click Next as shown in Figure 8-9:

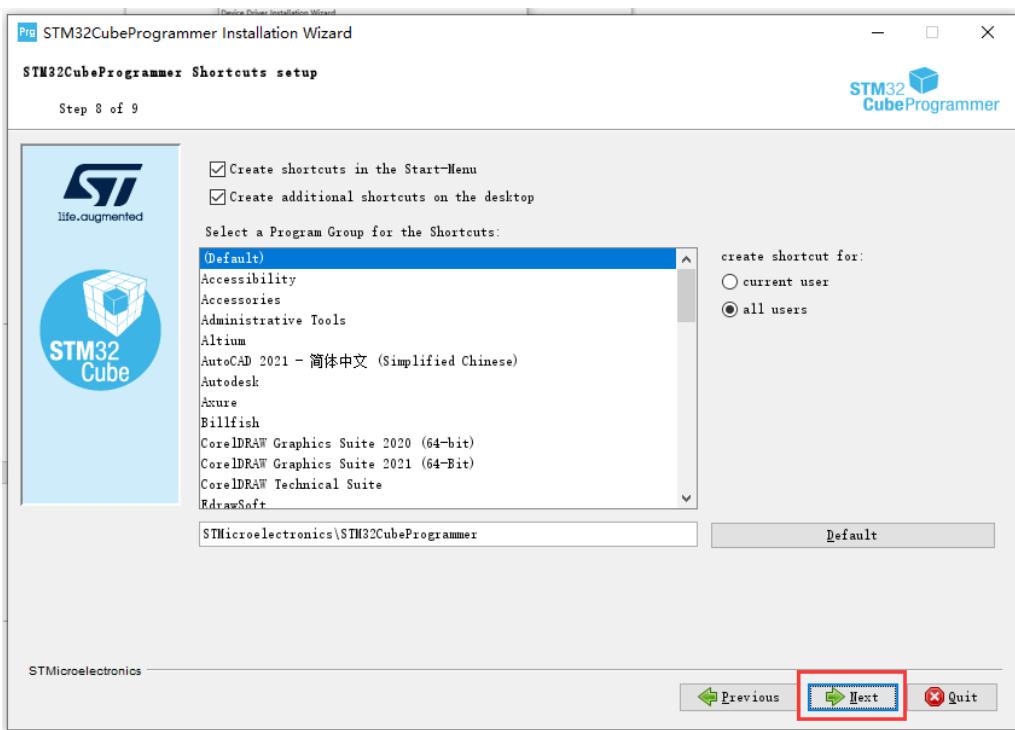


Figure 8-9

- 11) Click "Done" to complete the installation, as shown in Figure 8-10:

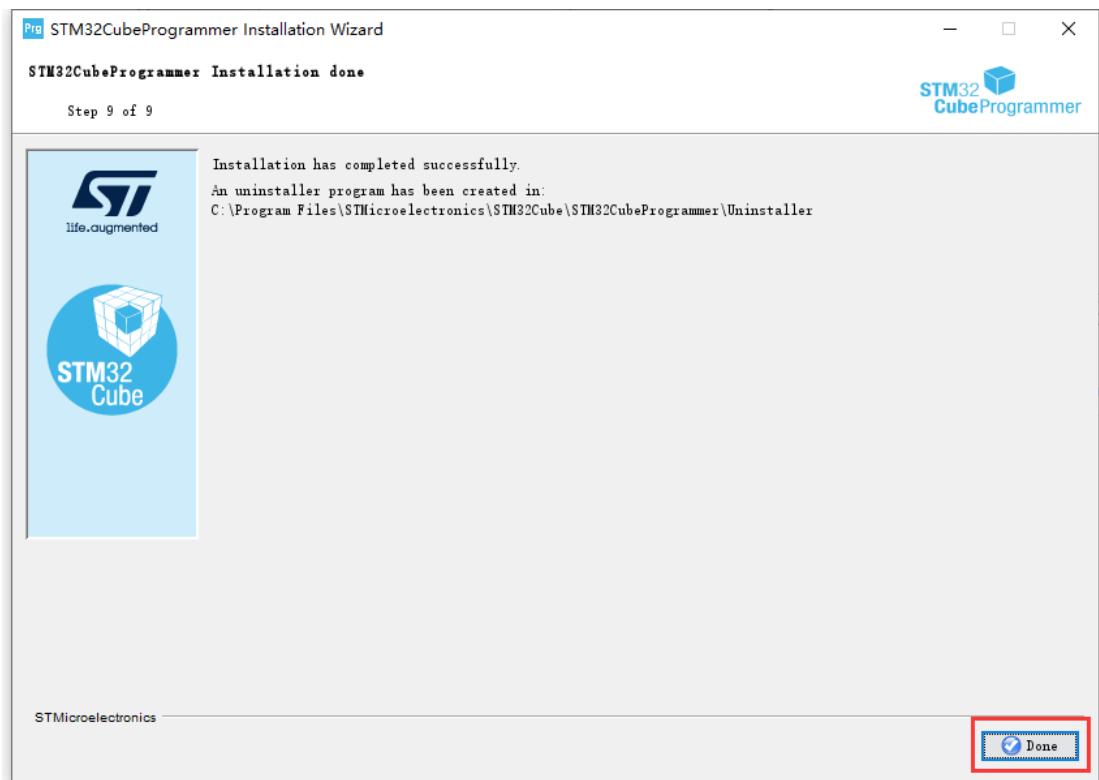


Figure 8-10

- 12) Find STM32TrustedPackageCreator in desktop shortcut icon, double-click to open the software, as shown in figure 8 to 11:

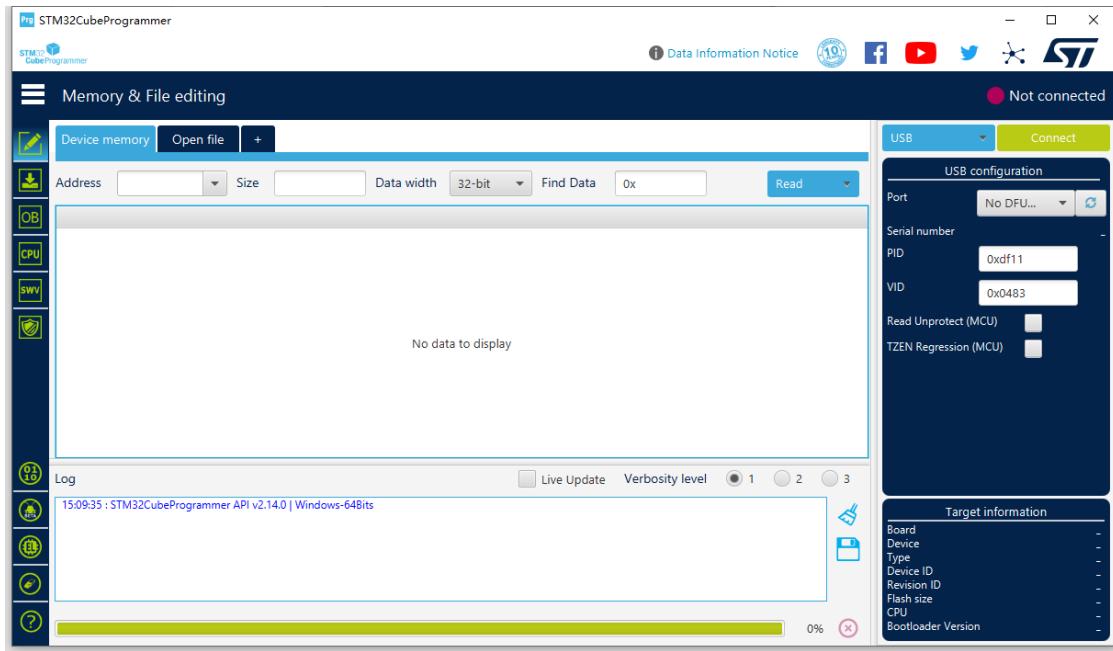


Figure 8-11

- 13) Install the USB_PWR jumper on the Kirin motherboard, at this time Kirin V1.0 is powered by USB 5V and no other power is required, as shown in Figure 8-12:

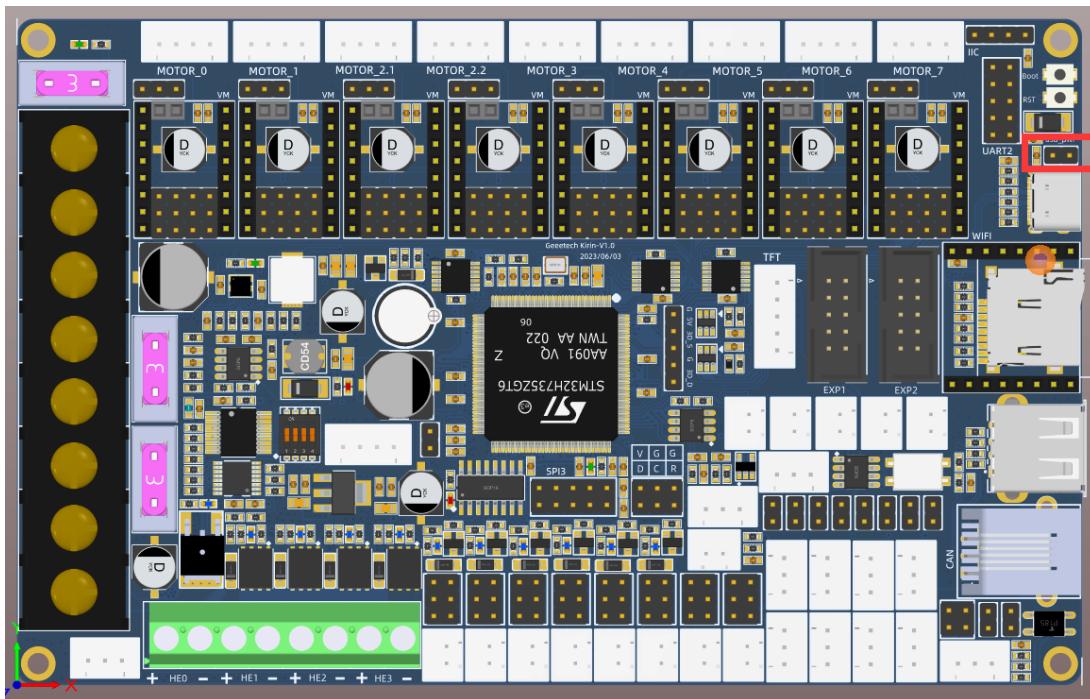


Figure 8-12

- 14) Plug the Type-C port of the USB data cable into the Kirin V1.0 and plug the other end of the data cable into the computer, at which point the Kirin V1.0 power light will light up.
- 15) Open STM32CubeProgrammer, select USB on the right side, then click Refresh icon, as shown in Figure 8-13:

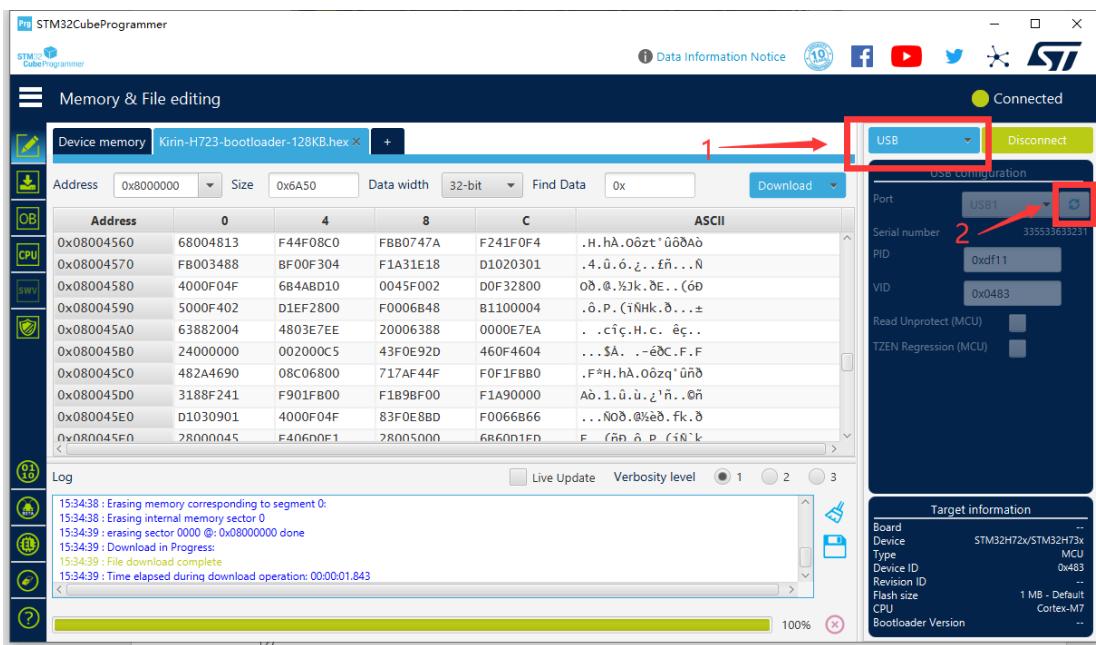


Figure 8-12

- 16) Select the Bootload file, as shown in Figure 8-13:

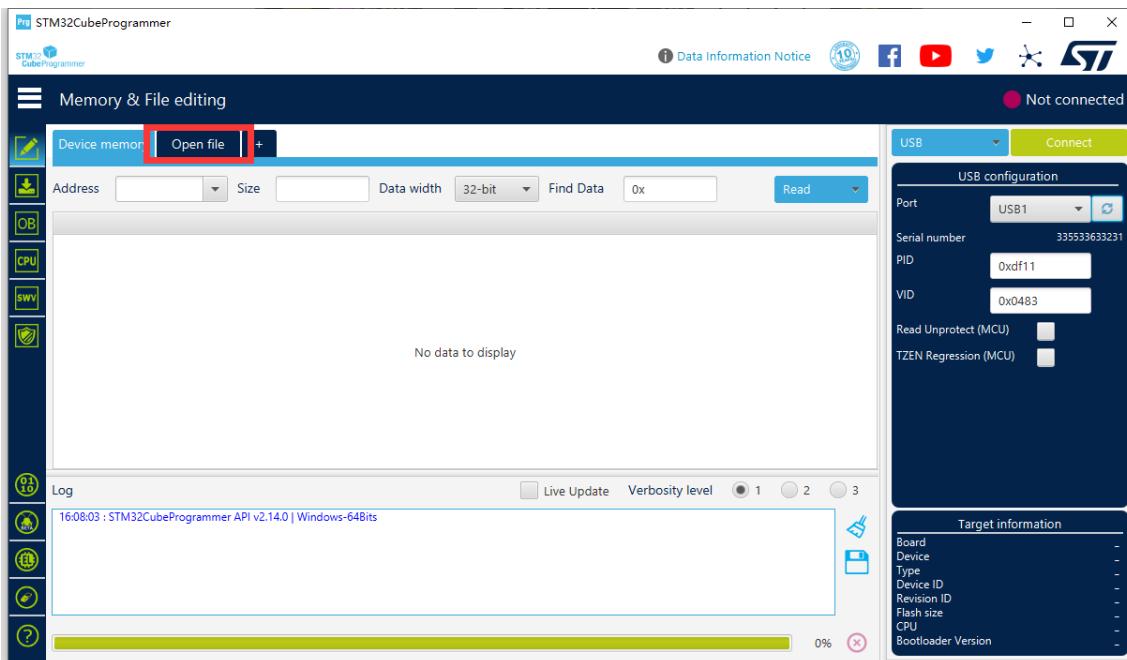


Figure 8-13

- 17) Select file completion and click Download, as shown in Figure 8-14:

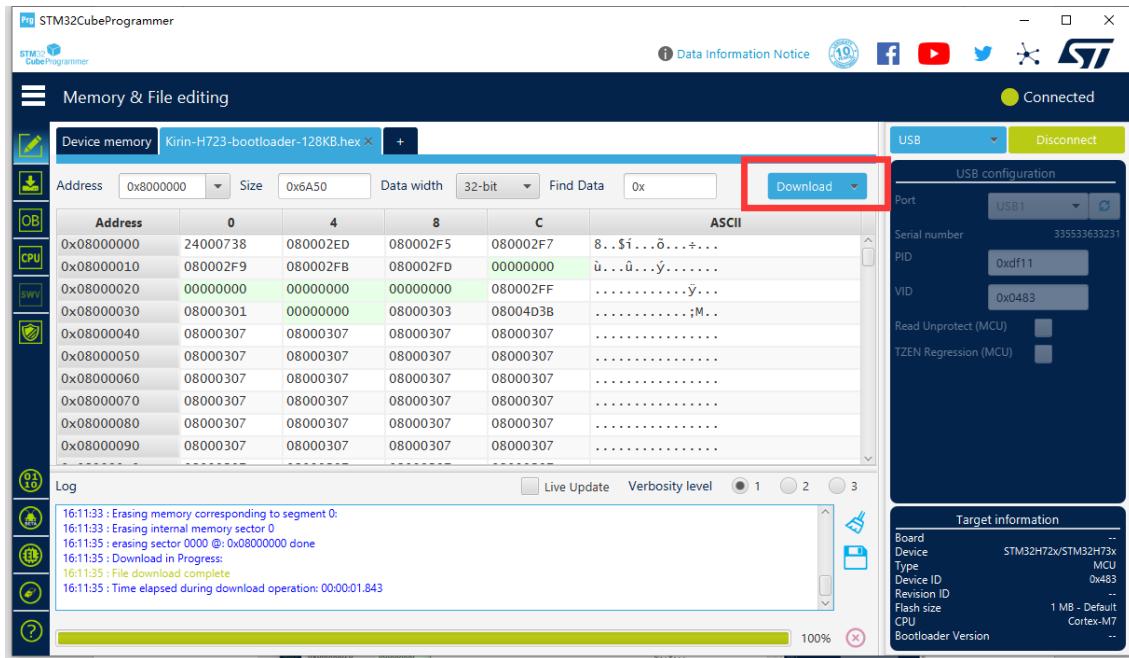


Figure 8-14

- 18) When the download progress bar is 100%, the software will prompt "File download complete", at this time the Bootload download is complete, as shown in Figure 8-15:

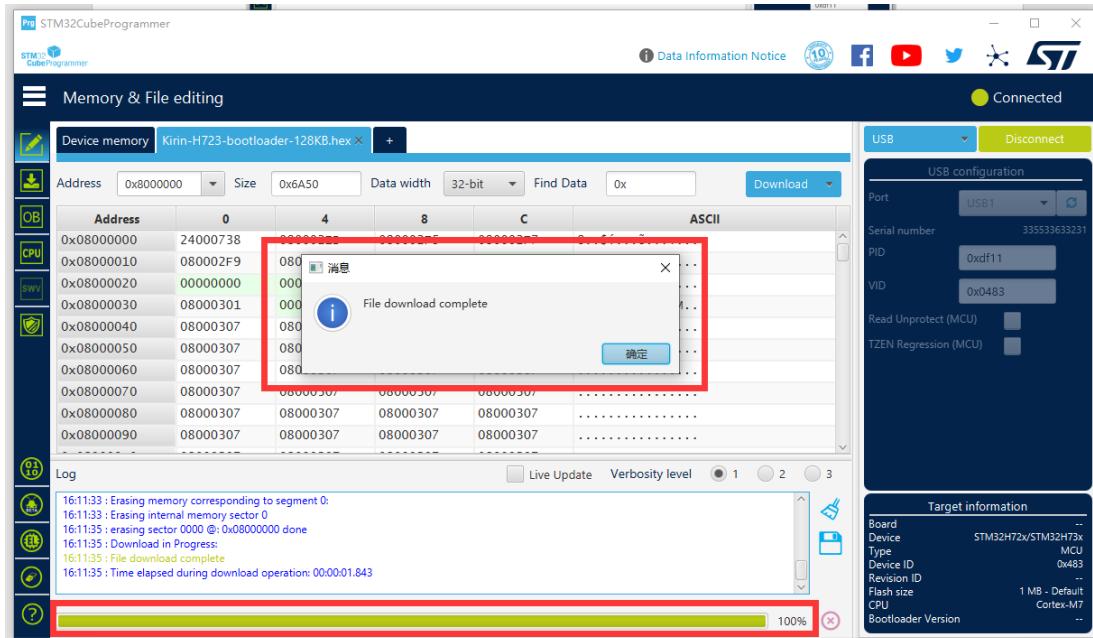


Figure 8-15

- 19) Remove the USB_PWR jumper when the Bootload download is complete.

9. Motherboard firmware upgrade

Geeetech for Kirin V1.0 provides marin firmware source code, users can according to need to compile the marin firmware, users can access Geeetech making home page (<https://github.com/Geeetech3D>), Get the source code from Geeetech-Kirin Project.

Kirin V1.0 supports the use of TF cards to upgrade the firmware, and the following things need to be noted when upgrading the firmware with TF cards:

- 1) Make sure Kirin V1.0 has burned Bootload first;

- 2) Then put the firmware in the root directory of your TF card;
 - 3) The name of the Firmware must be "firmware.bin", otherwise it cannot be upgraded;
10. Klipper configuration

Geeetech provides the Klipper configuration file for Kirin V1.0, please refer to the official Klipper website for details:

<https://www.klipper3d.org/>

The Kirin V1.0 Klipper profile provided by Geeetech works with Voron 2.4R2 3D printers in 300 by 300 print sizes, and users will need to modify the Klipper profile themselves to use with other models of 3D printers.

When using the Klipper, the user needs to configure it as shown in Figure 10-1, Figure 10-2, Figure 10-3, Figure 10-4:

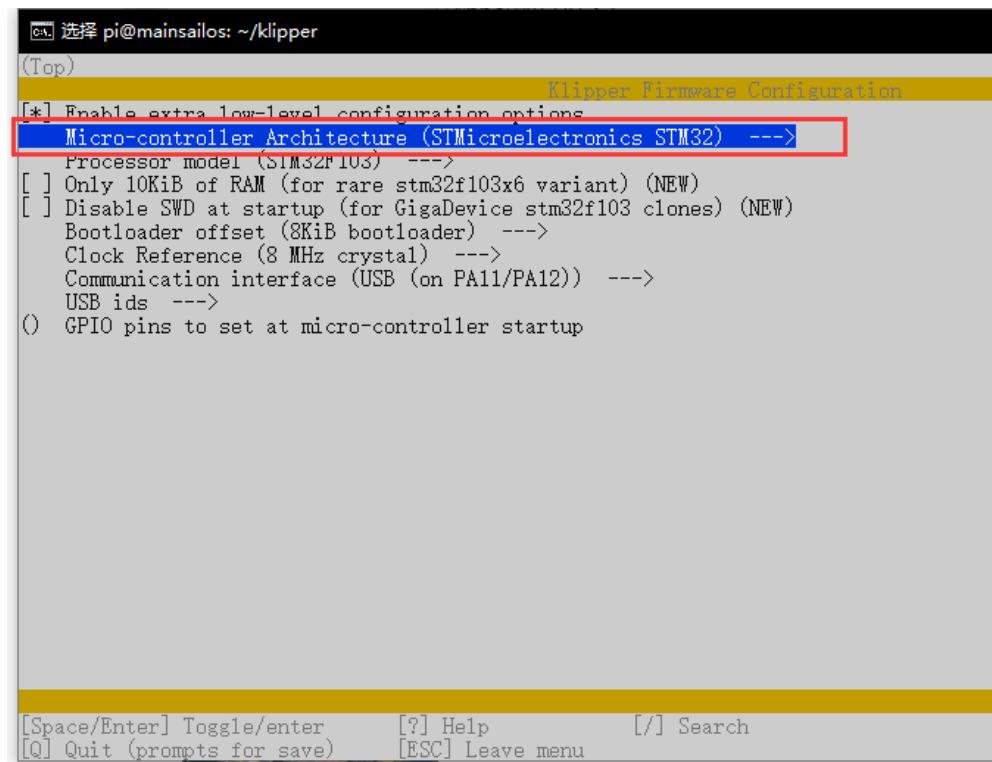


Figure 10-1

```
pi@mainsailos: ~/klipper
(Top) Klipper Firmware Configuration
[*] Enable extra low-level configuration options
    Micro-controller Architecture (STMicroelectronics STM32) --->
        Processor model (STM32H723) --->
            Bootloader offset (128KiB bootloader (SKR SE BX v2.0)) --->
            Clock Reference (8 MHz crystal) --->
            Communication interface (USB (on PA11/PA12)) --->
            USB ids --->
        () GPIO pins to set at micro-controller startup

[Space/Enter] Toggle/enter      [?] Help      [/] Search
[Q] Quit (prompts for save)    [ESC] Leave menu
```

Figure 10-2

```
pi@mainsailos: ~/klipper
(Top) Klipper Firmware Configuration
[*] Enable extra low-level configuration options
    Micro-controller Architecture (STMicroelectronics STM32) --->
        Processor model (STM32N723) --->
            Bootloader offset (128KiB bootloader (SKR SE BX v2.0)) --->
            Clock Reference (8 mHz crystal) --->
            Communication interface (USB (on PA11/PA12)) --->
            USB ids --->
        () GPIO pins to set at micro-controller startup

[Space/Enter] Toggle/enter      [?] Help      [/] Search
[Q] Quit (prompts for save)    [ESC] Leave menu
```

Figure 10-3

```

pi@mainsailos: ~/klipper
(Top) Klipper Firmware Configuration
[*] Enable extra low-level configuration options
    Micro-controller Architecture (STMicroelectronics STM32) --->
    Processor model (STM32H723) --->
    Bootloader offset (128KiB bootloader (SKR SE BX v2.0)) --->
    Clock Reference (25 MHz crystal) ---> Clock Reference (25 MHz crystal)
    Communication interface (USB (on PA11/PA12)) --->
    USB ids --->
() GPIO pins to set at micro-controller startup

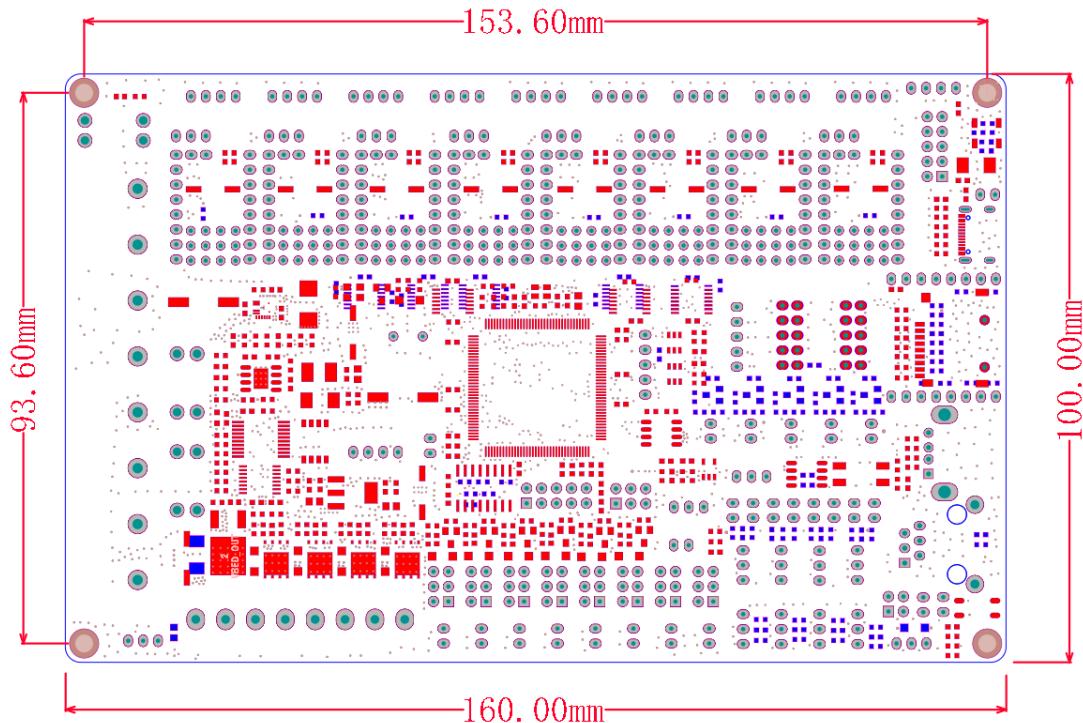
[Space/Enter] Toggle/enter [?] Help [/] Search
[Q] Quit (prompts for save) [ESC] Leave menu

```

Figure 10-4

11. Mounting hole dimensions

The Geeetech Kirin V1.0 has four mounting holes. The spacing between the holes is shown in Figure 11-1. The diameter of each hole is 3.2mm.



12. Open source Source

Geeetech for Kirin V1.0 provide principle diagram, Bootload, firmware source code, Klipper configuration files, Marlin source data, the user can access Geeetech making home page <https://github.com/Geeetech3D>,

Get all the open source material from the Geeetech-Kirin project.

13. Technical Support

If you have problems with Kirin V1.0, you can contact us through the following three channels:

E-mail: support@geetech.com Facebook:<https://www.facebook.com/groups/315127105604393>Tickets:

<https://www.geetech.com/login.html> (registration required Geeetech website account)