Shenzhen BIGTREE Technology co., LTD.

BIGTREETECH SKR MINI MZ V1.0 User Guide

【Please read the instruction manual before use】

Ⅰ.Product Introduction:

BIGTREETECH SKR MINI MZ V1.0 is a 32-bit 3D printer motherboard launched by the 3D printing team of Shenzhen Big Tree Technology CO., LTD. to upgrade your MEGA Zero 3D printer.

SKR MINI MZ V1.0 motherboard with one exturder and 4pcs TMC2209 stepper motor driver, which is specially tailored for MEGA Zero printer, perfectly replacing the original MEGA Zero printer motherboard.

1.Motherboard Features:

1）MCU:ARM 32 bit and 72MHz STM32F103RCT6 of Cortex-M3 series,Improved performance;

2）Equipped with highly modular and open source firmware Marlin2.0, which is convenient for users to DIY and secondary development,Eliminate the worries of not being able to master the core code;

3）Marlin2.0 using powerful development tools, Visual Studio Code integrated development environment: support online debugging, more helpful for product development and performance optimization, using C/C++ language development, low development threshold;

4）The PCB board wiring is rigorous and beautiful, and has been specially optimized for heat dissipation;

5）Using a dedicated power chip to support 12-24V power input;

6）Accept 24V input;

7）Support BIGTREETECH-3.5 TFT、LCD12864

8）The system supports simplified Chinese, English and other languages, which can be switched by yourself;

9）Upgrade and configure the firmware through SD card, which is simple,convenient and efficient;;

10）High performance MOSFET tube, better heat dissipation effect;;

11）Using removable fuse makes the replacement process easier;

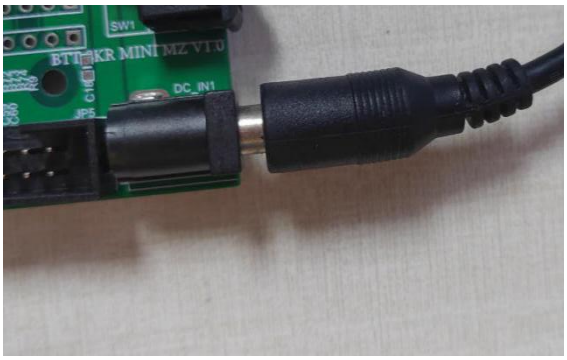
13) Adopt DC5.0 socket power input
12) Reserve BLTouch, PH2.0 normally open fan, hot bed output, switch power input, resume printing while power off ,filament break detection , and automatic shutdown after printing port;
13) Support offline printing and online printing;
14) Reserved double Z-axis port
15) Support onboard SD card printing function
16) Onboard EEPROM: AT24C32
17) Support RGB light bar

2.Motherboard Parameters:

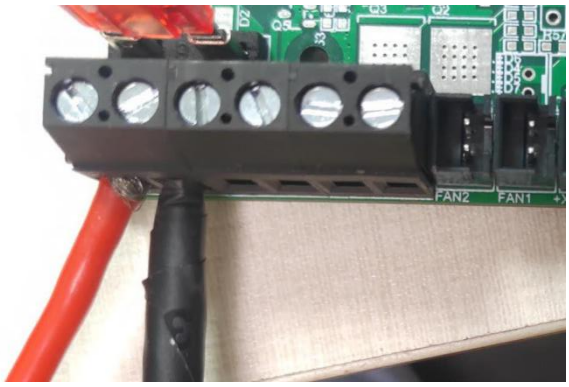
1) Appearance size: 100.7mm*70.8mm
2) Installation size: 59.7*51mm
3) Microprocessor: ARM 32-bit Cortex™-M3 CPU
4) Power Voltage: DC12V--DC24V
5) Motor Driver: Integration of TMC2209 UART mode
6) Motor drive interface: X、Y、Z0、Z1、E
7) Temperature sensor interface: BED、T0
9) Display: 2.4 inch TFT/LCD, 3.5 inch TFT /LCD(Note: MEGA Zero original screen is not supported)
10) PC communication interface: MINI USB (USB 2.0), easy to plug and unplug, communication baud rate 115200
11) Expand the interface function support: Resume Printing While Power Off,Filament Break Detection, Automatic Shutdown After Printing, Automatic leveling BL Touch,ect.
12) Support file format: G-code
13) Supported machine architecture: MEGA Zero
14) Recommended software: Cura、 Simplify3D、 pronterface、 Repetier-host、Makerware

Ⅱ.Motherboard Power Wiring

1.DC Power supply



2.Switch power supply



can only selected one of the two methods and cannot be connected at the same time.

Before wiring, be sure to disconnect the 220V power supply and distinguish the positive and negative poles (the red positive and the black negative in the picture above) to avoid burning the motherboard.

III. Motherboard and Computer Connection

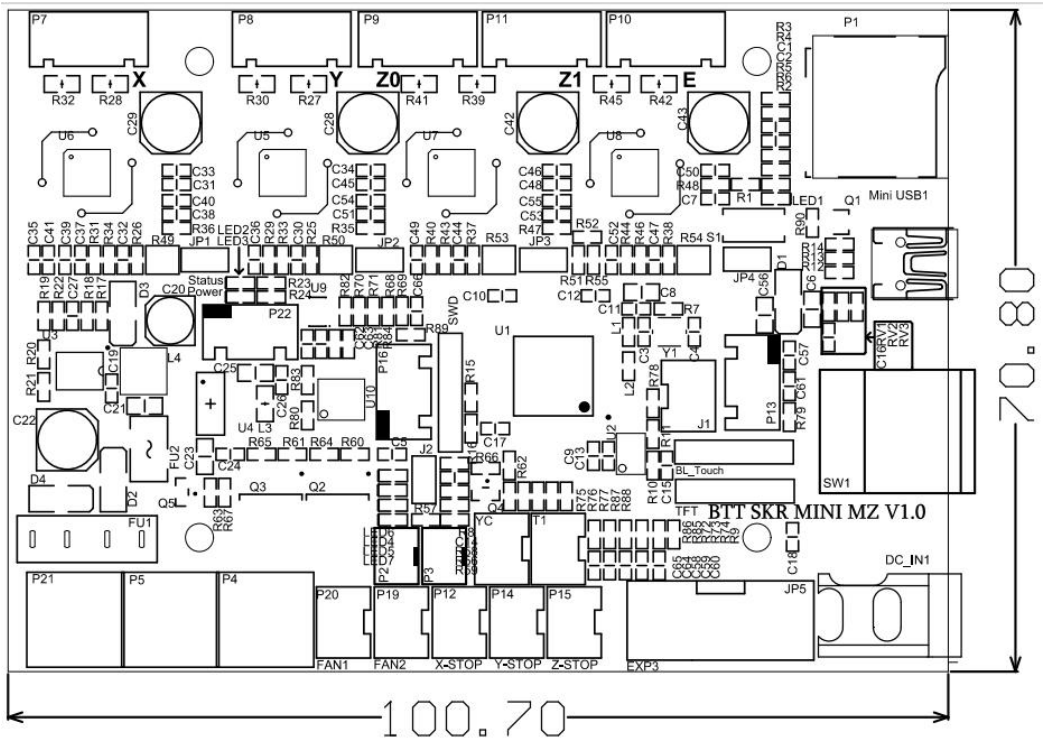
After the motherboard is connected to the computer through USB cable, the computer will automatically install the driver. After the driver is installed, the motherboard can be recognized for data transmission.

If the installation fails, you can go to our open source website: https://github.com/bigtreetech?tab=repositories to find the corresponding motherboard to download the driver.

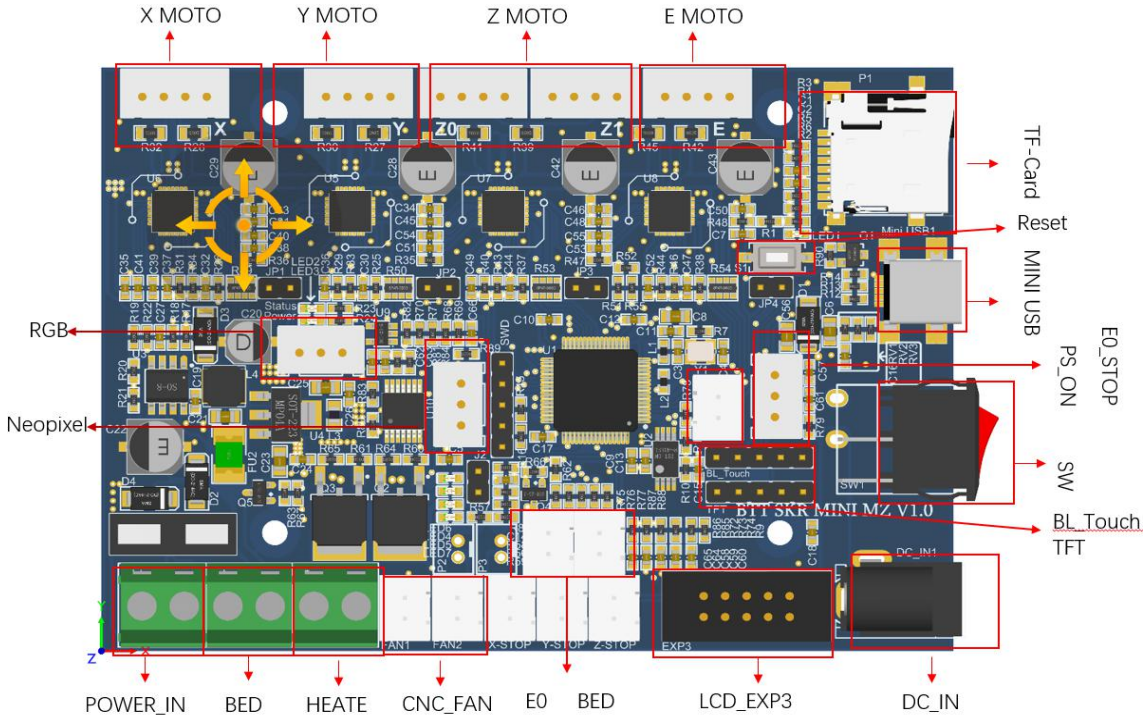
After the driver is installed, open the "Device Manager" and you can see the port as shown in the figure below, indicating that the motherboard is connected to the computer normally

Ⅳ. Motherboard and Interface Instruction

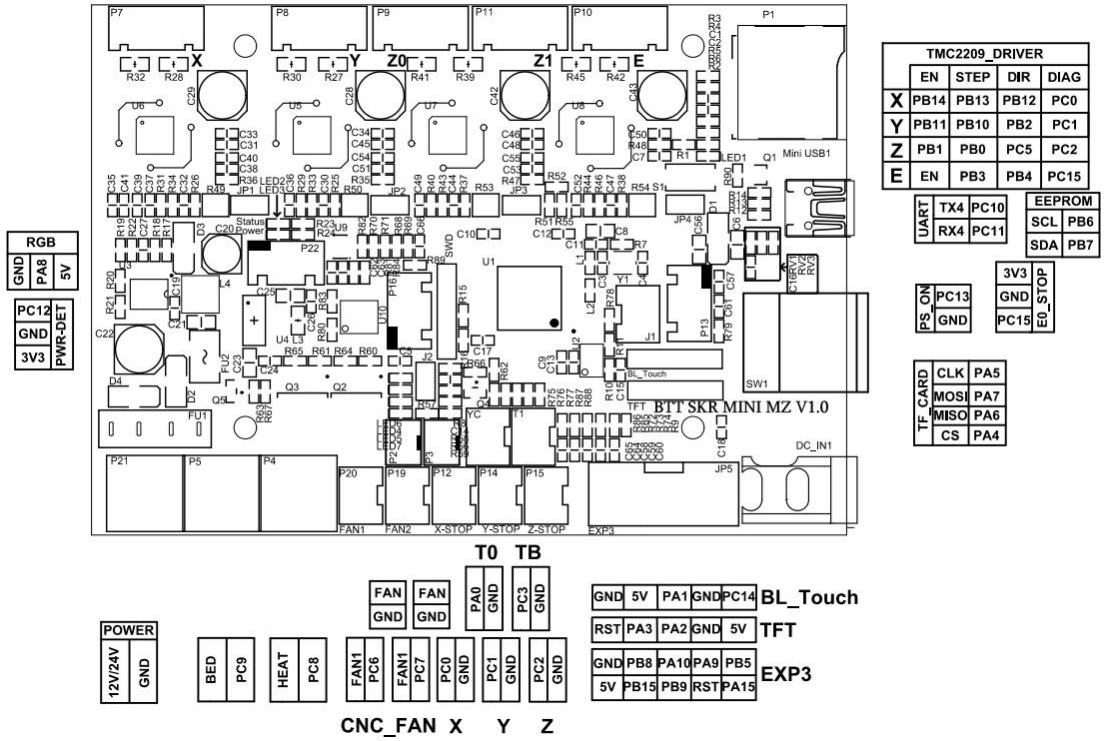
1. Motherboard Size Diagram



2. Motherboard Wiring Diagram



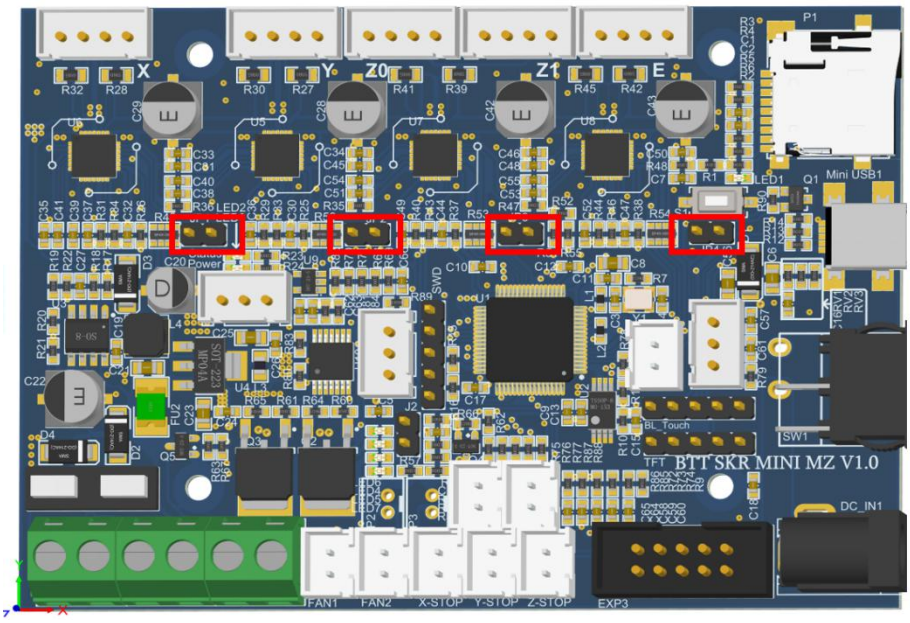
3. Motherboard Pin Diagram



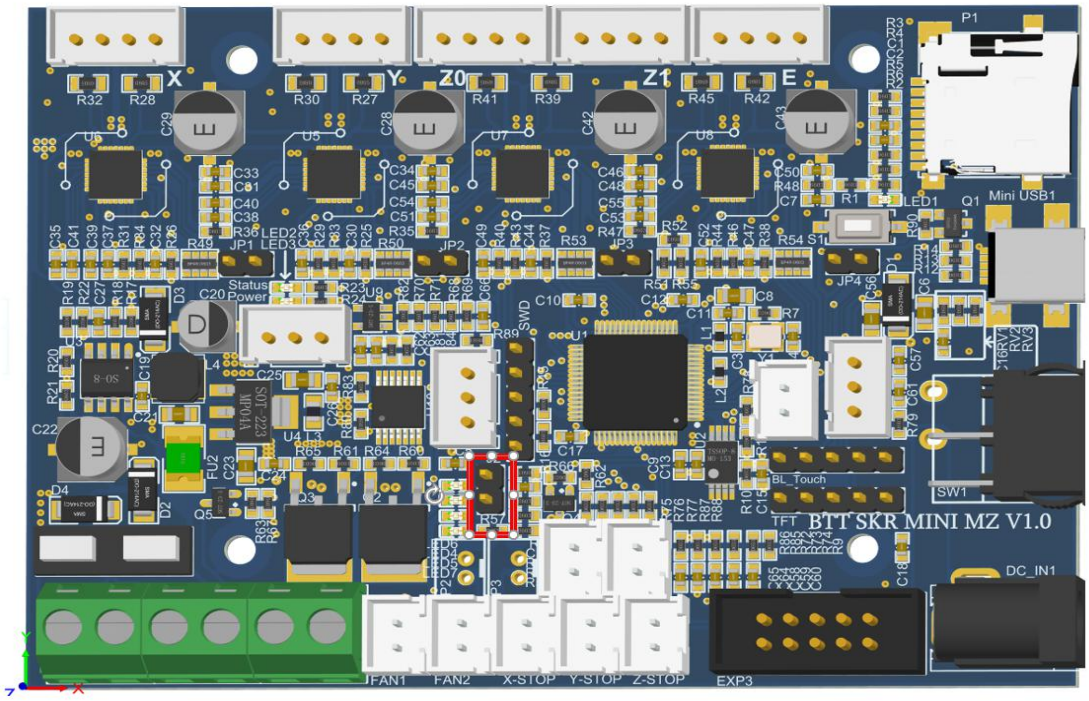
For details, please refer to Pin file.

V. Motherboard jumper description

1) If you need to use the Filament Break Detection function, you need to connect the following 4 positions with a jumper cap:



2) If you need to enable BOOT mode, please use jumper caps to connect the following positions:



Ⅵ. The firmware description of Motherboard

1) At present, the SKR MINI MZ V1.0 motherboard only supports the use of our company open source Marlin 2.0 firmware, which can be found on our open source website:

https://github.com/bigtreetech?tab=repositories

Find the corresponding motherboard to download

2) Motherboard Marlin2.0 Firmware update method:

After downloading our open source Marlin2.0 firmware, use Visual Studio Code to open the project to compile, then find the firmware.bin file, copy it to the SD card, re-energize or

press the reset key, wait for about 10S. After that, the update can be completed。（Or you can download firmware.bin directly.）

For detailed steps, please refer to the tutorial:

https://www.dropbox.com/s/ppjfflhf3j5yzh2/MarlinV2.0%20SKRV1.1%20instruction.docx?dl=0

（Note:File name cannot be changed,firmware.bin must be lowercase!）

Ⅶ.Notes:

1. Can only supports our open source Marlin2.0 firmware.

2.U disk function is not supported temporarily, so stay tuned.

3.Before supplying 12V/24V power to the motherboard, make sure to pay attention to the positive and negative poles of the power supply.

4. Firmware file names in SD card cannot be changed (including letter case),

5. Before powering on, make sure that all wires and jumper caps are correctly and completely plugged in.

6. Do not use switching power supply and DC power supply at the same time.

7.The MEGA Zero printer does not have a heat bed function for the time being, but our SKR MINI MZ V1.0 has a reserved heat bed function. If you need to use heat bed, please use a switching power supply (ordinary DC power supply cannot provide the required power for the hot bed).