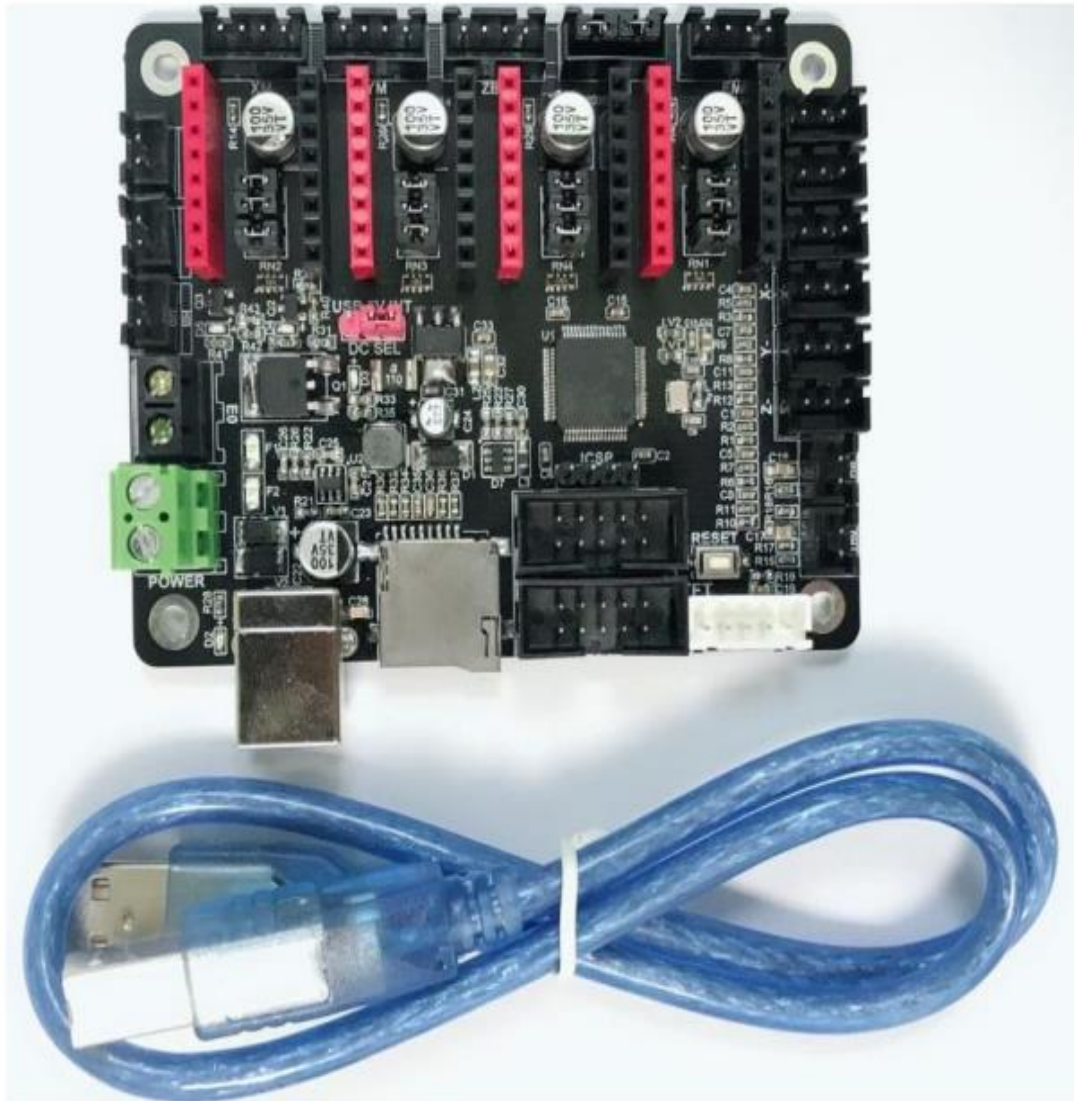


BIGTREETECH

SKR mini V1.1

Motherboard Manual



一、SKR Motherboard Introduction

BIGTREETECH SKR-mini-V1.1 motherboard is a very cost-effective 3D printer motherboard, designed by Shenzhen BIQU Technology Co. Ltd. 3D printing team, especially suitable for small printers.

1. SKR motherboard features:

- 1) ARM Cortex-M3 series STM32F103RCT6 chip with 32-bit CPU 72MHz;
- 2) Equipped with highly modular open source firmware Marlin2.0, convenient for users DIY and secondary development, exempt from the worries of the core code;
- 3) Using powerful development tools, Visual Studio Code integrated development environment: support online debugging, more helpful for product development and performance optimization, using C language development, low development threshold;
- 4) PCB board wiring is rigorous and beautiful, and specializing in heat dissipation optimization;
- 5) Using a dedicated power chip to support 12-24V power input;
- 6) Accept 24V input, reduce the hot bed current to 1/4 at the same power, effectively solve the hot bed MOS tube heating problem;
- 7) Support 2.8-inch, 3.5-inch color touch screen and LCD2004 screen, reserved LCD12864 screen interface, users are welcome to discuss firmware debugging on LCD12864 screen;
- 8) The system supports simplified Chinese, English and other languages,

which can be switched by itself;

9) Upgrade the firmware by SD card, which is easy and convenient to operate;

10) Use firmware to set the driving current mode, avoid manual adjustment of current and cause burnout drive. Convenient, safe, reliable;

11) Support functions such as printing after power failure, broken material detection, and power off after ending;

2. SKR motherboard parameters:

Appearance size: 90*70mm

Installation size: 80mm*60mm

Microprocessor: ARM Cortex-M3 CPU

Power input: DC12V-DC24V 5A-12A

Motor Driver: Supports TMC2208, TMC2130, LV8729, DRV8825, A4988, ST820 and more

Motor drive interface: X, Y, Z, E0, 4 channel (series double Z axis), up to 256 subdivision

Temperature sensor interface: TH0, TB, 2 channel 100K NTC (thermal resistance)

Display: 2.8-inch TFT, 3.5-inch TFT, LCD2004

PC communication interface: square USB, easy to plug and unplug, communication baud rate 115200

Support file format: G-code

Support machine structure: XYZ, delta, kossel, Ultimaker, corexy

Recommended software: Cura, Simplify3D, pronterface, Repetier-host, Makerware

二、 SKR Motherboard Power

After the SKR motherboard is powered on, the red light in the lower left corner will light up, indicating that the power supply is normal; The DC SEL in the middle of the board is the power selector;

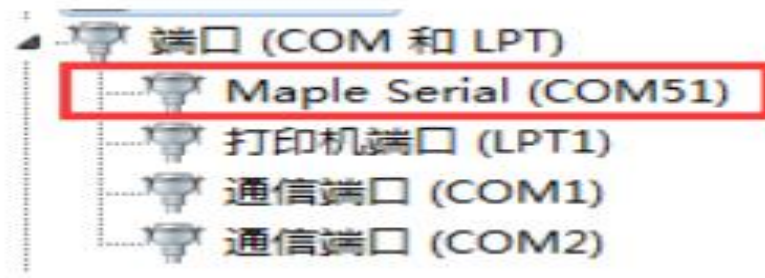
1) When using USB to power the motherboard, connect the +5V and USB pins with the short-circuit cap;

2) When using 12V-24V power supply, connect the +5V and INT pins with the short-circuit cap;

Note: You can connect [12V-24V power supply] and [USB] at the same time. The printing process must be connected with the +5V and INT pins with the short-circuit cap.

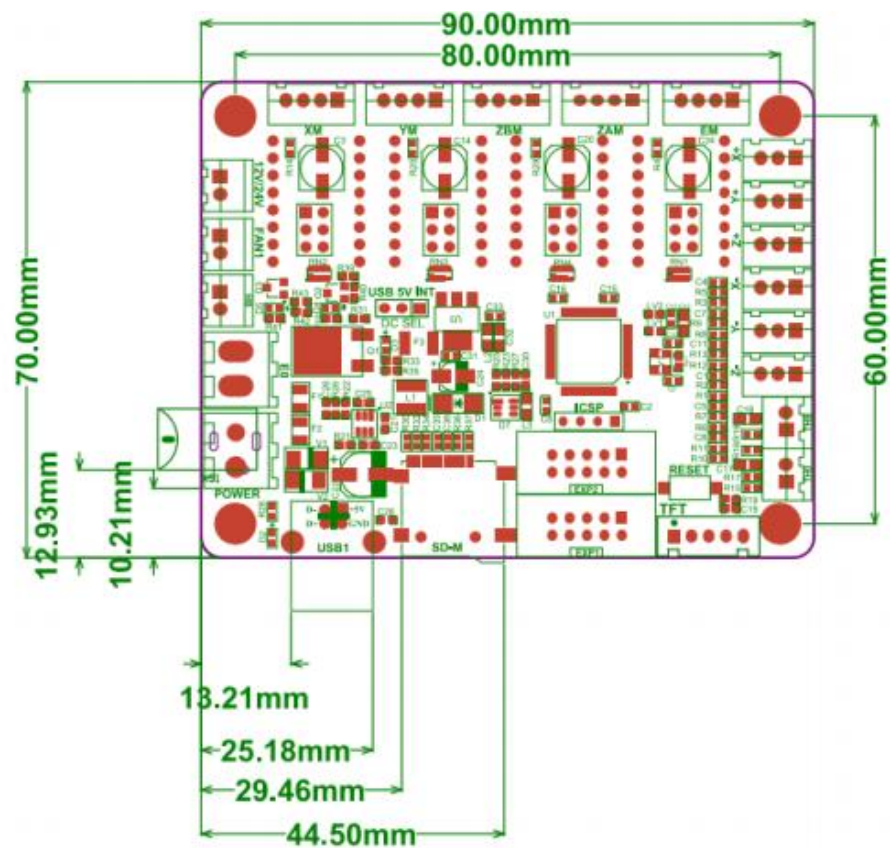
三、 SKR Motherboard and PC Communication

The SKR motherboard connects with the PC via the [USB] interface and requires a driver to be used. It can be installed by downloading the driver file named mapleDrv at <https://github.com/bigtreetech>.

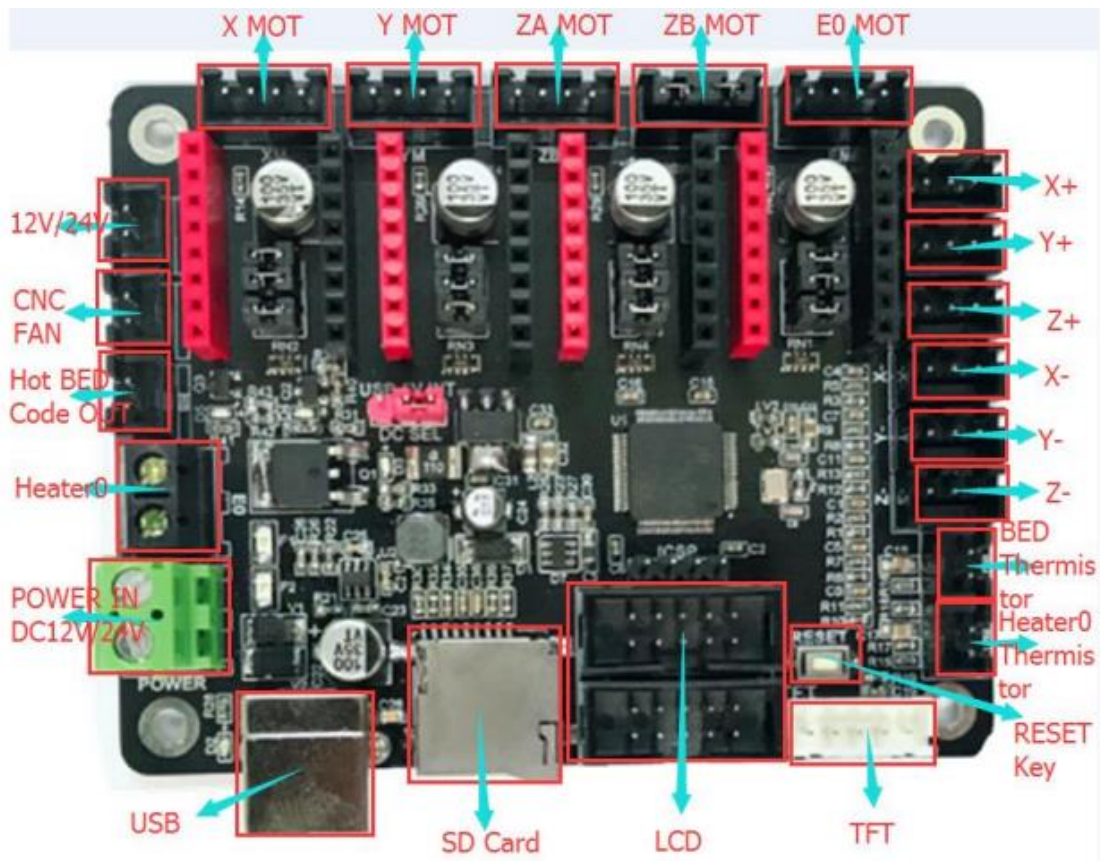


四、SKR Motherboard Interface Description

1. SKR motherboard size chart



2. SKR motherboard wiring diagram



五、SKR Motherboard Firmware Description

The factory-installed motherboard will be equipped with firmware for testing (I3 model), which can be used directly or according to need to change it by yourself.

1. SKR motherboard firmware acquisition method

Ask customer service or technical staff to obtain; Log into our open source website for downloading: <https://github.com/bigtreetech>

2. SKR motherboard firmware update method

Copy the firmware.bin file to the SD card root directory in the compiled firmware package.

Note: The file name cannot be changed. firmware.bin must be lowercase!

Insert the SD card into the SD card slot of the motherboard, power it on again or press the reset button, wait for about 10 seconds. Update completed.

六、 Precautions:

1. Motherboard 5V SEL must be connected to INT and +5V pins. (that is, you must have 12V-24V power supply to power the motherboard to print);
2. If the motherboard needs to use the hot bed function, it must be connected to the hot bed MOS expansion module. The main board cannot be directly use the hot bed function.
3. The firmware file name in the SD card cannot be changed (including capitalization);
4. The wiring process and the plug-in drive process must be carried out under the power failure. Check that the correct connection of the wire and the correct insertion of the drive can be powered on to prevent misconnection. Cause the motherboard and driver to be burned, causing unnecessary losses;
5. The factory firmware supports the LCD2004 screen, but does not support the LCD12864 screen; The firmwares are completely open source, and the capable users can debug themselves and communicate with our company. Users are welcome to harass! !