1. Introduction

The BIGTREETECH SKR-mini-E3 motherboard is an ultra-quiet, low-power, high-quality 3D printer main control board launched by the printing team of bigtreetech, the board
Tailored specifically for Ender3 printers, perfect replacement for original Ender3 printer motherboards.

1. Main board features:

1) ARM-level Cortex-M3 series STM32F103RCT6 main control with 32-bit clocked at 72MHz chip;

2) Equipped with highly modular open source firmware Marlin2.0, which is convenient for users to DIY and secondary development, and eliminates
Worries about mastering the core code;

3) Use powerful development tools, Visual Studio Code integrated development environment: support online debugging,
It is more helpful for product development and performance optimization, using C language development, low development threshold;

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

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

6) It can accept 24V input. Under the same power, the hot bed current can be reduced to 1/4, effectively solving the hot bed
MOS tube heating problem;

7) Support 2.8-inch, 3.5-inch color touch screen and original LCD12864 screen of Ender3 printer;

8) Upgrade and configure firmware through SD card, easy and convenient operation;

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

10) Support functions such as BLtouch, RGB color lights, locked-rotor detection, and shutdown after hitting;

11) Integrate the UART mode of TMC2209, which simplifies the debugging of the motherboard and driver.
Change

12) Reserve the expansion port of some pins of TMC2209, which is convenient for users to use DIAG instead of Endstop
And other functions;

2. Main board parameters:

Appearance size: 100*70.25mm

Installation size: perfect replacement for Ender3 motherboard, see SKR-mini-E3-SIZE information for details

Microprocessor: ARM Cortex-M3 CPU

Power input: 12/24V

Motor driver: UART mode with integrated TMC2209

Motor drive interface: XM, YM, ZM, EM four channels

Temperature sensor interface: TH0, THB, 2 channels 100K NTC (thermal resistance)

Display: 2.8 inch TFT, 3.5 inch TFT, Ender3 original LCD12864 screen

PC communication interface: mini-USB-B type, easy to plug and unplug, communication baud rate 115200

Support file format: G-code

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

2. Main board indicator light description

After the motherboard is powered on:

D3 red light is the power indicator: the red light is on, indicating that the power supply is normal;

D10 red light is the status indicator: it will flash when the firmware is updated, and it will be closed after the update is completed;

D6 green light is hot bed HB status indicator: always on when heating, and off when not heating;

D4 green light is heating rod E0 status indicator: always on when heating, and off when not heating;

D5 green light is CNC fan FAN0 status indicator: it lights up when the fan is turned on, and goes out when it is turned off

3. Mainboard and PC communication

The motherboard communicates with the PC (Windows system) through the [USB] interface, and the driver needs to be installed before communication.

Can be used normally. Drive acquisition method:

URL: https://github.com/bigtreetech . Download file: mapleDrv,and install it