I3DBEE BEEZ9 V1.0
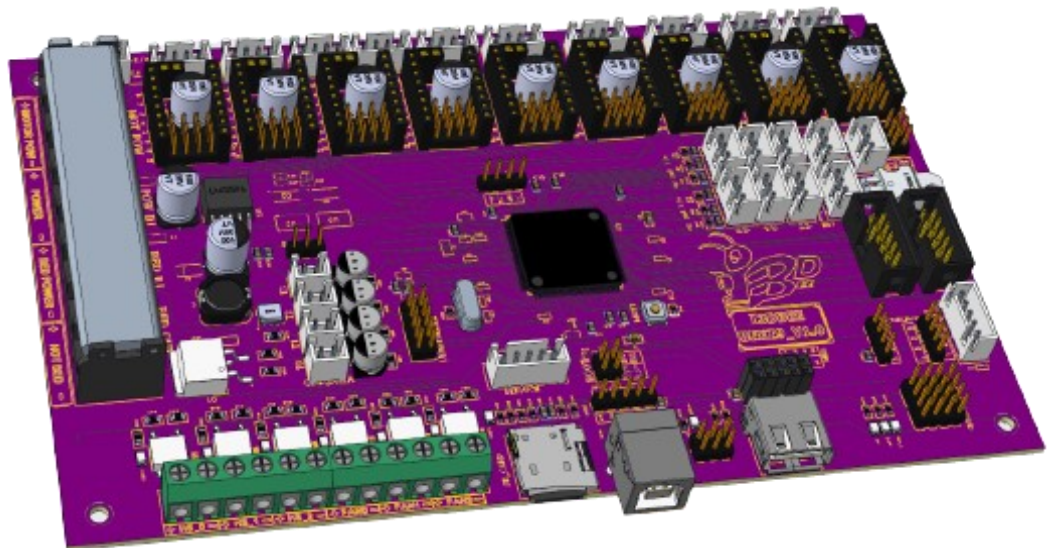
USER MANUAL

I3DBEE BEEZ9

Version 1.0
Product introduction
Sri Vignan Technology Pvt ltd. Developed this board to provide a high performance customizable 3D printer controller board to the 3D printing community. It also stimulates further development of high speed and high quality 3D printing.
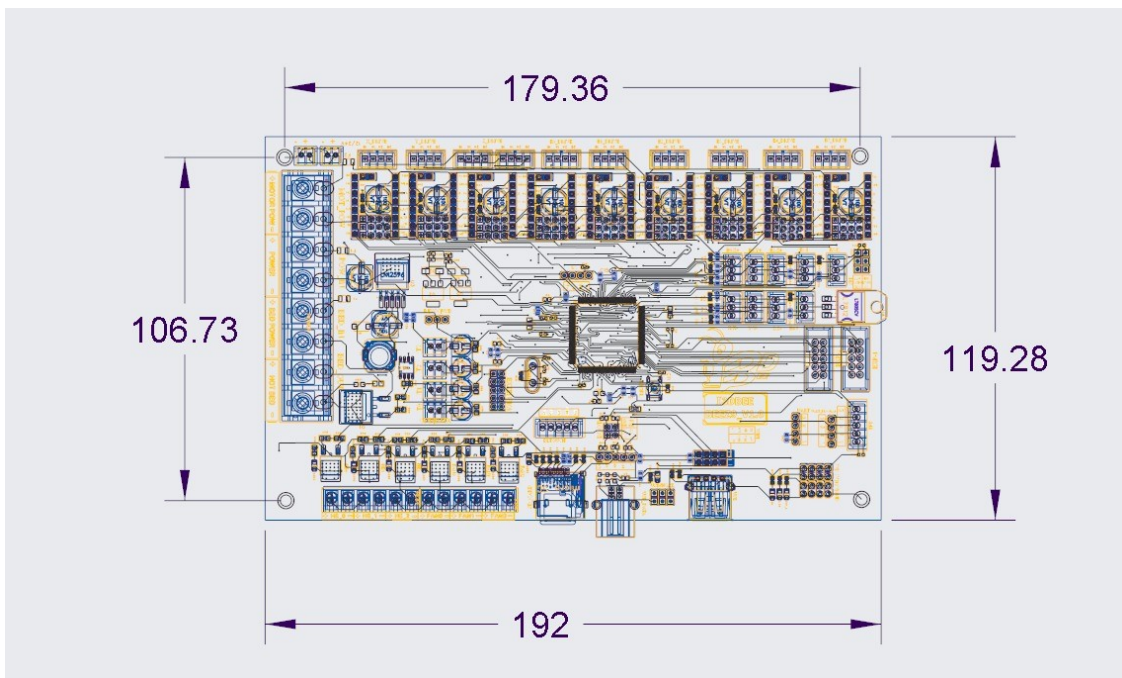
Main Features

1. The board is controlled by a STMicroelectronics ARM cortex M4 32-bit STM32F407ZGT6 MCU. This chip has a Maximum Clock Frequency of 168 MHZ and features 114 I/O pins. Supported interface types are: CAN, 12C, SDIO, 12S / SPI, UART / USART, USB. As many as 20 expansion ports can be inverted, and extended ports can be used to add more features to the printer without worrying about the shortage of I/O pins.

2. 9 stepper motor driver ports make it possible to have up to 3 extruders or dual axis. Supported drivers are TMC 5160, TMC 2208, TMC 2209, LV8729, ST820, A4988, etc. There are also three dedicated fan ports with direct connection to the power supply.

3. Dedicated power input ports for the main power, stepper motors and the heated bed, allows the user to have different input voltages. The heated bed current draw can be reduced to ¼, without power loss.

4. Supports serial WIFI printing. To make use of this, a ESP8266 ESP-01S WIFI .

5. Supports open source firmware Marlin 2.0. This means it is convenient for users to customize their firmware and develop it. The firmware is upgraded with a SD card, which is vert convenient and efficient!

6. Dedicated ports for BL Touch, PWM, ADC, UART, 12C and SPI. Supports TMC21x30 SPI, TMC5160 SPI, TMC2208 UART.

7. Data can be saved when the power to the board is cut off and the printer can also automatically shutdown after a print is finished. To make use of this, a I3DBEE MINI UPS V1.0 and a I3DBEE Relay V1.0 are needed.

8. The high performance heated bed MOSFET provides god head dissipation.

9. Supportednscreens:I3DBEE 2.8 inch TFT and I3DBEE 3.5 inch TFT color touch screens, LCD2004 and LCD 1286. These are just a few compatible screens, there are more options.

10. Multi language support, for example: English, Chinese, Simplified Chinese.

11. Using removable automotive fuses makes the replacement process easier.

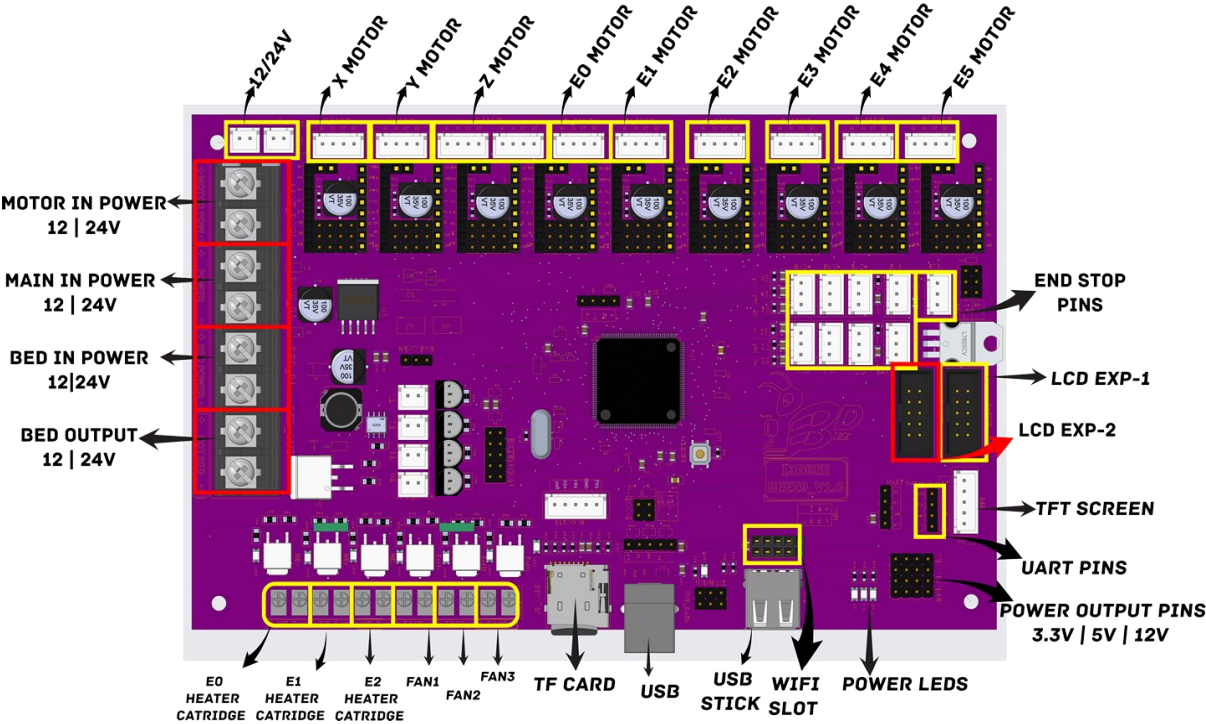12. The layout of the PCB is optimizes for heat dissipation.

Board specifications

1. Size :192*120mm

2. Input voltage:12V-24V DC
3. Installation size:179*107mm
4. Max. heated bed power:180W@12V,360W@24V
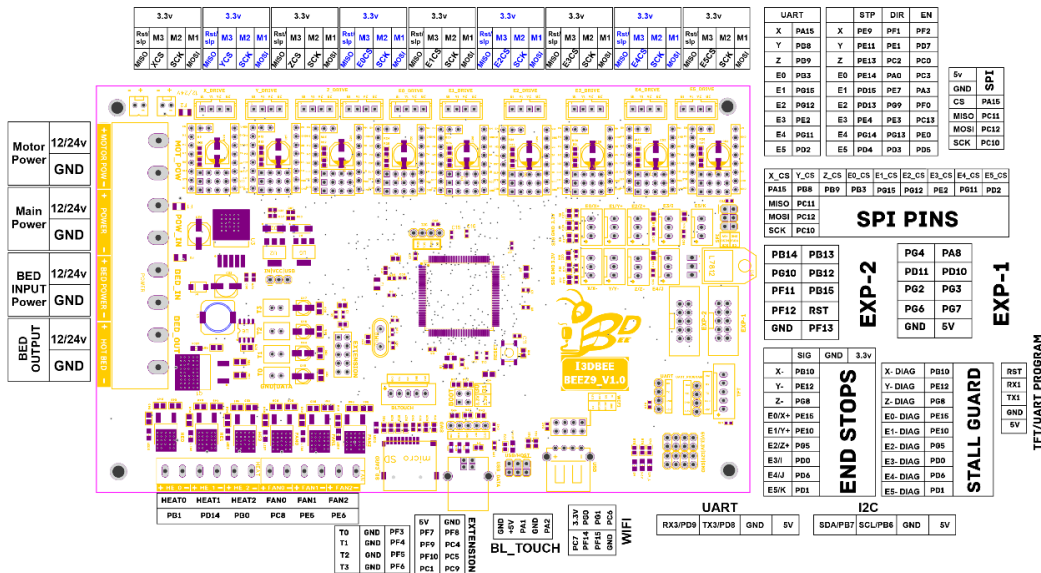5. Max. motor current: 15ac
6. Max. accessories current:10A

Dimensions Diagram

General wiring diagram

12/24V · X MOTOR · Y MOTOR · Z MOTOR · E0 MOTOR · E1 MOTOR · E2 MOTOR · E3 MOTOR · E4 MOTOR · E5 MOTOR

MOTOR IN POWER 12 | 24V

MAIN IN POWER 12 | 24V

BED IN POWER 12|24V

BED OUTPUT 12 | 24V

END STOP PINS

LCD EXP-1

LCD EXP-2

TFT SCREEN

UART PINS

POWER OUTPUT PINS 3.3V | 5V | 12V

E0 HEATER CATRIDGE · E1 HEATER CATRIDGE · E2 HEATER CATRIDGE · FAN1 · FAN2 · FAN3 · TF CARD · USB · USB STICK · WIFI SLOT · POWER LEDS

Pin diagram

UART				STP	DIR	EN
X	PA15	X	PE9	PF1	PF2
Y	PD8	Y	PE11	PE1	PD7
Z	PD9	Z	PE13	PC2	PC0
E0	PD3	E0	PE14	PA0	PC3
E1	PG15	E1	PD15	PE7	PA3
E2	PG12	E2	PD13	PG9	PF0
E3	PE2	E3	PE4	PE3	PC13
E4	PG11	E4	PE14	PE13	PE0
E5	PD2	E5	PD4	PD3	PD5

SPI
5v	
GND	
CS	PA15
MISO	PC11
MOSI	PC12
SCK	PC10

SPI PINS
X_CS	Y_CS	Z_CS	E0_CS	E1_CS	E2_CS	E3_CS	E4_CS	E5_CS
PA15	PD8	PB9	PB3	PG15	PG12	PE2	PG11	PD2
MISO	PC11							
MOSI	PC12							
SCK	PC10							

EXP-2
PB14	PB13
PG10	PB12
PF11	PB15
PF12	RST
GND	PF13

EXP-1
PG4	PA8
PD11	PD10
PG2	PG3
PG6	PG7
GND	5V

Motor Power 12/24v GND · Main Power 12/24v GND · BED INPUT Power 12/24v GND · BED OUTPUT 12/24v GND

END STOPS
	SIG	GND	3.3v
X-	PB10		
Y-	PE12		
Z-	PG8		
E0/X+	PE15		
E1/Y+	PE10		
E2/Z+	PG5		
E3/I	PD0		
E4/J	PD6		
E5/K	PD1		

STALL GUARD
X- DIAG	PB10
Y- DIAG	PE12
Z- DIAG	PG8
E0- DIAG	PE15
E1- DIAG	PE10
E2- DIAG	PG5
E3- DIAG	PD0
E4- DIAG	PD6
E5- DIAG	PD1

TFT/UART PROGRAM
| RST |
| RX1 |
| TX1 |
| GND |
| 5V |

HEAT0 PB1 · HEAT1 PD14 · HEAT2 PB0 · FAN0 PC8 · FAN1 PE5 · FAN2 PE6

T0	GND	PF3
T1	GND	PF4
T2	GND	PF5
T3	GND	PF6

EXTENSION
5V	GND
PF7	PF8
PF9	PC4
PF10	PC5
PC1	PC9

BL_TOUCH

WIFI
PC7	3.3V
PF14	PG0
PF15	PG1
	GND
	PA2

UART
| RX3/PD9 | TX3/PD8 | GND | 5V |

I2C
| SDA/PB7 | SCL/PB6 | GND | 5V |

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Power wiring

As shown above, three sets of power lines need to be connected to the board, namely, main power supply, motor power supply and heated bed power supply. The fourth connector on the board is for the heated bed output wires. When connecting, be sure to disconnect the mains voltage power supply and distinguish the positive and negative electrodes so as not to burn out the board.

Power selection

Use the provided jumper to set the correct power input source. As shown in the pictures below, when the jumper is connected to USB and VCC, the USB power source is selected. When the jumper is connected to IN and VCC, the 12V/24V power source is selected. If you have selected the USB power source, the 5V and 3.3V indicators will light up. If you have selected the 12/24V power source, the 5V,3.3V and 12V indicators will light up.
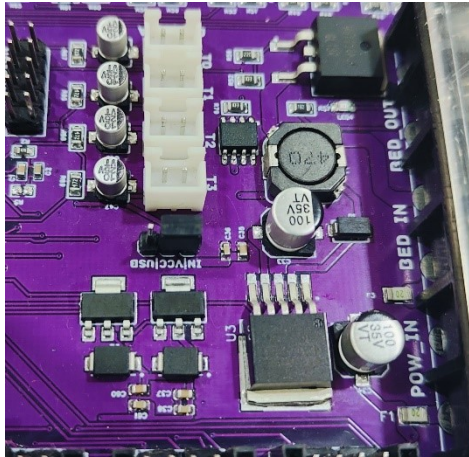
1 . 12/24V Power
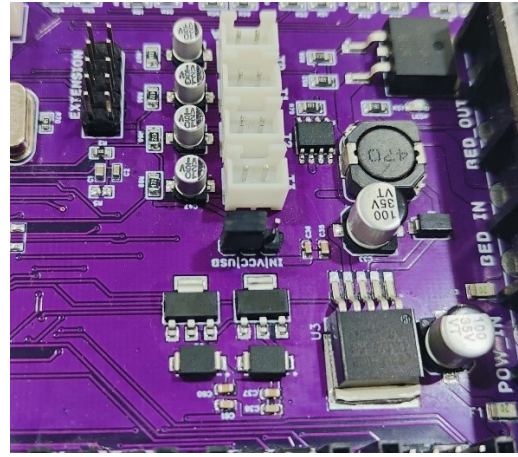
2. USB Power

Communication between board and computer

After the board is connected to the computer through the USB cable, the computer will automatically install the needed driver . After the driver installation is completed, the board can be identified for data transmission fails, you can download the needed driver from here:

After the driver installation is completed, open the "Device Manager" to see the port to which the board is connected. If you see the same as in the picture below, then the board is successfully connected.
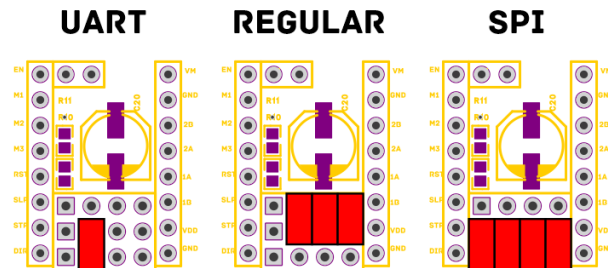
Firmware

You can find the needed firmware files on our GitHub page.

Marlin2.0 firmware update method:

After downloading the files, use Visual Studio Code to open the project for compilation. Customize the firmware and compile it. Check for errors. If there are no errors, find the firmware. bin file. Copy it to the SD card and plug the SD card in the board. Reboot the board, wait for about 10 seconds before doing anything else with the board.

For detailed steps, please check this document :

Stepper drive and peripherals configuration

7. WIFI Interface

The WIFI interface is as shown in the picture below. When the WIFI module is inserted, the edge of the board shown by the pink rectangle should face to the side of the board. See the pictures below.

Note: To make use of WIFI function, a ESP8266 ESP-01S WIFI module is needed

Notes

1) The firmware file name in the SD card cannot be changed, including capitalization.
2) Ensure that all wires, jumper and drivers are correctly plugged in before power-on.
3) To avoid damage, do not plug or unplug the stepper drivers when the board is powered.
4) Double check all your connections before powering up the board.
5) At the moment printing from a USB flash drive is not supported.