BIGTREETECH SKR Pro V1.2

BIGTREETECH SKR Pro V1.2 32-bit Control Board User Manual

Model: SKR Pro V1.2

1. Introduction

The BIGTREETECH SKR Pro V1.2 is an advanced 32-bit control board designed for high-performance 3D printing applications. It integrates a powerful ARM-level Cortex-M4 series STM32F407ZGT6 chip, providing robust processing capabilities for complex printing tasks. This board offers extensive compatibility with various motor drivers and display units, making it a versatile choice for both new and experienced 3D printer enthusiasts. Its open-source firmware allows for deep customization and future development.

Image: BIGTREETECH SKR Pro V1.2 branding.

2. Product Features

- **High-Performance Processor:** Utilizes an ARM-level Cortex-M4 series STM32F407ZGT6 chip with a 168 MHz dominant frequency for significantly improved performance.
- **Open-Source Firmware:** Equipped with highly modular open-source Marlin2.0 firmware, facilitating user customization and advanced development.
- **Extensive Driver Support:** Compatible with a wide range of motor drivers including TMC2209, TMC2208, TMC5160, TMC2130, EZ2209, EZ5160, EZ2130, and EZ2208.
- **Display Compatibility:** Supports various display screens such as BIGTREETECH TFT35-E3, TFT35, TFT50, TFT70, and Mini12864.

- **Connectivity:** Features Serial WIFI Online Printing capability.
- **Multiple Outputs:** Provides 6 motor drives, 3 extruder outputs, and 3 CNC fan outputs.
- **Extended Ports:** Reserved ports for BL Touch, PWM, ADC, UART, I2C, and SPI for versatile expansion.
- **Advanced Functions:** Supports power-off continuous printing, material cut detection, shutdown functions, and configurations for dual Z-axis printers.

3. What's Included

The package typically includes the following components:

- BIGTREETECH SKR Pro V1.2 Control Board
- USB Cable
- Power Cables with Connectors

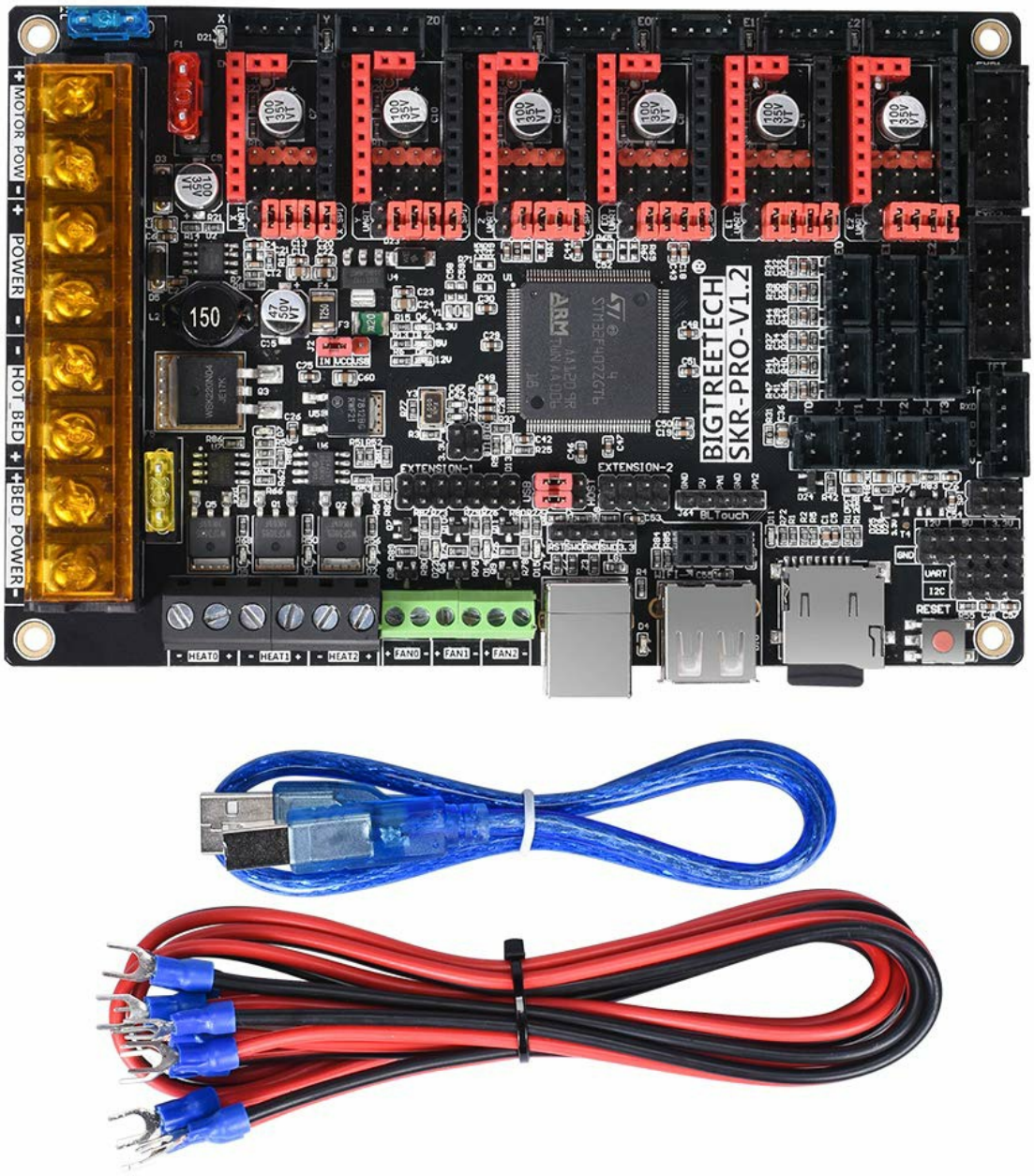

Image: The BIGTREETECH SKR Pro V1.2 control board along with the included USB and power cables.

4. Hardware Overview

Familiarize yourself with the various ports and components on the SKR Pro V1.2 board:

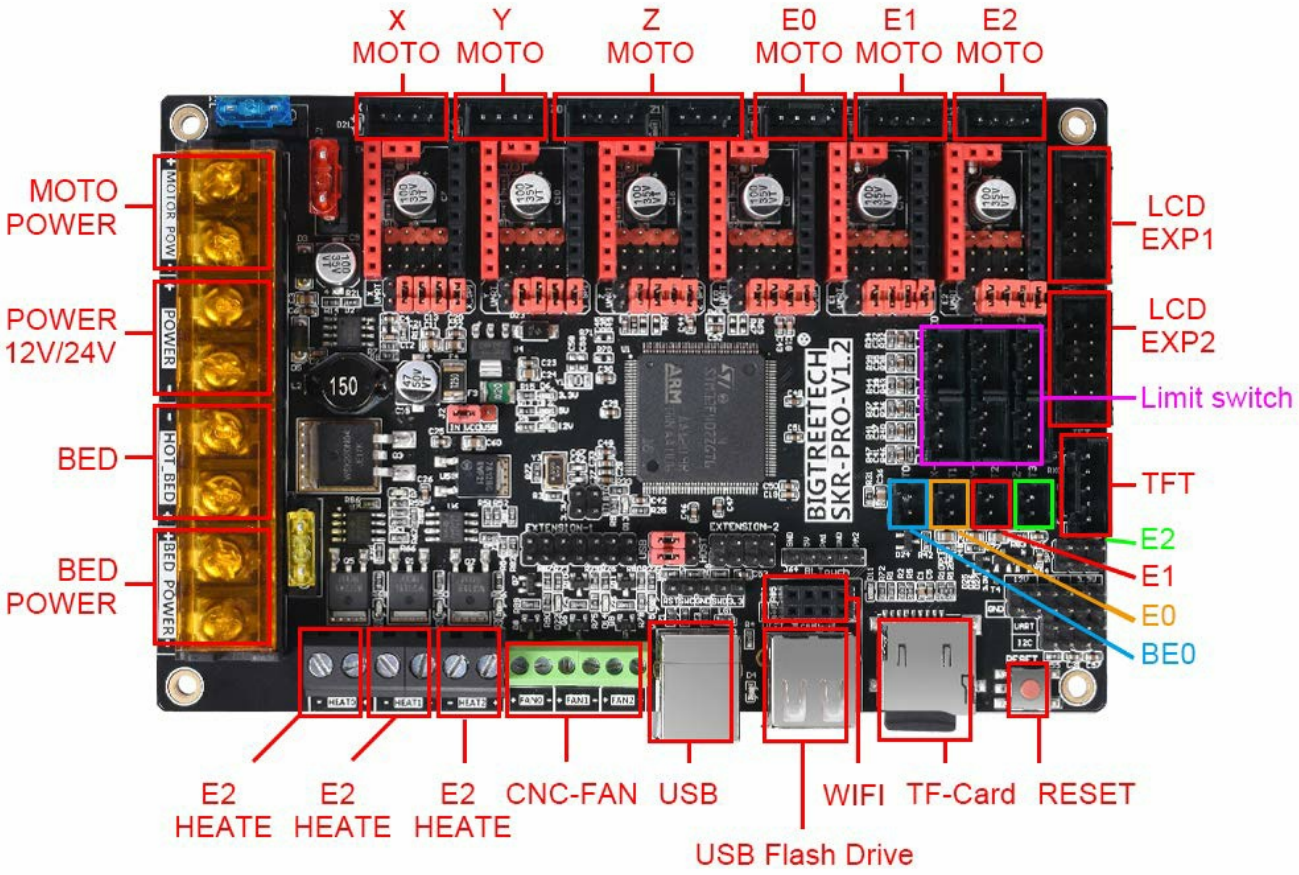

Image: Detailed diagram showing the layout and labeling of all major ports and connections on the SKR Pro V1.2 board, including motor drivers, LCD/TFT ports, USB, WiFi, and TF card slots.

Image: Side and back views of the SKR Pro V1.2 board, highlighting its compact design and component placement.

5. Installation and Setup

5.1 Power Connections

Connect the main power supply to the designated power input terminals on the board. Ensure correct polarity and secure connections to prevent damage.

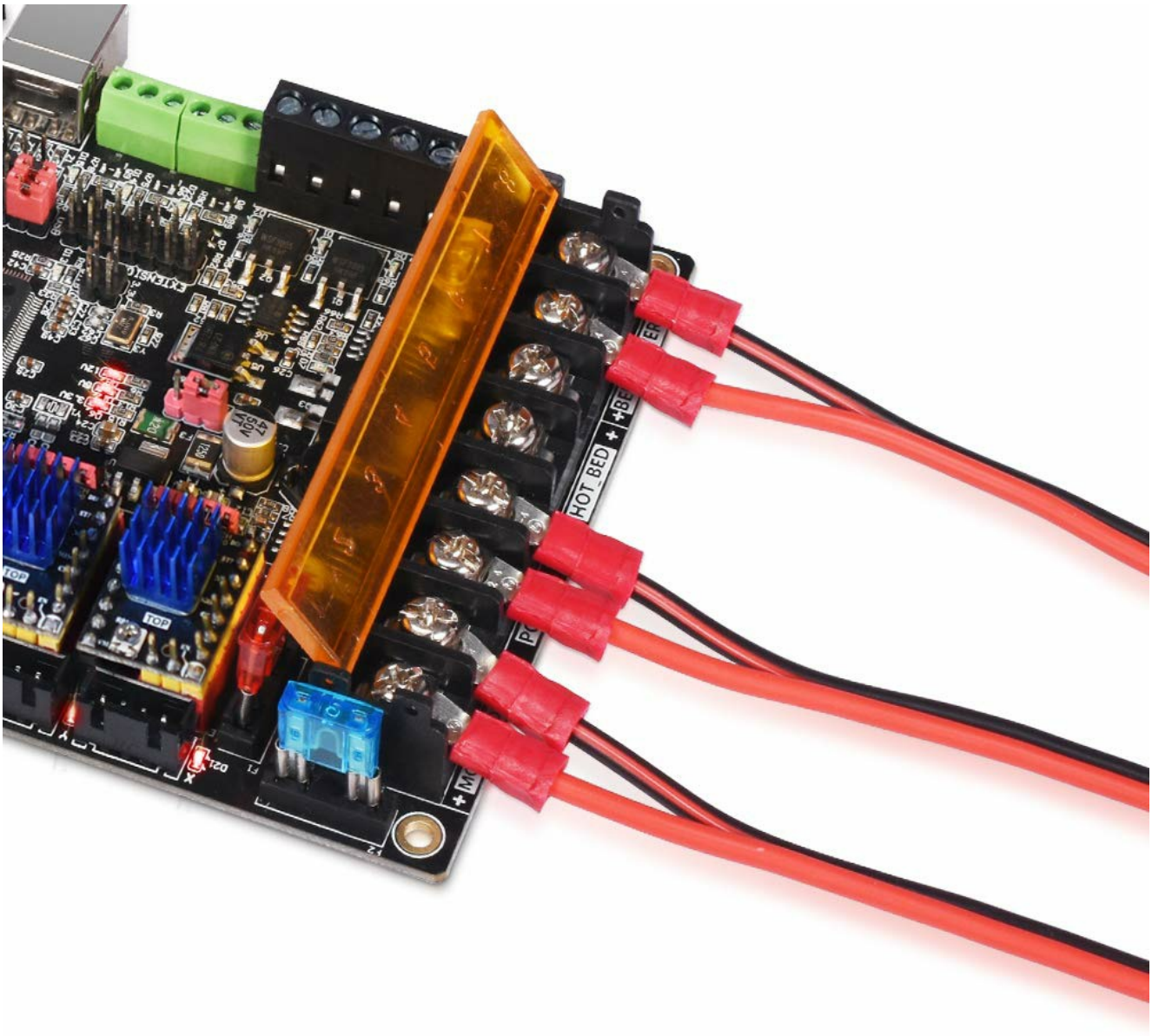

Image: Close-up view of the power input terminals on the SKR Pro V1.2 board, showing where to connect the main power supply.

5.2 Motor Driver Installation

Install your chosen motor drivers (e.g., TMC2209, TMC5160) into the corresponding slots on the board. Pay attention to the orientation of the drivers.

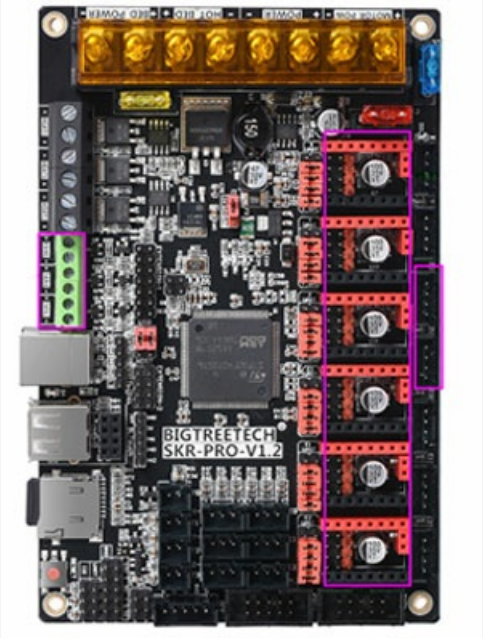

Image: The SKR Pro V1.2 board with the motor driver slots highlighted, indicating where to install the stepper motor drivers.

Important Notes for Driver Installation:

- For A4988 and DRV8825 drivers, ensure jump caps are placed on 'RST' and 'SLP' pins for proper operation.
- If using TMC2130 or TMC2209 drivers and not utilizing the blocking rotation detection function, it may be necessary to cut off the right-side pin under the driver. Refer to the driver's specific documentation for details.

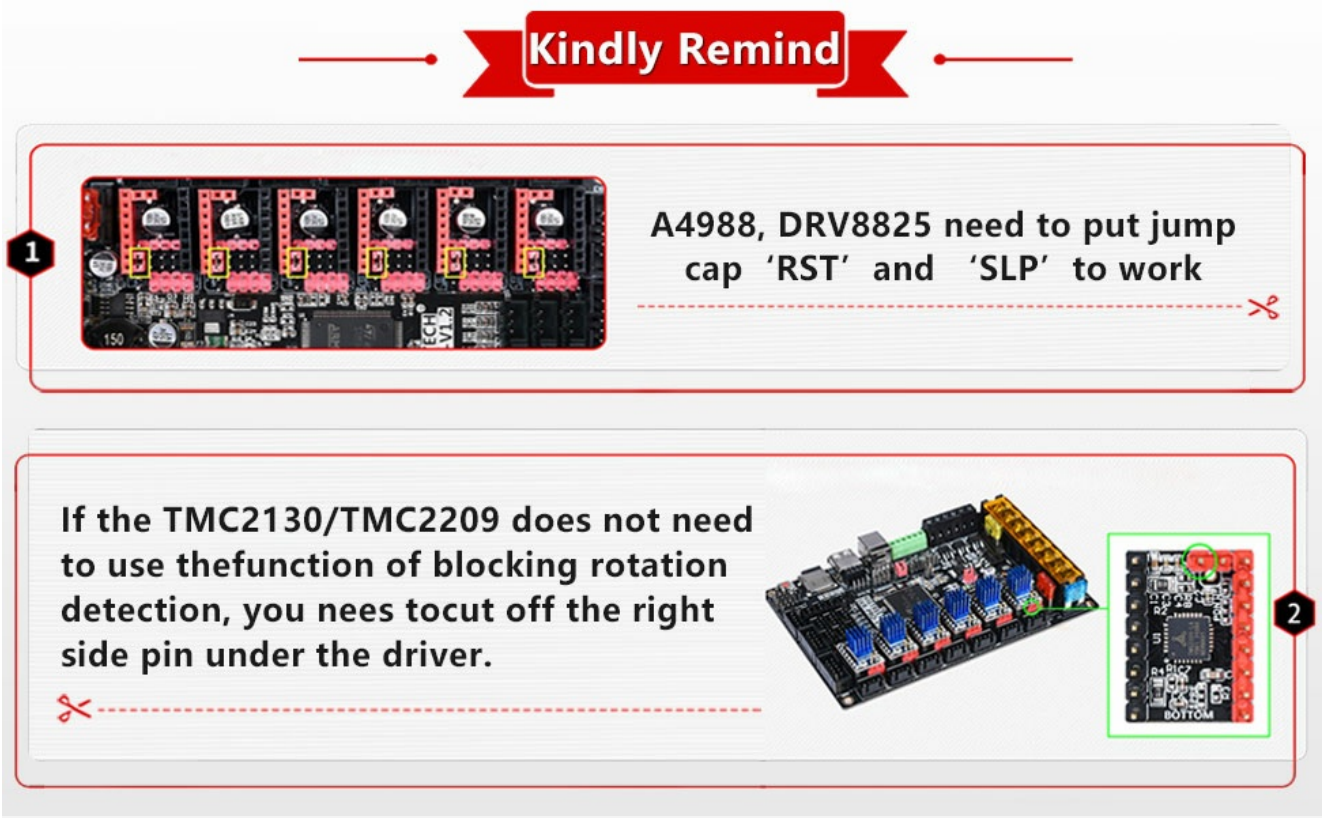

Image: A diagram illustrating the necessary jump cap placement for A4988/DRV8825 drivers and a note regarding potential pin modification for TMC2130/TMC2209 drivers.

5.3 Display Connections

Connect your chosen display (e.g., TFT35, Mini12864) to the appropriate LCD or TFT ports on the board. Ensure

cables are securely connected and correctly oriented.

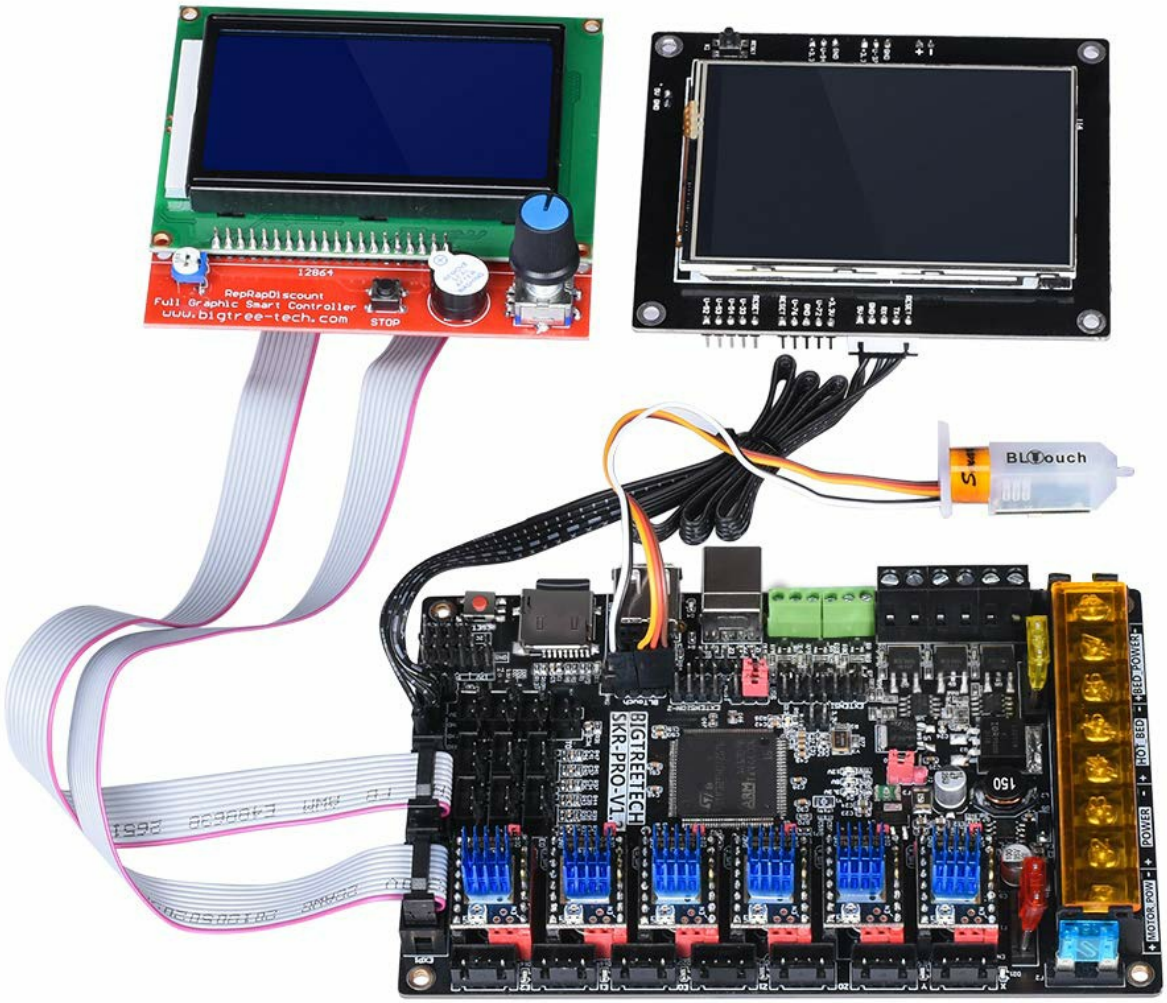

Image: The SKR Pro V1.2 board connected to both a traditional LCD display and a modern TFT touchscreen, along with a BLTouch sensor, demonstrating display compatibility.

5.4 Peripheral Connections

Connect other peripherals such as fans, endstops, and sensors (e.g., BL Touch) to their respective ports. The board provides dedicated extension ports for these components.

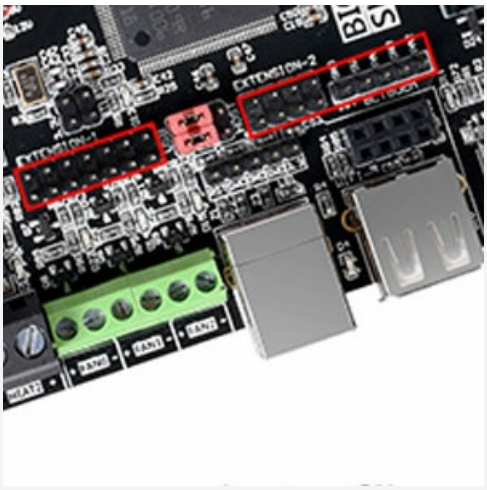

Image: A close-up view of the extension ports on the SKR Pro V1.2 board, indicating connection points for various peripherals like BLTouch and other sensors.

5.5 Firmware Configuration

The SKR Pro V1.2 uses Marlin2.0 firmware. Users will need to configure and compile the firmware according to their specific printer setup and desired features. Refer to the official Marlin documentation and BIGTREETECH resources for detailed instructions on firmware compilation and flashing.

Image: A close-up of the STM32F407ZGT6 microcontroller chip, the core of the SKR Pro V1.2 board, responsible for processing and executing firmware commands.

5.6 WIFI Module Installation

For Serial WIFI Online Printing, install the compatible WIFI module into its dedicated slot on the board. This enables wireless control and monitoring of your 3D printer.

Image: A close-up view of the WIFI module slot on the SKR Pro V1.2 board, showing a module installed and indicating its wireless communication capability.

6. Operating Instructions

Once the SKR Pro V1.2 board is correctly installed and configured with your 3D printer, operation is primarily managed through the chosen display interface (LCD or TFT) and/or via a host software connected through USB or WIFI.

- **Power On:** Ensure all connections are secure before powering on the board. The board will initialize and the display should show the firmware interface.
- **File Transfer:** Use the TF card slot or USB connection to transfer G-code files to the printer. For WIFI online printing, connect to the board's network and use compatible software.
- **Printer Control:** Use the display interface to navigate menus, control printer movements, set temperatures, and start/pause/stop prints.
- **Advanced Features:** Utilize features like power-off continuous printing (requires a power loss detection module), material cut detection, and dual Z-axis control as configured in your firmware.

7. Maintenance

Proper maintenance ensures the longevity and reliable operation of your SKR Pro V1.2 control board:

- **Keep Clean:** Regularly clean the board to prevent dust and debris accumulation, which can lead to overheating or short circuits. Use compressed air or a soft brush.
- **Check Connections:** Periodically inspect all wiring and connectors to ensure they are secure and free from corrosion.
- **Environmental Conditions:** Operate the board in a dry, stable environment, away from extreme temperatures, humidity, and direct sunlight.
- **Firmware Updates:** Keep your firmware updated to the latest stable version to benefit from bug fixes and new features.

8. Troubleshooting

If you encounter issues with your SKR Pro V1.2 board, consider the following common troubleshooting steps:

- **No Power:** Verify power supply connections, check fuses on the board, and ensure the power supply is functioning correctly.
- **Display Not Working:** Check display cable connections, ensure the display type is correctly configured in the firmware, and verify power to the display.
- **Motors Not Moving:** Confirm motor driver installation and orientation, check motor wiring, verify motor current settings in firmware, and ensure endstops are not triggered.
- **Printing Issues:** Review your G-code file for errors, check filament path, and ensure hotend and bed temperatures are stable.
- **Firmware Errors:** Double-check your firmware configuration files for syntax errors or incorrect settings. Recompile and re-flash if necessary.
- **WIFI Connectivity Issues:** Ensure the WIFI module is correctly installed, check network settings in firmware, and verify network credentials.

For more detailed troubleshooting or complex issues, refer to the official BIGTREETECH documentation, community forums, or contact customer support.

9. Specifications

Attribute	Value
Brand	BIGTREETECH
Item Model Number	1 (SKR Pro V1.2)
Package Dimensions	8.31 x 5.71 x 2.05 inches
Item Weight	0.33 Kilograms (11.64 ounces)
Material	PCB
Voltage	24 Volts (DC)
Display Type Support	LCD (TFT35-E3, TFT35, TFT50, TFT70, Mini12864, etc.)

Attribute	Value
Processor	ARM-level Cortex-M4 series STM32F407ZGT6
Motor Driver Support	TMC2209, TMC2208, TMC5160, TMC2130, EZ2209, EZ5160, EZ2130, EZ2208
Extruder Outputs	3
Fan Outputs	3 (CNC fans)

10. Support and Warranty

BIGTREETECH is committed to providing excellent customer support. If you encounter any problems or require technical assistance with your SKR Pro V1.2 control board, please contact us as soon as possible. Our professional technical after-sales personnel are available to help resolve your issues.
For support, please reach out via the platform where you purchased the product (e.g., Amazon).
Specific warranty details may vary by region and retailer. Please retain your proof of purchase for warranty claims.