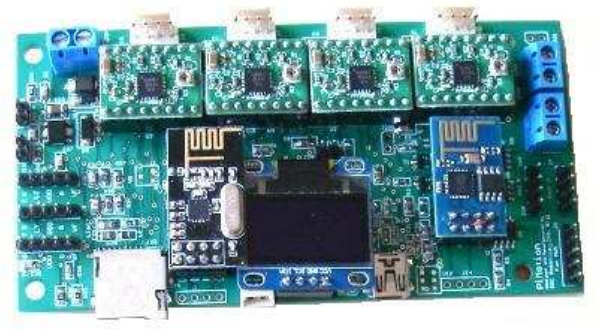
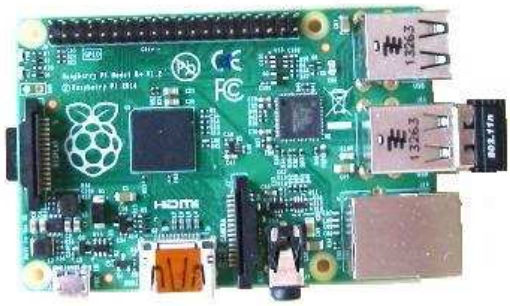
Overview

PiMotion is a high performance turnkey 3D printer controller and general purpose G Code processing engine. PiMotion uses either an STM32F072 or STM32F303 processor running at 48MHz or 72MHz that brings high speed A/D, D/A and digital IO to the PI. PiMotion supports several G Code applications such as Mach3, GStep, grbl (0.9j) and tinyg (F303 version only).



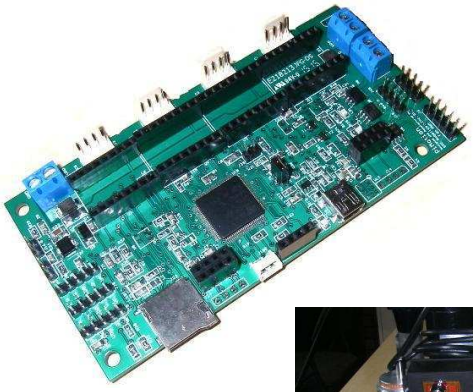
Features:

- Fast 48MHz 32bit STM32F072 or 72MHz STM32F303 processor (with hardware FPU)
- 12bit DAC running at 1Msps
- 12bit A/D running at 1Msps, 303 4Msps
- Two USARTS (one connected to PI)
- SPI interface to PI and RF24L01
- Popular StepStick support (2A/phase)
- uSD interface for parameter storage
- On chip DFU boot loader for software field upgrades via USB port
- I2C OLED display interface with direct connect
- Direct Raspberry PI interface
- Real time data acquisition application providing analog input, DAC output and digital IO
- Open source application software available
- Popular G Code engines ported: grbl, tinyg, Mach3
- Popular 3D printer software - Marlin



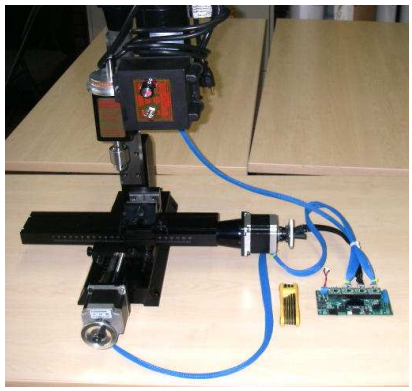
Popular G Code Engines

PiMotion runs several popular G Code software engines such as Mach3 (via desktop Plugin), grbl (0.9j port) and tinyg (on F303 chip only). GStep, SOC Robotics six axis G Code engine, is also supported.



OLED Display Connector

PiMotion has a connector that supports direct connection of a low cost OLED 128x64 display module on the I2C2 expansion port. A full graphic library is included.



ESP8266/RF24L01 Wireless Modules

PiMotion has a connector that supports direct connection of a low cost RF2401 wireless communication module and ESP8266 Serial WiFi module.

Marlin 3D printer software

Marlin, a popular 3D printer software engine, is being ported to the board (both chips supported).

CooCox V1.7.8 IDE

Project source code is provided for most of the G Code engines using the CooCox V1.7.8 IDE.

PiMotion Connector Pin Assignments

PiMotion has all the interface options to control a 3D printer plus more. PiMotion is available in two configurations: PiMotionM30 and PiMotionM07. The M30 uses a high performance STM32F303 processor running at 72MHz (hardware FPU) with 256K flash – enough to support tingy. The M07 uses the cost effective STM32F072 processor running at 48MHz and has 128K flash. Both versions have 4-axis 2A/phase drivers using the popular stepstick. Two 12A Power Mosfets drive heat bed and extruder while two additional 2A Mosfets are available to drive fans, led arrays or other lower amperage devices. The board has connectors to support two popular wireless modules: RF24L01 and ESP8266 Serial WiFi. Code in included for both. Raspberry PI integration is provided via the SPI and serial ports so a PI can communicate with and control the board without going through the USB interface.

The board has extensive G Code software support with grbl (0.9j), tinyg (F303 chip required) and Mach3 (via a desktop Mach3 plugin) all available. The board also supports SOC Robotics proprietary 6 axis GStep application. Several GUI's are available to support the G Code engines. Additional software has been added to the ports to take advantage of many of the boards extra features such as wireless integration, uSD and Raspberry PI integration.

Marlin, a popular 3D printer software engine, is being ported to the board and will be released shortly.

The board was designed to support two popular wireless modules: RF24L01 and ESP8266. The RF24L01 can communicate with our CJ34B 4-axis joystick and Pico/PicoM wireless modules while the ESP8266 connects PiMotion to the local WiFi router.

Raspberry PI integration allows tight cooperative between the two boards. PiMotion provides precision stepper motor control while the PI brings high performance motion control functions.

For more Technical Information and pricing contact sales@soc-robotics.com.