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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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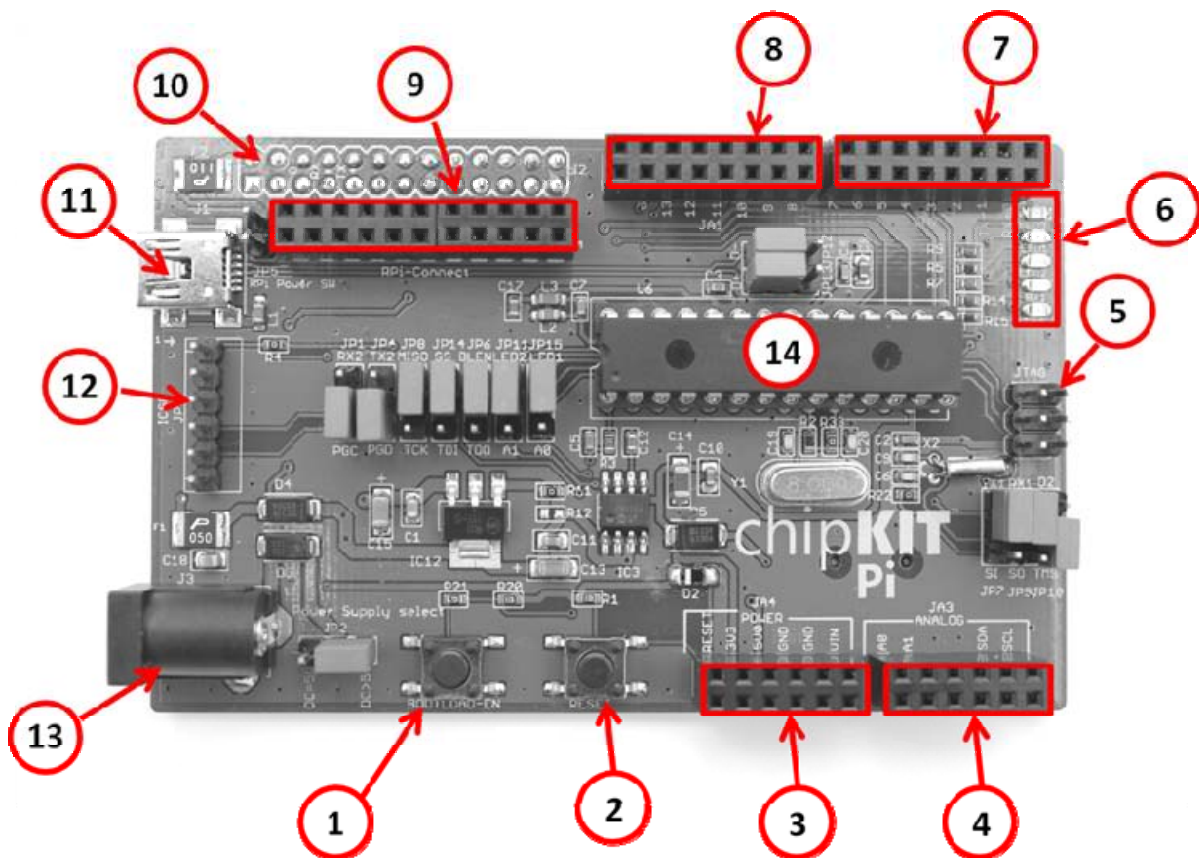


Overview: chipKIT Pi

Introduction

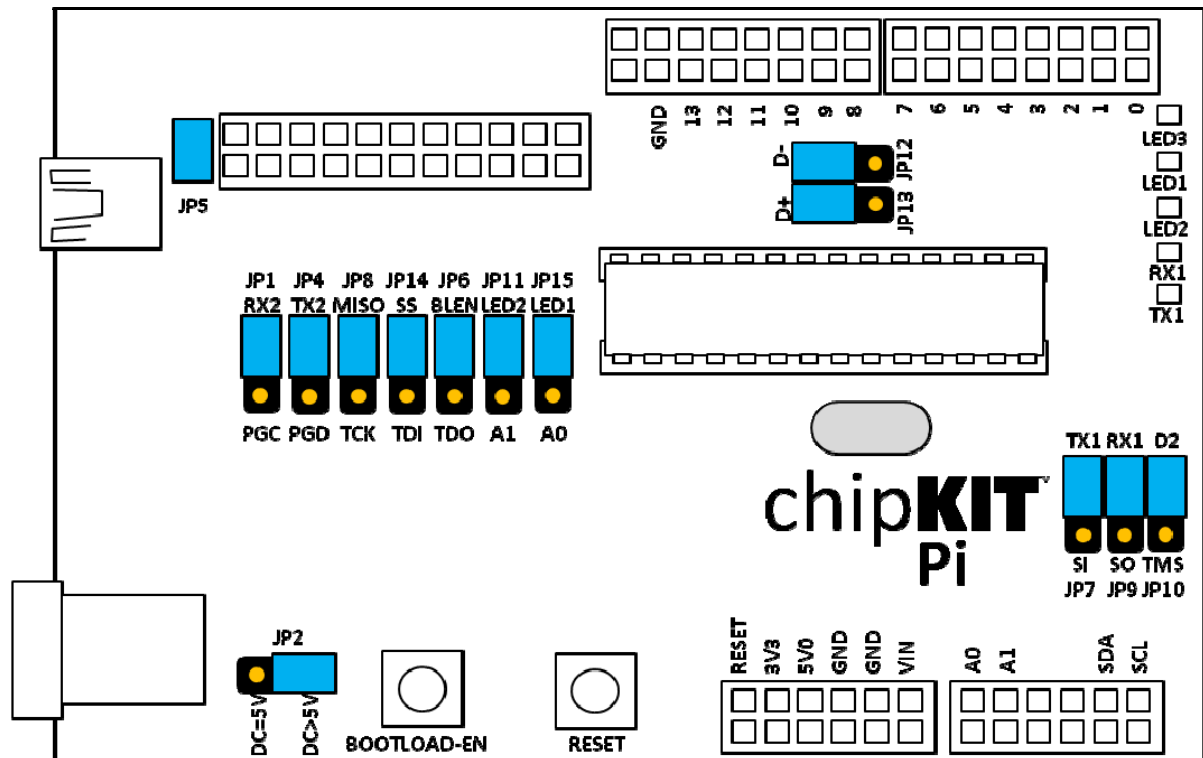
chipKIT™ Pi (Designed for Raspberry Pi) is the latest Arduino™ compatible chipKIT™ platform from Microchip and element14. It features a 32-bit PIC32 microcontroller in a prototyping-friendly, low pin count SPDIP package. The PIC32's performance, memory and integrated peripherals allow users to create applications including touch sensing, audio processing and advanced control. The board is supported by the free chipKIT™ Multi-Platform IDE (MPIDE) that can be hosted on the Raspberry Pi.

Getting familiar with chipKIT™ Pi



| | |
|----|---|
| 1 | Bootloader Enable Button |
| 2 | RESET Button |
| 3 | JA4: Power Header |
| 4 | JA3: Analog/Digital Header |
| 5 | JTAG Connector |
| 6 | LEDs |
| 7 | JA2: Digital/Serial Header |
| 8 | JA1: Digital/Serial Header |
| 9 | Raspberry Pi Breakout Header |
| 10 | Raspberry Pi Connection Header (underside of board) |
| 11 | USB Connection |
| 12 | ICSP Connection (not populated) |
| 13 | Power Connector |
| 14 | PIC32MX250F128B Microcontroller |

chipKIT Pi Jumper Settings



| Jumper | Function | Description | |
|--------|--|--|---|
| | | Jumper across pins 1 and 2 | Jumper across pins 2 and 3 |
| JP2 | Input Voltage Selection (If you are unclear as to the function of this jumper leave in the default right-most position. Potential for Microcontroller (MCU) damage if configured incorrectly) | Two left-most pins bypasses voltage regulator | Right-most pins connects input voltage to 5 V regulator |
| JP1 | Function Select | UART 2 Receive (RX2) (position required to program chipKIT Pi via MPIDE over serial) | ICSP Function PGEC |
| JP4 | Function Select | UART 2 Transmit (TX2) (position required to program chipKIT Pi via MPIDE over serial) | ICSP Function PGED |
| JP8 | Function Select | SPI connector MISO on JA1 | JTAG Function TCK |
| JP14 | Function Select | SPI connector SS on JA1 | JTAG Function TDI |
| JP6 | Function Select | Bootload Button Enable | JTAG Function TDO |
| JP11 | Function Select | Board LED2 | A1 on JA3 |
| JP15 | Function Select | Board LED1 | A0 on JA3 |
| JP12 | Function Select | USB function D- | |
| JP13 | Function Select | USB function D+ | |
| JP7 | Function Select | UART 1 Transmit (TX1) | Connect to SOSCI for X2 Oscillator |
| JP9 | Function Select | UART 1 Receive (RX1) | Connect to SOSCO for X2 Oscillator |
| JP10 | Function Select | | JTAG function TMS |
| JP5 | 5V Connection | Connect to 5V supply off of Pi | Power chipKIT Pi from external supply |

chipKIT Pi Pin Out Map



| PIC32MX250F128B Pin (Pins are 3.3V Tolerant only unless otherwise noted) | chipKIT Pi Pin Function | Notes |
|---|-------------------------|--|
| 1 (5V Tolerant) | RESET | Connected to RESET Pushbutton |
| 2 | 14/A0 | Connected to LED1 |
| 3 | 11 | |
| 4 | 5/TX2 | Connected to UART on Raspberry Pi |
| 5 | 4/RX2 | Connected to UART on Raspberry Pi |
| 6 | 16/A4/SDA2 | Connected to SDA on JA3 header |
| 7 | 17/A5/SCL2 | Connected to SCL on JA3 header |
| 8 | VSS | Not available |
| 9 | 9 | Used for 8MHz Oscillator |
| 10 | 10 | Used for 8MHz Oscillator |
| 11 | 11/TX1 | Connected to TX1 LED and can be used with 32.768kHz oscillator |
| 12 | 12/RX1 | Connected to RX1 LED and can be used with 32.768kHz oscillator |
| 13 | VDD | Not available |
| 14 (5V Tolerant) | 2 | |
| 15 (5V Tolerant) | VBUS | Not available |
| 16 (5V Tolerant) | 10 | |
| 17 (5V Tolerant) | 12/SCL1 | |
| 18 (5V Tolerant) | 18/SDA1/INT | Connected to BOOTLOAD-EN button |
| 19 | VSS | Not available |
| 20 | VCAP | Not available |
| 21 | 8 | Connected to D- |
| 22 | 9 | Connected to D+ |
| 23 | VUSB 3V3 | Not available |
| 24 | 3 | |
| 25 | 13 | |
| 26 | 15/A1 | Connected to LED1 |
| 27 | AVSS | Not available |
| 28 | AVDD | Not available |

Getting up and running with chipKIT™ Pi

chipKIT™ Pi relies on the open source MPIDE integrated development environment, a version of which has been ported to an operating system that runs on Raspberry Pi.

It is recommended, for ease and for first time use, that users download the complete operating system and MPIDE as a complete package. This can be downloaded at http://downloads.element14.com/downloads/chipkit_pi.zip, and should be saved to your computer. The file will be quite large (2GB), and will require unzipping once it has been downloaded. Once unzipped, you will be left with a .ISO image file, ready for flashing to your empty SD Card.

Choose an SD Card of at least 4GB capacity. Use a flashing utility like **Win32 Disk Imager** (available for free, from <http://sourceforge.net/projects/win32diskimager/>) to flash the .ISO image to your SD Card. When complete, insert the fully flashed SD Card to your Raspberry Pi.

Plug your new chipKIT™ Pi board into Raspberry Pi, and power up. As MPIDE is already installed, you should be able to start MPIDE from the desktop. For reliable operation, do not plug chipKIT™ Pi into a Raspberry Pi that is already powered up. Always power up both devices together.

Powering the chipKIT™ Pi

The chipKIT Pi can be powered in the following ways:

- Over the USB
- Via the ICSP Connection
- Through the Vin input
- From the Raspberry Pi
- Through the power jack

Programming the chipKIT Pi from MPIDE

In order to program the chipKIT Pi from MPIDE with your sketch, the board must be set to bootloader mode. To enter bootloader mode:

1. Ensure that both Jumpers JP1 and JP4 are connected to upper-most pins of their header



2. Press and hold the BOOTLOAD-EN button.
3. While the BOOTLOAD-EN button is still pressed, press and release the RESET button.
4. Release the BOOTLOAD-EN button.
5. Bootloader mode will be confirmed when the TX1 LED is on and the RX1 flashes.
6. After the sketch is uploaded, the TX1 and RX1 LEDs will turn off.

Example Sketches

Sketches are Arduino™ style programmes that allow you to simply control various aspects of the chipKIT Pi's processor, peripherals and GPIO. Some examples are built in to the MPIDE software. The best way to learn is to select one, load it and upload it into the chipKIT™ Pi.

Schematic

For the schematic information, please visit the element 14 community

http://www.element14.com/chipkit_pi

More Information

For more information, please visit

1. The element 14 community http://www.element14.com/chipkit_pi
2. The knode, element14
http://www.element14.com/community/community/knode/dev_platforms_kits/element14_dev_kits/microchip-chipkit/chipkit_pi
3. chipKIT website <http://chipkit.net/>
4. chipKIT forum <http://www.chipkit.org/forum/index.php>
5. PIC32MX250F128B Homepage
<http://www.microchip.com/wwwproducts/Devices.aspx?dDocName=en557425>
6. TCHIP-USB-MX250F128B (PIC32MX250F128B pre-programmed with USB bootloader)
<http://www.microchipdirect.com/productsearch.aspx?keywords=TCHIP-USB-MX250F128B>

The chipKIT Pi can also be used as a standalone chipKIT board. A version of the PIC32MX250F128B microcontroller is available preprogrammed with a USB bootloader that can be used to replace the PIC32 with UART bootloader that comes with the chipKIT Pi. In this way, the user would simply connect the chipKIT Pi via the USB connection to their personal computer's USB port and use the MPIDE version for their operating system. For instruction on how to download the MPIDE, see www.element14.com/chipkit_pi .