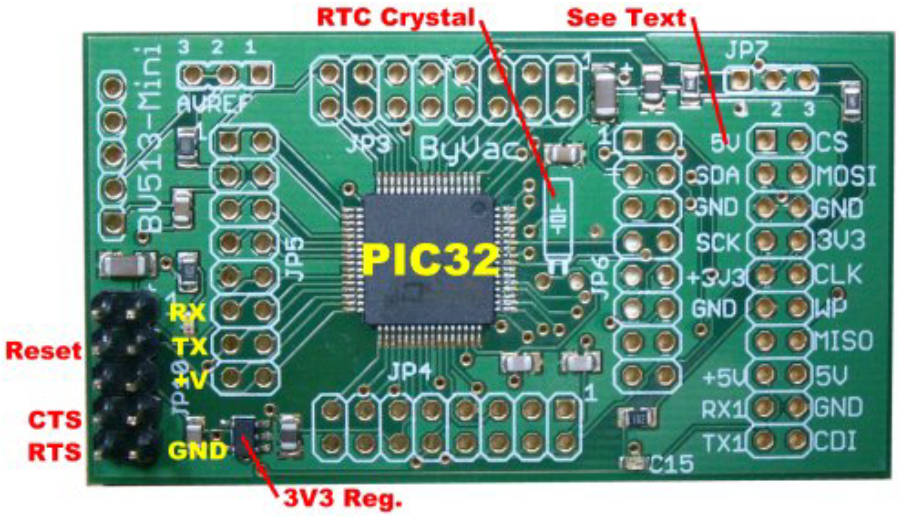
Main Resource link for this product
www.pic32.byvac.com

BV513-Mini – Getting Started

Update July 2010 Now Basic 2 installed Baud rate 2000000

Thank you for purchasing the BV513-M. The main documentation can all be found on line at www.pic32.byvac.com. This guide will help you get started.



** Note although not shown on this picture the BV513-M now comes with the RTC crystal fitted **

The BV513-M has exactly the same socket layout as the BV513, the difference is that there is no USB or SD-Card interface built onto the board.

NOTE: The socket layout differs as follows:

Socket	BV513	BV513-Mini
JP5-10	+5V	+V [1]
JP6-8	+5V	+V [1]
JP8-1	+5V	n/c [2]
JP8-15	+5V	+V [3]
JP8-16	+5V	+V [3]

Notes: [1] This is the raw input voltage from the serial connector
[2] This is marked 5V on the PCB but is in fact not connected to anything
[3] This is marked as 5V on the PCB but should be marked +V

Crystal

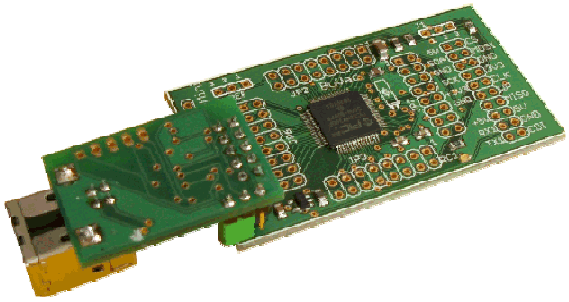
The purpose of the crystal is as a clock source for the real time clock (RTC) and also for timer 0. The clock source for the CPU is internal and set to 80MHz

Connectors

For maximum flexibility no connectors have been fitted. Mail and Female (plugs and sockets) are available at www.byvac.com

Making Connections

The BV513-M is intended to be connected to a serial interface, the recommended device to use in the BV102 (USB to serial 3V3) or the BV103 with 3V3 selected. The device is plug compatible.



This is a BV103 plugged directly into the BV513-M, the voltage setting on the BV103 is set to 5V. Or alternatively use the fixed 5V BV101.

Serial Connector Pins

2	no connection	1	RX
4	Reset	3	TX
6	no connection	5	+V
8	CTS	7	no connection
10	RTS	9	GND

- **Reset:** This is connected via a capacitor to the reset pin (pin 7 MCLR) of the PIC32. A pulse on this pin either positive or negative will reset the processor
- **CTS:** This is connected to port RB8. The default is not to use this pin and so could be used for other purposes.
- **RTS:** This is connected to port RB14. The default is not to use this pin and so could be used for other purposes.
- **RX:** Is the serial input to the processor which must be 0-3.3V logic. The pin used is RF4 and is UART2.
- **TX:** Is the serial output from the processor and is 0-3.3V logic. The pin used is RF5 and is UART2
- **+V:** This pin is the input to the 3V3 regulator and so can be any voltage from 3.5V to 10V DC
- **no connection:** Nothing is connected to these pins.

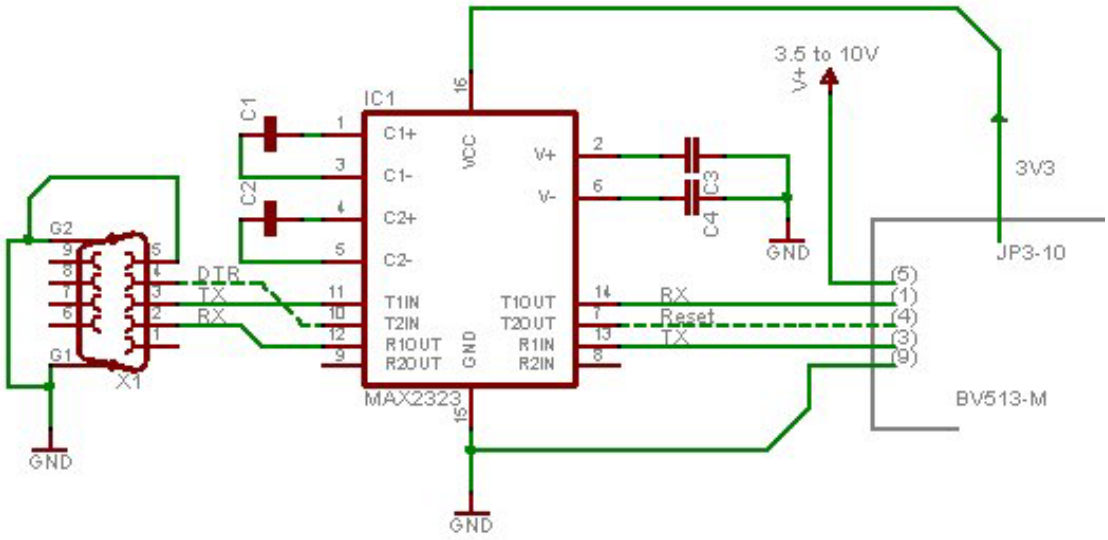
Note on 3V3 Logic

Like the BV513 the PIC32 uses 3.3V logic, however the ports used for the serial interface is 5V tolerant and so will accept input from either the BV101 or BV103. It must

be remembered though that the BV513-M will only output 0 and 3.3V which may not work with some serial devices.

Connection to a PC Com Port

If a PC COM port is used then a MAX2323 (3.3v) or similar voltage translation device is required. It must NOT be directly connected to a PC COM port.



** Note the diagram shows 3.5 to 10V, this should read 3.5 to 6V **

The above shows one possible arrangement for connection to a PC COM port using a MAX2323. The power for the MAX can be derived from the BV513-M as shown. The BV-COM terminal emulator (supplied free) can pulse the DTR line which can be used to reset the processor. This is shown as a dotted line because it is not essential for operation.

Operation

Although any terminal software can be used it is recommended that BV-Com (free at www.byvac.co.uk or www.pic32.byvac.com downloads section) be used.

When a serial connection is made either by the USB BV102/3 or other alternative method, the BV513-M will respond with a sign on message.

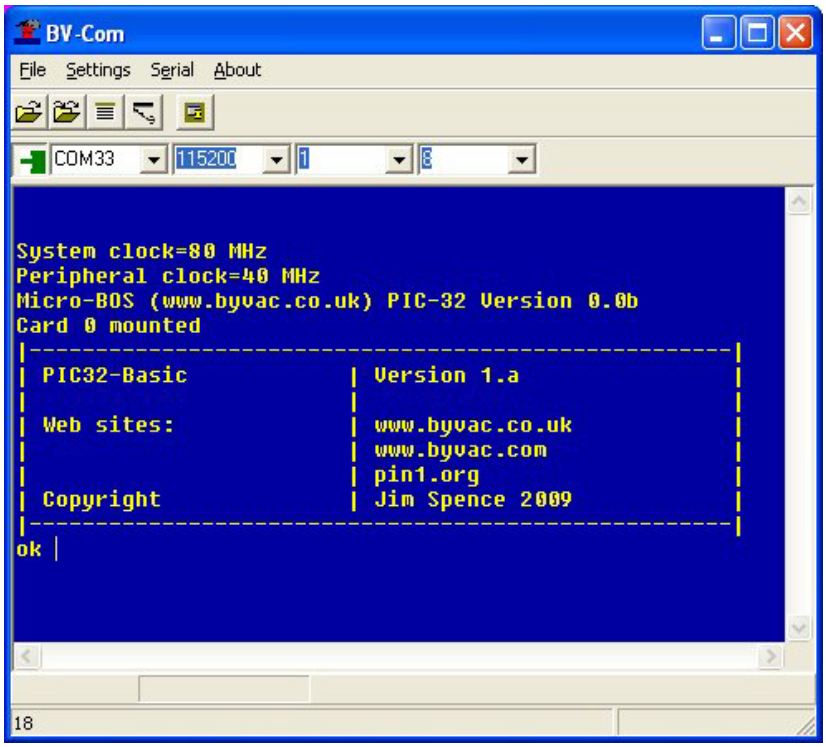


Figure 1 PIC32-Basic Sign on

Set the Baud rate to **2000000**, 1 stop bit and 8 data bits as shown. Make sure the port number you select matches the one just installed. Click on the **red** icon, far left and this should turn **green** to show that a connection to the port has been made.

The sign on message as shown in the figure should now appear, if not press the reset icon if you have connected DTR (this is done automatically if using a BV101/3) or manually reset using the jumper (details on the web site).

If you get a menu list instead of the sign on screen, press the reset again but don't touch any keys at the keyboard, this is the boot loader which is explained in the documentation.

In this particular instance an SD Card is available and mounted as card 0. This can be seen just after the boot loader message. The BV513-M does not come with an SD Card but one can easily be fitted.

The software has been updated several times since this screen shot was taken so it will differ somewhat.

Next Steps

All of the documentation is on line at www.pic32.byvac.com . The best place to go to next is either hardware/bv513, Interfacing/Getting Started or the video's section.

Firmware

The BV513 has a version of firmware installed, this may not be the latest version. The current firmware is on the PIC32-Basic site.