Functional Test Procedure – Simple Version

for Fubarino Mini

To be used with FubarinoMini_ManufactureTest_Simple.pde v1.1

Components:

For the test procedure, the following are needed:

1) Assembled Fubarino Mini board
2) Some method of programming the PIC32 (Like a PICKit3)
3) PC with mini B USB cable and terminal emulator
4) Fubarino Mini HEX file (like BL_1_0_8_FuncTest_1_1_48Mhz.hex)

Overview:

This test procedure is to be run after the Fubarino Mini board has been manufactured. It will confirm proper operation of some of the parts of the board. The actual testing is broken down into 4 separate tests:

1) Power on LED test
2) USB test
3) Button/LED test
4) Bootloader entry test

Procedure:

The Fubarino Mini board must be programmed with the latest HEX file. The latest HEX file available is BL_1_0_8_FuncTest_1_1_48Mhz.hex, which indicates that it contains Bootloader version 1.0.8 and Functional Test sketch v1.1. A PICKit3 can be plugged into the 5-pins at the end of the Fubarino Min opposite the USB connector and the PICKit3 can then program the HEX file onto the PIC32 processor. Other programmers can be used, of course, or the parts could be pre-programmed.

1) Power on LED test:

Once the board is programmed, plug in the USB cable to the PC and to the Fubarino Mini board. This will apply power and start the test running. The first thing that should happen is the red power LED should come on. The green LED will also turn blink once. This indicates that the first test (Power on LED test) has passed. If the green LED does not blink once, or the red LED does not come on, then there is a problem with the power supply, or the crystal, or the programming of the HEX file into the part.

2) USB Test

At this point, the test operator waits until the LED is on solid then opens the serial port on the test computer with a terminal emulator. The test will print "Press Enter" over and over to the serial port. When the test program sees an ‘Enter’ press from the terminal emulator, it will print "USB test PASSED". Make sure the terminal emulator being used is sending Carriage Returns (0x0D). If this test passes, it means that the PIC32 is clocking at the right frequency (or USB would not work), and that the USB connector is soldered on properly.

3) Button/LED test

The test operator should now see the green LED blink where the on-time is about 800ms and the off time is about 200ms. If the test operator pushes down the PRG button, the blinking will stop. This indicates proper operation of the PRG button and the green LED.

4) Bootloader entry test

The test operator must then press the PRG button, press and release the RESET button, then release the PRG button. This will test both buttons, and place the board into bootloader mode. The red LED should be on, and the green LED should be blinking rapidly on and off. This indicates proper entry into bootloader mode.

If the main test sketch is entered (green LED blinks once, then turns on solid) then this test has failed because the bootloader was not entered properly.

Once all of the tests have passed, the test operator can remove the USB cable from the Fubarino Mini.