

A4.3 INSTALLATION OF QwikBug USING THE ICD2 MODULE With MPLAB 6.3

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Download the QwikBug monitor from www.picbook.com. A new PIC18F452 chip will have its pins flared out to support their use with automatic insertion equipment. After placing the chip on a conductive surface like a sheet of aluminum foil placed on a flat surface, and touching the conductive surface with both hands to discharge any static electricity, rock one side of pins against the surface to bend them in, all at one time. Do the same on the other side of pins so that the two rows of pins are bent until they are parallel to each other, rather than flared out. With the power plug disconnected from the QwikFlash board, the PIC18F452 chip can be inserted into the 40-pin IC socket, with the chip's notch oriented toward the top of the board. Connect the QwikFlash board's power supply and turn on its power.

Connect Microchip's ICD2 in-circuit debugger to the PC with either its serial cable or its USB cable. If the serial cable configuration is used, the ICD2 module must be powered by its own 9 V unregulated supply, included with the DV164007 packaging of the ICD2 module. Although the barrel connector for the QwikFlash board's 9 V unregulated supply looks almost identical to the supply that comes with the ICD2 module (and needed for the serial connection but not for the alternative USB connection to the PC), they actually differ in the inside diameter of the "barrel." Electrically they could be interchanged, but mechanically they cannot.

Connect the 9" cable with modular plugs on each end between the ICD2 module and the QwikFlash board's CON1 connector. Turn the board on and then open the MPLAB program installed on the PC. Click on the "Configure" pull-down menu and then click on "Select Device...". Select PIC18F452 from among the choices in the Device box and click "OK". Next, click on the "Programmer" pull-down menu, highlight "Select Programmer", and choose "MPLAB ICD 2". This will open the "Output" window and show the ICD2 running its self-test. At the end, the output should be "MPLAB ICD 2 Ready". After this is complete, click on the "Debugger" pull-down menu, highlight "Select Tool", and select "MPLAB ICD 2". Another self-test will run, ending with "MPLAB ICD 2 Ready". If either of these tests fail, check that the "Communications" section is correct for your serial or USB cable connection. If you are using the serial cable and communication fails at 57600 baud, select 19200 baud and click on the "Reconnect" button to try again.

Having established the connection between ICD2 and the PIC18F452, click on MPLAB IDE's "File" pull-down menu and click on "Import". Go to the directory holding the QwikBug.hex file downloaded from www.picbook.com and select it. Click "Open". This will download two programs into the Program Memory window. One is the code for QwikBug, residing at high memory addresses. The other is a little program called ModifyBDMvector. You can verify that the hex file has been loaded by clicking on the "View" pull-down menu and selecting "Program Memory".

Next, click on the "Configure" pull-down menu and select "Configuration Bits". If the configuration bits have not already been set by the downloading of QwikBug, then select the following:

Oscillator	HS
Watchdog Timer	Disable
Power Up Timer	Enable
Stack Overflow Reset	Enable
Osc. Switch Enable	Enable
Brown Out Detect	Enable
Brown Out Voltage	4.5V
Low Voltage Program	Disable
CCP2 Mux	RC1
Background Debug	Enable

Now, click on “Program” in the “Programmer” pull-down menu. If you get a warning about the program end address being higher than the program memory size, click “Ok”. Programming will take a minute or so. The output window should show a series of messages, ending up with “...Programming succeeded.” (As a further error check, make sure that the “Error” LED on the ICD2 module has not turned on.) This step has enabled the background debug mode used by ICD2 and used by QwikBug when the ICD2 module is no longer attached to the QwikFlash board.

With background debug mode enabled, the PIC18F452 will subsequently come out of power-on reset into the ICD2’s “Debug Executive.” The next step is to change this so as to come out of power-on reset into QwikBug. Click on the “Debugger” pull-down menu, highlight “Reset”, and select “Processor Reset”. Then, from the same “Debugger” pull-down menu, select “Run”. The right LED on the QwikFlash board should turn on immediately as a sign that it has completed its job successfully. Before doing anything else, you should remove the modular cable from the QwikFlash board (while the program is still running). Then turn off the power to the QwikFlash board. Exit from MPLAB.

By letting ICD2 run what it thought was a user program, it has actually run the “ModifyBDMvector” program that changed the power-on vector to jump to QwikBug monitor program rather than to the ICD2’s Debug Executive program.

Finally, remember to install the J1 jumper so that control of the board from the PC is not lost once the PIC18F452 chip begins execution of a user program. You are now ready to interface with QwikBug via a terminal program such as Tera Term Pro (available on the picbook website). A press of any PC key returns control to the QwikBug monitor program.