Programming PIC Microcontroller

Required materials

- PICkit3 programmer
- PIC18F4550 MCU
- MPLAB X IDE
- 5 male to male jumpers
- Breadboard
- USB – miniUSB cable

Wiring

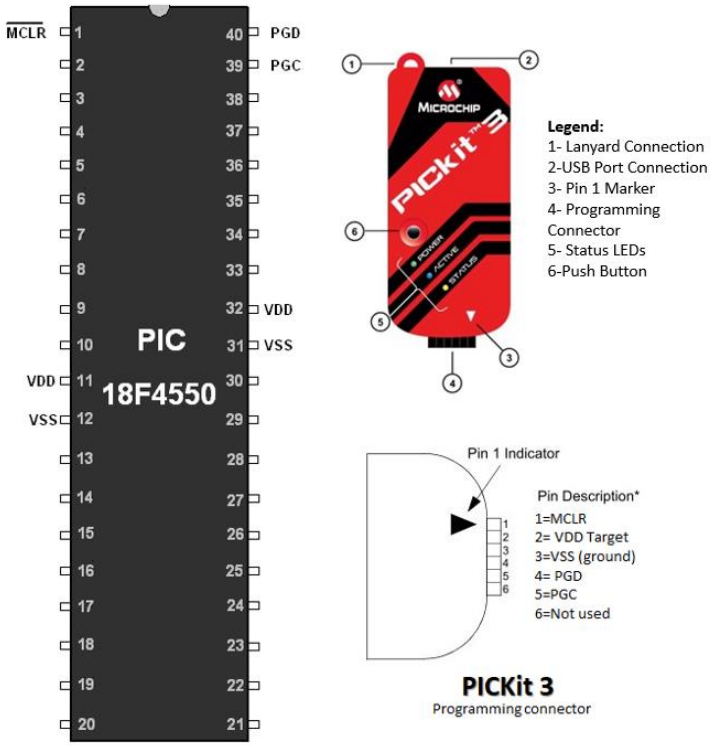

Figure 1 Wiring specifications between PIC18F4550 and PICKit3

Let's take a look at the PICkit3 programmer. The programming connector is the 6-pin female header on the bottom side. The pin number one is signed with a white triangle, so from the front side pins are numbered from right to left.

In order to program PIC18F4550 with PICKit3 is mandatory to connect them as shown in Figure 1.

After connect both devices, proceed to connect the PICKit3 to the computer, by using the USB – miniUSB cable.

Powering

The circuit can be powered either from the external 5V power source or the USB outlet (5 V). The main disadvantage of using the USB outlet is that, not all USB ports can provide exactly 5v. Most times they provide less voltage, near to 4.75V.

On MPLAB X IDE the source power must be specified before trying to program. First locate the projects tab that is in the left part of the screen. Left click on the project's name to open the menu options and select "Properties", as shown on figure 2.

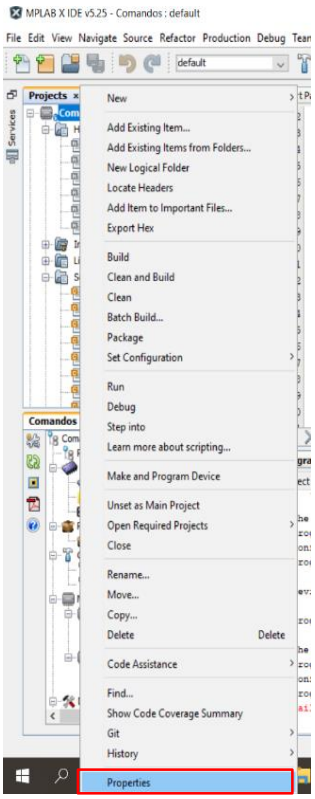

Figure 2 Menu options when right clicking on the project's name. “Properties” option selected.

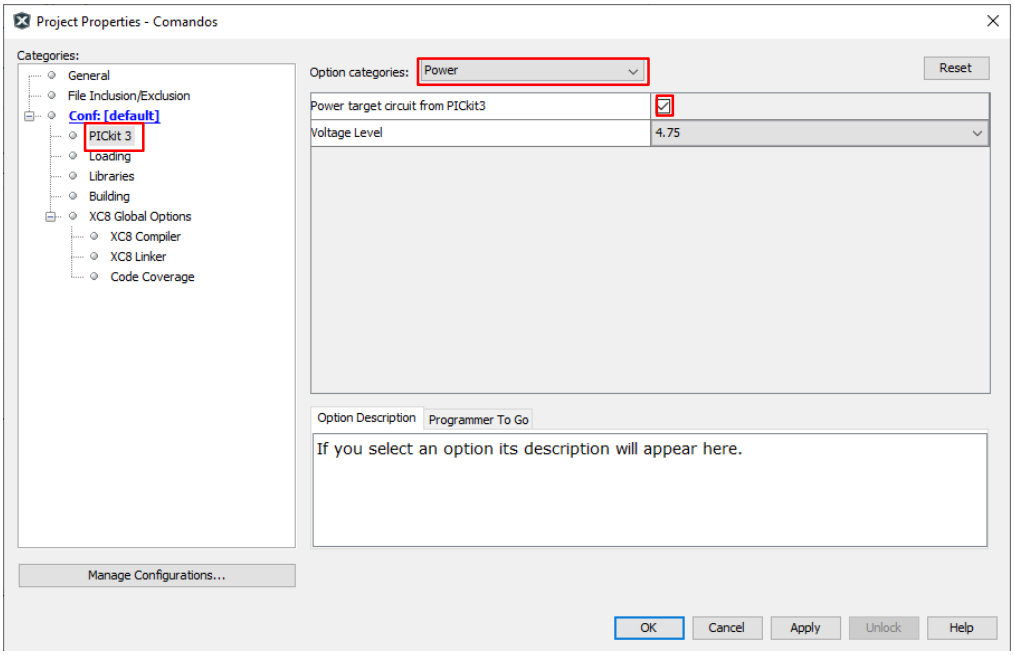

Figure 3 Properties menu, PICKit3 tab.

The screen shown on figure 3 will appear. Select “PICKit3” on the left menu, and “Power” on Option Categories. Select the check box of power target circuit from

PICKit3 if you want the PICKit3 ti supply the voltage to your circuit, uncheck if you don’t. Click on “Apply” and then “Ok” button.

Programming

Finally select the “Make and Program Device Main Project” icon that is on the top part of the screen. Icon is highlighted on the figure 4 below.

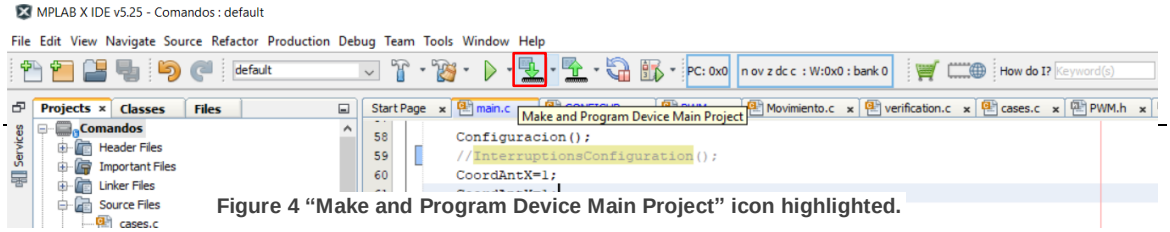

Figure 4 “Make and Program Device Main Project” icon highlighted.

If PICKit3 hasn’t been detected the following screen (Figure 5) will appear. Select the corresponding model of PICKit3 and click “Ok”.

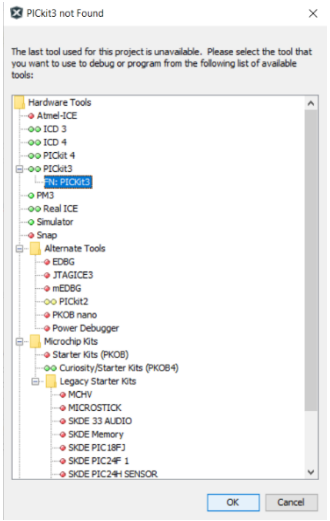

Figure 5 Pop-up window when PICKit3 is not detected.

Finally wait until the message shown on figure 6 appears on the bottom “Output” tab.

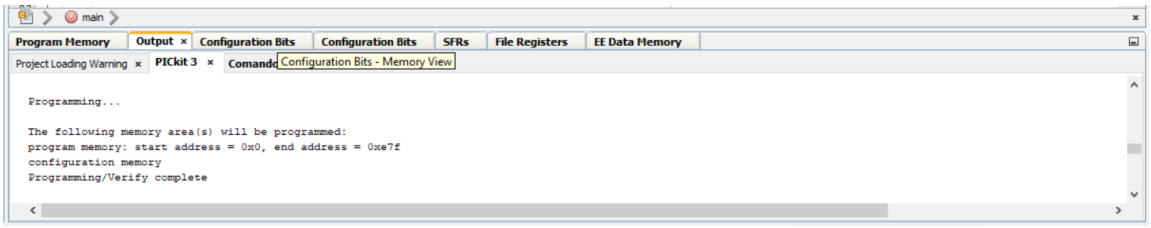

Figure 6 Appearing message when programming is complete.

Datasheets

PICkit™ 3

httpFs://ww1.microchip.com/downloads/en/DeviceDoc/51795B.pdf

PIC18F4550

https://ww1.microchip.com/downloads/en/devicedoc/39632e.pdf