

BM011 Loading Custom Firmware

How to load custom firmware



Contact Solutions Cubed, LLC for your custom designs:

Solutions Cubed is an innovative electronic design firm. We have created successful designs for a myriad of industries including mass produced consumer products, deep-sea robotic components, and encrypted encoders for the banking industry. We love meeting new customers and are interested in hearing about your design needs.

Application Description:

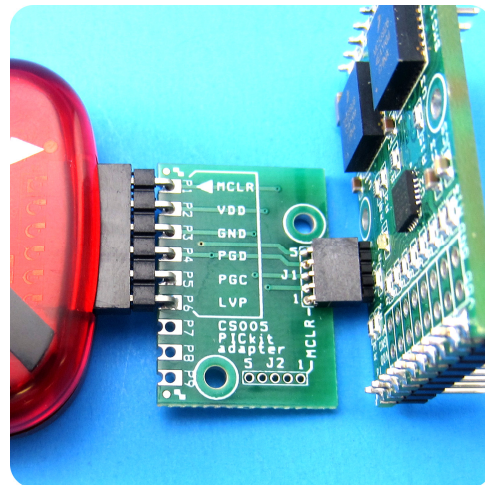
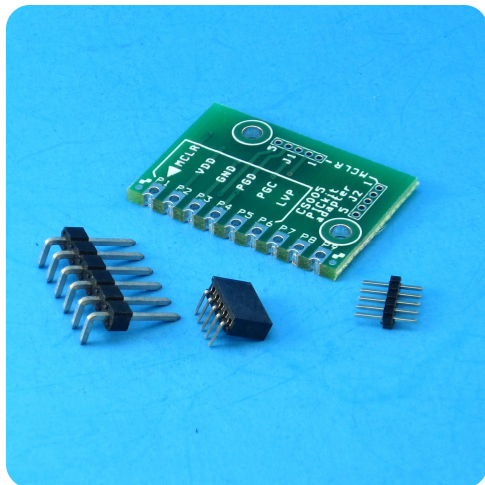
This module is shipped with a PIC microcontroller. The firmware is open-source and may be located at www.solutions-cubed.com. The main.c file header typically contains information associated with the development environment and compiler used for the design. You will need to install necessary 3rd party software as defined in the main.c header (typically a Microchip integrated development environment such as MPLAB X and a C compiler like Microchip's free XC8).

NOTE: screen captures and images used in this document may not match software screens you see, as software interfaces change over time.

Things you'll need:

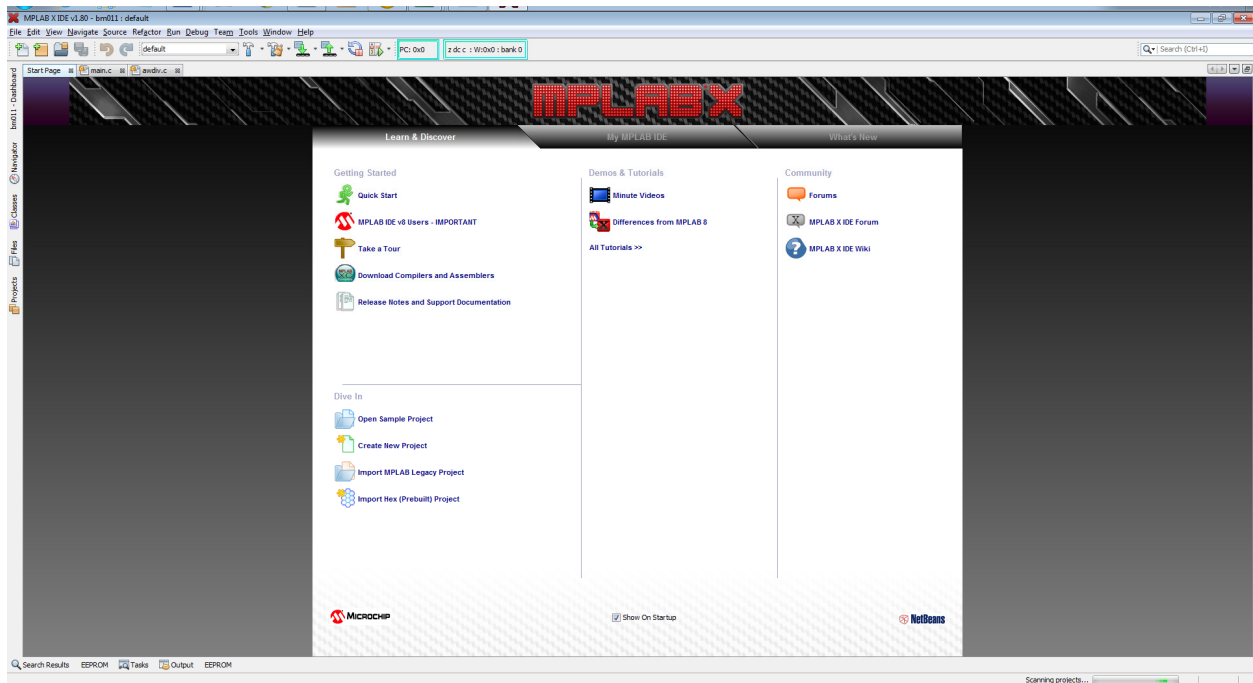
CS005 Program/Debug Adapter from Solutions Cubed, LLC
PICKit3 from Microchip

Assemble the CS005 and install a connector on the module you are attempting to program/debug.

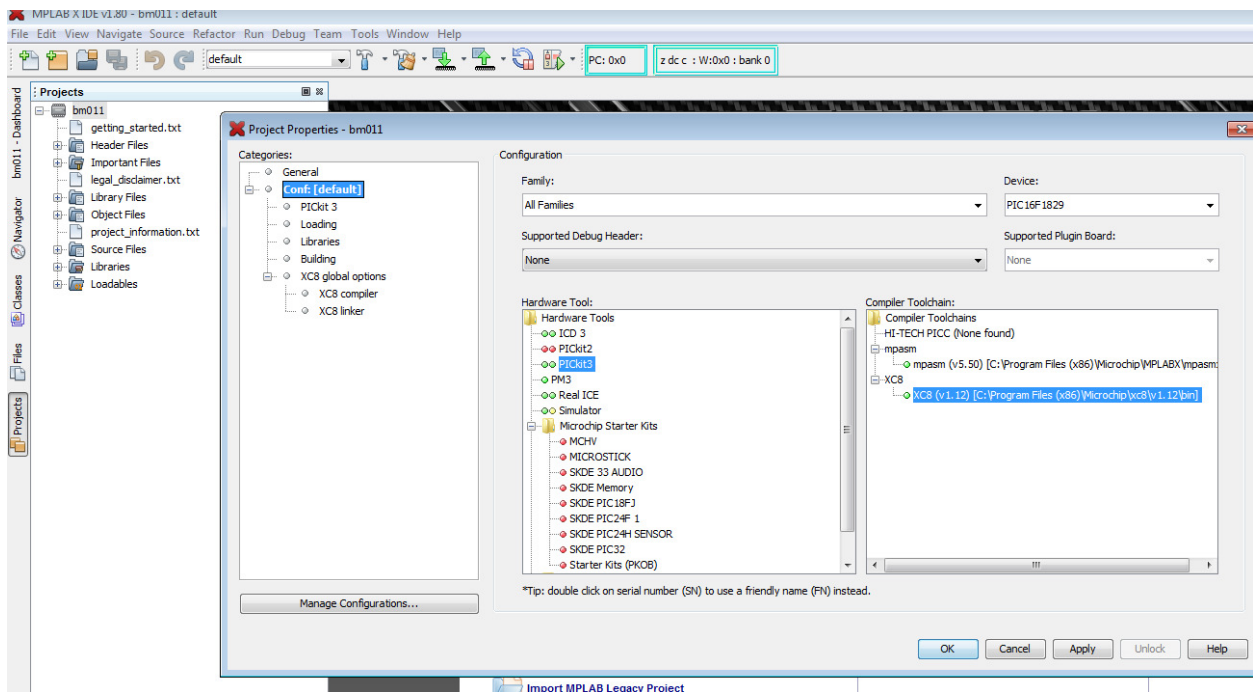


Install MPLABX development environment and C compiler:

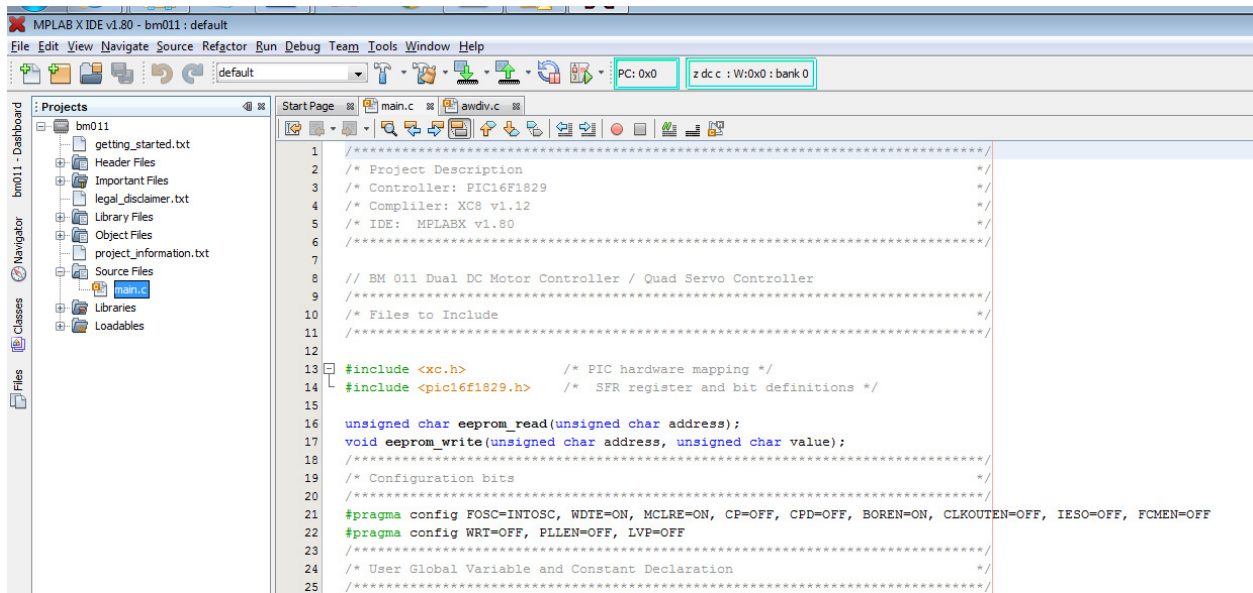
The development environment may be downloaded from www.microchip.com.



Open the firmware project (File/Open Project) downloaded from xDesignFile.zip associated with the module. Open the project view, right-click the project folder and select properties. Select the PICKit3 as the hardware tool and the appropriate C compiler under the compiler toolchain.



In the Projects window (open it from the Window menu if it's not visible) select source files and double-click the main.c file.



The screenshot shows the MPLAB X IDE v1.80 interface. The 'Projects' window on the left displays a tree view for the 'bm011' project, with 'main.c' selected under 'Source Files'. The main editor window shows the contents of 'main.c', which includes project metadata, hardware configuration, and function declarations.

```

1  /*=====*/
2  /* Project Description */
3  /* Controller: PIC16F1829 */
4  /* Compiler: XC8 v1.12 */
5  /* IDE: MPLABX v1.80 */
6  /*=====*/
7
8  // BM 011 Dual DC Motor Controller / Quad Servo Controller
9  /*=====*/
10 /* Files to Include */
11 /*=====*/
12
13 #include <xc.h> /* PIC hardware mapping */
14 #include <pic16f1829.h> /* SFR register and bit definitions */
15
16 unsigned char eeprom_read(unsigned char address);
17 void eeprom_write(unsigned char address, unsigned char value);
18 /*=====*/
19 /* Configuration bits */
20 /*=====*/
21 #pragma config FOSC=INTOSC, WDTE=ON, MCLRE=ON, CP=OFF, CPD=OFF, BOREN=ON, CLKOUTEN=OFF, IESO=OFF, FCMEN=OFF
22 #pragma config WRT=OFF, PLEN=OFF, LVP=OFF
23 /*=====*/
24 /* User Global Variable and Constant Declaration */
25 /*=====*/

```

Plug the PICKit into your USB port, the PICKit3 into the CS005, the CS005 into the module, and power the module. Once the drivers install you should be able to modify the main.c file and program or debug the design to incorporate your changes to the firmware.

For information on the specific PIC microcontroller or their development software see www.microchip.com.