USB In System Programmer for Microchip dsPIC microcontrollers

Quickstart Guide

dsPICprog

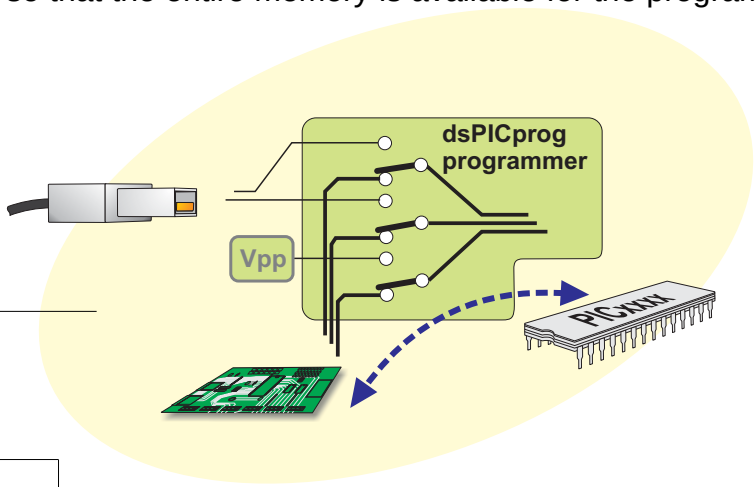
programmer by MikroElektronika

ABOUT dsPICprog PROGRAMMER

With complementary software, *dsPICprog programmer* represents a great tool for all those working with dsPIC microcontrollers. The microcontroller connects to the *dsPICprog* programmer via 5 lines, two of which are +5V and GND and others are PGC, PGD and MCLR (PGC - program clock and PGD - program data). The position of these pins vary, depending on microcontroller's type. Unlike programmers whose operation is based on bootloads (and which need to give away part of their memory to a bootload program) *dsPICprog* programs the microcontroller externally so that the entire memory is available for the programmer.

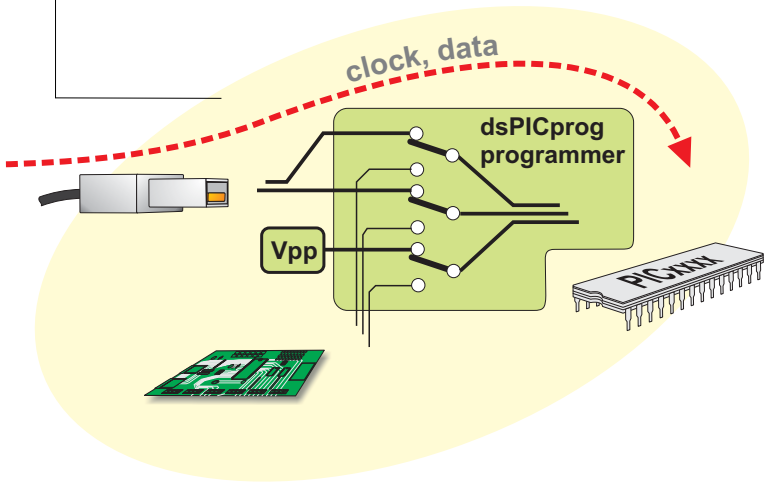
Programmer is inactive

All lines from Microcontroller which are multiplexed buy the programmer (PGC, PGD, and MCLR) are connected to the board peripherals.



Programmer is active

By clicking the option WRITE, programmer transfers PGC, PGD and MCLR pins from the rest of the electronics on the board and thus allows programming of microcontroller on the printed circuit board. Right after the programming, these lines are returned, so that the dsPIC on board does not "see" the programmer any more. With this method, presence of the programmer does not affect the working of device, which is of the utmost importance.



If the target board have its own power supply it can be used for powering the *dsPICprog* programmer. In that case you must open *dsPICprog* programmer and take off the jumper for power selection. When the jumper is on, target board is powered through programmer's USB connector so any other power supply on the target board must be disconnected.

This picture shows the position of jumper when the target board and *dsPICprog* programmer are powered trough USB connector.

This picture shows the position of jumper when *dsPICprog* programmer is powered by the target board (target board have its own power supply).

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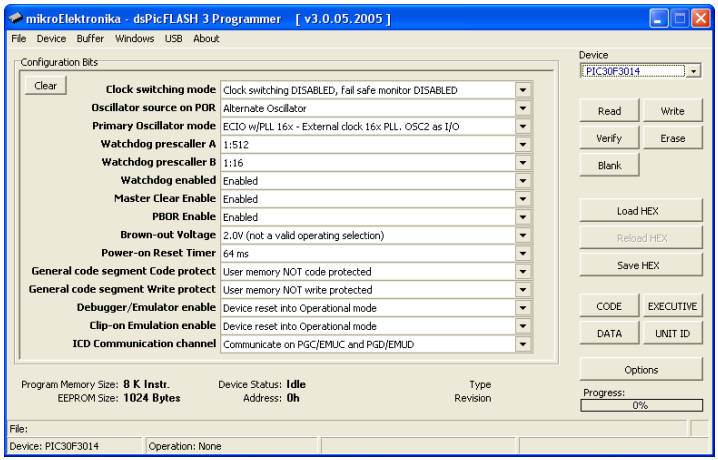
dsPICprog SOFTWARE

Step 1

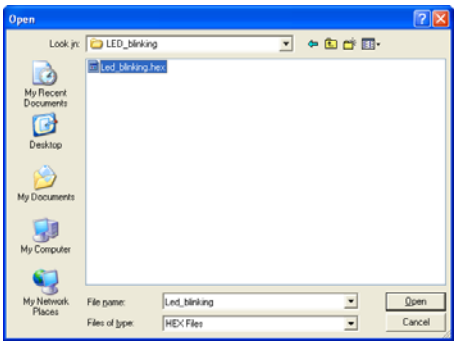
Copy the file dsPICprog2.exe from CD to your PC, and run it.

Select the appropriate microcontroller, by clicking the option ***Device.*** dsPICprog will automatically make adjustments for working with the specified microcontroller.



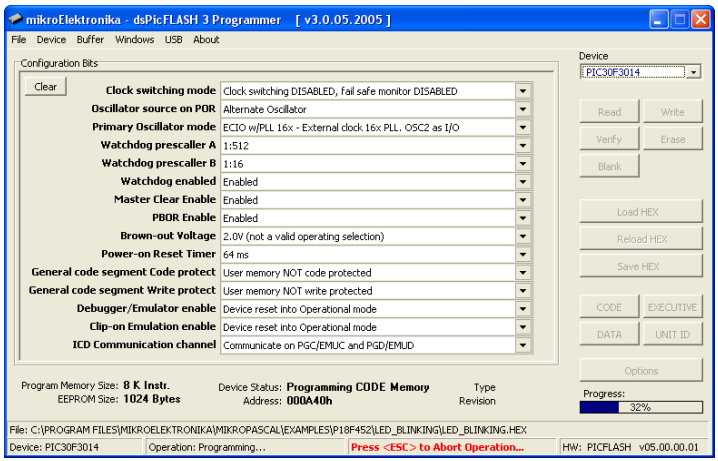
Step 2

Click the option LOAD HEX which opens up the window similar to picture on the right. By double-clicking the file, appropriate HEX file will be loaded into programmer's buffer. dsPICprog will read all the settings from the HEX file and set up the control bits.



Step 3

Programming the microcontroller starts by clicking the option ***Write*** in the right corner of the working window.



KEYBOARD SHORTCUTS AND COMMAND LINE PARAMETERS.

Keyboard Shortcuts

Alt-E	Erase
Alt-B	Blank check
Alt-W	Write
Alt-V	Verify
Alt-R	Read
Alt-D	Change MCU
Ctrl-S	Save
Ctrl-O	Open (Load)
Ctrl-R	Reload

Command Line

Alternatively, you can use the dsPICprog programmer from the command line. It will allow you to use dsPICprog from some other software, compiler etc. Here are the command line parameters are:

-p	dsPIC name (for example P30F3011, P30F4013...)
-f	Filename (use " as delimiters)
-e	Erase dsPIC
-b	Blank check
-w	Write to dsPIC
-v	Verify
-r	Read from dsPIC

Examples

1. **dspicprog2.exe -w -pPIC30F3011 -v -f"C:\somefile.hex"**

   This will program the dsPIC using C:\somefile.hex and it will verify the write

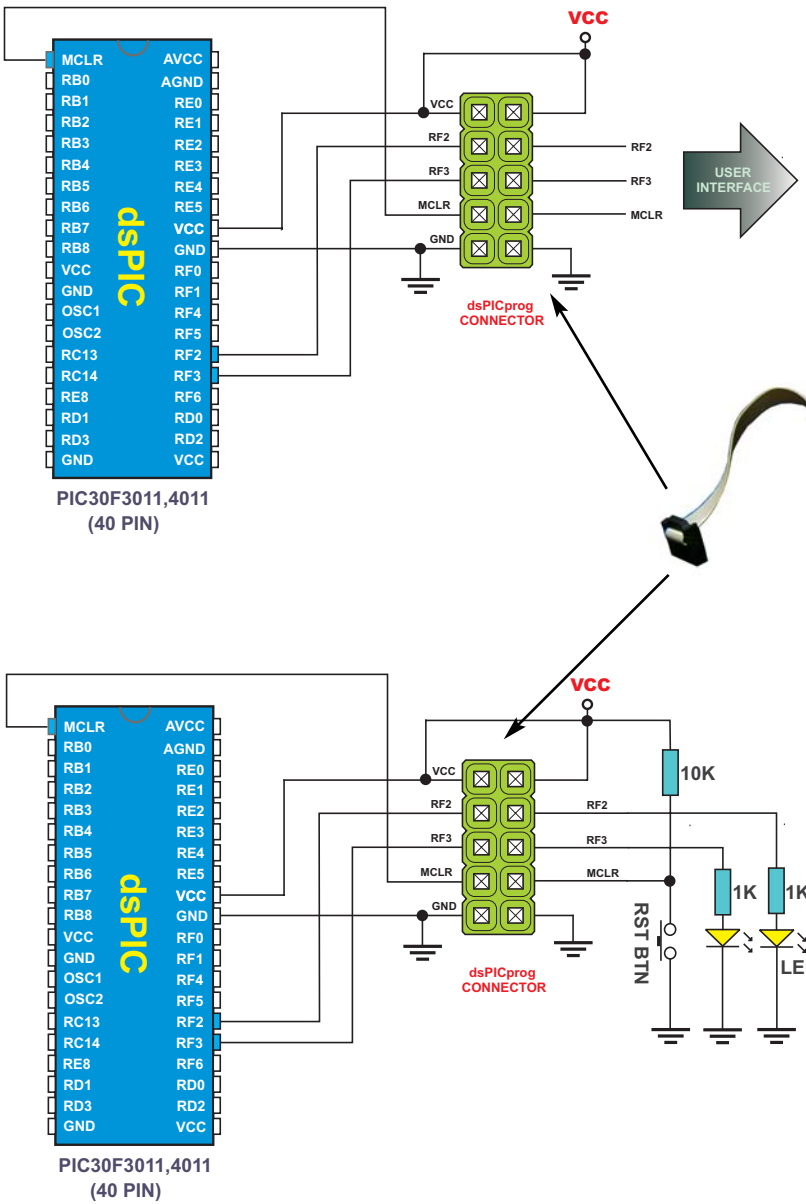
2. **dspicprog2.exe -r -pPIC30F3011**

   This will read the dsPIC contents into on screen buffer

3. **dspicprog2.exe -e -pPIC30F3011**

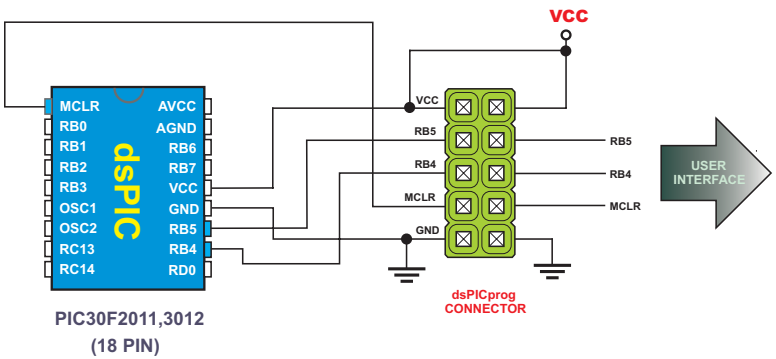
   This will erase the dsPIC

EXTERNAL dsPICprog PROGRAMMER CONNECTION SCHEMATICS



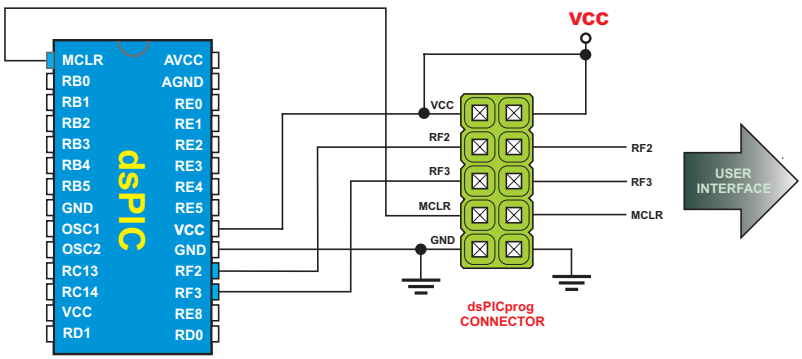
One of the possibilities for connecting dsPICprog to a microcontroller is by using an IDC10 connector as shown on the picture on the left. All you have to do is to put one 2x5 connector between microcontroller and other parts of the board. Once you plug in the dsPICprog connector you will be able to program dsPIC In System.

The picture on the left shows how to connect 2 LEDs on RF2 and RF3 pins. On the same picture MCLR pin was connected to the standard reset circuit.



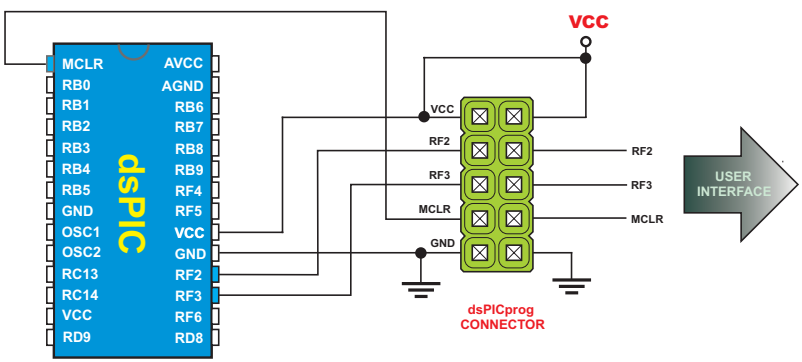
PIC30F2011,3012
(18 PIN)

Connection schematic for 18 pin dsPIC Microcontrollers. The scheme aplies to: PIC30F2011, 3012...



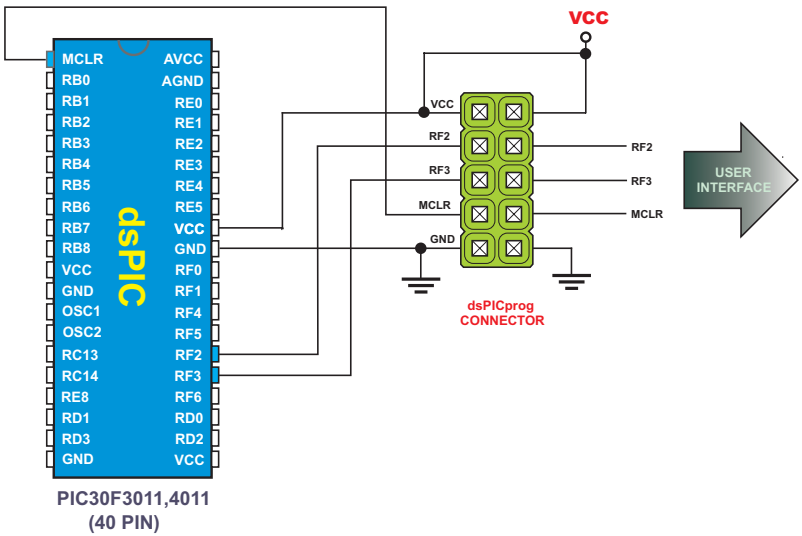
PIC30F2010,3010,4012
(28 PIN)

Connection schematic for 28 pin dsPIC Microcontrollers. The scheme aplies to: PIC30F2010, 3010, 4012...



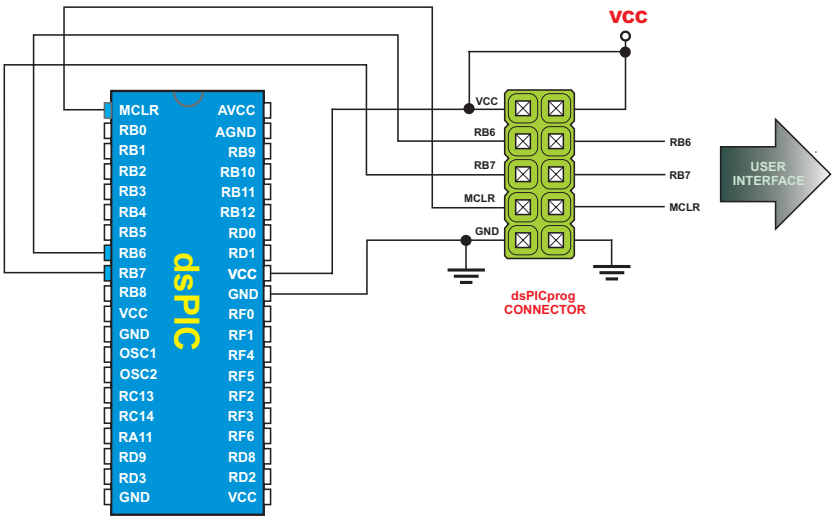
PIC30F2012,3013
(28 PIN)

Connection schematic for 28 pin dsPIC Microcontrollers. The scheme aplies to: PIC30F2012, 3013...



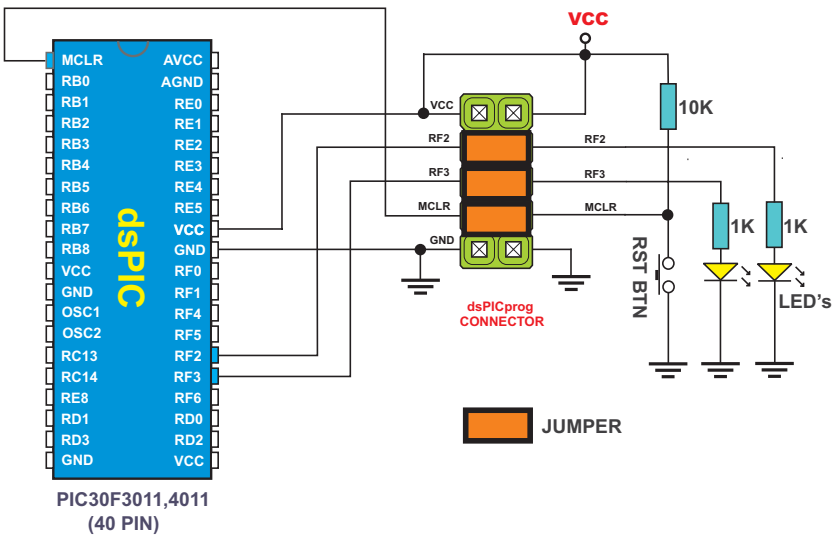
PIC30F3011,4011
(40 PIN)

Connection schematic for 40 pin dsPIC Microcontrollers. The scheme aplies to: PIC30F3011, 4011...



PIC30F3014,4013
(40 PIN)

Connection schematic for 40 pin dsPIC Microcontrollers. The scheme aplies to: PIC30F3014, 4013...



Once the development of a device is finished the jumpers have to be restored for enabling the device to work without dsPICprog programmer.

These jumpers establish connections from MCLR, RF2 and RF3 to peripherals on the board.

In case of need, the jumpers can be removed and dsPICprog can be reconnected for reprogramming the chip.

If you are experiencing problems with any of our products or you just want additional information, please let us know. We are committed to meeting your every need.

Technical Support :
support@mikroe.com

If you have any other question, comment or a business proposal, please contact us:

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