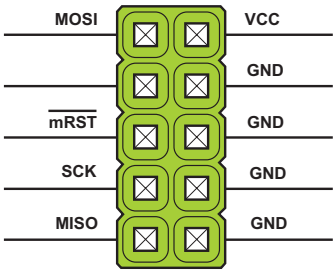
AVRprog

programmer by MikroElektronika

ABOUT AVRprog PROGRAMMER

With complementary software, *AVRprog programmer* represents a great tool for all those working with Atmel's AVR microcontrollers. The microcontroller connects to the *AVRprog* programmer via 6 lines, two of which are +5V and GND and others are MOSI, MISO, SCK and $\overline{\text{MCLR}}$. Unlike programmers whose operation is based on bootloads (and which need to give away part of their memory to a bootload program) *AVRprog* programs the microcontroller externally so that the entire memory is available for the programmer.

MOSI, MISO and SCK are standard pins for SPI communication. MOSI and MISO are also known as SDO and SDI, respectively. The position of these pins vary, depending on microcontroller's type. To use the benifits of In-System Programming, target board must have IDC10 connector with following pinout:



SPI communication lines on the target board must be connected directly to the connector.

If the target board have its own power supply it can be used for powering the *AVRprog* programmer. In that case you must open *AVRprog* 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 *AVRprog* programmer are powered trough USB connector.

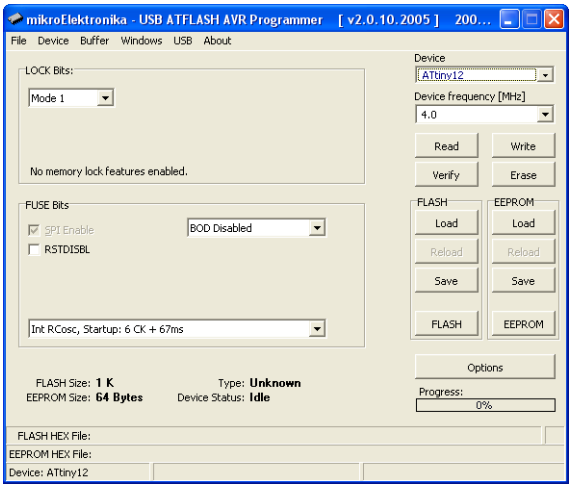
This picture shows the position of jumper when *AVRprog* programmer is powered by the target board (target board have its own power supply).

AVRprog SOFTWARE

Step 1

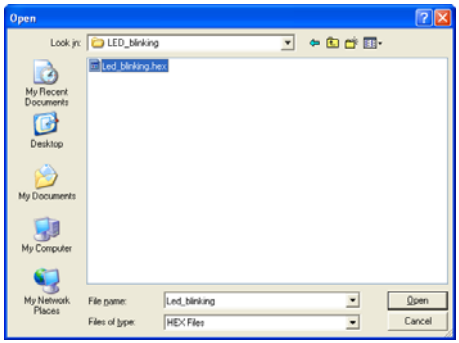
Copy the file AVRprog.exe from CD to your PC, and run it.

Select the appropriate microcontroller, by clicking the option ***Device.*** AVRprog will automatically make adjustments for working with the specified microcontroller. You must select microcontroller's working frequency, by clicking the option ***Device frequency.***



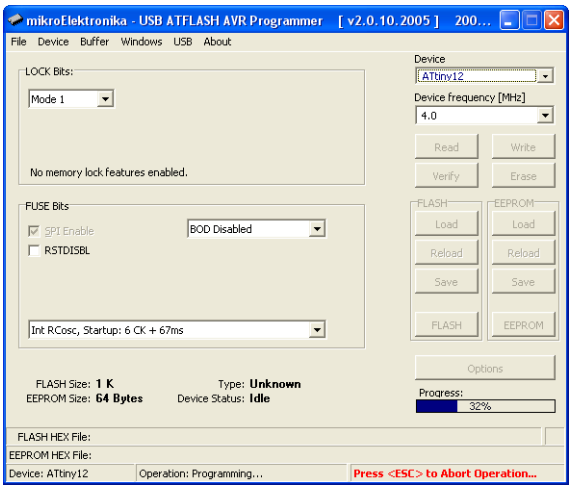
Step 2

Click the option LOAD 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. AVRprog 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-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 AVRprog programmer from the command line. It will allow you to use AVRprog from some other software, compiler etc. Here are the command line parameters are:

-p	AVR name (for example AT90S8515, AT90S8535...)
-f	Filename (use " as delimiters)
-w	Write to AVR
-v	Verify
-r	Read from AVR
-e	Erase AVR

Examples

1. **avrprog.exe -w -pAT90S8535 -v -f"C:\somefile.hex"**

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

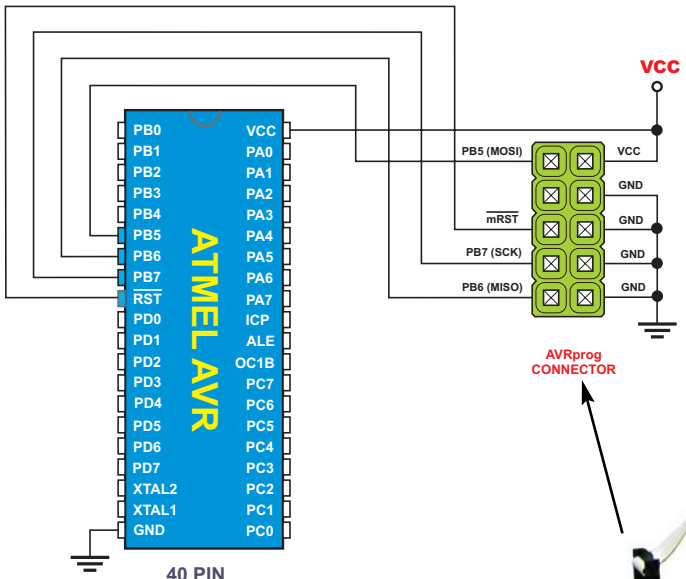
2. **avrprog.exe -r -pAT90S8535**

   This will read the AVR contents into on screen buffer

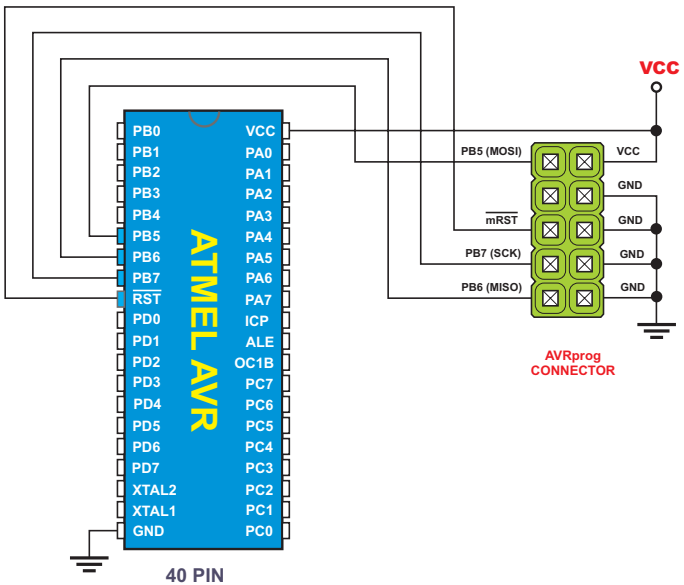
3. **avrprog.exe -e -pAT90S8535**

   This will erase the AVR

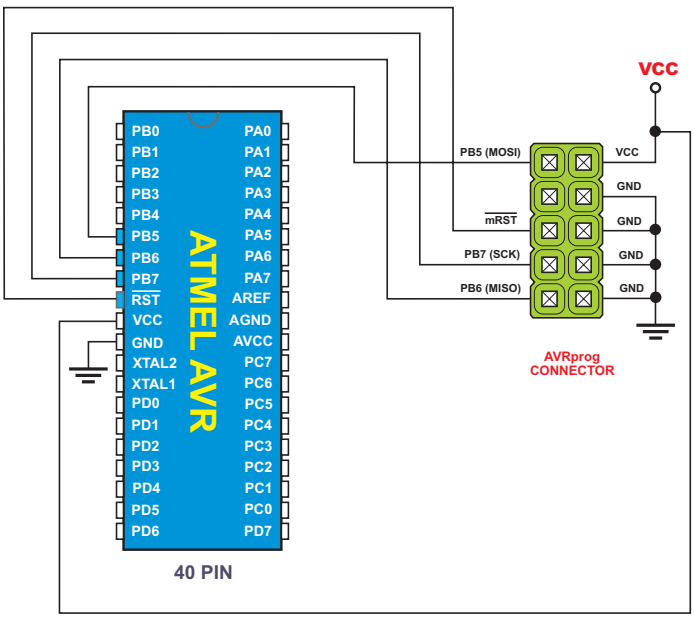
EXTERNAL AVRprog PROGRAMMER CONNECTION SCHEMATICS



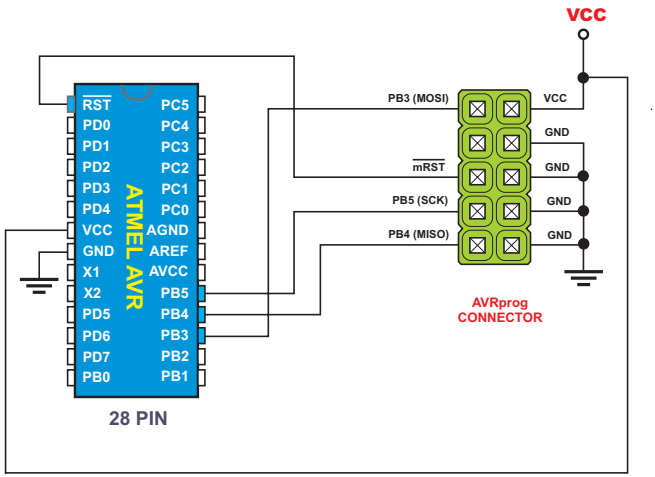
One of the possibilities for connecting AVRprog to a microcontroller is by using an IDC10 connector as shown on the picture on the left. All you have to do is to put one 2x5 connector on the target board connected as shown on the sheme. Once you plug in the AVRprog connector you will be able to program AVR In System.



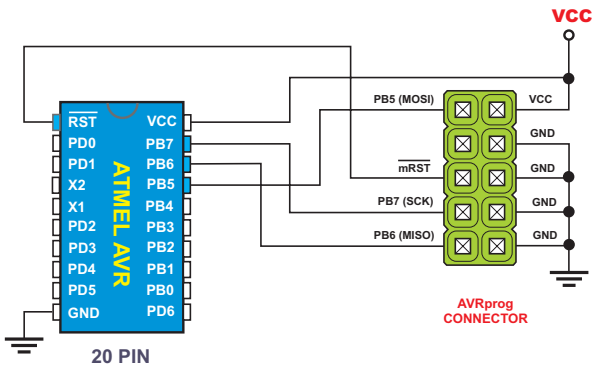
Connection schematic for 40 pin AVR Microcontrollers.
The scheme aplies to:
AT90S8515, ATmega161, ATmega162, ATmega8515...



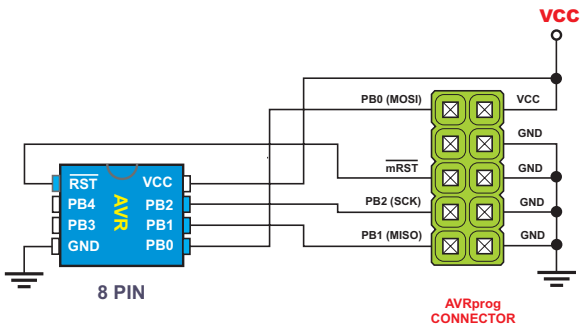
Connection schematic for 40 pin AVR Microcontrollers.
The scheme aplies to:
AT90S8535, ATmega16, ATmega163, ATmega32, ATmega323, ATmega8535...



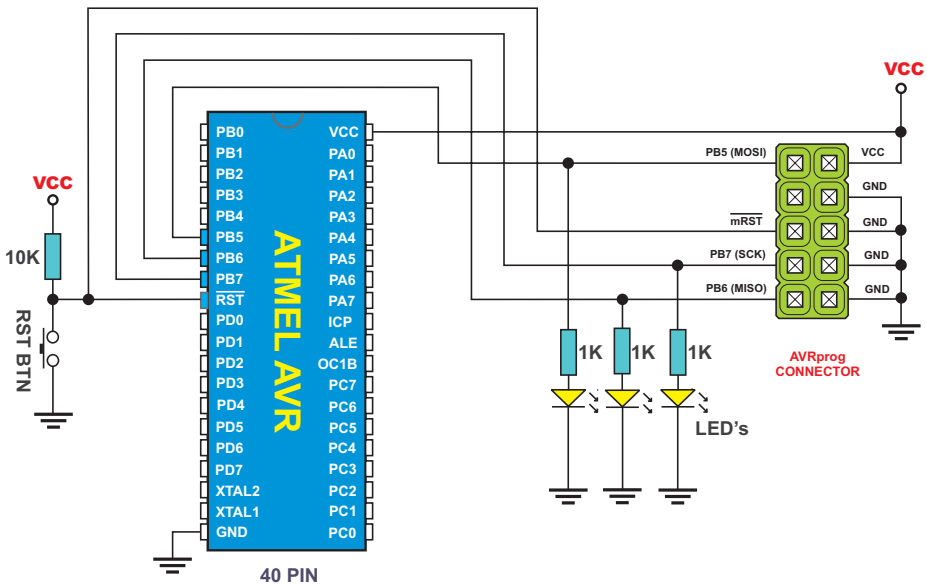
Connection schematic for 28 pin AVR Microcontrollers. The scheme aplies to: AT90S4433, ATmega8, ATmega48, ATmega88, ATmega168...



Connection schematic for 20 pin AVR Microcontrollers. The scheme aplies to: AT90S1200, AT90S2313, ATTINY2313...



Connection schematic for 8 pin AVR Microcontrollers. The scheme aplies to: AT90S2323, AT90S2343, ATTINY12, ATTINY13, ATTINY15, ATTINY25, ATTINY45, ATTINY85...



The picture on the left shows how to connect three LED's on PB5, PB6 and PB7 pins. On the same picture mRST pin was connected to the standard reset circuit.

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.

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support@mikroe.com

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