

Using MINI-MAX/AVR-C

with AVR Dragon

Quick Start Guide

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1. Overview

Thank you for your purchase of the MINI-MAX/AVR-C Single Board Computer. MINI-MAX/AVR-C is a general purpose, low-cost and highly expandable micro-controller system. It is based on the ATMEL ATMEGA2560-16 single-chip Flash micro-controller.

2. Tools

2.1. AVR Studio® 4 from ATMEL (www.atmel.com) is the professional Integrated Development Environment (IDE) for writing and debugging AVR® applications in Windows® 9x/NT/2000/XP/Vista(32- and 64-bit) environments. AVR Studio 4 includes an assembler and a simulator.

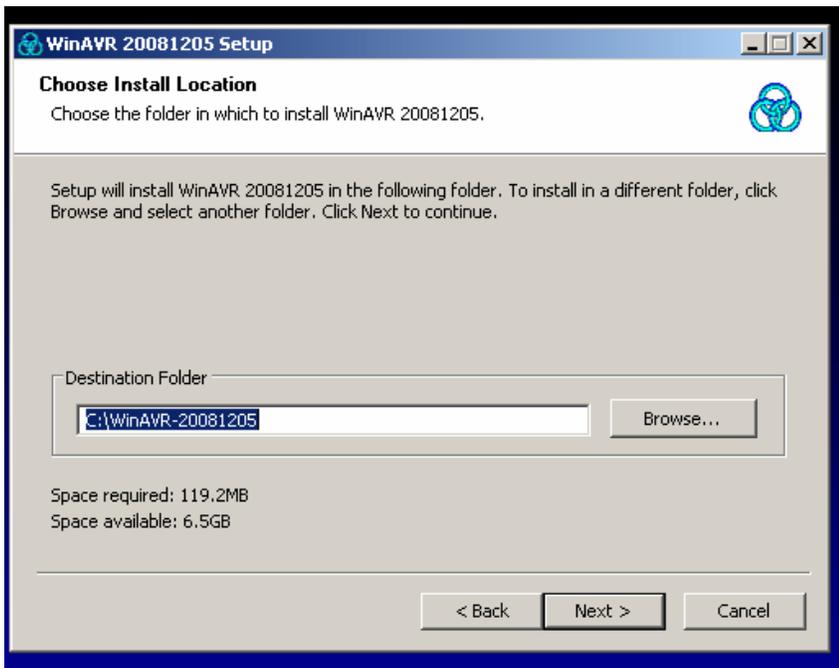
2.2. WinAVR (tm) is a suite of executable, open source software development tools for the Atmel AVR series of RISC microprocessors hosted on the Windows platform. Includes the GNU GCC compiler for C and C++.

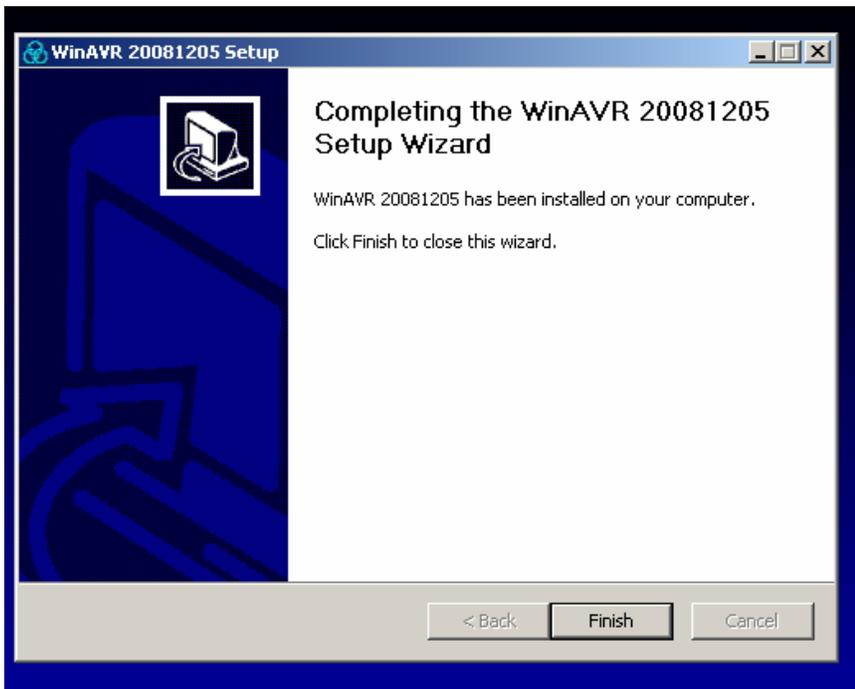
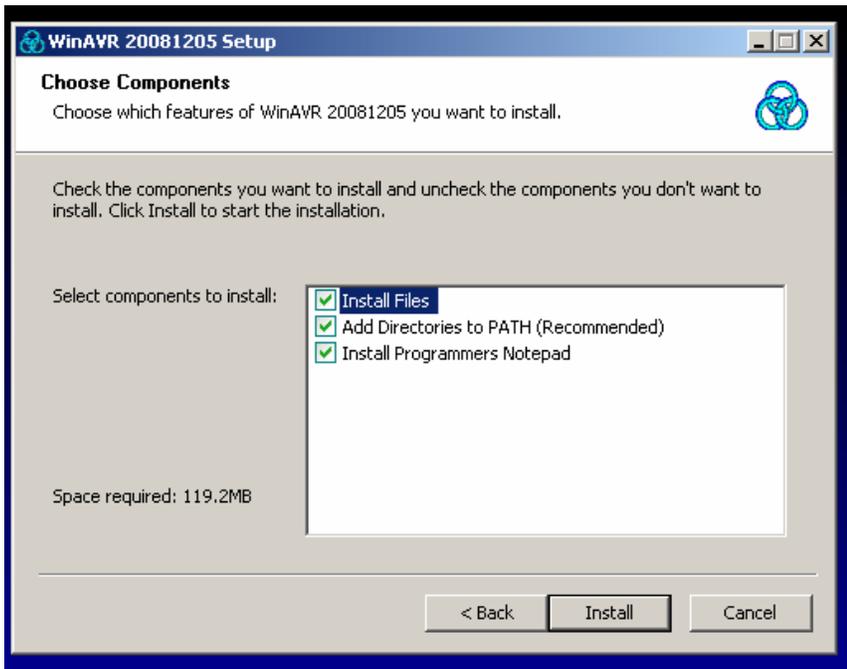
2.3. The AVR Dragon from ATMEL (www.atmel.com) is a low cost development tool. AVR Dragon supports all programming modes for the AVR device family.

3. Software setup

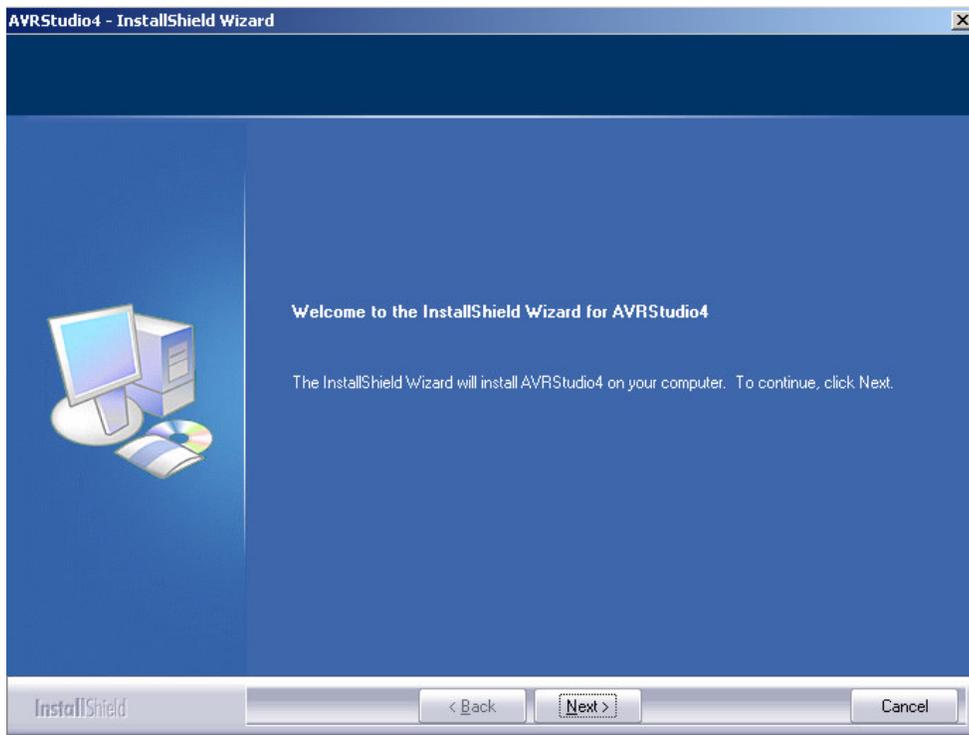
Please install AVR Studio and USB driver **BEFORE** connecting AVR Dragon to your PC.

3.1. Download and install WinAVR from <http://sourceforge.net/>

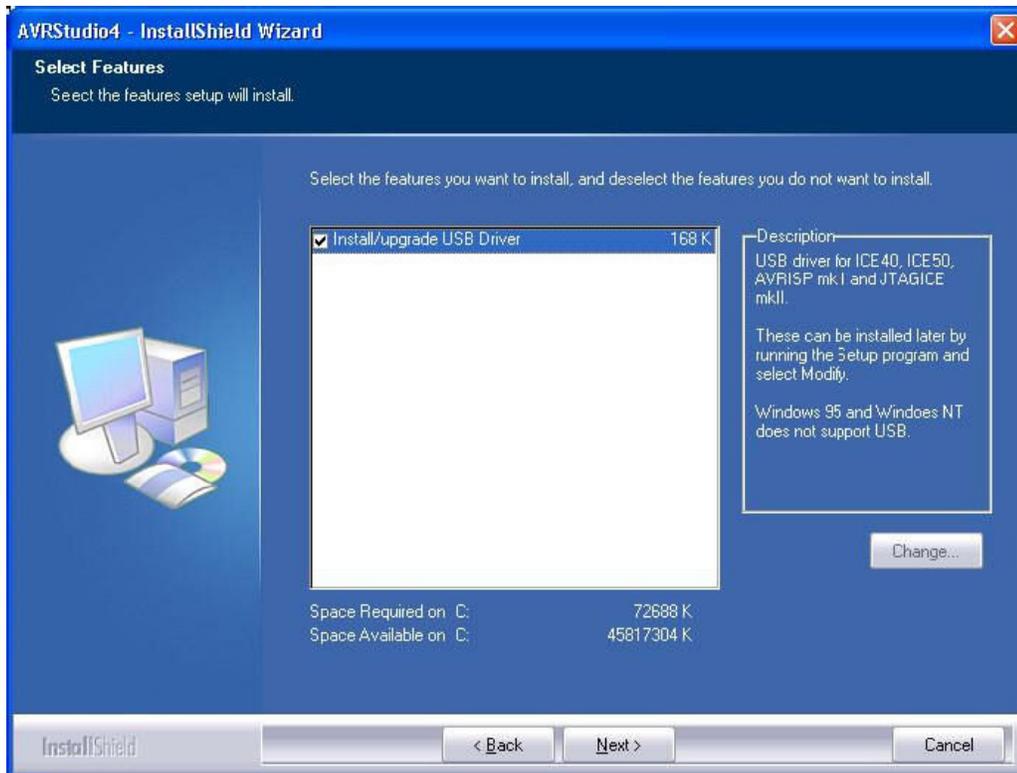




3.2. Download and install AVR Studio 4.12 SP3 or later from <http://www.atmel.com/>



In order to use the AVR Dragon it is required to install the USB driver. Check the Install/Upgrade USB Driver checkbox, and the USB Driver will be installed automatically.



3.3. When AVR Studio/USB driver installation is finished, please attach the USB cable to both PC and AVR Dragon. The AVR Dragon will be powered from the USB.
If it is the first time the AVR Dragon is connected to the computer, the box below will appear:



Please, click "Next" a couple of times and wait until the installation process completes. It may take from a few seconds up to a few minutes.
If the USB driver is correctly installed and AVR Dragon is connected to the PC, the Green LED inside AVR Dragon enclosure will get ON.
If the AVR Studio for some reason can't detect the AVR Dragon, try to restart the computer in order to get the driver properly loaded.

4. Hardware Setup

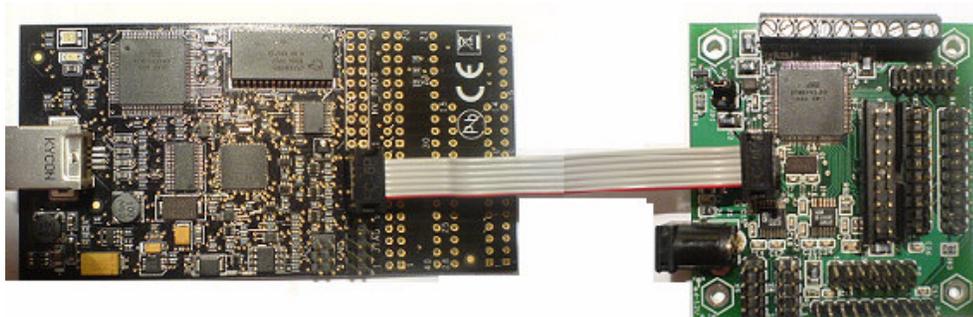
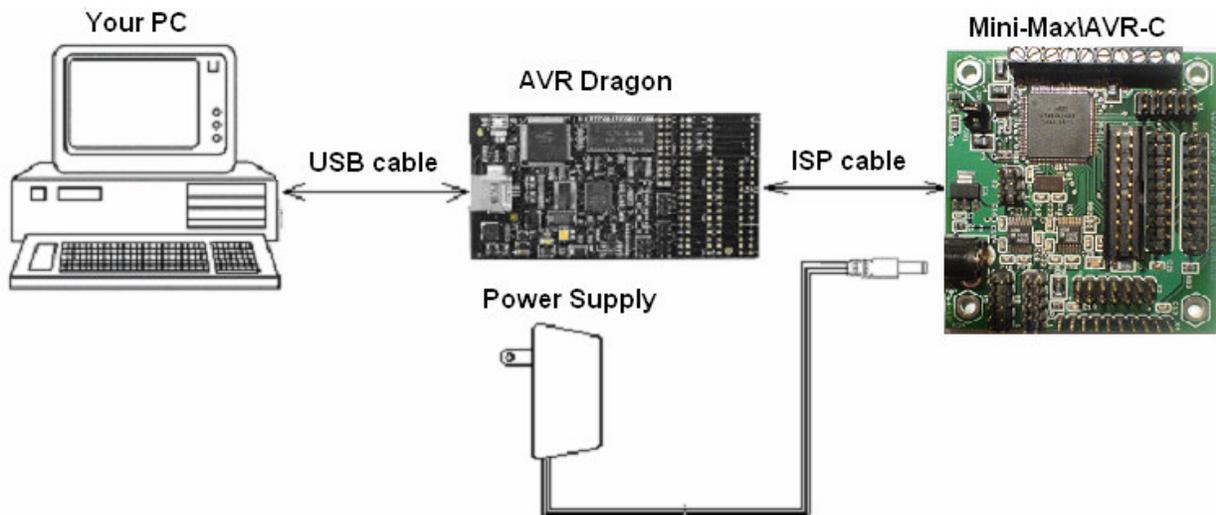
4.1. Place the MINI-MAX/AVR-C Microcontroller board on a clean, non-conductive surface.

4.2. Connect the provided 6VDC power supply plug to the power jack on the MINI-MAX/AVR-C. Do not connect the power supply to the outlet yet.

Do not use a power supply other than one that is supplied or approved by BiPOM Electronics. Use of another power supply voids the warranty and may permanently DAMAGE the board or the computer to which the board is connected.

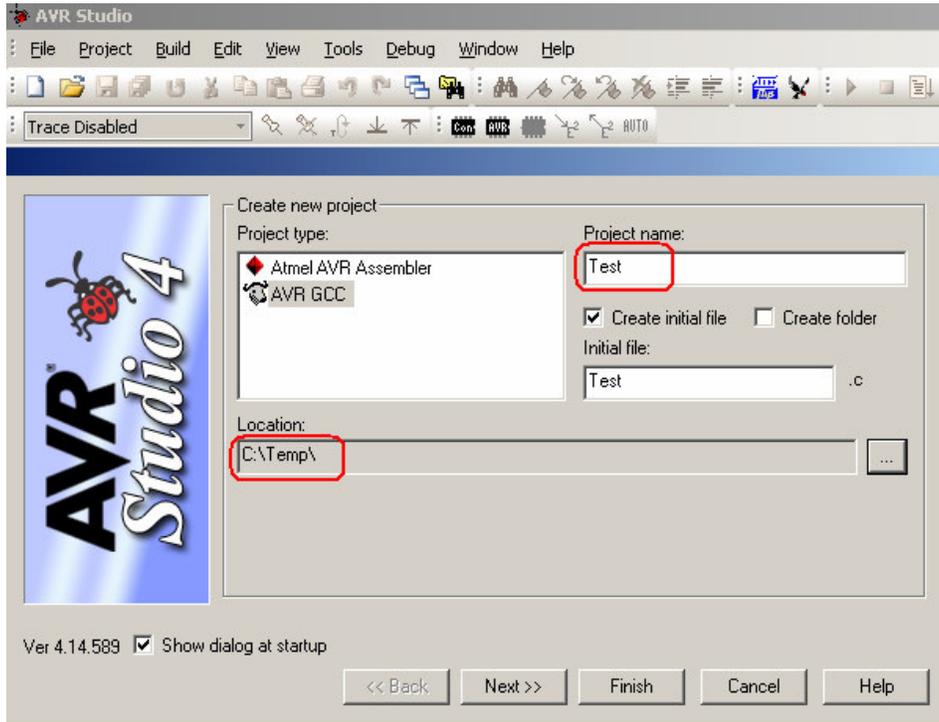
4.3. Connect a 6-pin header of AVR Dragon to X2 connector of MINI-MAX/AVR-C board.

4.4. Connect the 6VDC power supply to a suitable wall outlet. RED LED on MINI-MAX/AVR-C board will get ON.

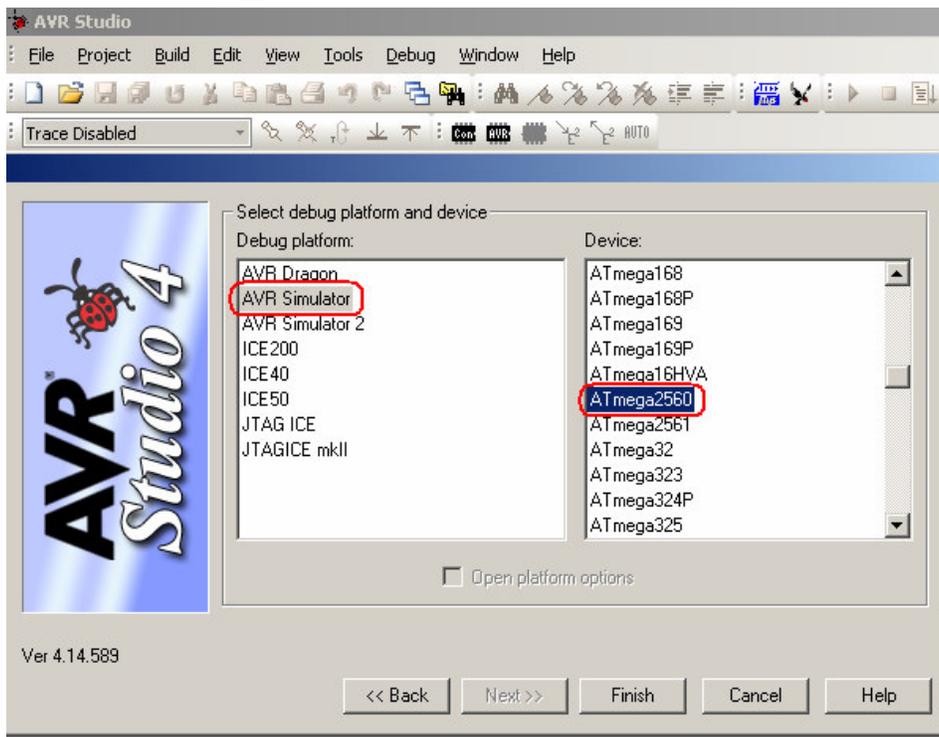


5. Test example

5.1. To create your own test project please run AVR Studio, select Project menu and select New Project. This will display the New Project dialog (see below). Select AVR GCC, enter the name of the new project and its location and click Next button.

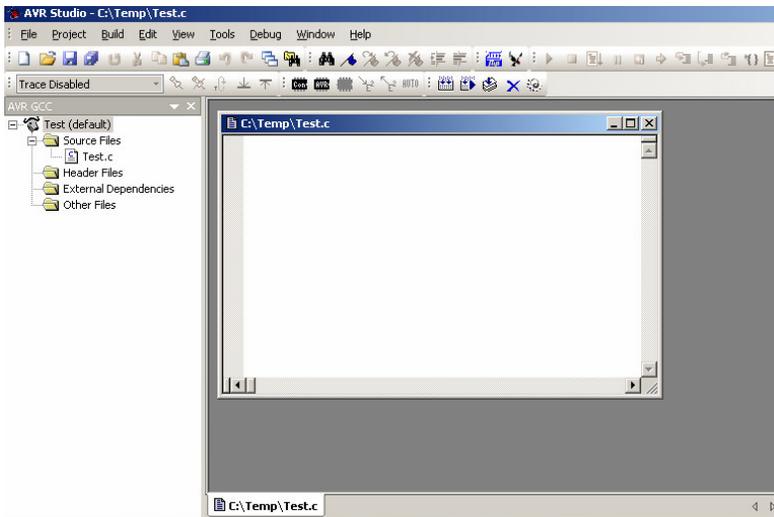


5.2. Select a debug platform and device, then click Finish button.



The new project with 'Test' name will be created under c:\temp.

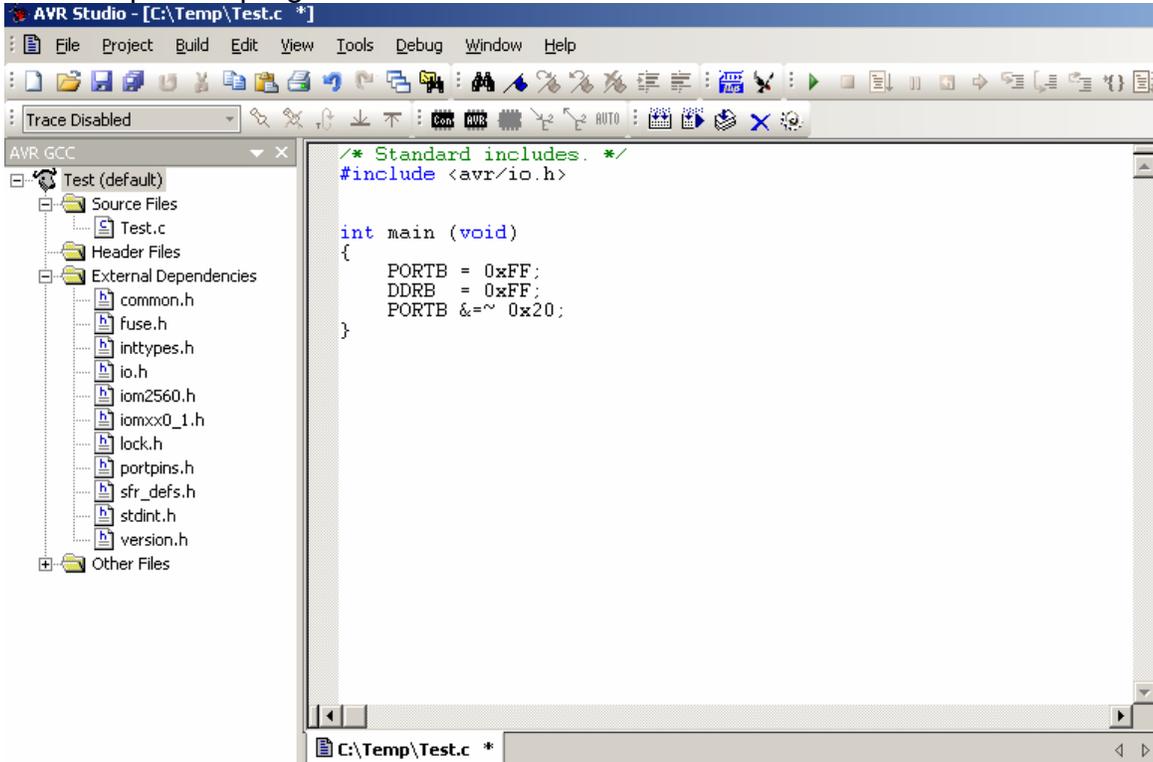
5.3. A blank C file (Test.c) will be created automatically as well.



5.4. Type the following C-code:

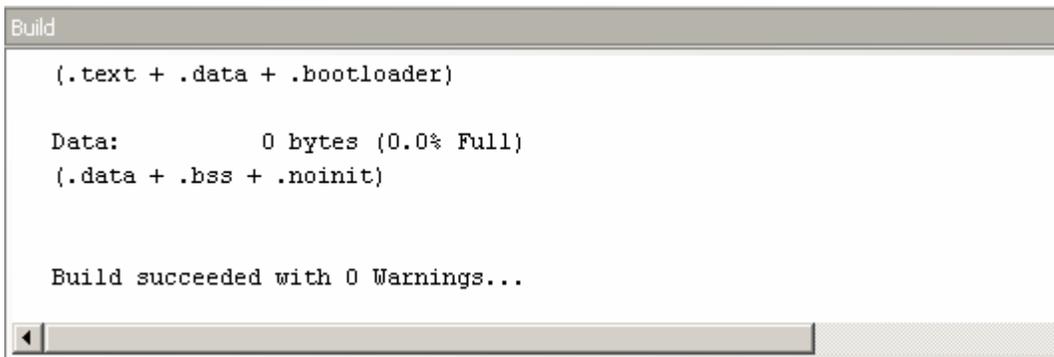
```
#include <avr/io.h>
int main (void)
{
    PORTB = 0xFF;
    DDRB = 0xFF;
    PORTB &=~ 0x20;
}
```

The complete C program should look like this:

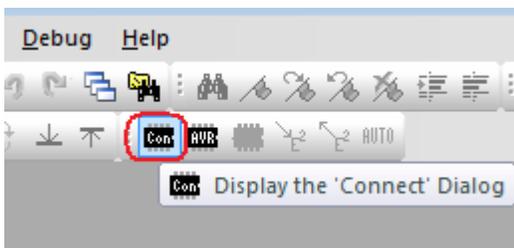


The program changes PB5 port pin to low level. if aTB-1 board is installed (TB-1 peripheral board from BiPOM, http://www.bipom.com/periph_item.php?id=213) PB5 port pin will turn the Green LED ON on a training board.

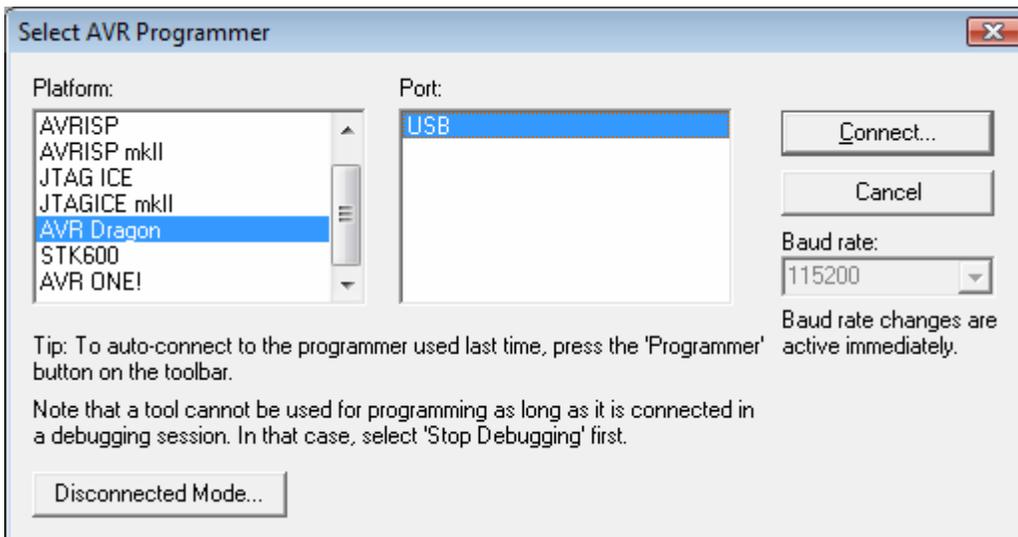
5.5. Build the program by clicking the Build button. If the program builds successfully, you will see the following messages on the Build Window.



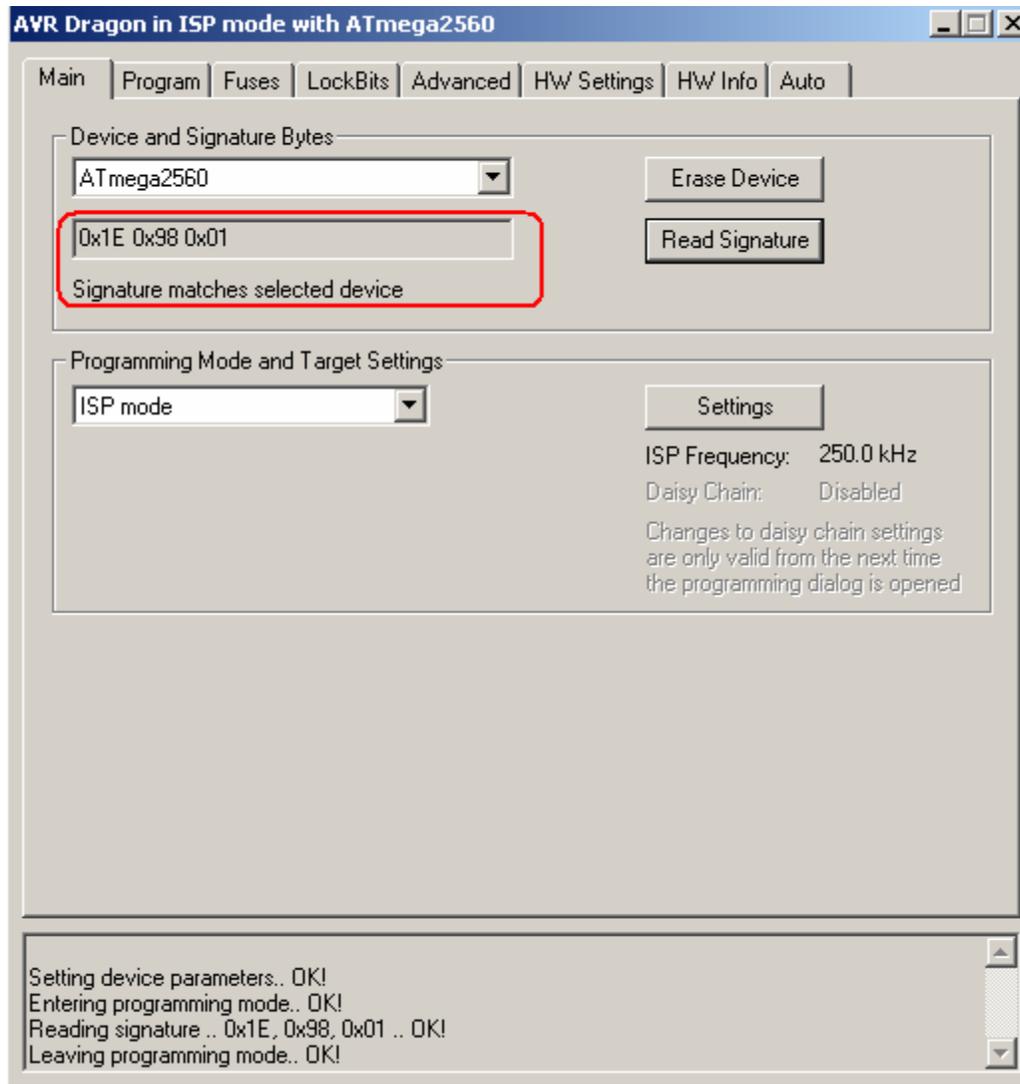
5.6. To download the compiled Test.hex firmware to the board please click the Con icon button on the toolbar.



5.7. Select AVR Dragon platform and click Connect button.



5.8. Select ATmega2560 device and click Read Signature button.



Important Note!!!

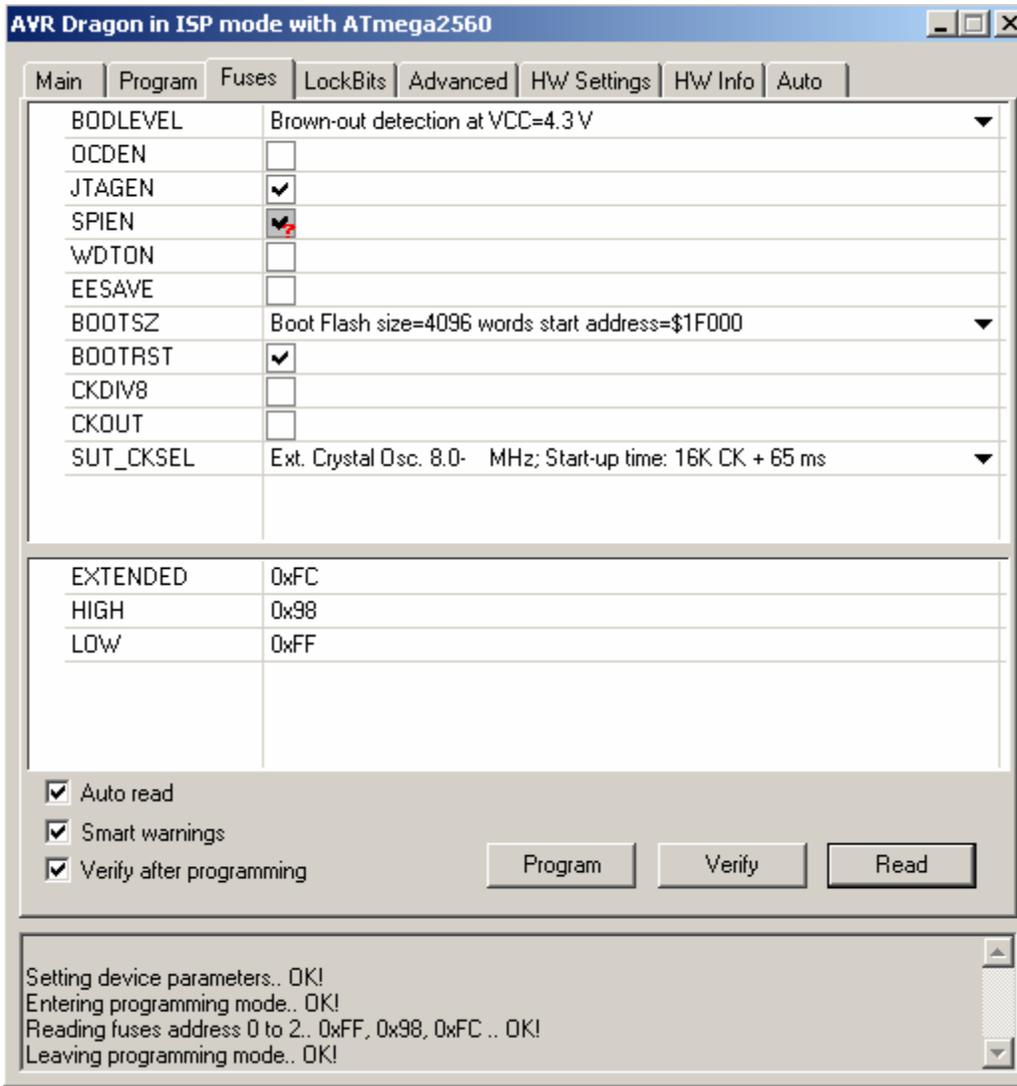
The signature should match ATmega2560.

If there is any problem with this step please check your hardware, connections, etc.

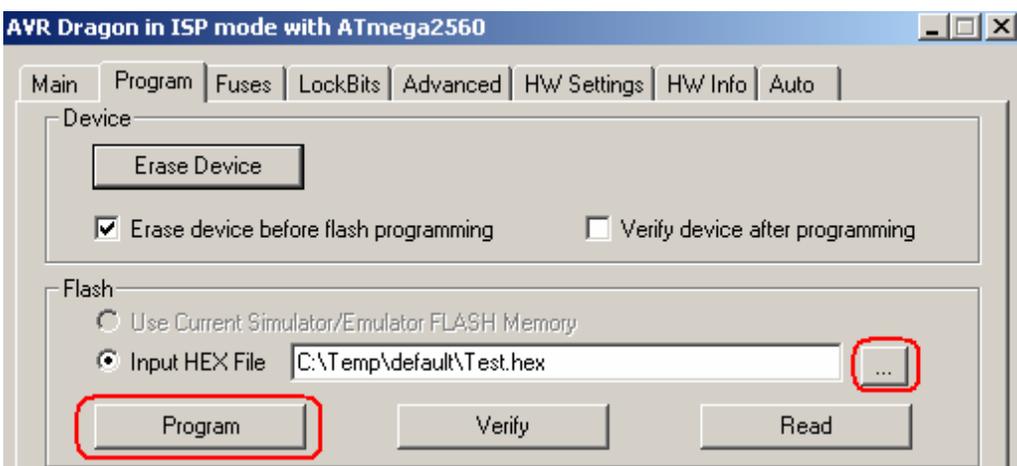
Do not try to program the ATmega2560 chip if the signature does not match.

The chip may be permanently blocked.

5.9. Check fuses



5.10. Select Test.hex file and press Program button



Green LED on TB-1 will be switched ON as soon as the download is complete.