Using MOTOR-2 Library with AVR Studio

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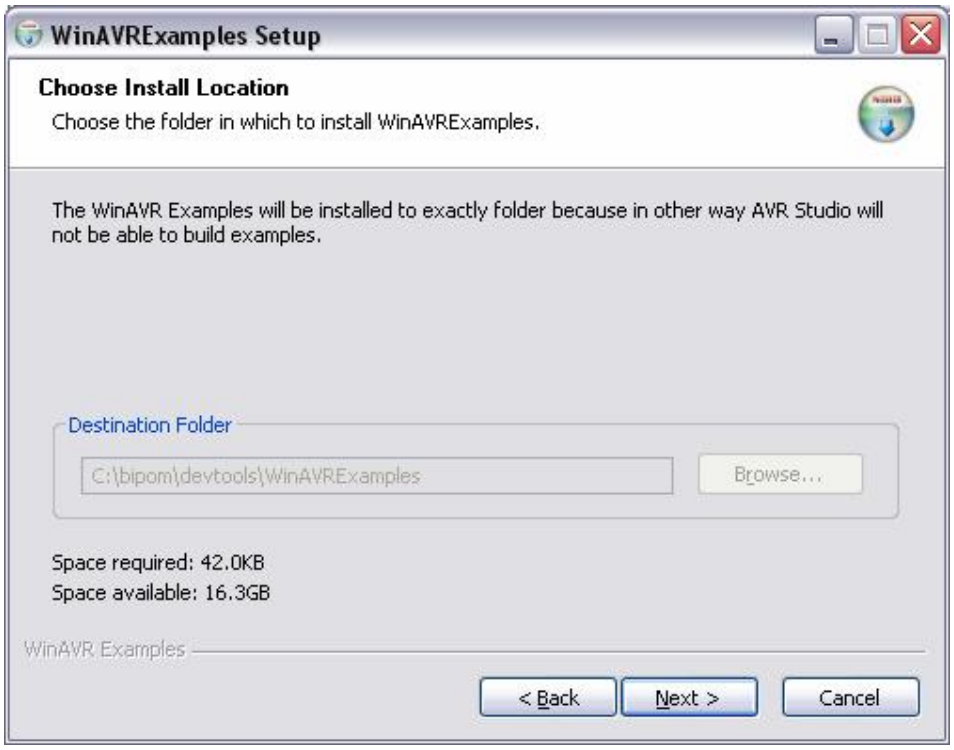
1. Setup Software

1.1 Download MOTOR-2 WinAVR Example installation file from BiPOM web:

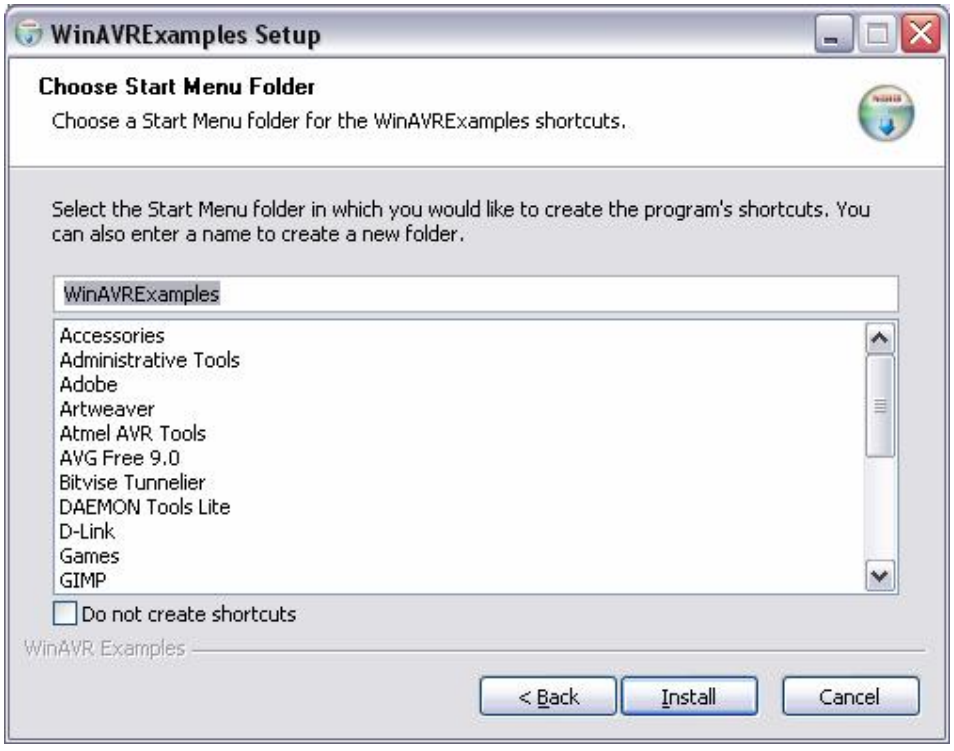
http://www.bipom.com/web_softwares/3088362.html

1.2 Run downloaded file **`motor2_winavr_examples.exe`** to start installation.

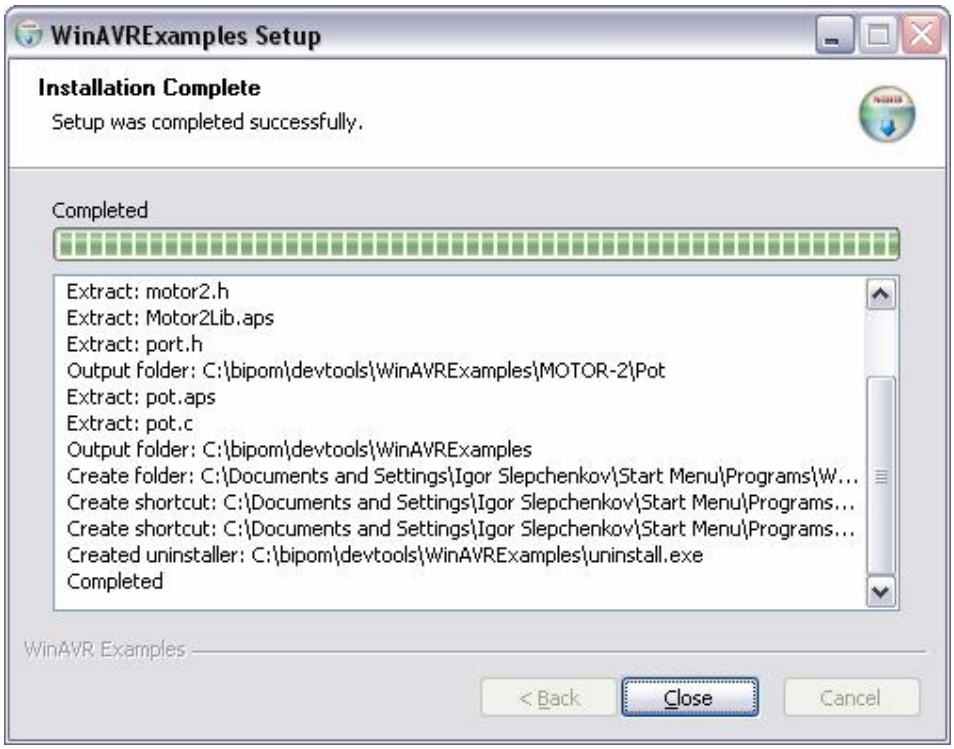
1.3 Click **Next**



1.4 Click **Next**



1.5 Click **Install**



1.6 Click **Close**. Files will be installed to **`c:\bipom\devtools\WinAVRExamples\MOTOR-2\`** folder on your PC.

NOTE: Examples required MOTOR-2 library. AVR Studio projects have save path to the library file. So if you try to build examples from another folder then **`c:\bipom\devtools\WinAVRExamples\MOTOR-2`** you will get error.

If you want to move files to another folder then you have to change path to library files in Project Settings in AVR Studio.

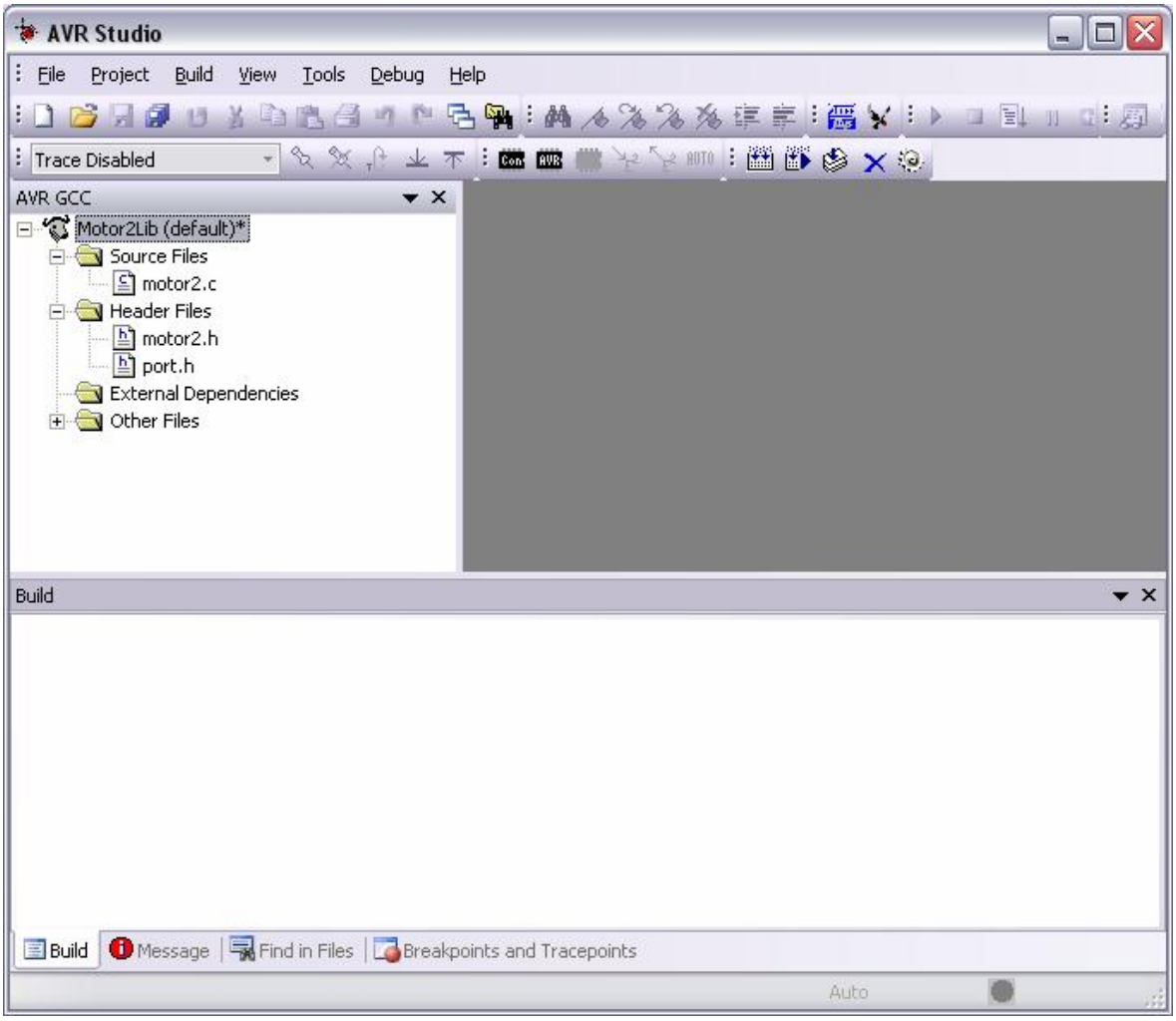
2. Build MOTOR-2 Library

If you want to rebuild MOTOR-2 Library you should do following steps.

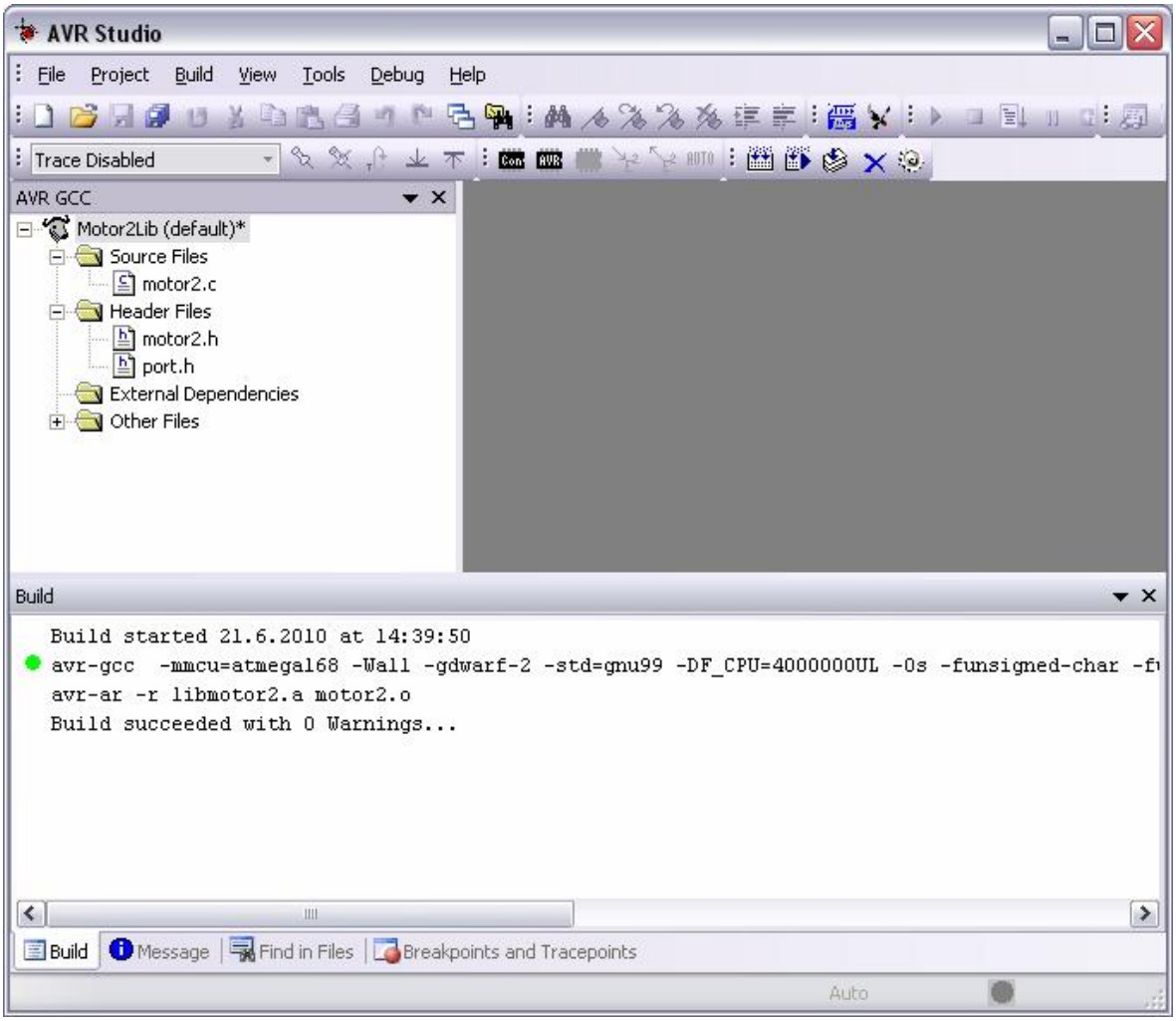
2.1 Open MOTOR-2 Library project in AVR Studio. You can simple double click on

`c:\bipom\devtools\WinAVRExamples\MOTOR-2\Lib\Motor2Lib.aps`

and if you have installed AVR Studio the project will be opened in it.



2.2 Go to menu **Build à Build** (or press F7 key on keyboard). Library will be build and **`libmotor2.a`** should be created/updated.



2.3 On the **Messages** window you can see following error messages:

```
Loaded plugin STK500
Loaded plugin AVR GCC
Loaded partfile: C:\Program Files\Atmel\AVR
Tools\PartDescriptionFiles\
gcc plug-in: Error: Object file not found on expected location
c:\bipom\devtools\WinAVRExamples\MOTOR-2\Lib\Motor2Lib.elf
Make sure your makefile specifies the output .elf file as
Motor2Lib.elf
```

Don’t care about them. Library project doesn’t create ELF file so it cannot be detected by AVR Studio.

3. How to create new MOTOR-2 Example using MOTOR-2 Library

Let's create new MOTOR-2 Example which will only initialize MOTOR-2 board.

3.1 Start AVR Studio

3.2 Click **Project à New Project**

3.3 In opened window enter following values:

Project Type : AVR GCC
Project Name : Motor2Init
Initial File : Motor2Init
Location : C:\bipom\devtools\WinAVRExamples\MOTOR-2\

Also check **Create initial file** and **Create folder** checkboxes.
Click **Next>>** button**.**

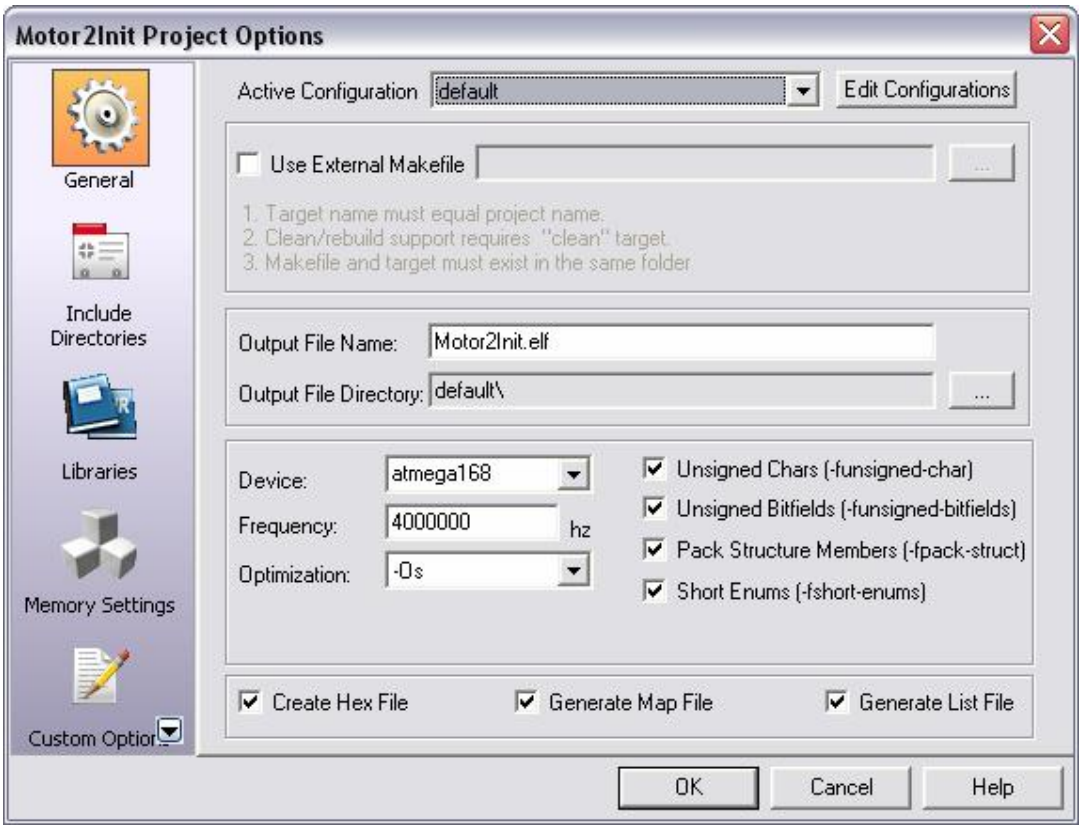
3.3 On next screen select **Debug Platform** and **Device**.

Debug Platform : AVR Simulator
Device : ATmega168

3.4 Click **Finish** button. New project will be created and initial file will be opened.

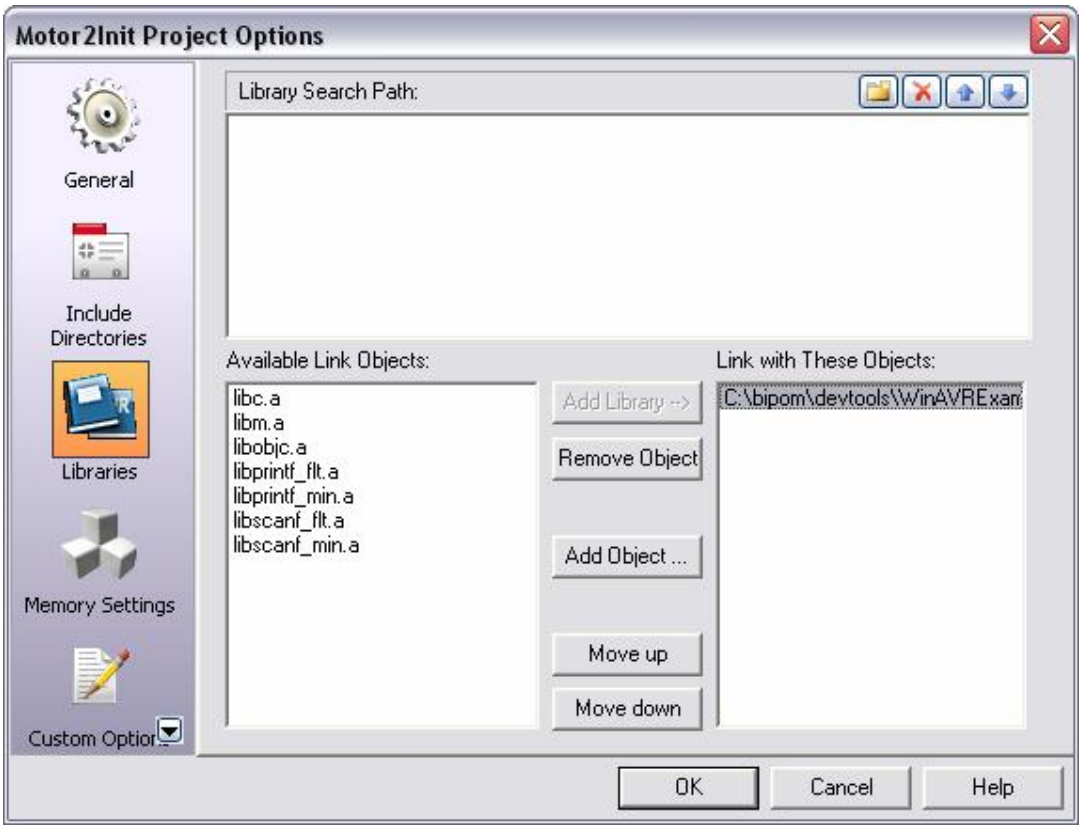
3.5 Go to **Project à Configuration Options**

3.6 On **General** tab check that options will be like on the picture

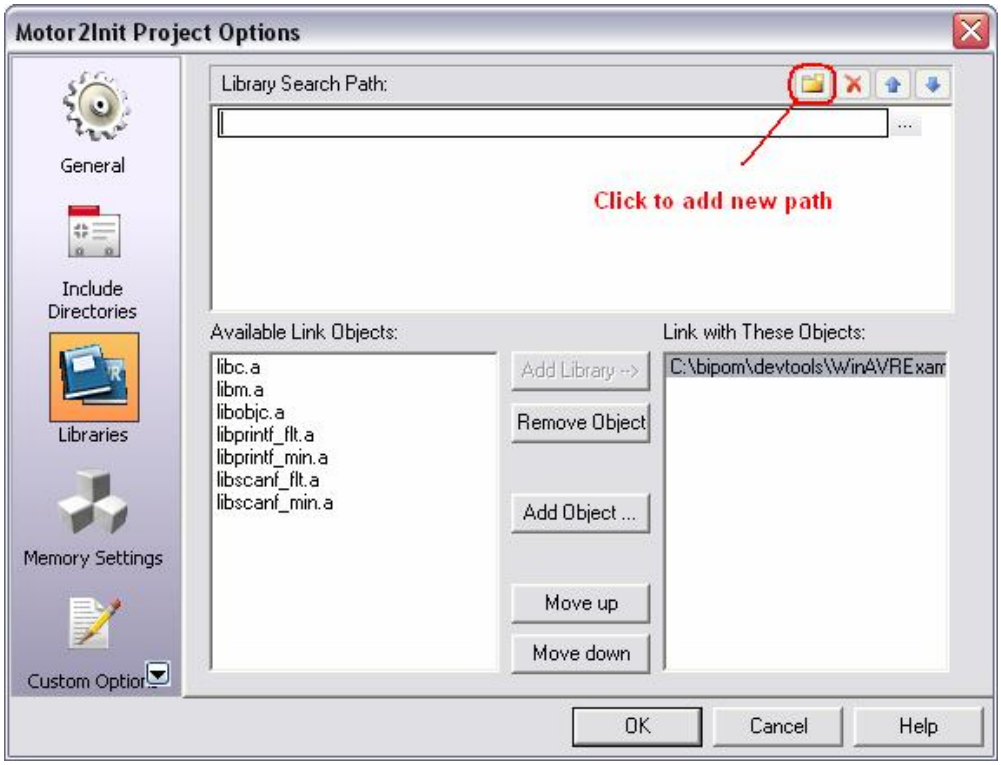


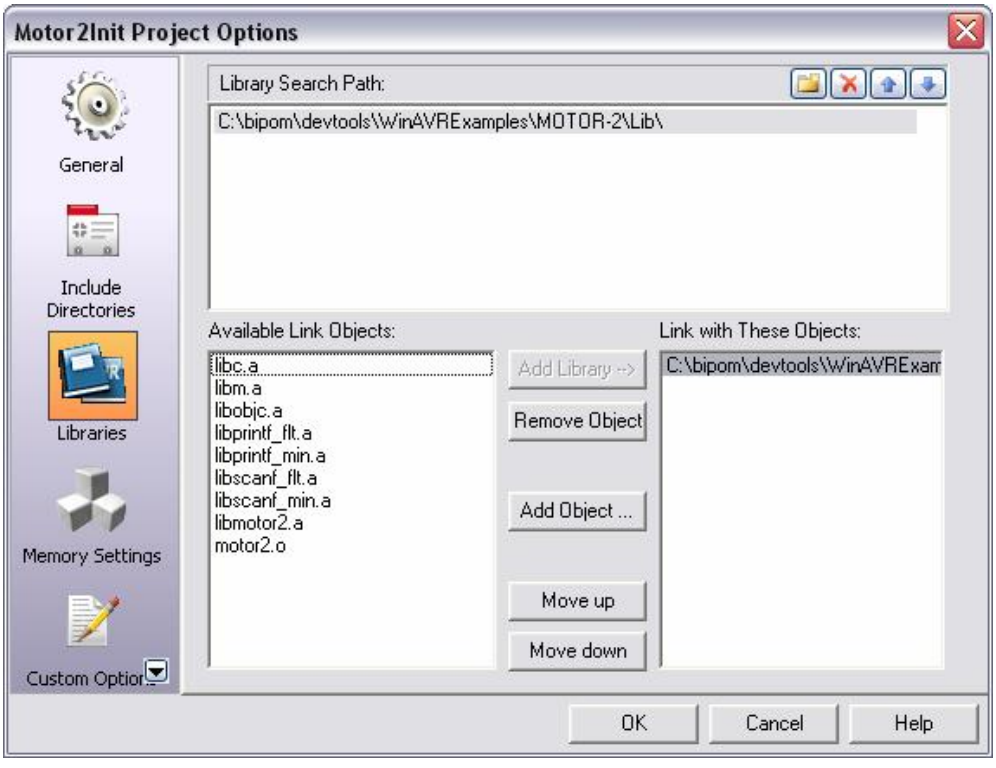
3.7 Then click on **Libraries** button. You should add **`libmotor2.a`** library file to your project.

3.8 On **Libraries** tab click **Add Object…** button and select **`libmotor2.a`** in **`c:\bipom\devtools\WinAVRExamples\MOTOR-2\Lib\`** folder. You will see it inside **Link with These Objects** list at the right side of window.

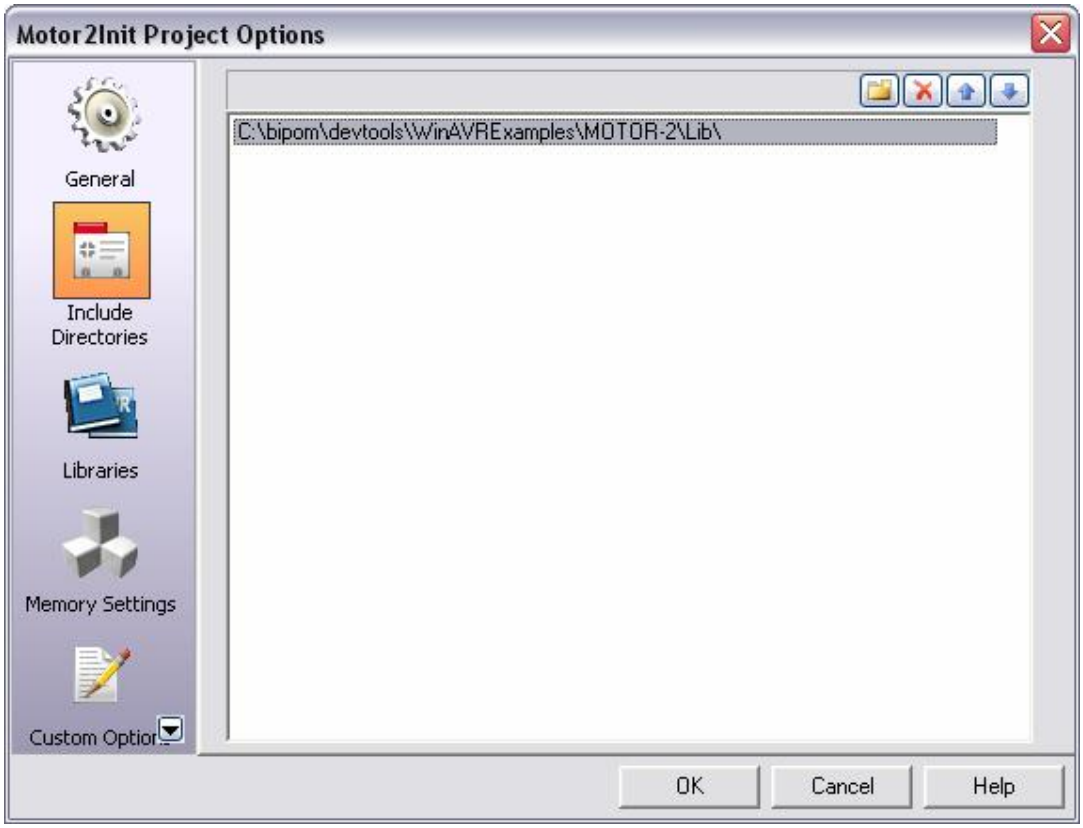


3.9 Now you should add **`c:\bipom\devtools\WinAVRExamples\MOTOR-2\Lib\`** folder to **Library Search Path** list. Click button with yellow folder icon at the top of window and enter the path to new list item. Or use browse button to the right from list item to browse folder where **`libmotor2.a`** file is.





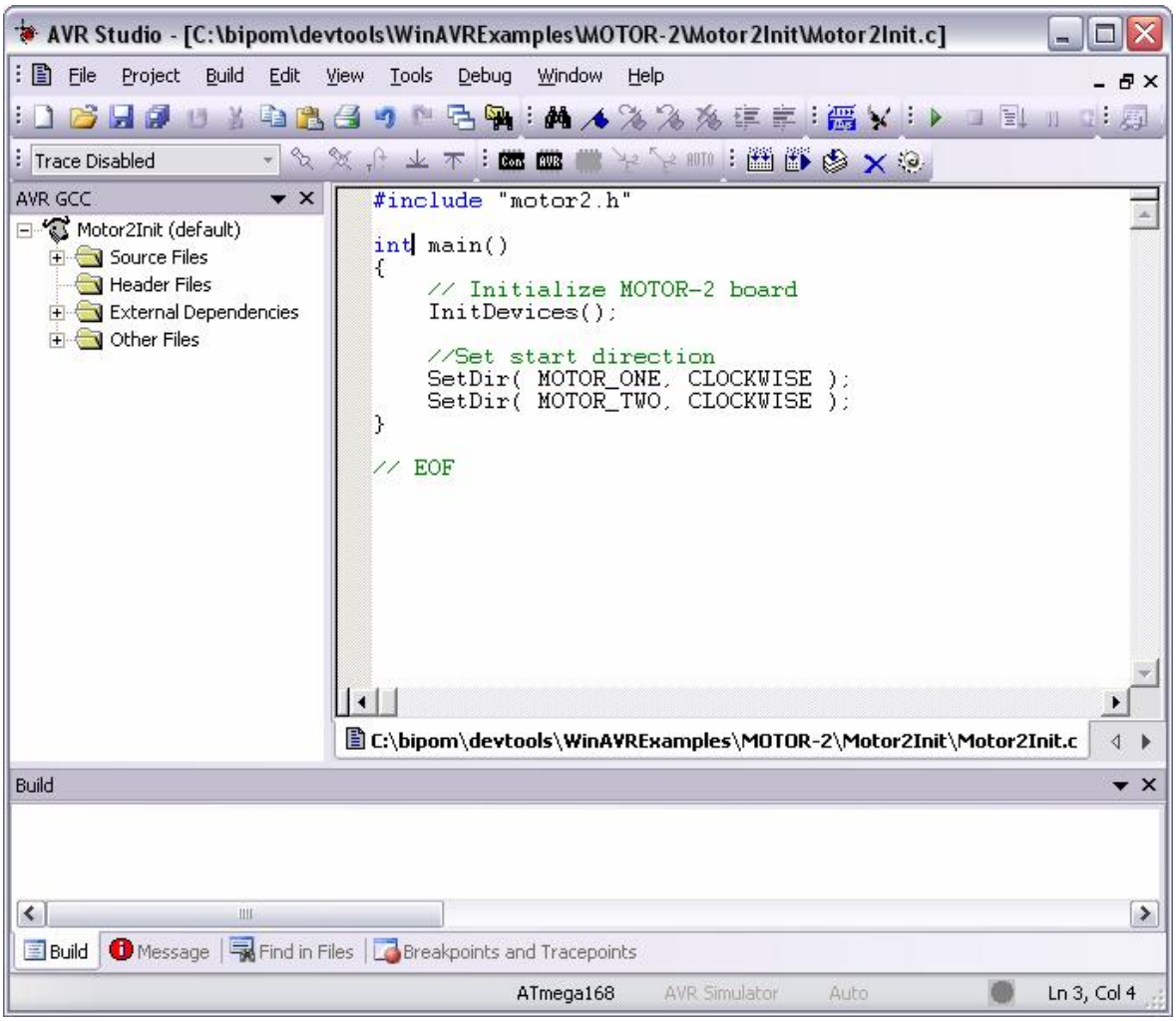
3.10 Now you should add **`c:\bipom\devtools\WinAVRExamples\MOTOR-2\Lib\`** folder to **Include Directories** list. Click **Include Directories** button at the left side of window. Click button with yellow folder icon at the top of window and enter the path to new list item. Or use browse button to the right from list item to browse **`Lib`** folder.



3.11 Now click **OK** button to save changes

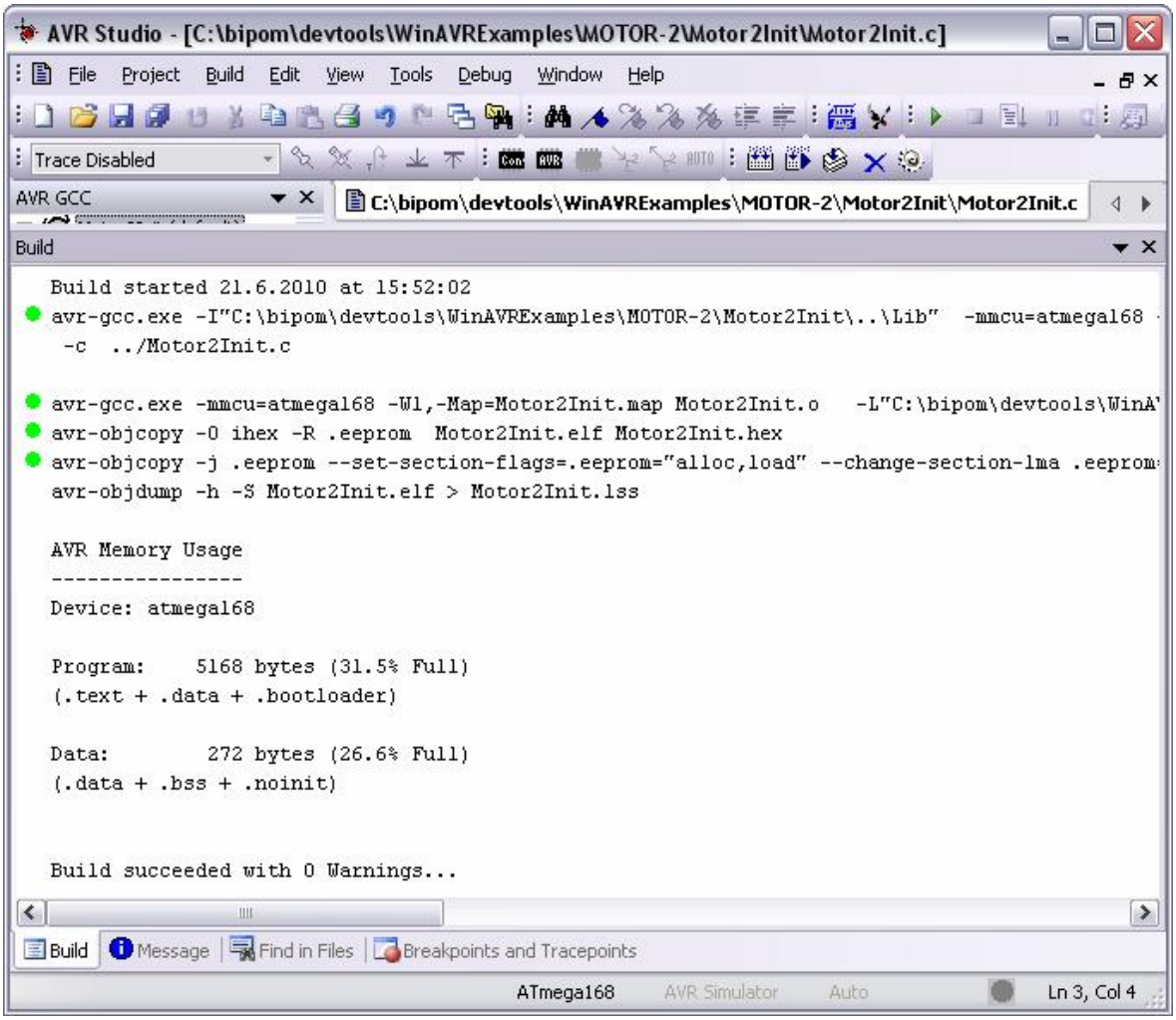
3.12 Open **`Motor2Init.c`** file in AVR Studio editor and enter following C code:

```
// include MOTOR-2 function declaration file
#include "motor2.h"

int main()
{
   // Initialize MOTOR-2 board
   InitDevices();

   //Set start direction of motors
   SetDir( MOTOR_ONE, CLOCKWISE );
   SetDir( MOTOR_TWO, CLOCKWISE );
}
```



3.13 In order to use functions from MOTOR-2 Library you should include **`motor2.h`** file. Then you can call any available functions.

3.14 In order to build your example do **Build à Build** (or press F7 on keyboard). As result you should see following log in **Build** window



3.15 When Build is finished AVR Studio generates HEX file **`Motor2Init.hex`**. You can use AVR Studio to download it to MOTOR-2 board.