Tutorial – Setting up the HW and SW

Hardware: Evaluation board: EVK100

Debugger: JTAGICE mkII

Software: Atmel Studio, version 6.2

GNU toolchain, version 3.4.2

Atmel Software Framework, version 3.7.2

Synopsis: Software installation, hardware configuration (EVK1100, JTAGICE mkII or Atmel Ice) running of an example program.

Software installation
All necessary software is already installed on the laboratory computers.

Hardware configuration
The EVK1100 board can be powered by a power cable or a USB-cable (recommended). The easiest way to program the EVK1100 board is to use it with a JTAGICE mkII or Atmel Ice debugger, which is available on every lab equipment board. If you want to connect the EVK1100 board to the hyper terminal on a PC you can use the UART_1 port on the EVK1100 board.

USB-connection

UART

External power supply

POWER SUPPLY SWITCH

JTAGICE mkII or Atmel Ice

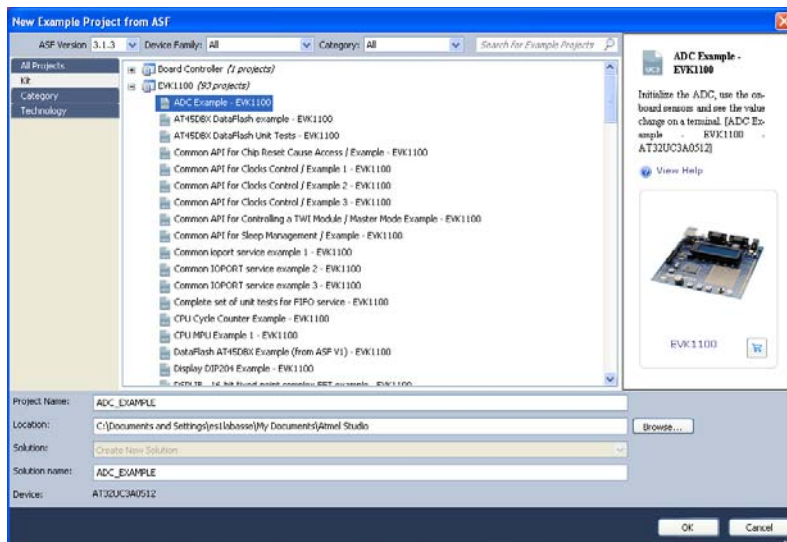MCP2515
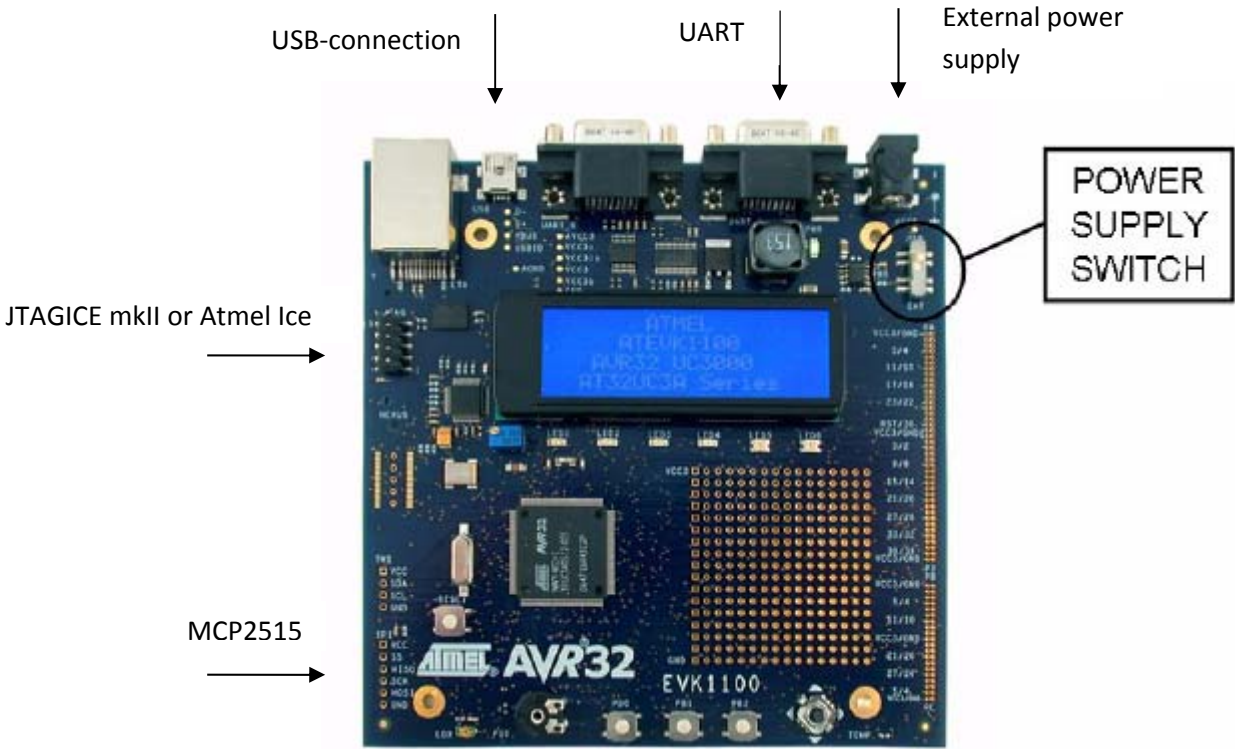
Getting started with Atmel Studio 6

Step 1

To get familiar with Atmel Studio 6 first open an AVR32 example project.
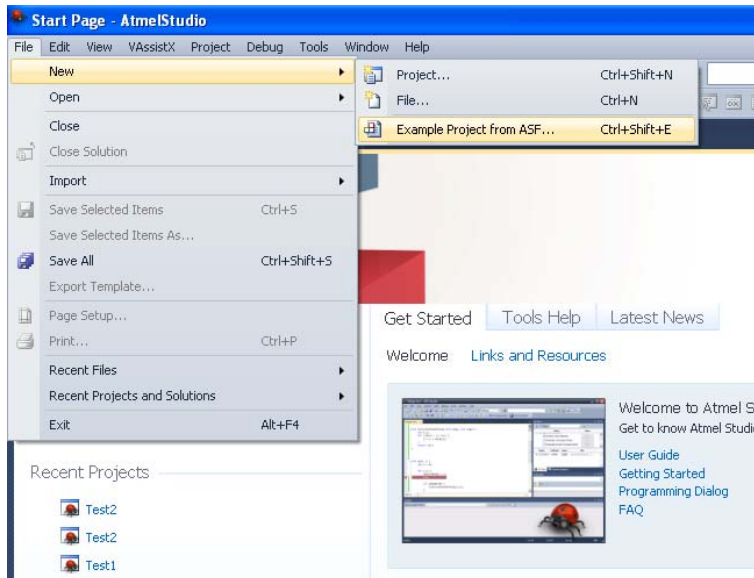
Step 2

Choose an example program for the EVK1100 platform. In this tutorial the example "ADC Example – EVK1100" is used.


Step 3

Choose a *Project Name* (in this case "ADC_EXAMPLE"), and an appropriate *Location* for your project files.

Step 4

To the right the Solution Explorer can be seen, where all the files related to the project show up. The figure below highlights the three main icons that you will use the most:
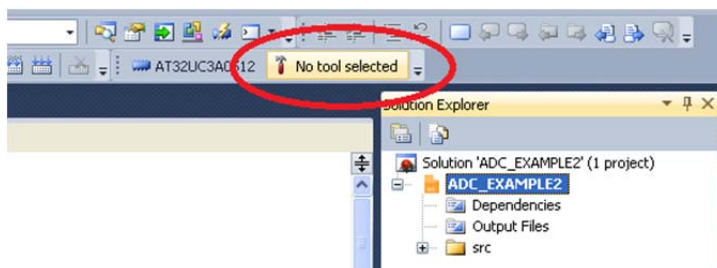
- Build
- Build and Run
- Build and Run (with debugging support)

Do not run the project yet. You will need to further configure the hardware before you can do so.
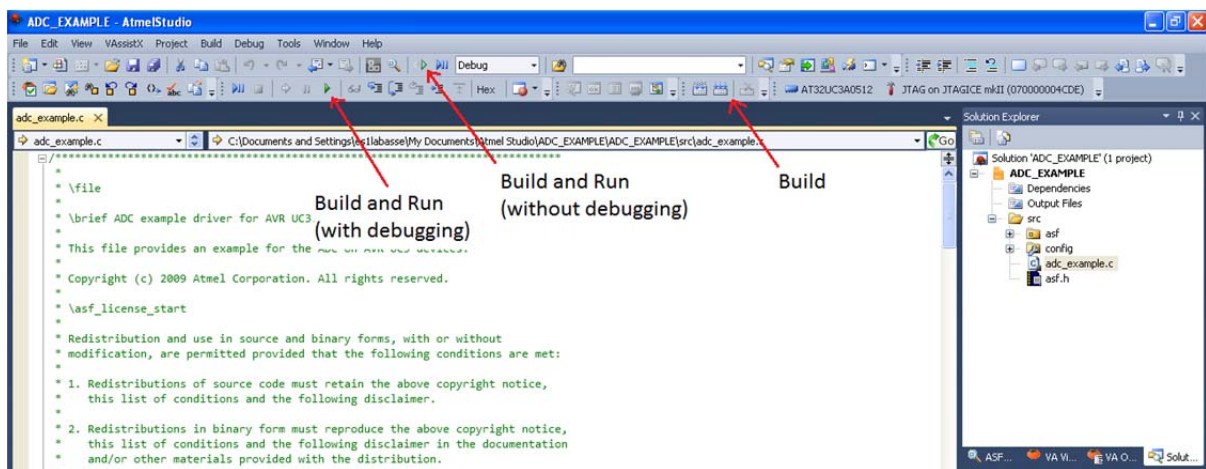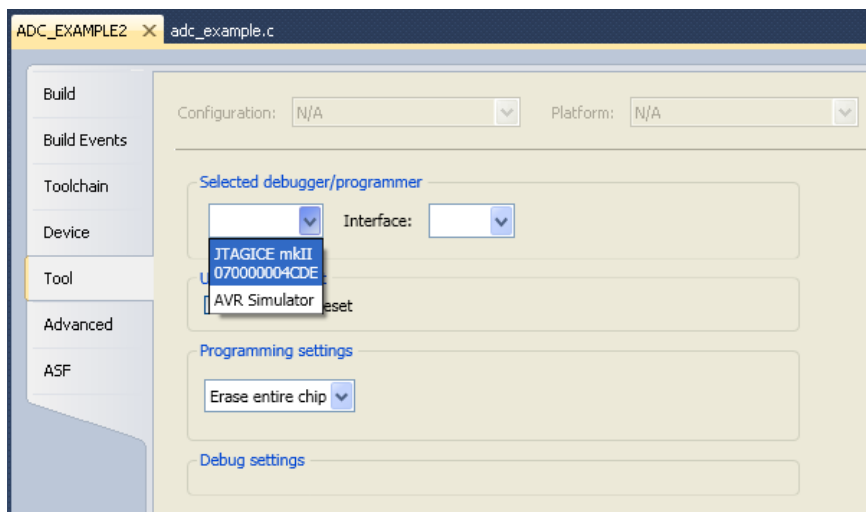

Step 5

In the toolbar just above the Solution Explorer, you will notice the *No tool selected* message. This means that no programmer is yet selected in the project to program your EVK1100 with.

Click on this *No tool selected* button to open the project properties window. Select the JTAGICE mkII or Atmel Ice as debugger/programmer. Close project properties.

Note that if no tool is selected and you run the program, a *Select Tool* dialog appears. Here you should also choose the JTAGICE mkII.

Step 6

If you have not programmed your EVK1100 before, you might be required to update the JTAG firmware and erase the memory content on the EVK1100 to be able to reprogram it. Test to program first, Atmel Studio will tell you if something needs to be done. If the programming doesn't work, try the following before asking for help:

- To upgrade the firmware on the JTAG, open the *AVR Tools Firmware Upgrade* under the *Tools* menu and follow the instructions.
- To erase the memory of the EVK1100, open the *Device Programming* dialog (See figure below) under the *Tools* menu. Select JTAGICE mkII as Tool, AT32UC3A0512 as Device and JTAG as Interface, press *Apply*. Now it should be possible to read *Device signature* (will show *JTAG id*) and *Target Voltage* to verify that the connection with the EVK1100 is working. If not, something is wrong with the settings or the physical device, look over the settings then try again. If still not working, contact an assistant for help. If connection with the EVK1100 is established, the device memory can be erased under the menu *Memories* by clicking *Erase now.* If programming of the EVK1100 is still not possible contact an assistant for help.


Step 7
Now we can finally run the example program. Click on the *Build and Run* button (the green arrow shown under step 4) to build and run the program. The program should start right away on the EVK1100 once the programming by the JTAG is done (if not you might have to press the reset button on the EVK1100 board.)

Step 8
Verify that the program is running on the AVR32 by connecting a serial cable between UART_1 on the EVK1100 and the serial port on the PC. Start a terminal program in the PC such as Putty.

Open Putty and configure it with the following settings for a serial connection:
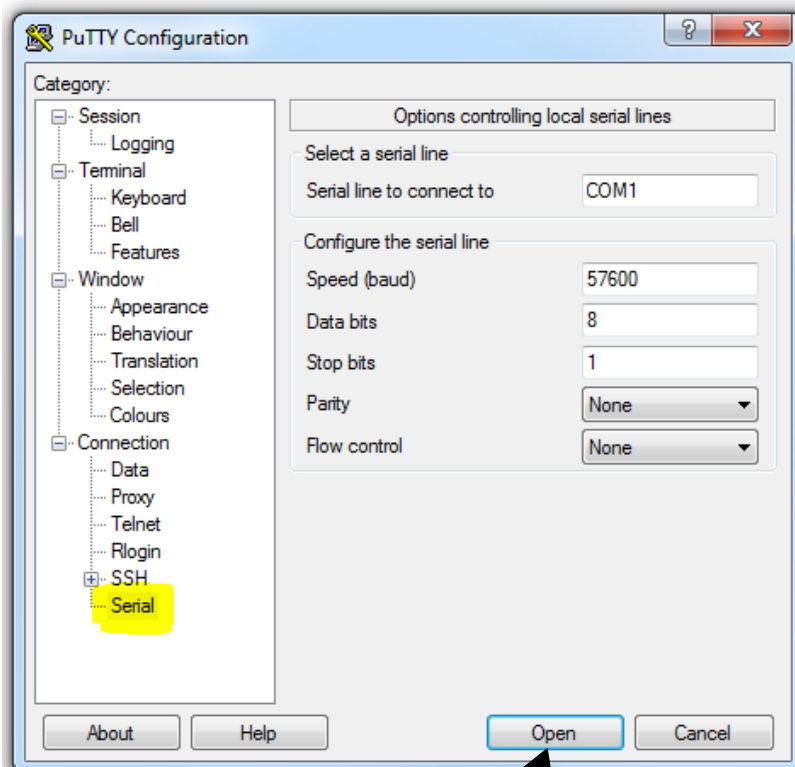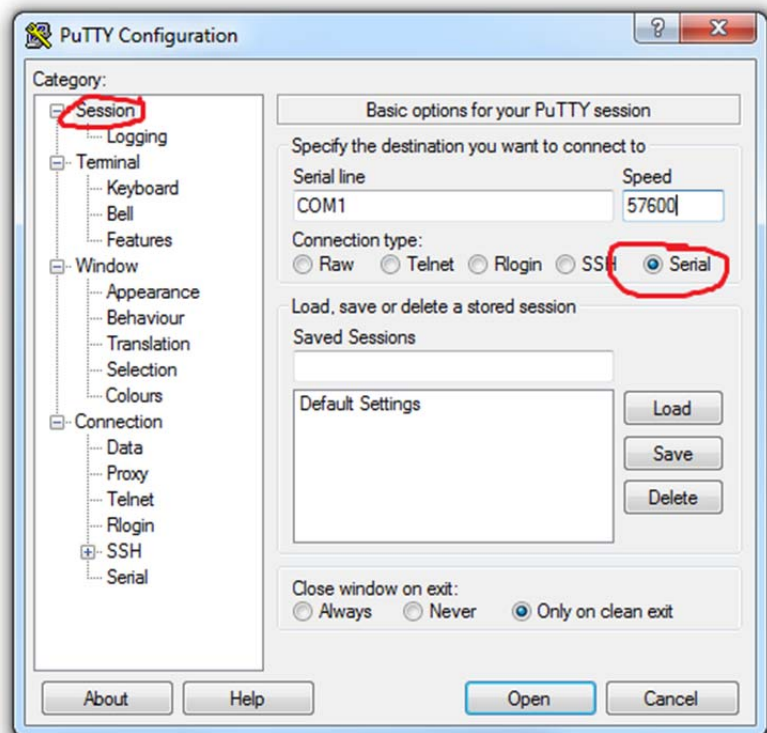
Finally click Open to start the connection

The output from the EVK1100 will be shown in the terminal window.

<u>Note</u>: The serial line is normally COM1 when connected to the computer's port but it may be different. To check the name of the port, go to the Device Manager: