Introduction to Atmel SAM4L Xplained Pro

ELC 4438 Lab Manual

January 27th, 2016

1. Read the user guide of the **Atmel SAM4L Xplained Pro** board and understand the board structure.
    http://www.atmel.com/Images/Atmel-42074-SAM4L-Xplained-Pro_User-Guide.pdf

    You can download the schematics of the board at
    http://www.atmel.com/images/Atmel-42074-SAM4L-Xplained-Pro_User-Guide.zip

    If needed, you can access all the datasheets, schematics, and user guides in the PDF folder in Baylor
   Box: https://goo.gl/qez6je

2. Open **Atmel Studio 6**. Get familiar with the software user interface.
    If needed, you can refer to the Atmel Studio tutorial:
    http://www.atmel.com/webdoc/atmelstudio/index.html

3. Connect the Atmel SAM4L Xplained board with the peripheral boards **PROTO1**, **IO1**, **OLED1**, and
    SEGMENT LCD1.
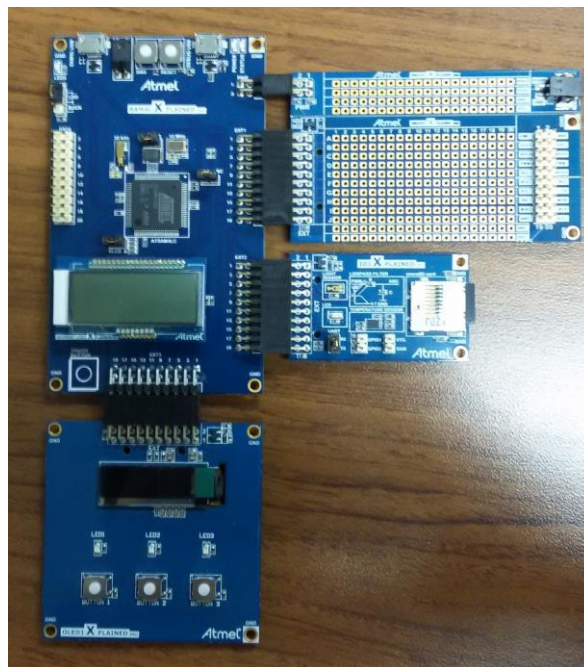
Connect the Atmel SAM4L Xplained board with the PC through **DEBUG USB**.

Verify that the software has detected the MCU board SAM Xplained Pro and the extension boards.

Atmel Studio should automatically show the SAM4L Xplained Pro tab. Click **New Example Project**
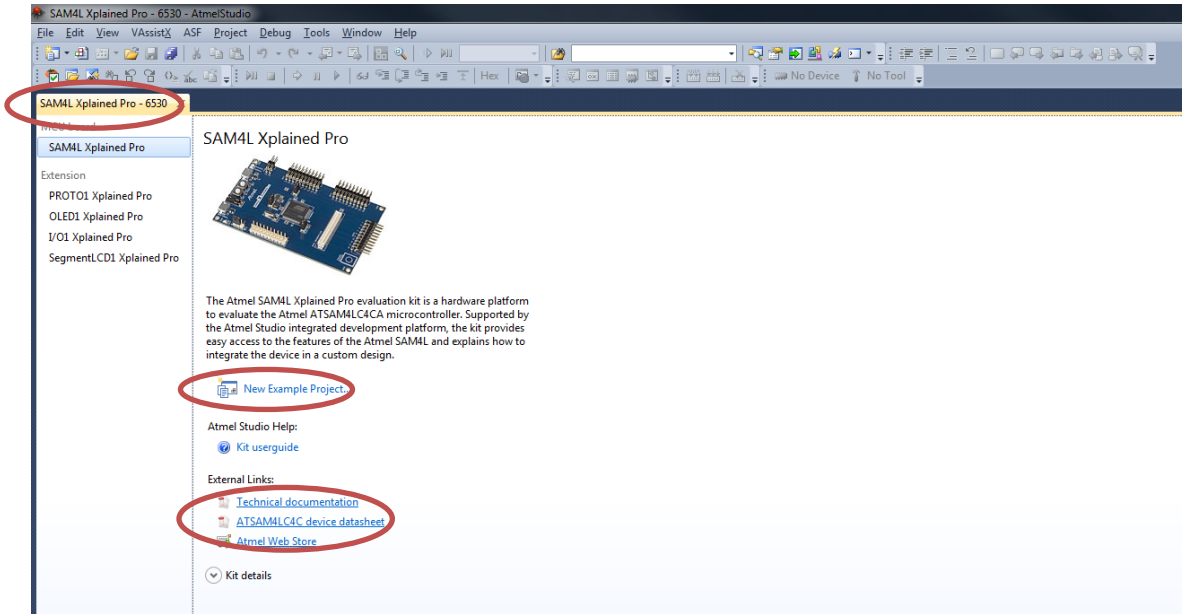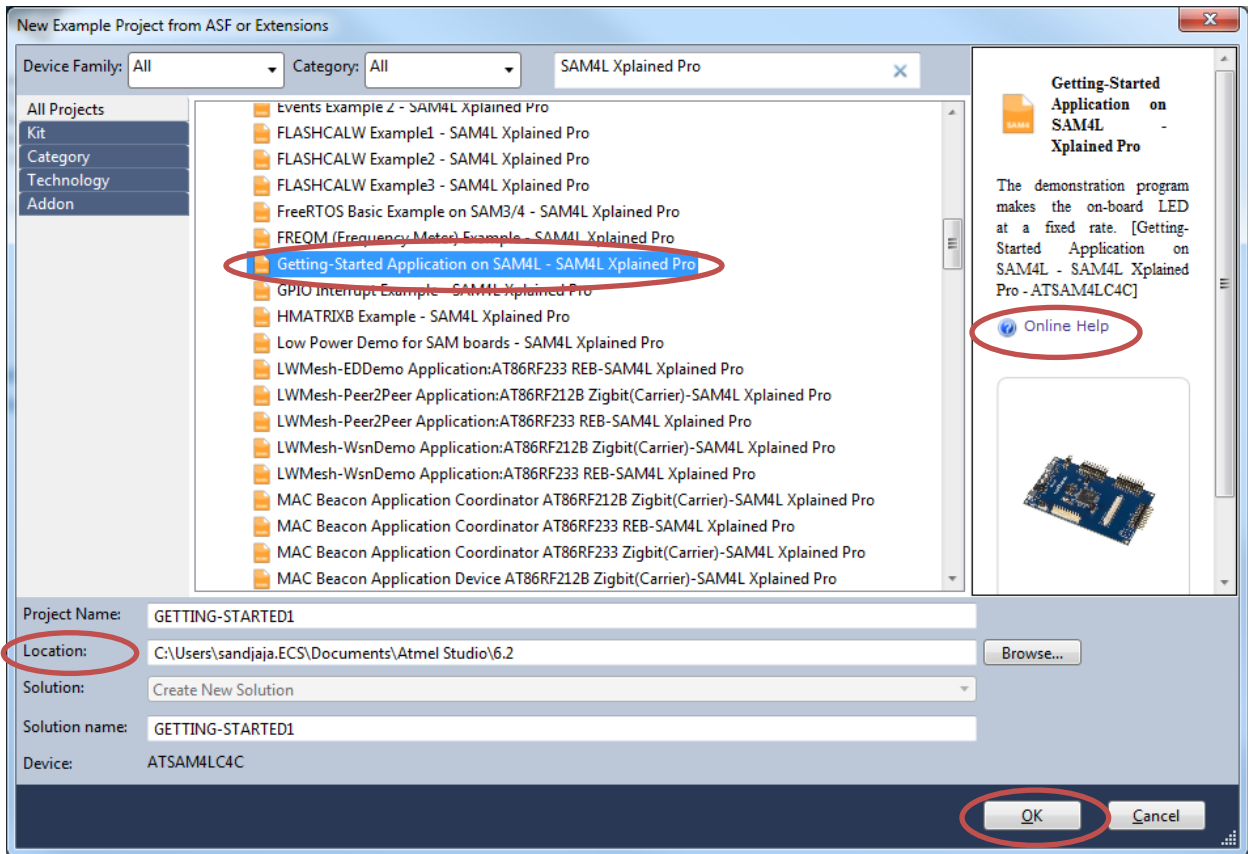

4. Click on the small triangle before *Atmel-Atmel Corp* to see all available examples.

    Choose "**Getting-Started Application on SAM4L – SAM4L Xplained Pro**". You can click Online Help on the right to see what this program does.

    Click OK to create this example. (Please be patient as it may take a few minutes.)
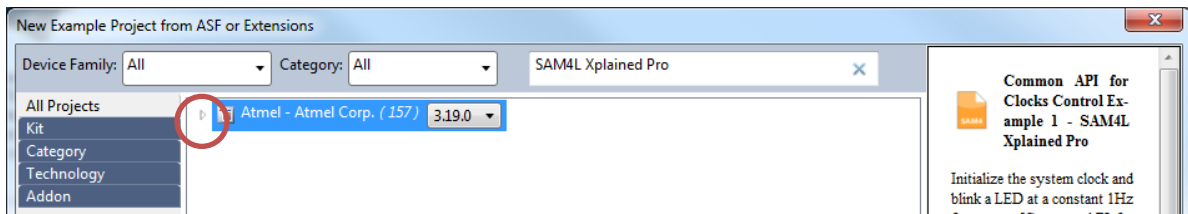
5. Click "**No tool**" on the menu toolbar and select "**EDBG"** for debugger/programmer in the Tool Tab.

   Open the source in **Solution Explorer** – src directory – main_sam4l.c.

   Get familiar with the directory structure and the files, i.e. header, config, and ASF. (You will learn ASF soon.)

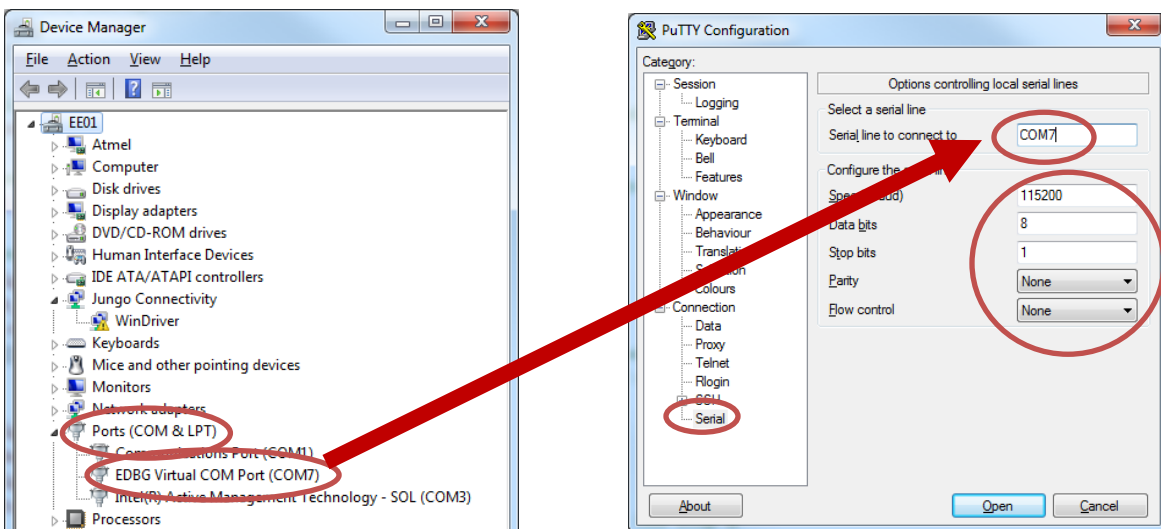6. Read the C code in Atmel Studio to understand how the program works.

   Click "**Start without debugging**" (Green triangle) in the menu toolbar.

   The STATUS LED on the Atmel boards blinks.   You can turn on/off the blinking LED by pushing the SW0 button.
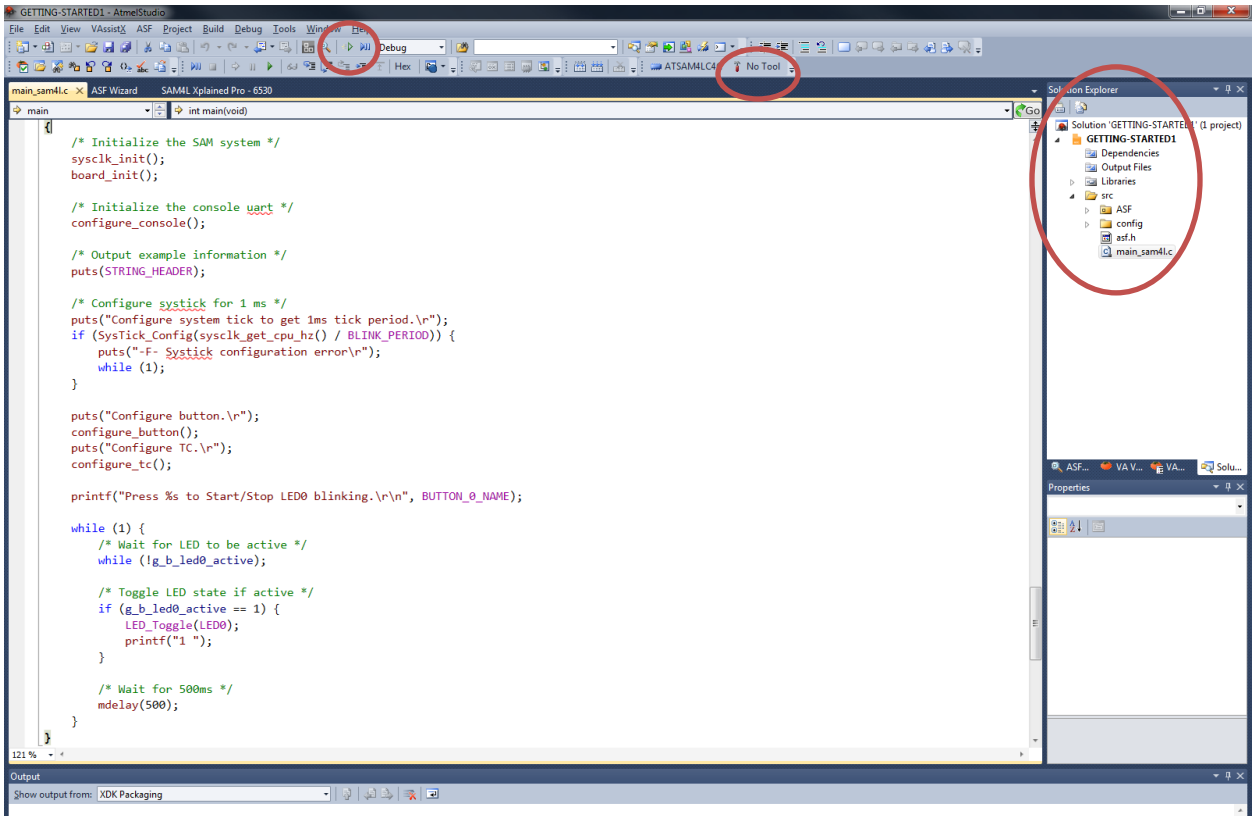
7. Open Control Panel – Device Manager from Windows Start Button.

Click "Ports" to find out EDBG Virtual COM Port.

8. Open a little software called PuTTY (http://www.putty.org/) and select "Serial" in Category (left side).

    Set "Serial line to connect to" with the value of EDBG Virtual COM Port.

    Configure the serial line with the configuration that can be found in the header of the main program (115200 baud rate, 8 bits of data, No parity, 1 stop bit, No flow control).

    Select "Session" in Category (left side).   Choose Serial as Connection type.

    Click Open to start the terminal.

    The Atmel board should send a stream of 1's and 2's which are shown in the terminal window.
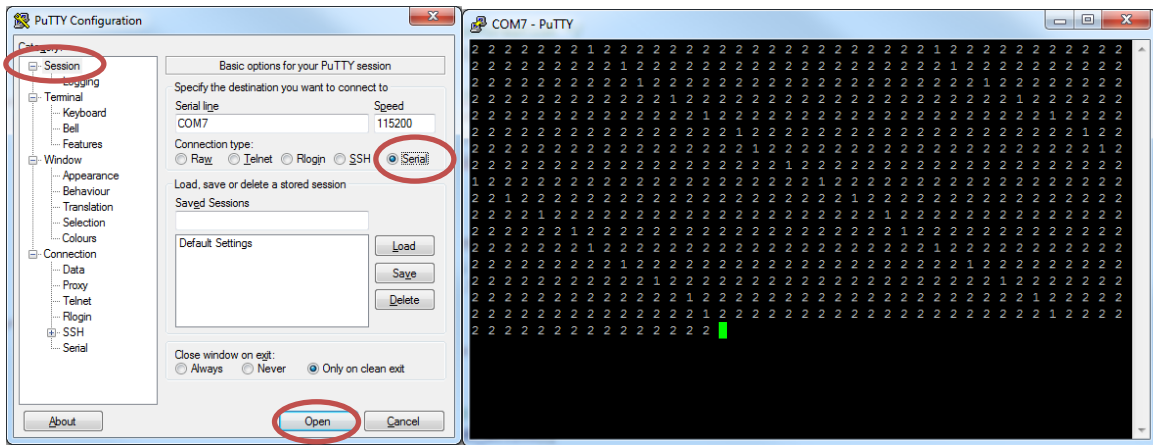
9. Now, your job is to change the output stream in PuTTY terminal and change the blinking rate (frequency) of the LED.

    Show your modified code and the experiment result to your TA.

    To learn more about Atmel SAM4L series boards, please see the datasheet.
    http://www.atmel.com/Images/Atmel-42023-ARM-Microcontroller-ATSAM4L-Low-Power-LCD_Datasheet.pdf