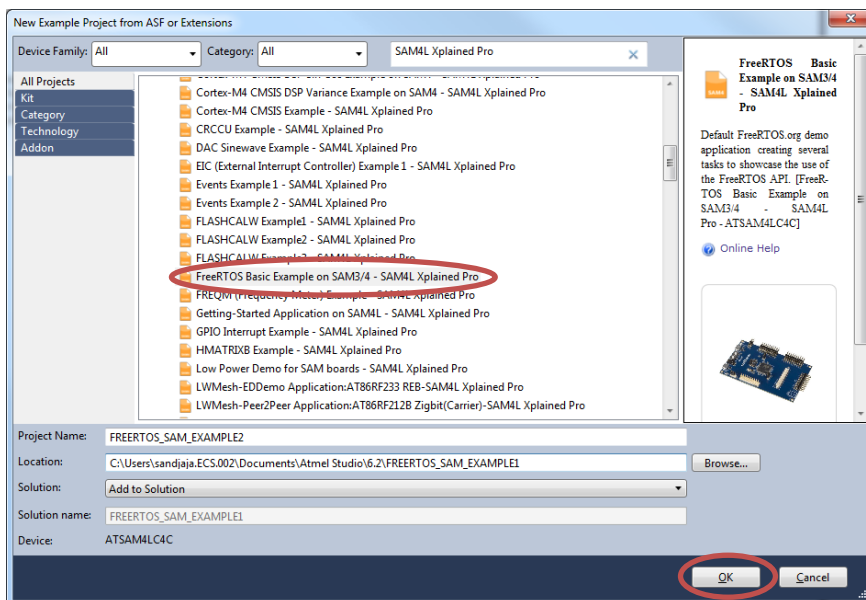


Atmel SAM4L Xplained Pro – FreeRTOS

ELC 4438 Lab Manual

March 30th, 2016

1. Download and read the ebook, titled **Using the FreeRTOS Real Time Kernel - Practical Guide** by Richard Barry. The ebook can be downloaded in <\\ada\Profdata\DongL\Spring2016\ELC4438>
2. Open **Atmel Studio 6.2**. Connect the Atmel SAM4L Xplained board with Atmel **OLED1** board at EXT1 and **LCD**. Connect the Atmel board with the PC through DEBUG USB.
3. Click New Example Project in the Atmel Studio 6.2 – SAM4L Xplained Pro tab. Click on the small triangle before Atmel-Atmel Corp to see all available examples. Choose **FreeRTOS Basic Example on SAM3/4– SAM4L Xplained Pro**. Click **OK** to create this example. Accept the license agreement.



4. Click **No tool** on the menu toolbar and select **EDBG** for Selected debugger/programmer in the Tool Tab. Click **Start without debugging** (green triangle) in the menu toolbar. Try to understand how RTOS works.

5. Change LED task to blink LED0 every half second.
Create three more tasks. They will make LED on the OLED1 board blink every 1s, 2s, and 3s, respectively.
Experiment with a different priority for each task.

6. Create one more task to show an increasing counter on the LCD that counts every 3s.

Show your results to your TA.