EE 444/645

01/26/2023

Lab #0: MSP430: Digital I/O

Report due: *02/02/2023 by 2:00*

INTRODUCTION

The main goal of this laboratory is to get familiar with the Texas Instruments MSP-EXP430F5438a experimenter's board, CrossStudio programming environment from Rowley, and the process of downloading, executing, and debugging programs on MSP430-based boards. In addition, you will use Digital I/O capabilities of MSP430.

EQUIPMENT:

       CrossStudio for MSP430
       TI MSP-EXP430F5438A board
       Agilent mixed-signal oscilloscope

ASSIGNMENT:

Use an oscilloscope to measure and capture the results of your execution. Check carefully the datasheet for MSP-EXP430F5438A board to determine which of the pins (ports) are used for switches, LEDs and which pins are available for general-purpose use (i.e., not used for something else).

1. Set the MCLK of MSP430 as close as possible to 4 MHz; check the actual frequency using the oscilloscope and capture the oscilloscope screen for the report. Make sure the frequency is shown on the screen. Import the captured image into a Word document and include it in your report.

2. Add an *interrupt service routine* to your program that will toggle one of the LEDs on the board each time a push button switch is pressed.

All the reports in this class will be submitted through Blackboard. Submit the reports in a format compatible with MS Word. Include all the *.C and *.h files you wrote for this assignment in your report, as appendices.

NOTES:
- Demonstrate the functionality of the program to the instructor/TA.
- Follow the template for EE444/645 reports, available on Blackboard.