Self-Study Laboratory Exercise 3

Laboratory Demo: 204:237 (Bentley), Miri: Consult with your lecturer

Equipment Required:

1 × MSP-EXP430FR5739 Experimenter's Board
1 × PC with latest version of Code Compose Studio (CCS) installed

1. Exercise

Study the main.c in the Interrupt_Latency.zip. The CCS project is a starting point to look deeper into the mechanisms of GPIO and timer interrupts. By the end of this exercise, you should be more confident with working with interrupts at the C level by setting up key registers and working off the msp430fr5739.h. The following tasks are to be completed.

- Study the various register setups for initialising the various interrupts.
  - Modify code and experiment to see how the interrupts can be triggered.
  - Supplement by studying the TI's documents provided in Bb.
  - Supplement your learning with other sources from the internet.
- Your main task is to modify main.c code to measure the capture interrupt latency i.e. the interval between the assertion of the interrupt signal and the starting of the code to process that interrupt. You may use any unused port pins to toggle signals to be measured on an oscilloscope which is to be demonstrated to a lab demonstrator for rubric marking.
  Hint: Use the on-board LEDs as part of your debugging aid in addition to the CCS debugger, if you can have working on your operating system.