CECS 347 Lab 2 Software PWM Controlled LED

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Preparation:

Review three major topics learned in CECS346: GPIO, Interrupts, SysTick timer and Lecture 3 First approach to generate PWM: timer approach. You only need a TM4C123 LaunchPad for thislab.

Startup Project: SoftwarePWM

Reference Projects: HelloLaunchPad, EdgeInterrupt, PeriodicSysTickInts, SoftwarePWM

Purpose:

Review GPIO, Interrupts, SysTick timer and learn how to use software PWM to control the brightness of an LED.

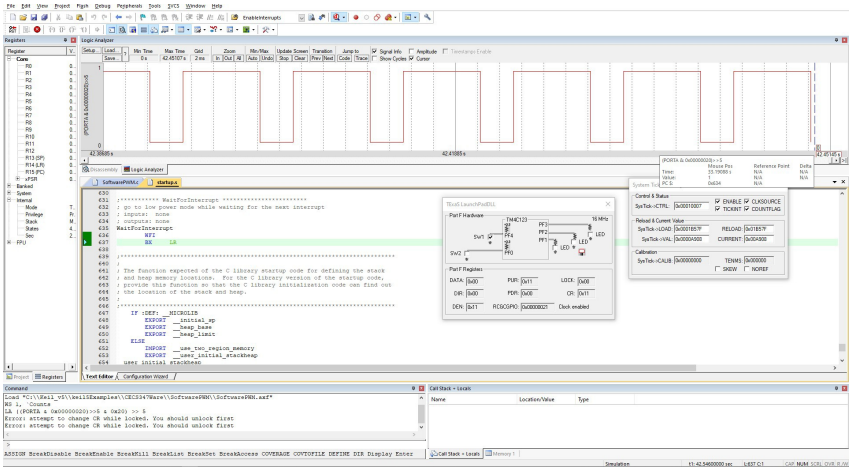
System Requirements:

Use the two switches on LaunchPad to control the brightness of one of the three LEDs on LaunchPad: switch 1(left push button) increase the brightness of the chosen light; switch 2(right push button) decrease the brightness of the chosen light.

You are required to rename the startup project to CECS347Lab2 and make other changes accordingly to creating a new working project. Name your .c file with main() function as CECS347Lab2.c. Please check the steps in the following video located in dropbox Lab2 folder: NewProjectBasedOnOld.

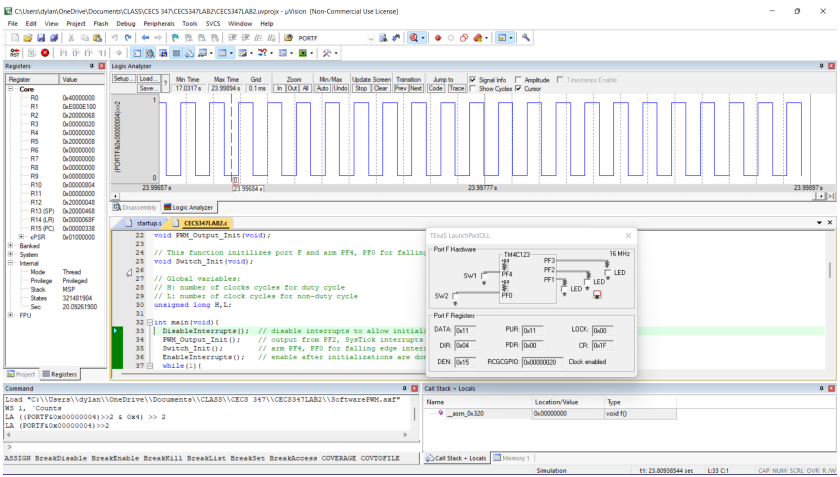
Deliverable:

1) Simulate your program on Keil using Logic analyzer to show the output PWM wave form. Video tape your simulation. Submit a link to your video. Hint: example to setup logic analyzer (assume PWM output to PF2): **(PORTF & 0x00000004)>>2**
   Example simulation waveform:

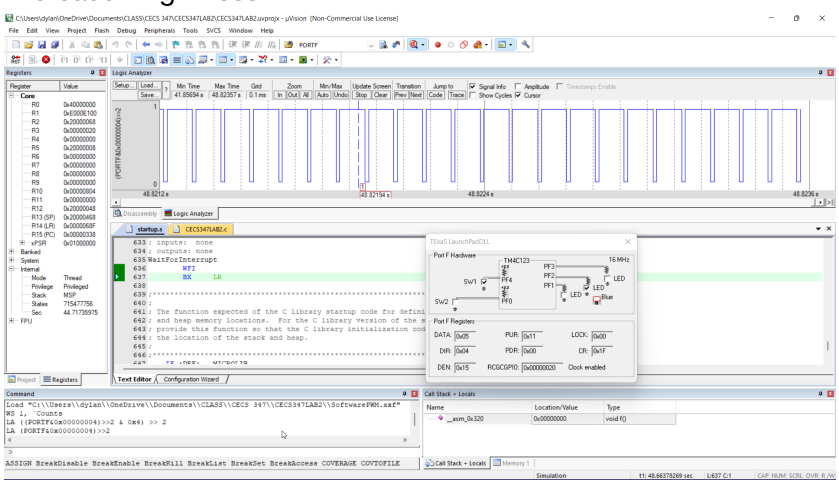


2) Demonstrate your lab on board through Zoom breakout room and video tape it. Submit a link to your video.
3) Submit your software source code to beachboard dropbox.

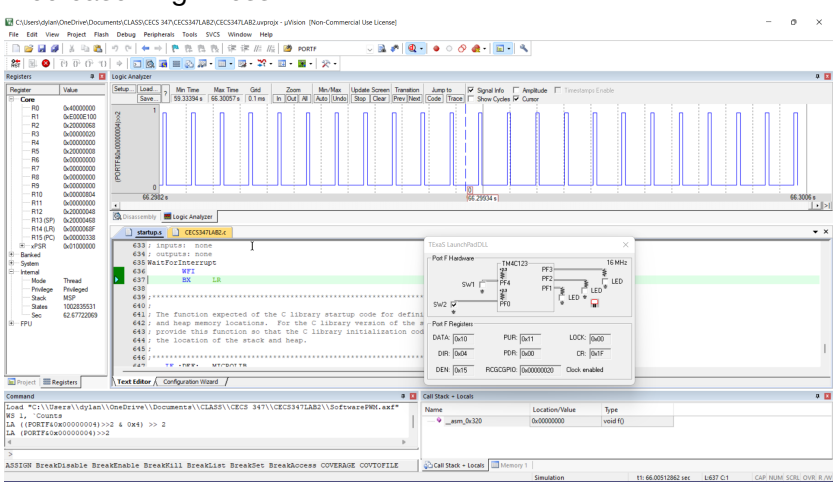
Default:



Increase Brightness:



Decrease Brightness:



Demo Link: https://youtu.be/fqPKWk0Nbw8