Overview

In this lab, you will use TI Code Composer Studio (CCS) to program the TC CC3220x LAUNCHXL to blink some LEDs. Blinking LEDs in the embedded space is equivalent to "Hello, world!" in the desktop space.

During this milestone you will use CCS to edit, compile, and load code into the CC32xx board. You will then proceed to use it for debugging. Throughout this process, you explore the components of a CCS project and the CCS code generator (system config). You will also be able to learn more about the PWM driver.

Goal: Your objective is to blink the green and yellow LEDs on the board.

Prompt

Begin your work by accessing the <u>Milestone One PWM Lab Guide PDF</u> document. While this document was written for a Windows interface, the tools can be used on Mac or Linux as well. Note that to accomplish the work outlined in the guide, you will need the following:

- TI CC3220x LAUNCHXL
- TI Code Composer Studio (installed)
- USB connection between the PC and board

You should have already set up the tools you need to complete this task during your work last week. However, if you would like to review any of the setup information, you may review the guidance in the Module One Assignment. The general setup steps include the following:

1. Proceed to the <u>CC3220S-LAUNCHXL</u> resource and review the documentation on the Texas Instruments microcontroller.
2. Download and install the SDK from the <u>CC32xx software development kit</u>.
3. Sign in to the cloud tools that you are going to be using for development at the <u>Code Composer Studio Downloads</u> website.

Specifically, you must address the following rubric criteria:

- Develop **code** for all of the specified **functionality** of the PWM peripheral. The LEDs should alternate between 10% and 90% duty cycles.
- Discuss the **questions** from the lab. Address all of the questions thoroughly and thoughtfully, with supporting evidence from your work.
- Apply coding **best practices** in formatting, commenting, and functional logic.

Guidelines for Submission

You will have three different file submissions for this milestone. Once you have completed your lab work, first zip your workspace and submit the zipped file for grading. Second, submit a 10-second video of the LEDs blinking on your board. If you encounter any difficulties filming the lights on your hardware component, please reach out to your instructor. Finally, submit a document containing your answers to the questions from the Milestone One PWM Lab Guide.
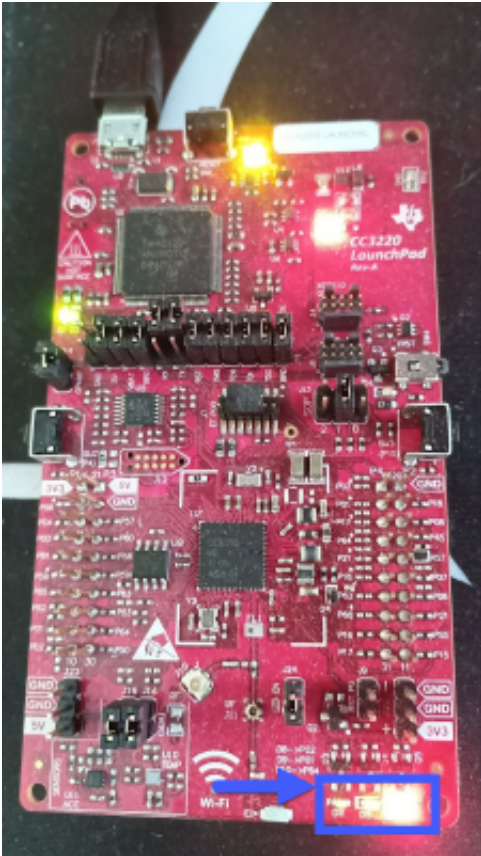
Milestone One Rubric

Criteria	Exemplary (100%)	Proficient (85%)	Needs Improvement (55%)	Not Evident (0%)	Value
Code Functionality	Exceeds proficiency in an exceptionally clear, insightful, sophisticated, or	Develops code for all of the specified functionality of the PWM peripheral	Shows progress toward proficiency, but with errors or omissions; areas for	Does not attempt criterion	50

	creative manner		improvement may include the PWM being correct, including alternating, or the PWM rate being clear		
Questions	Exceeds proficiency in an exceptionally clear, insightful, sophisticated, or creative manner	Discusses the lab questions	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include thoroughly addressing all of the questions or providing specific examples	Does not attempt criterion	35
Best Practices	Exceeds proficiency in an exceptionally clear, insightful, sophisticated, or creative manner	Applies coding best practices in formatting, commenting, and functional logic	Shows progress toward proficiency, but with errors or omissions; areas for improvement may include use of formatting best practices to make code easy to read, commenting best practices to ensure code is clearly explained, or functional logic so the program runs as expected	Does not attempt criterion	15
				Total:	100%