Lab Time_____ Name_____

# Lab 1a. Getting Started

**Preparation**

You will need a LaunchPad and a laptop/computer capable of installing Keil uVision5.

**Starter project** Lab 1a

**Purpose**

The purpose of this lab is for you to set up the environment you will use for future labs. You will be required to install uVision5 and the Stellaris ICDI drivers. This lab will not require any programming. Instead, you will be required to download a given program onto your board. The provided program changes the blink routines of the Launchpad's LEDs based on which button(s) on the Launchpad are pressed.

**System Requirements**

The system will have two inputs, SW1 and SW2, and three outputs the red, blue, and green LEDs. SW1 and SW2 are tied to pins PF4 and PF0, respectively. The green, blue, and red LEDs are tied to pins PF3, PF2, and PF1, respectively. Without any buttons pressed the blue LED is on. Holding down only SW1 causes the blue LED to dim. Holding down only SW2 causes the blue and green LEDs to alternatively toggle. Pressing in both of the buttons causes the board to cycles through the LEDs where only one is on at a time.

**Procedure**

This lab can be divided into three parts: Keil uVision5 installation, driver installation, and running the provided program.

**Keil Installation)** The first thing you will need to do is install Keil uVision5. Keil (rhymes with tile because it's German) is used to edit, debug, and compile any code you write. The steps for installing Keil can be found under the "Pages" tab on Canvas or at this link:

https://uk.instructure.com/courses/1966129/pages/keil-and-stellaris-drivers-install-2020

You will be required to enter some information about yourself before you are allowed to download the installer. The provided resources are designed for Windows. Anyone wishing to use a Mac will have to either parallel boot into Windows or use a virtual machine that has windows installed. Step 8 of the above link contains instructions for Mac installation.

**Driver Installation)** The next step involves installing the drivers that allow your computer to recognize the Launchpad. Step 8 in the previous link contains the installation instruction for the drivers. It is recommended that you install the newer version of the drivers if you are using Windows 8 or newer. The older version of the drivers are also provided at the previous for older versions of Windows. The older drivers can be installed on Windows 8 and 10, but doing so requires additional step to disable driver signature checking.

**Test Program)** A test program has been provided to verify that both of the previous sections were successfully completed. Download the Lab 1a project file from Canvas which is also linked to here:

1) Unzip the project and launch Lab 1, the uVision5 project file.
2) Build the project by pressing the "Build" button located on the bottom row of your toolbar. You can also go to **Project->Build Target**.
3) Connect your board via the USB port on the top of the Launchpad. Make sure the switch next to it has been slid to the right. The nearby light green PWR LED will be on if this was done correctly.

4) Go to **Flash → Configure flash tools → Debug** and make sure the **Stellaris ICDI** drivers are chosen as shown below in Figure 1.
5) Click the "Load" button to load the program onto the board. The button is located to the right of the "Build" button. You can also go to **Flash → Download**.
6) On the board either press the reset button or power cycle the board. The board will then begin running the program that was loaded onto it.

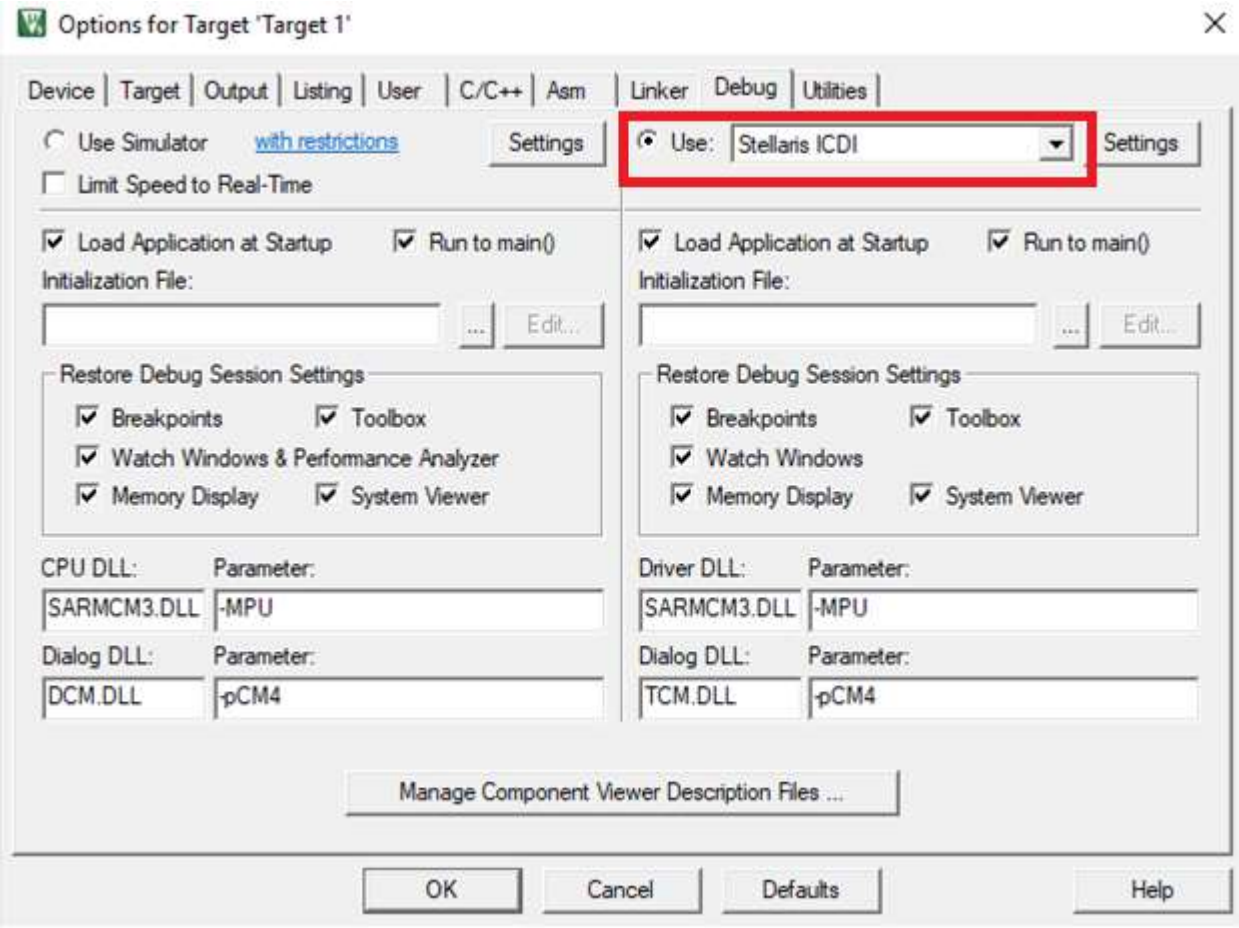


**Figure 1:** Stellaris ICDI

Demonstrate the program correctly running on your board for the TA's signature.

Signature Cole Tarrall Date 2/4/20