ECE/CSE 474:
Intro to Embedded Systems

Troubleshooting the TM4C1294XL TIVA Board

TIVA Board Testing

1. Follow the IAR tutorial to create and set up an IAR workspace.
2. Connect the TIVA board to your computer via the provided micro-USB cable. Use the right-most micro-USB port on the TIVA board, labeled "Debug USB port" below.

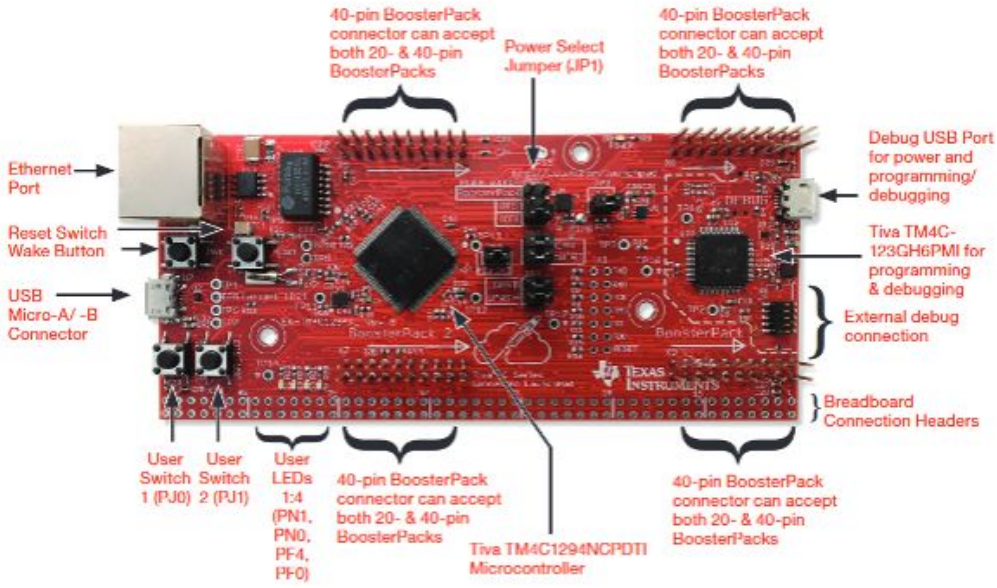

Figure 1. TM4C1294XL TIVA board overview

3. Copy the sample program code found in the "Three Steps to Get You Started" section of the Lab 1 specs to your main.c file. You will need the header file "tm4c1294ncpdt.h" in your project's "Include Path" for the code to compile (refer to the "IAR New Project Tutorial" for steps to properly set up a new project in IAR Workbench).
4. Click on the green Download and Debug button on the IAR Workbench to download the code to your TIVA board. Then, click the Go button to run the program.

If IAR prompts JTAG Error/Incorrect Stack Pointer Alignment, follow the board flashing procedure on page 3 of this document to resolve this issue.

If IAR prompts No Debugging Probe Found

- Make sure that you've connected the USB cable to the correct USB port on the TIVA board. Refer to step 2 above.
- Check the device manager of your computer to see if there is a yellow exclamation mark indicating the driver for the board is not yet installed. You can find the device manager by searching the "device manager" in the Windows search bar (shown in the figure below). If so, a detailed solution on installing the driver can be found here: http://www.ti.com/lit/ml/spmu287c/spmu287c.pdf

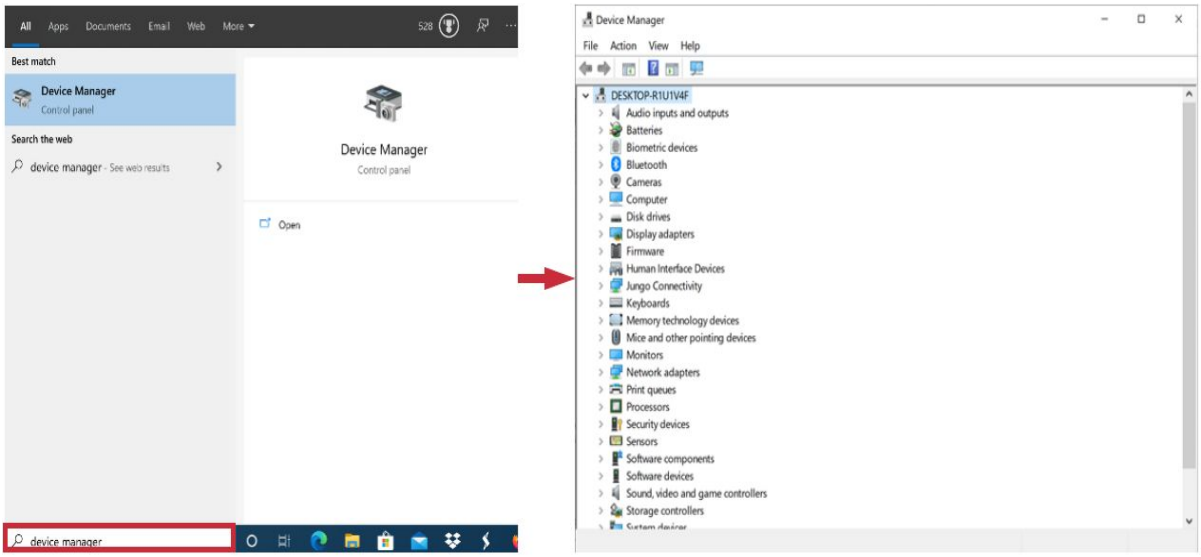

Figure 2. Steps to find Device Manager in Windows

Figure 3. Example of devices that need to be updated in the Device Manager menu

- Check to see if you are using the correct USB cable: some cables are only capable of powering the device and cannot be used for data transferring. For example, the left cable shown in Figure 4 is only designed for powering the device, the one on the right is the correct one to use. The USB cable provided with the TIVA board should work.

Figure 4. Example of different types of micro-USB cables

If you believe you followed all the instructions correctly (installing IAR, setting up an IAR workspace, including the header file, copying the sample program and load it onto the board, and click on the GO button to start the program)and the onboard LED still doesn't light up, please come to Office Hours for further help.

Board Flashing Procedure

1. Go to Canvas -> Files -> Tutorials to download and install the LM Flash Programmer.
2. Once this is done, launch the program while your board is plugged in and on. Under Quick Set select TM4C1294XL Launchpad. Look to Figure 5 below.

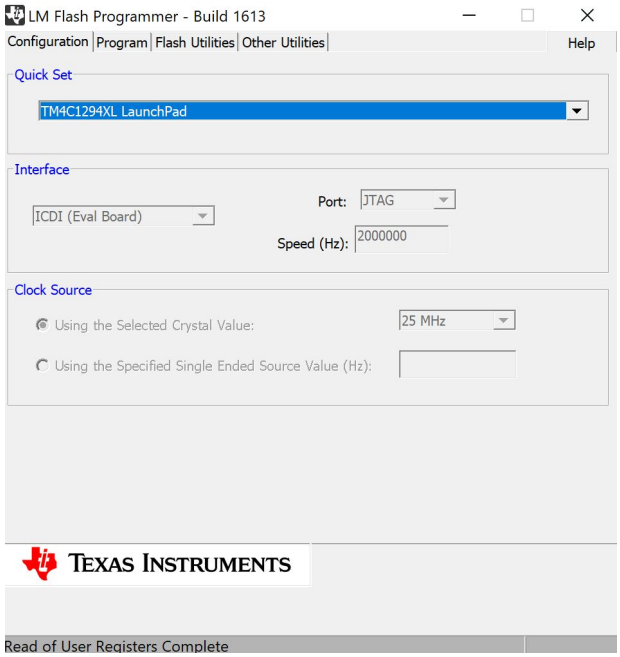

Figure 5. LM Flash Programmer Configuration menu

3. Go to the Other Utilities Tab and select Fury, DustDevil, TM4C123, and TM4C129 Classes under Debug Port Unlock. Figure 6 below visualizes this step. Press Unlock. Once this is done, test that the programmer is communicating with the board by pressing Get Current Mac Address. The empty bar should read FF-FF-FF-FF-FF-FF.

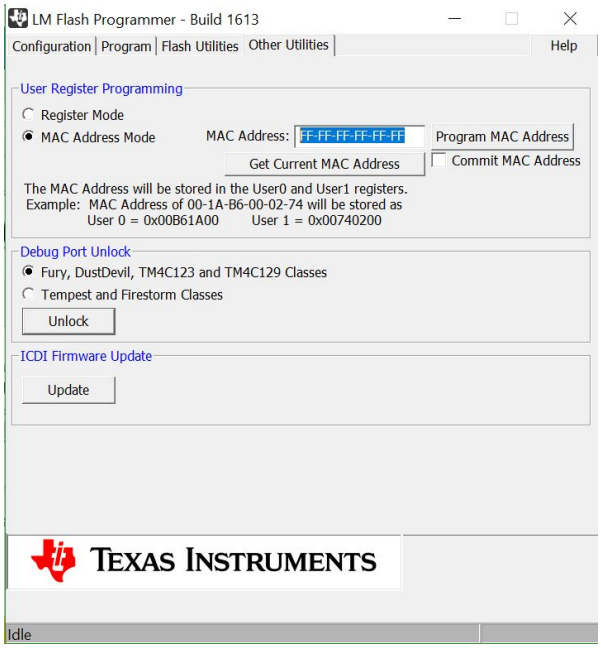

Figure 6. LM Flash Programmer's Other Utilities menu

4. Once these settings are configured, go to the Flash "Other Utilities" tab, check the "Blank check after erase" box and press erase. This step is shown in Figure 7 below. You should see a loading bar at the bottom of the window. Once this is complete, the board should be in working order.

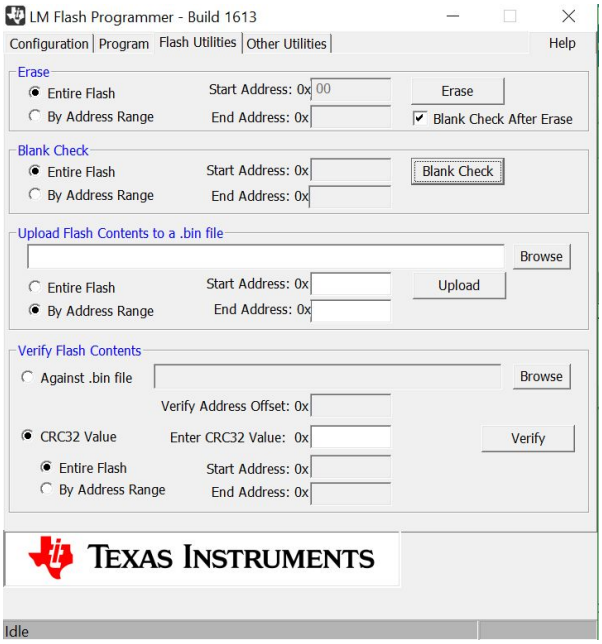

Figure 7. LM Flash Programmer Flash Utilities menu