Debugging Common Issues

This document outlines common issues that users of the EE155/255 toolchain may encounter and common solutions. Hopefully this will serve as a guide that can greatly reduce the time it takes to trace down an error.

Tools Not Found

If when you try compiling your code you get a Make error where it says something like "`arm-none-eabi-gcc not found`" then the tools are not on the user's PATH. To fix this make sure they run "`source ~/ee155_tools/env.sh`" at least once each time they start a new development session.

Board not Connected

The other error that students may run into is not having the board connected when programming, so OpenOCD fails with an error with `ocd_bouncer`. The first obvious check is whether the board is physically plugged in. If it is, the board might not be connected to the actual VM. Go to the Devices->USB menu and make sure the STLink device is connected. Then retry programming. If it still fails, you can try unplugging and reconnecting the device in case some process has hung and locked the device for some reason.

Libraries not Found

Another common error is your code not finding the green electronics libraries. This will show up when running Make and state it can't find the folder "libraries". This is most likely due to the EE155_LIB parameter in the Makefile not being updated to point to the "libraries" folder which is found in the top level folder of the repo. Adjust this parameter to the correct path and you should be able to compile with the libraries.

Linker Errors

Linker errors (identified by "ld error" when compiling the code) can be the hardest to debug. Your friends are Google and the TAs. If you run into a linker error read through the errors and try to get a sense of where the error is coming from (i.e. what functions aren't linking properly). There you can hopefully identify if it is something you are doing or some other deeper issue. **The next step is you should pull the latest code from the green-electronics repository.** The original linker script and Makefiles had some linking issues so make sure you are using the latest versions. However because some of these files are copied when you make a new project directory they may not be automatically updated. Make sure to copy the latest Makefile and linker scripts (under Device/ldscripts) to your custom project directory and see if this fixes the problem. **Because project files may be updated to fix bugs, it is important to always create**

new project directories by copying the project-template directory which will be kept up to date. Do not simply copy old lab project folders as they may be out of date.

If these steps don't fix your problem bring this to the attention of the TA (even if you manage to fix it since other students may run into similar issues).

LCD not Working

Make sure that the LCD is properly plugged into the LCD header (should be coming out of the bottom of the board. Then make sure that the cutaway on the connector is aligned with the "1" on the top of the board. If you see the backlight turn on and still no display, try running the Hello World demo found in the Lab 1 folder. If this still doesn't work then it is possible the LCD is busted.