Electrical and Computer Engineering

# ECE 453

# Lab 1:

# Linux Build Environment Setup

# 1. Lab Work

In this Lab 1, you will setup a Ubuntu 16.04 Linux installation that will be used to develop software for your project. This development environment will be used throughout the entire semester, so be sure to follow the directions carefully!

You will also be asked to compile some software that will run on the DE1-SoC. The resulting images will be used in later labs. The instructions on the course website will instruct you to download various installers from the web. In some cases, this may take a significant amount of time, so please use the following link to download the installers from a server on campus.

# 2. Ubuntu 16.04 Install

Use the information provided on the course WordPress site to install a Linux build environment using a virtual machine provided by VirtualBox.

# 3. Linux Build Environment Configuration

Use the information provided on the course WordPress site to configure your Linux build environment.

# 4. Compiling the Linux Kernel

Use the information provided on the course WordPress site download and compile the Linux kernel for the Intel SoC. Take a screen capture of the terminal when Linux kernel has successfully compiled.

You do not need to transfer any files to your SD card at this time. You should however place the zImage into the following directory:

/home/<username>/images

# 5. Building U-Boot Boot Loader

Use the information provided on the course WordPress site to download and compile the U-Boot boot loader for the Intel Soc. Take a screen capture of the terminal when U-Boot has successfully completed.

You should however place the u-boot.img into the following directory:

/home/<username>/images

## 6. Post Lab: What to Turn in

| File Name | Description |
|---|---|
| Lab1_Software.zip | A ZIP file with screen shots of successful compiles of Linux and U-Boot. |