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ELEC 5200

Lab 6 Report

**What did you learn from this project?**

This project provided a good introduction to the construction and architecture of a CPU. It reinforced the concepts taught in class, and provided a feasible way for the techniques to be implemented from both a hardware and software aspect. The construction of the CPU in VHDL, as well as the initial design, provided useful in understanding how a processor operations and processes instructions. This process especially helped in understanding the various components of a datapath, and the different approaches to this problem.

**What would you do differently next time?**

If this project could be done again, I would reconsider the separate memory and instruction memory. Although this idea was appealing at the time, there were significant changes to be made with the datapath to accommodate two separate memory entities.

**What is your advice to someone who is going to work on a similar project?**

To someone else who will undertake this project, I would recommend reading ALL of the instructions before even beginning step 1. This provides a better understanding of the larger scope of the project, which will greatly aid the planning process. I would also consider not adding many branch instructions, as the branch function can be implemented with only a few instructions, and having too many makes the ISA redundant and uses too much memory.