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Computer Architecture

Project Part 6 Report

12/3/15

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

 I learned a lot about design choices of a CPU. The part that surprised me the most was mapping considerations. I always thought about piping values from one component to another without actually considering the wiring involved in the process. I also didn’t consider the asynchronous timing of a single cycle cpu. I learned that you need to consider which components need what data during a single clock period. Overall, I learned that a complicated system can be built with somewhat simple parts.

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

 If I had to do this again, I would try and build a pipelined processor. This would be a more complicated project, but I could learn more. Pipelining has the potential to greatly increase throughput. I would need to build a couple of more components to handle the complications of pipeline, but each additional part would add knowledge I could use for the future. I have accepted a job in Hardware engineering, so all of this information will be directly usable in my near future.

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

 My advice to someone who is going to work on this project is to spend a lot of time on parts 1 and 2. If you have a solid plan for instructions and data path, then everything else is simple. None of the individual components are hard to code, so by having a solid path and plan, all problem solving becomes easy. Also, I would say to make your instruction set and data path as simple as possible for your first time so you can truly understand the basics.