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Computer Architecture

CPU Design Project Report (Part 6)

Due: May 1, 2015

During the spring, 2015 semester of working on the project for designing a CPU, I learned a number of things in regards to the concept of a computer. As a student, I have previously learned many concepts involving the instruction set architecture as well as constructing a datapath. However, these concepts, though extremely detailed and informative, did not provide the hands-on implementation. Working on this project, I was able to see and understand how to implement the instruction set architecture and design a datapath that realizes that architecture. I have always heard “A computer is nothing but 1’s and 0’s”. This project has helped put this saying into perspective and I have a better understanding because of this course.

If I had the opportunity to start the design from the beginning, there are a couple of steps I would do differently. The main thing I would do different is that I would spend more time, on part 1 of the project, thinking about which instructions I really need the most, since we were only allowed 16 instructions. In part 1 of project, there were 2 instructions I had intended to use that I later had to change to obtain the functionality I was aiming for. This wasn’t a huge change but caused some frustrations in the process.

My advice to someone working on a similar project would be to know exactly what is needed in each step before beginning the project. This will save time overall and the frustrations of having to redo previous steps can be avoided. By knowing where the project needs to end, what instructions you need to reach the desired end, and then deciding on an overall procedure to implement the project, the process of developing the CPU can be made a little easier.