**CPU Design Project – Part 6**

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**What did I learn from this Project?**

The goal of this project was to design a CPU. The specific implementation of the CPU was largely left up to the student to decide. This meant there were many different ways to complete this project. Throughout this project my understanding of how a CPU takes 1’s and 0’s in memory and produces results on a screen became much clearer. Previous to this project I had never heard of an instruction set architecture, a fundamental part of a CPU. This project required the student to create an instruction set architecture and implement a CPU with it. I also had little knowledge pertaining to the various data path’s that modern CPU’s use. I chose to implement a single cycle data path for this project and in turn learned a great deal about it. Overall, my biggest take away from this project is that a CPU is, as expected, incredibly complex but at the same time manageable if taken one section at a time.

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

Doing this project a second time would be a completely different experience due to the knowledge I have from completing the later portions of this project. Having a greater understanding of how everything ties together in the ladder stages of the design would greatly help with making decisions in the beginning. My instruction set architecture would have been structured differently and I would have used a single memory instead of separate.

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

Read all parts of the project and make sure you have a good understanding of what ALL is involved before starting. Do not get behind and do not move on until you have thoroughly finished each part. I suggest implementing a single cycle datapath and using only one memory to store the program and data. Basing your design off of Dr. Agrawal’s slides will be beneficial.