ELEC6200-001

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Project – Part 5

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

In this project, we’ve designed a pipeline datapath. When we wrote the codes for each individual part of the datapath, we thought it may be not that difficult to make it work. But after we finished all the components and combined them together, we met with a big problem on the clock. It’s complicated to transfer the values in data registers and all the control signals through four stage registers IF/ID,ID/EX,EX/MEM and MEM/RB without mistake. We spent much time on modifying the codes and test the whole datapath for every standard instruction. The problem here maybe due to our carelessness at the beginning, we ignored some warnings in some components. We’ve learned how to use software to simulate our design, also this project helped us understand the pipeline much better.

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

In our design ,there are no forwarding and hazard detection units in our datapath. Next time, we would design these two units and add them into the datapath, so that we don’t need to insert some bubbles into our test programs and the throughput can be increased.

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

Our advice to someone who wants to take this challenge is start as early as possible to avoid running out of time at the end of the semester Also, it’s helpful to read the whole project before you get started. Finally, our TA was extremely helpful. He helped us solve many problems about the memory and datapath. So go to the TA when you meet with some problems or errors during the simulation.