Malachi Henry

Dr. Sharma

ECE--361-01-SP-2023

05 March 2024

Project Abstract

I would like to design and simulate a MIPS processor using a piece of software called Logisim. I have done some research about what it would require for me to write and simulate the processor using code based software like Modelsim, but I have decided to use Logisim for several reasons:

* Logisim is visual based. This means that it will be far more satisfying to watch the processor run.
* Logisim is easier to debug. It is very hard to debug code, and the end result is not as satisfying as once you get the project working, all you get is a single output.
* If I used Modelsim, I would have to write the CPU as well as a testbench. Not only does this nearly double the amount of work, but I have no way of testing both pieces of code.

This will be a three staged pipelined CPU, with full logic and addition/subtraction, a shift register, branch, and load/store word to memory.

Milestones:

0320: Complete ALU

0327: Op decoder/Instruction set

0403: Sign extend/Shift register

0410: Add load/store word functionality to memory

0417: Add branch functionality

0424: Integrate/pipeline and write a demonstration program