CS 3410 Design Document

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1 Overview

This document serves as an example of what a design document should

contain. Of course, you are not required to strictly adhere to the outline of

this particular example, nor does every project t this template perfectly.

However, this document outlines most of the important elements that we

look for in design documentations.

In the overview section of your design documentation, brie y describe

the project to your readers in terms of the intended purpose of the project,

as well as any principles that apply to your design.

This project had the purpose of creating a 32-bit Arithmetic Logic Unit

(ALU). This is a subset of the RISC32 architecture in Logisim, a software

logic simulator. The goal after this is to have another part for the 32-bit

pipelined RISC CPU we will make in the future. The ALU in this circuit

consists of 12 operands{ OR, AND, XOR, NOR, EQ, LE, GT, NE, ADD,

SUB, Shift left logical, shift right logical, and shift right arithmetic. The

high level idea is to create a circuit that uses an opcode as a selector in a

mux to determine which operation to compute and feed as an output

COMPONENT DESIGN DOCUMENTATION

SUBCIRCUITS

**Shifting**

Left Shift 32

Right Shift logical

Righ Shift Arithmetic

**AddSub**

Add32

**Equality**

**Compare**

Equal

**Overall ALU**

--muxes