CSE332 Lab 6

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Course: CSE332L
Section: 3
Experiment Name: Design of a Register File.

Discussion: In this lab our goal was to design a register file. A register file is an array of processor registers in a central processing unit. So, a register file is a small set of high speed storage cells inside the CPU.

In the lab class, we have seen the implementation of a register file of 2 bits. So, we have used four registers. To select those registers, we have used a 1x4 Demultiplexer. The demux has two selection pins, which helped us to select any of those four registers. A two bit input line is connected to all four registers. To provide clock pulse, we have connected a clock to all the registers. This is how we can select the registers and provide input to the registers.

From each register we will get two bit as output. They are connected to the two 4x1 multiplexers. We have used two multiplexers to use the output of multiplexers as the output of 'rs' and 'rt', so that we can use them independently. This is how we can pass information from memory or any other component to ALU through registers.

Following same procedure we can design a register file of 16 bits.