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CSCI-2500

HW 6 Write Up

After experimenting with different software for making the diagrams and electronics diagrams we decided that we could make a more understandable graph by just modifying the chart in the book and adding in to it. We also turned in the paper version of our solution so it would be understandable.

1. SWAP

Swap barely changed the graph; adding two possibilities and connections to the MemtoReg multiplexor, therefore increasing the amount of control signals needed

1. Exchg

Exchg is an extension of the swap operation with a computation of address prior to swapping, resulting in the addition of ALUOut to the MemtoReg multiplexor.

1. JAL

Jal is an extension of j that only requires IorD to supply the ALUOut of the basic address computation to the memory at the end of the clock cycle.

1. LEA

Lea requires a piece of hardware to scale a variable amount of the register followed by a lw operation. Therefore, it only requires a temporary scaled value of B as input to the ALUSrcB multiplexor.

1. Multm/divide: You must pass the R-type in wj Register taking rd set contro of ALUop to mul/div

As we assumed the ALU is augmented to perform multiplication and division, nothing is required, but to add control options to the ALU control.s