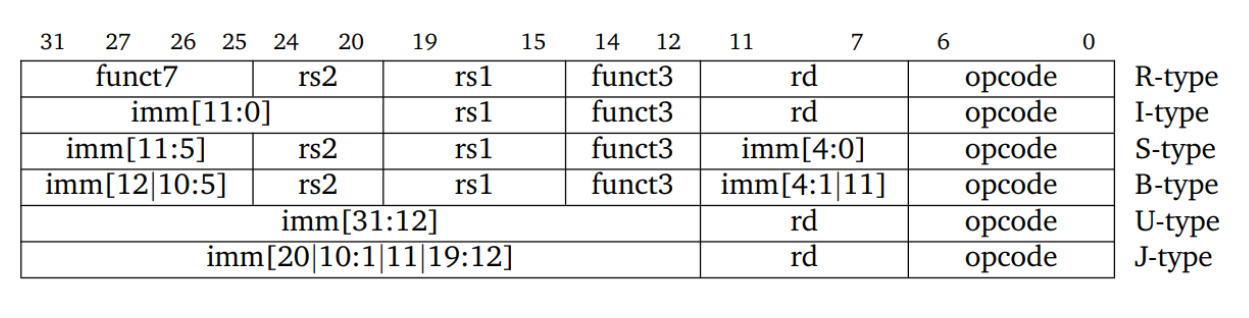
As you can see, we have added a new controller signal and expanded a 4 to 1 multiplexer.  


Figure : Modified Datapath

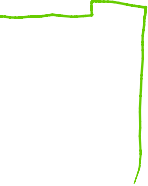
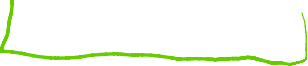


Figure : RISC-V Instruction Types

After designing the controller, we need to design the combinational controller since it’s single cycle RISC-V we are talking about.

A diagram of a chemical formula

AI-generated content may be incorrect.

Figure : ALU Opcode Table