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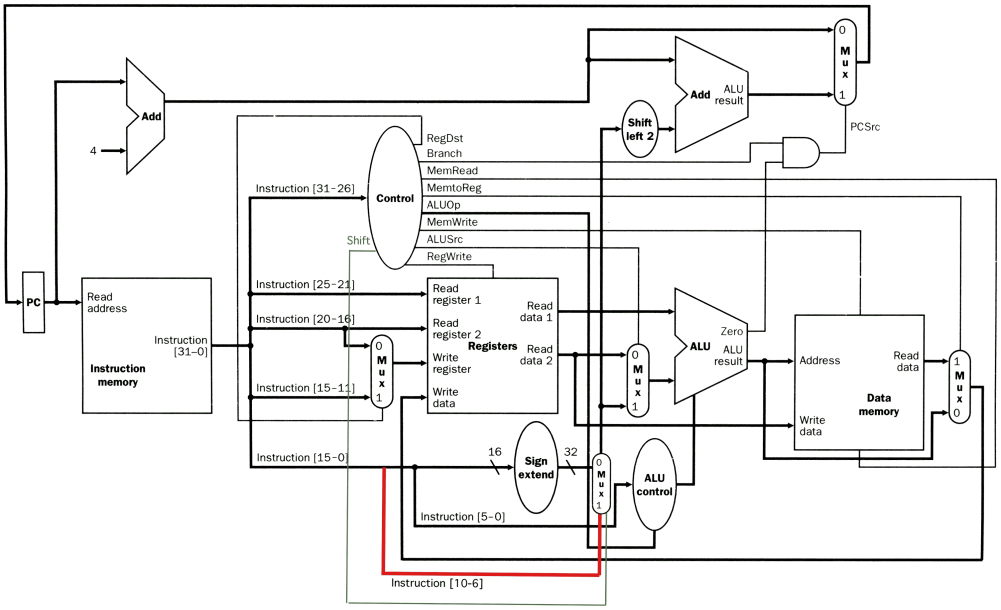
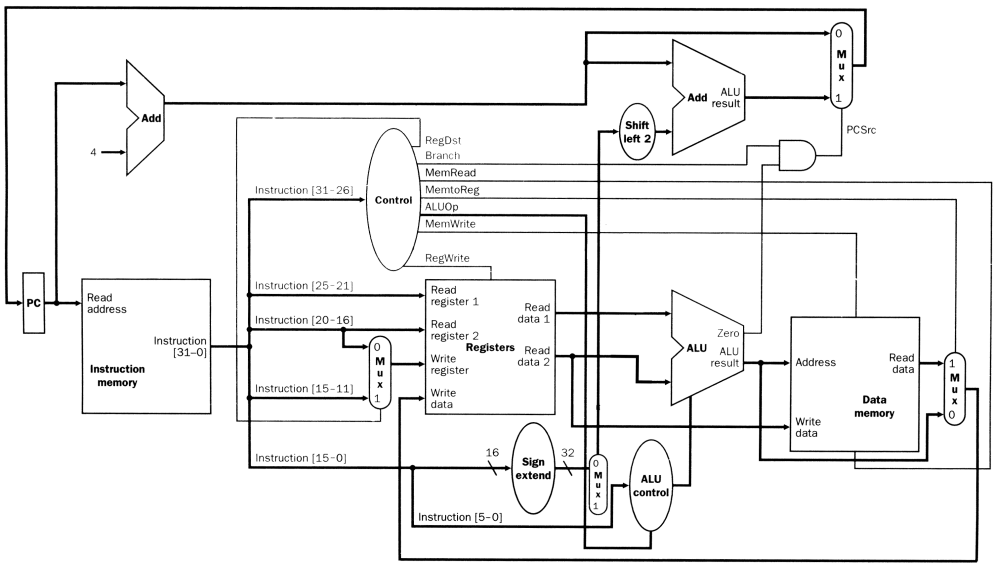
CSE 410 - H. Levy
Homework 2

2. In order to do this, we need to create a path for the immediate to get to the ALU. The shift operation is carried in the FUNCT art of the R-instruction, so the ALU control already has enough information. However, the main control unit needs to recognize that if the last 11 bits (`op` and `rs`) are empty and `rt` is not that this is a shift instruction, and activate both ALUSrc and the added Shift control paths.



3. If we no longer have to worry about immediates when loading from memory, I'd remove the mux directly in front of the ALU (assuming no `sll`), as we won't be using anything but a register for ALU inputs, ever. Also, we wouldn't need the ALUSrc control path, either (again, assuming no `sll`).



4. No, in the current state of things, this is not possible, as we can only write to one register at a time! Without something tricky going on inside of the registers (not gonna happen), this isn't possible in a clock.