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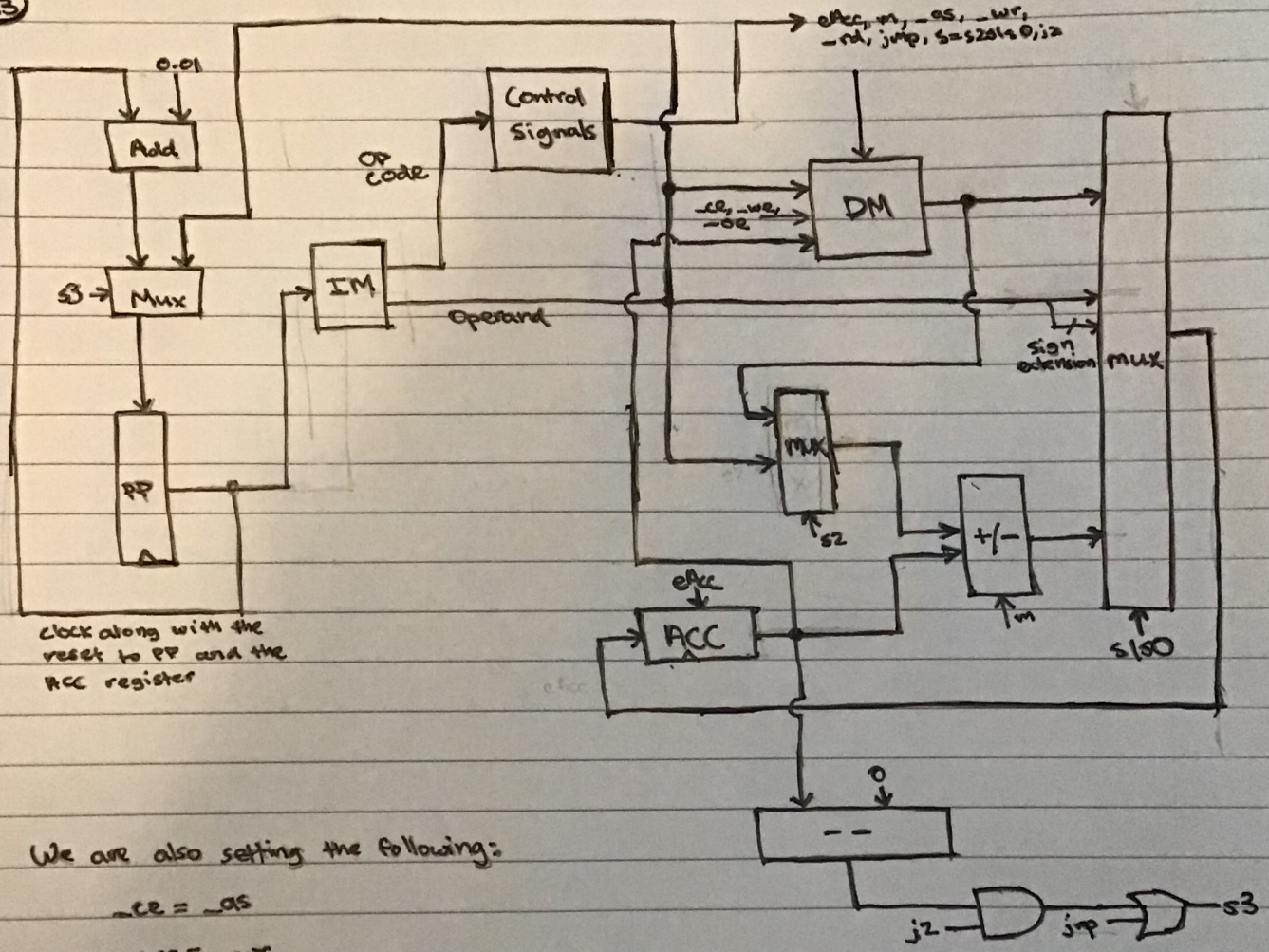
CSC 137

HOMEWORK #8

8.3



We are also setting the following:

_ce = _as

_we = _wr

_oe = _rd

We are getting _as, _wr, _rd from the control signals.

S3 goes from the bottom and jumps into the Mux in the decode unit. No wire was placed there because it would make it super messy.

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Problem I Computation is performed by a RISC ISA. A = B * (C + D). What is the value in R4 after the execution of code line #6: (B=5; C=10; D=15)
ie: Code line #6 has been completed.

1) LD R1, (C) ⇒ R1 = 10
   - What this line of codes does, is that it loads the value stored in C into the register R1.

2) LD R2, (D) ⇒ R2 = 15
   - Line #2 is similar to #1 but instead it loads the value stored in D into R2.

3) ADD R3, R1, R2 ⇒ R3 = 10 + 15 = 25
   - Line #3 takes R1 and R2, adds them together, and stores the result in R3.

4) LD R4, (B) ⇒ R4 = 5
   - Line #4 is similar to #1 and #2 but instead it loads the value stored in B into R4.

5) MUL R5, R3, R4 ⇒ R5 = 25 * 5 = 125
   - Line #5 takes R3 and R4, multiplies them, and stores the result in R5.

6) ST (A), R5 ⇒ A = 125
   - Line #6 takes R5 and stores the value in memory address A.

Answer: the value in R4 is still 5 after the execution of code line #6 because no new changes have been made to that register. Therefore, the value in it stays the same.