

COPEN LAB 7

fixing overflow (v)

assign $a = A_{in}[15]$

assign $b = B_{in}[15]$

assign $o = out[15]$

if ($a == b$)

 if ($o == \sim a$)

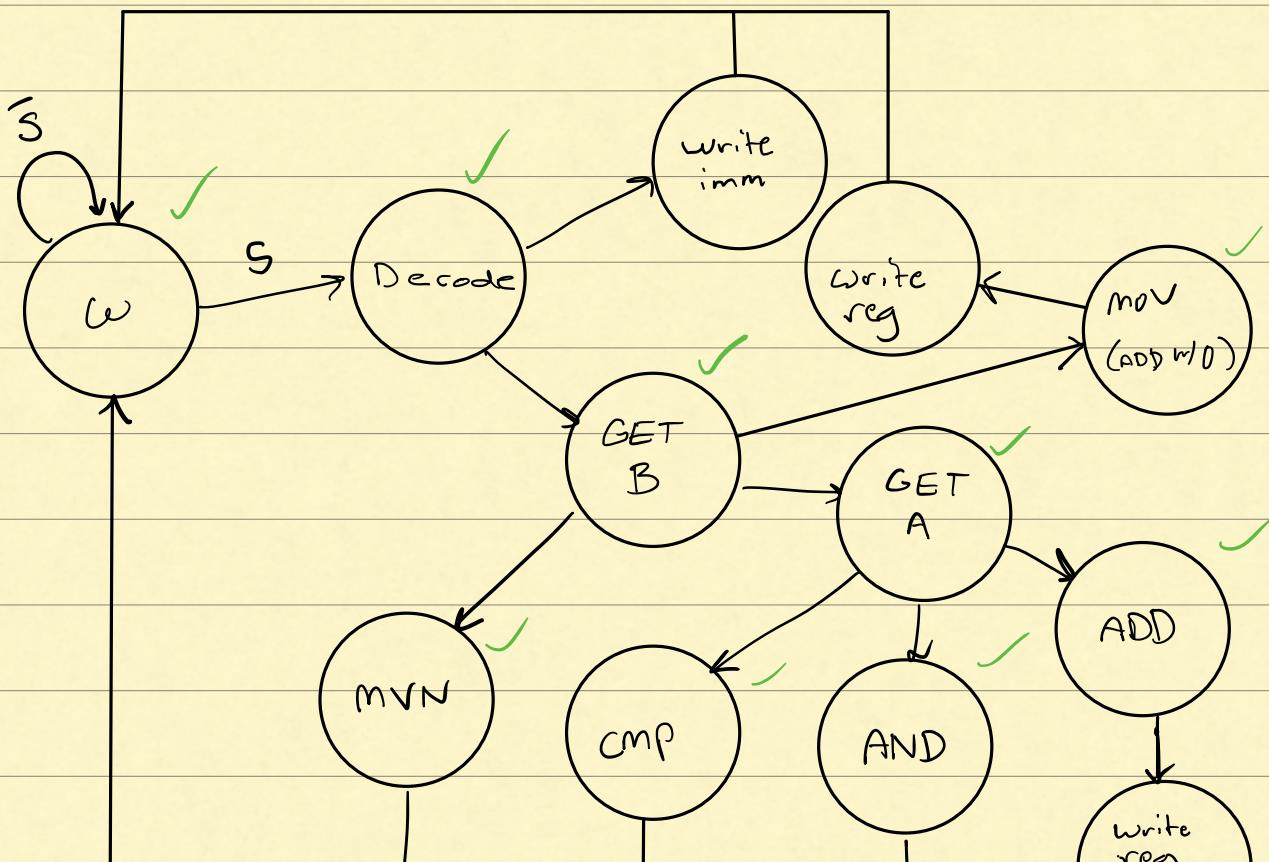
$V = 1'b1;$

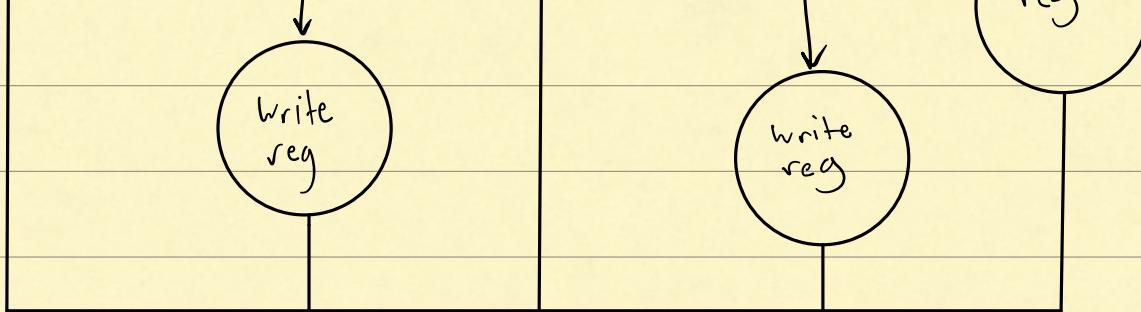
 else

$V = 1'b0;$

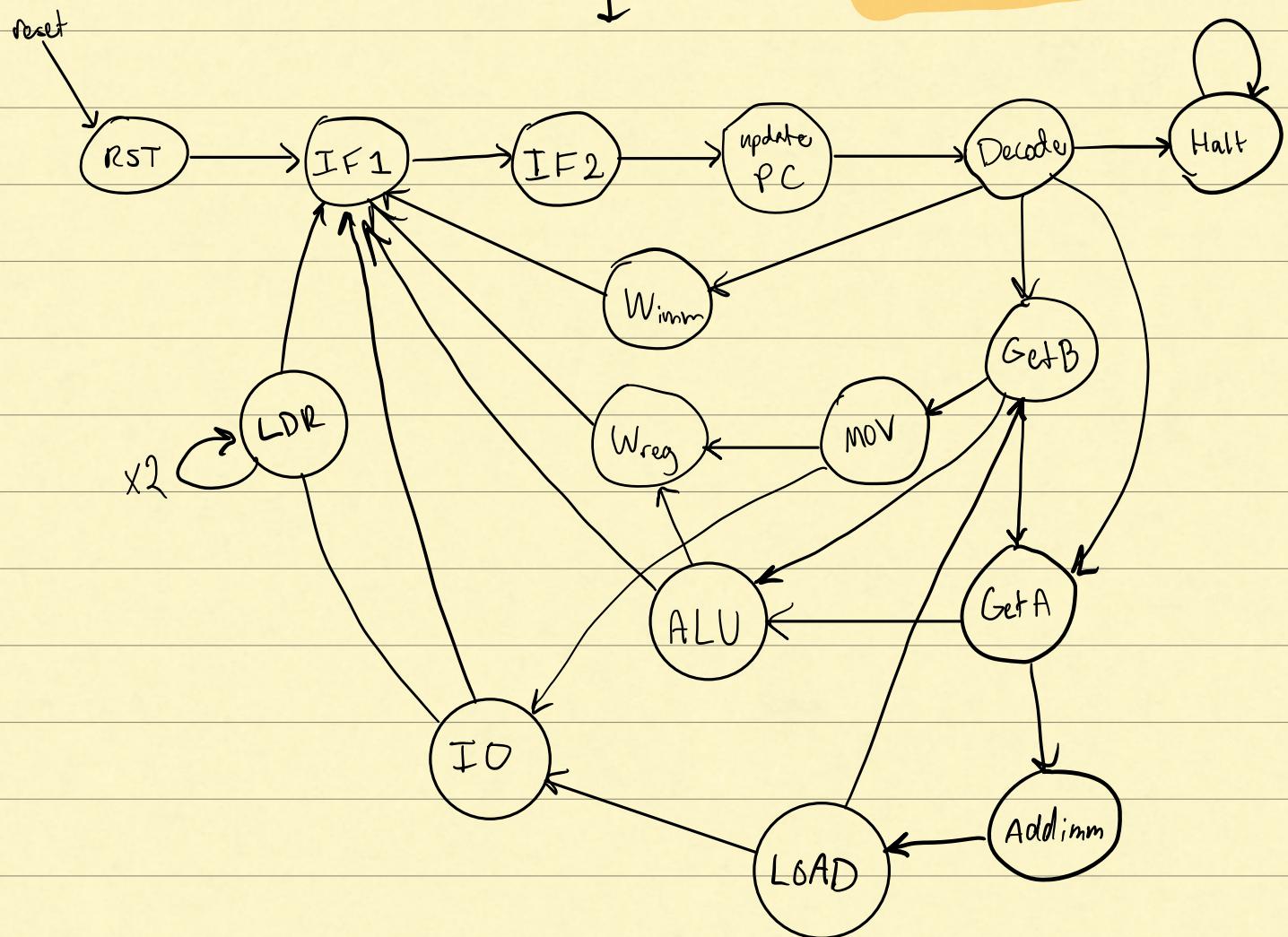
else

$V = 1'b0;$





update state machine → see page 2 of lab 7 and old state machine from lab 6 for specs.



↳ fix state machine non blocking

↳ update state machine entirely

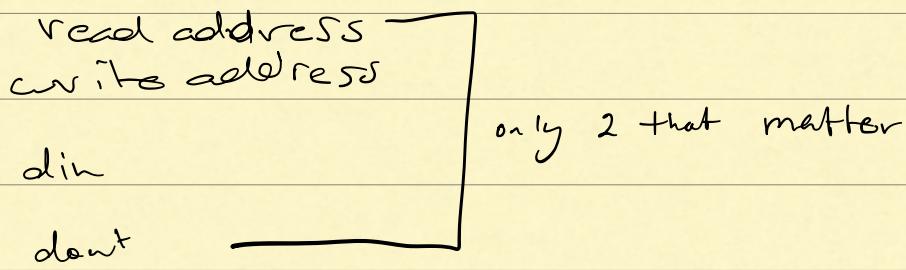
↳ implement LDR, STR, HALT

↳ ~~Implement PC & Label stop~~

$$R_d = R_n [imm_5]$$

clk

write



LDR R1, [R0, #4]

LDR1 : → Get A

bse1 = 1 GA

LDR2 : → ADD imm5 → loadc = 1 ADDI

LDR3 : → LOAD Address → loadaddr = 1 LOAD

↓
addrsel = 0 IO

LDR4 : → mem_cmd = 'MREAD'

LDR5: \rightarrow Vsel = 1000

write = 1

nsel = 010

STR1: \rightarrow Get A

GA \rightarrow ?

STR2: \rightarrow ADDim5

ADDi + 0

STR3: \rightarrow Load Address

LOAD \rightarrow d_{pout} / memaddr

STR4: \rightarrow Get B

GB \rightarrow R_d

STR5: \rightarrow MOV

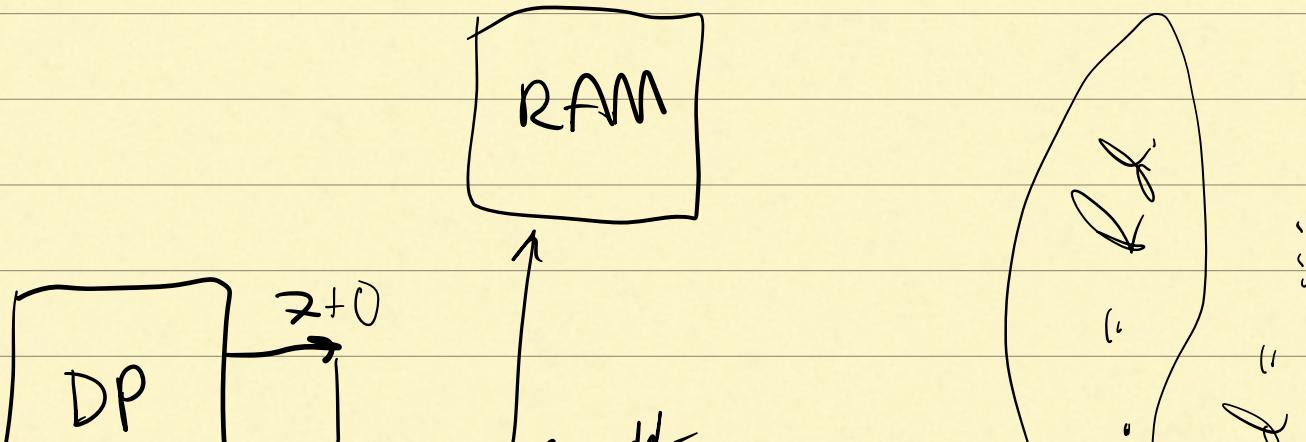
MOV \rightarrow R_d \rightarrow d_{pout}

STR6: \rightarrow 'MWRITE

IO

ALU

IO



mem addr

STR



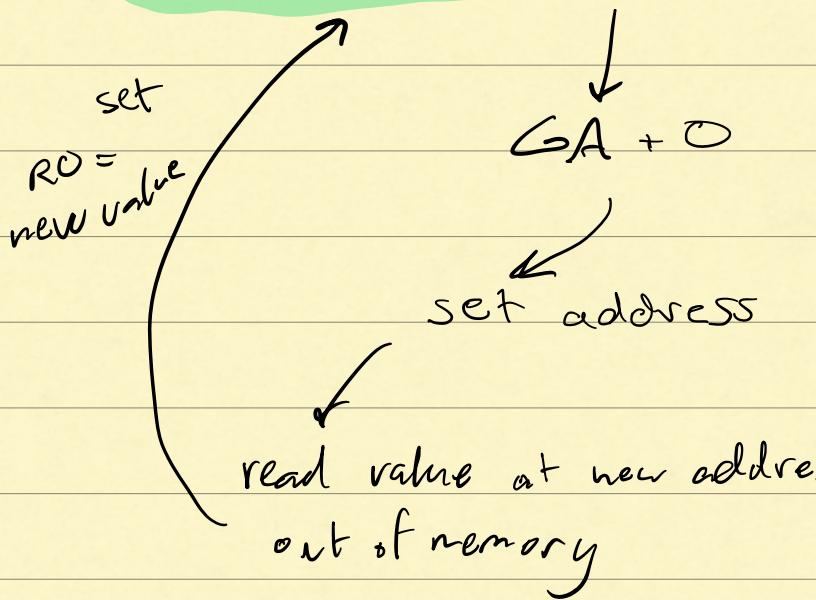
LDR



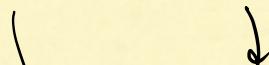
$$B[a] = R_d$$

$$R_d = B[a]$$

LDR R0, [R1]



STR R0, [R1]



$GA + 0$

set address

Set
write
A

Get B

MOV RD

to datapath_out