Finite State Machine for Control

- Implementation:

```
Control Logic

Instruction Register Opcode Field

Data path
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lec_03a_extra
PLA Implementation

- If I picked a horizontal or vertical line could you explain it?
PLA Implementation

- Red color shows lines that are "high" or "1"

Op5 = 1
Op4 = 0
Op3 = 0
Op2 = 0
Op1 = 1
Op0 = 0
State3 = 0
State2 = 0
State1 = 0
State0 = 1

State 1 (0001) is followed by state 2 (0010) if Op = 100010 with ALUsrce0 and ALUsrce1 set to "1" (true).

Orange dots are AND gates
Grey dots are OR gates, 1 or hi-Z
"1" Output

PCWrite = 0
PCWriteCond = 0
IorD = 0
MemRead = 0
MemWrite = 0
IRWrite = 0
MemtoReg = 0
PCSource1 = 0
PCSource0 = 0
ALUop1 = 0
ALUop0 = 0
ALUsrce1 = 1
ALUsrce0 = 1
ALUsrce = 0
RegWrite = 0
RegDst = 0
NextState3 = 0
NextState2 = 0
NextState1 = 1
NextState0 = 0