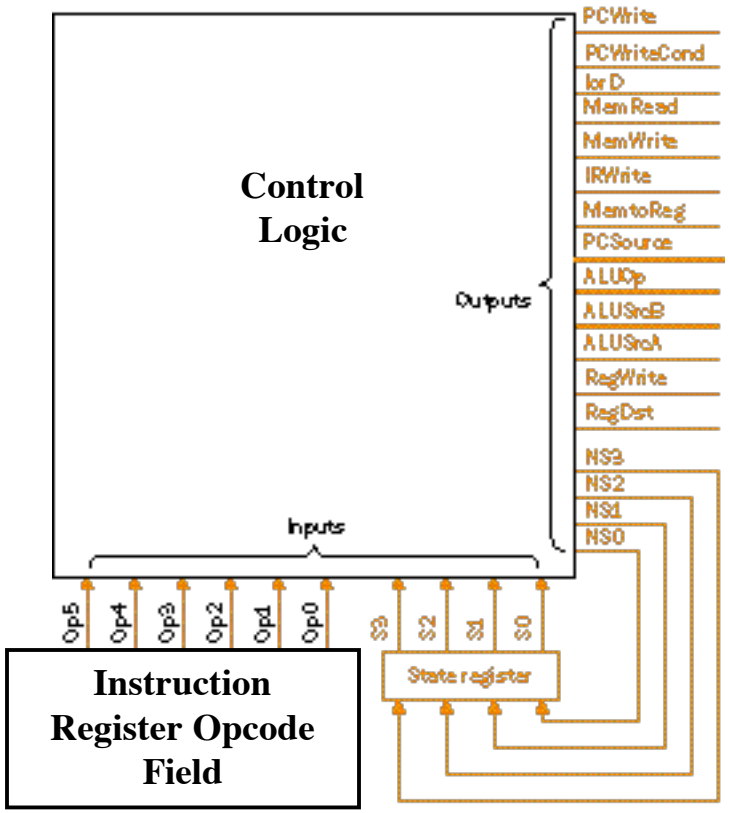
Finite State Machine for Control

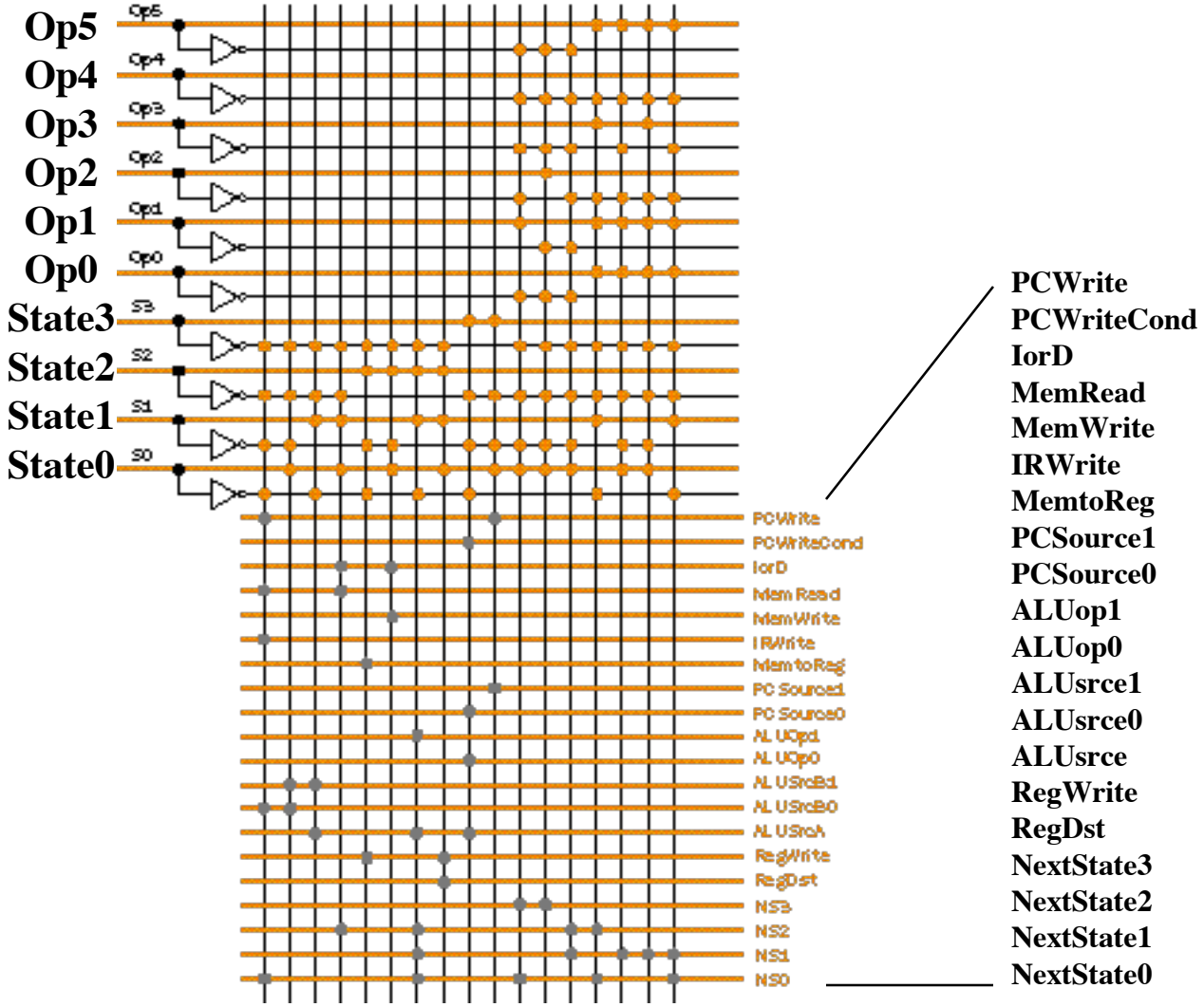
- **Implementation:**



Data path

PLA Implementation

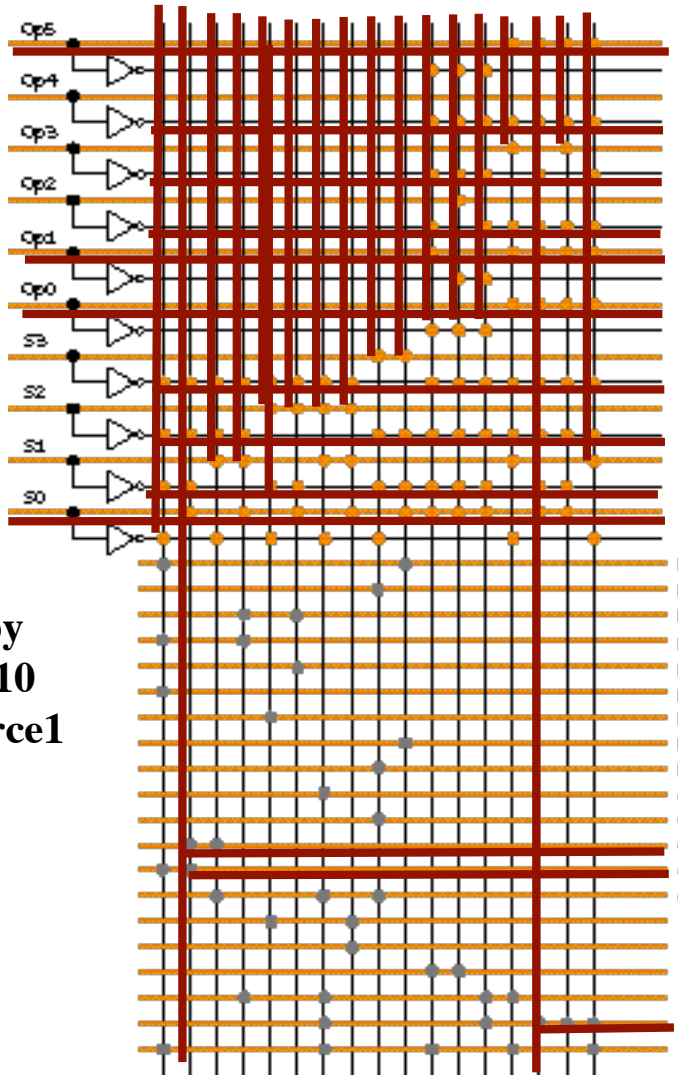
- If I picked a horizontal or vertical line could you explain it?



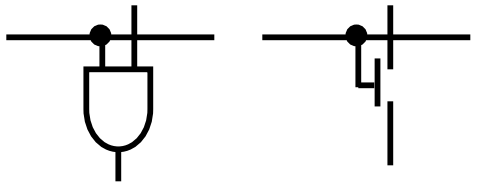
PLA Implementation

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

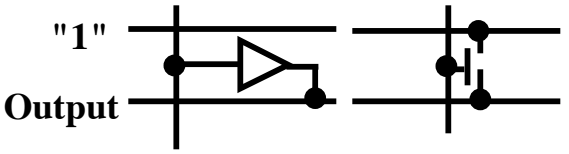
Op5 = 1
Op4 = 0
Op3 = 0
Op2 = 0
Op1 = 1
Op0 = 0
State3 = 0
State2 = 0
State1 = 0
State0 = 1



Orange dots are AND gates



Grey dots are OR gates, 1 or hi-Z



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

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