

# CS 315-01 Processor Design Instruction Decoding

Reg Decoder  $\rightarrow$   $rs1, rs2, rd$

Imm Decoder  $\rightarrow$  all immediates  
64 bit twos comp number

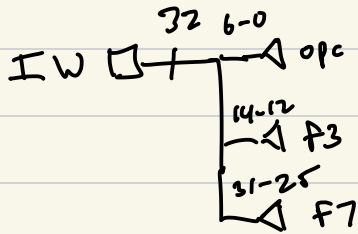
## Instruction Decoding (InstDecoder)

IW  $\rightarrow$  control signals

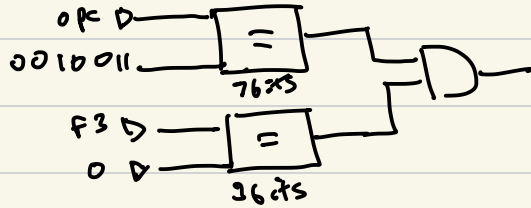
To add new instructions

- 1) Add any new components  
or modify existing components
- 2) Add datapath wires/buses
- 3) Often this will require new or  
modified MUXes
- 4) Update InstDecoder  
possibly add new control line

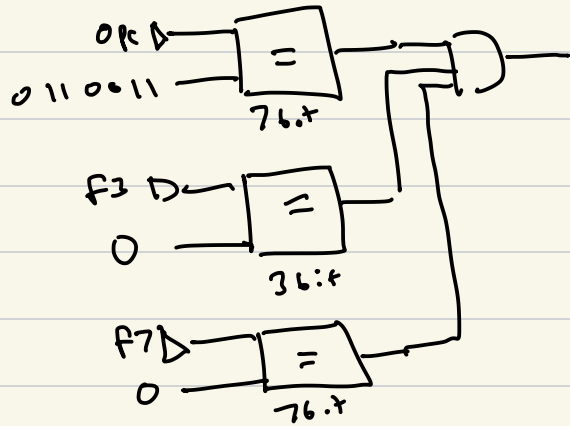
# Inst. Decoder

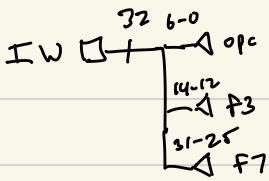


## ADDI

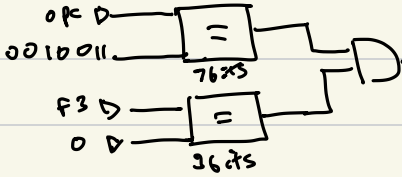


## ADD

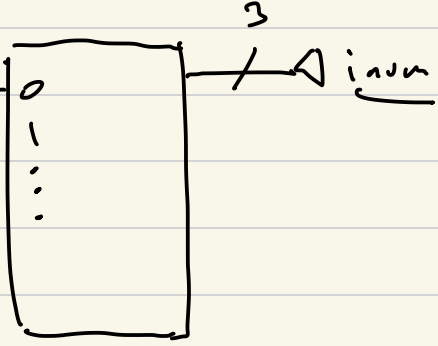




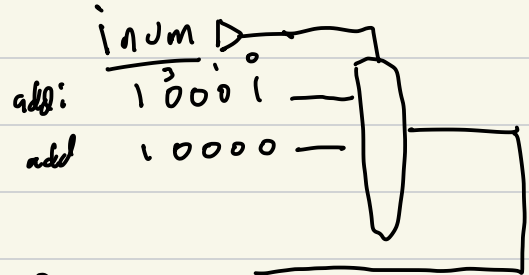
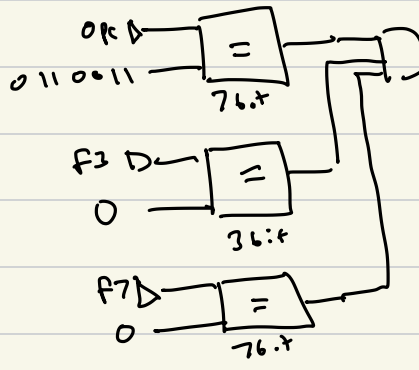
ADDI



Priority Encode



ADD



inst	RFW	ALUop	ALUSrcB
addi	1	000	1
add	1	000	0

