

# CS315-02 Processor Design Instruction Decoding

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

Imm Decoder  $\rightarrow$  all immediates

64 bit two's comp signed value

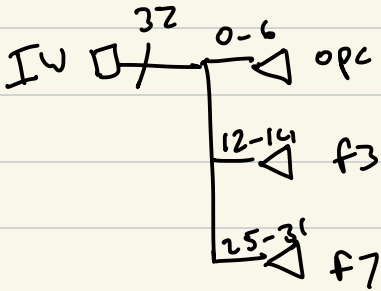
## Instruction Decoding (Inst Decoder)

IW  $\rightarrow$  control lines (signals)

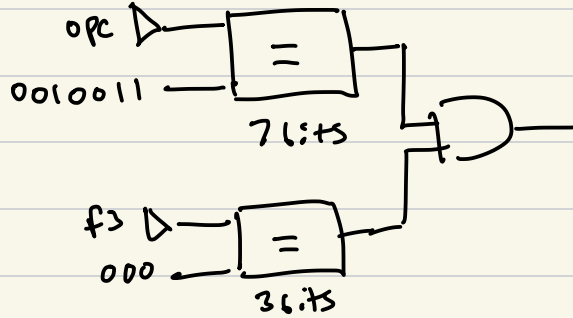
To add new instructions

- 1) Add or modify components
- 2) Add more datapath wires/buses
- 3) Often this will require new or modified MUXes
- 4) Update Inst Decoder  
possibly add new control lines

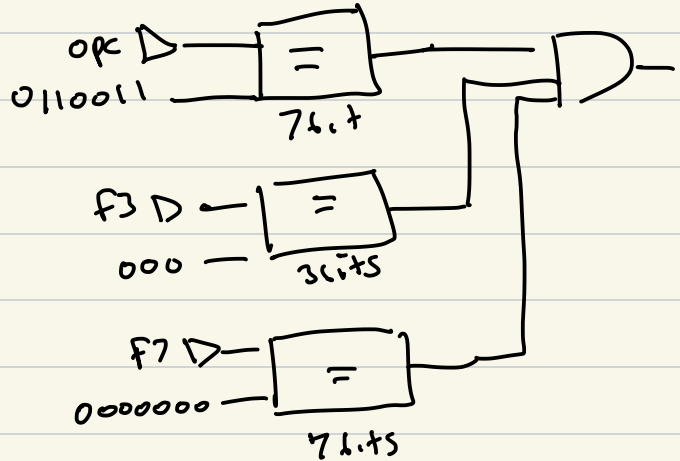
# Inst Decoder

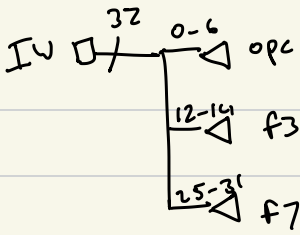


## ADDI

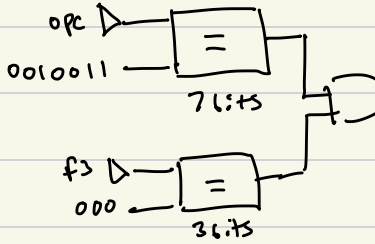


## ADD

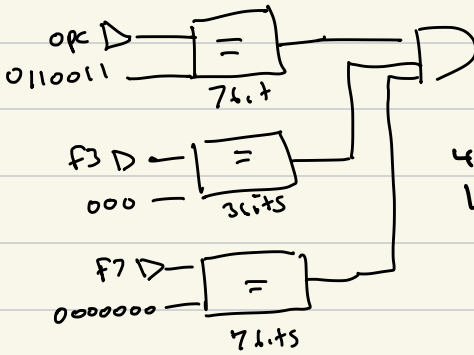




ADDI

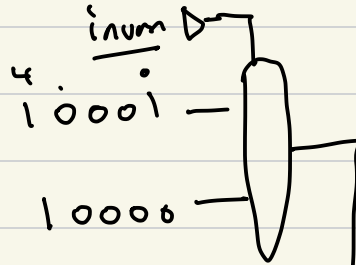
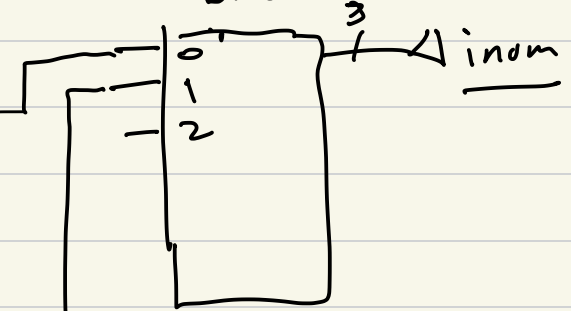


ADD



Priority

Encoder



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



0 ImmSrc1

