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# Digital Logic H/w

chapter 6

1.  $2^{12} \times 64$

Range of signed integer value = -2048 to 2047  
64 bits needed to address every location

2. a) 4bits

b) 4bits

c) 8bits

d) 8bits

3.  $2^{32}$  32bits

4. Control code

Inc Amux Mar Mst Ir Acc

1 0 1 0 0 0

0 - 0 0 1 0

0 1 1 0 0 0

0 - 0 0 0 1

Action

f(src)  $\rightarrow$  dst

PC  $\rightarrow$  MAR; inc(PC)

Mem(MAR  $\rightarrow$  IR

IR  $\rightarrow$  MAR

Mem(MAR  $\rightarrow$  ACC

5. control

Inc Amux Mar Mst Ir Acc

1 0 1 0 0 0

0 - 0 0 1 0

0 1 1 0 0 0

0 - 0 1 0 0

Action

f(src)  $\rightarrow$  dst

PC  $\rightarrow$  MAR; inc(PC)

Mem(MAR  $\rightarrow$  IR

IR  $\rightarrow$  MAR

ACC  $\rightarrow$  Mem[MAR]