

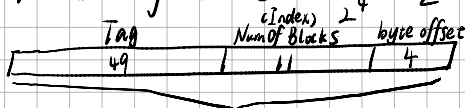
5.3

5.3.1

Cache's capacity =  $32 \cdot 2^{10} = 2^{15}$  bytes.

One block =  $2 \cdot 2^3 = 2^4$  bytes

Number of blocks =  $\frac{2^{15}}{2^4} = 2^{11}$



Total  
64 bits

Total number of bits =  $(1 + 49 + 128) \cdot 2^{11} = 178 \times 2^{11}$

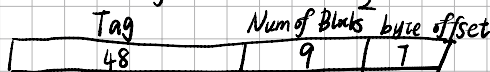
Valid bit    Tag    two-words data    blocks number

5.3.2

Cache's capacity =  $64 \cdot 2^{10} = 2^{16}$  bytes.

One block =  $2^4 \cdot 2^3 = 2^7$  bytes

Number of blocks =  $\frac{2^{16}}{2^7} = 2^9$



64 bits

Total number of bits =  $(1 + 48 + 16 \times 64) \cdot 2^9 = 1073 \times 2^9$

Valid bit    Tag    16-words data    blocks number

How much bigger?

$$\frac{1073 \times 2^9}{178 \times 2^{11}} \approx 1.507 < 2$$