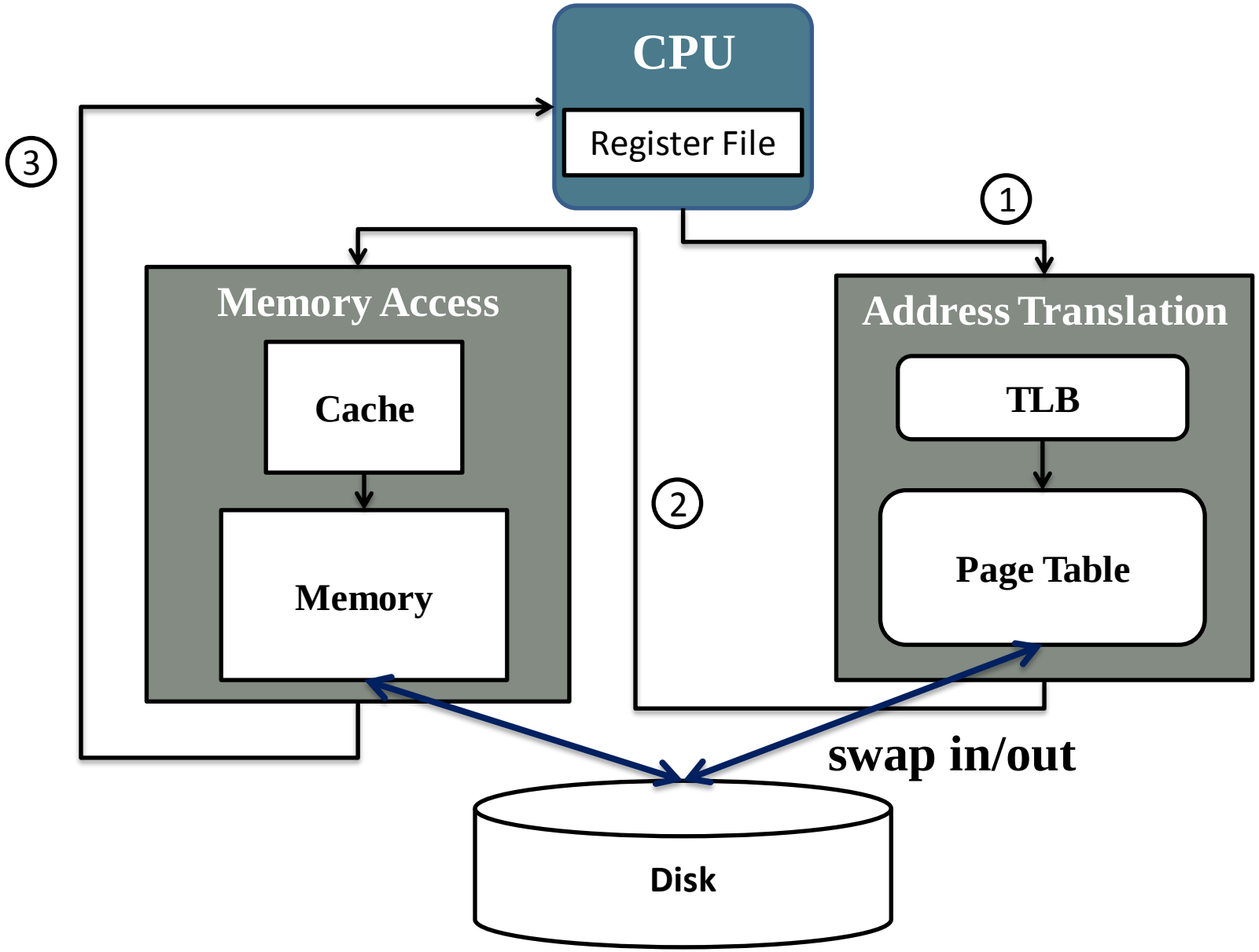
Tutorial 3

Memory Walking



Memory Mapping

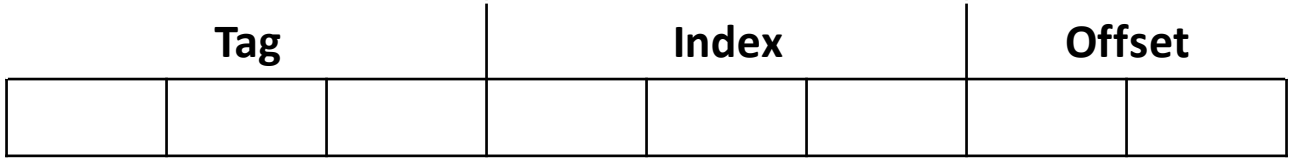
- Byte Address
- Memory Size: 256(2^8) byte
- Cache size : 32 byte
- Block size : 4 byte

- Address Length: 8 bits
- # block @ Cache : 32/4 = 8
- # block @ Memory : 256/4 = 64=2^6
- $\frac{\text{\# block @ Memory}}{\text{\# block @ Cache}} = 8 = 2^3$

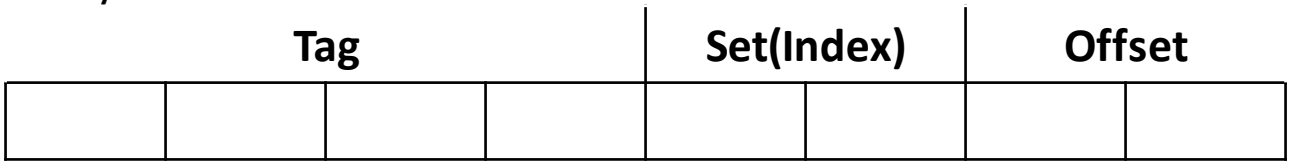
Address Decode

- E.g. 8-bits: Directed Mapping、2-Way、4-way、Fully Associative
- Block Size: 4 bytes

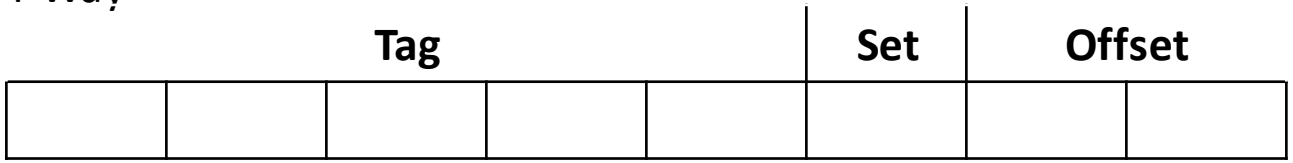
(1) Directed Mapping (1-way)



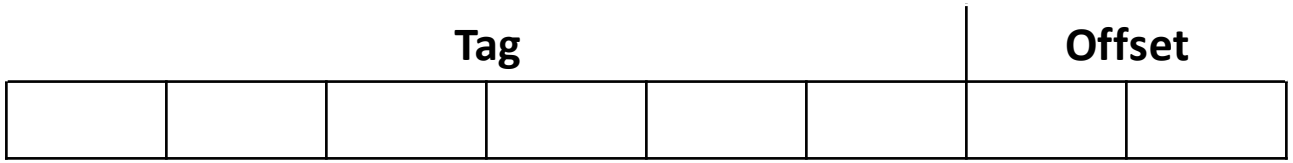
(2) 2-Way



(2) 4-Way



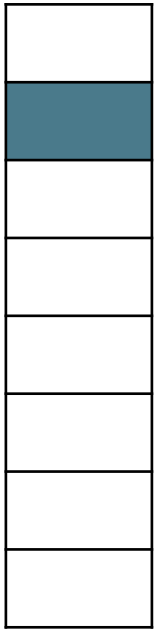
(4) Fully Associative (8-way)



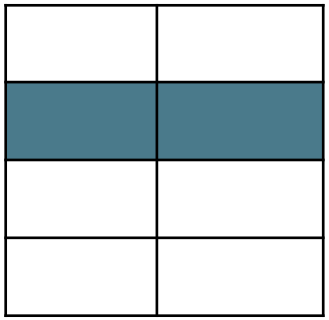
Address Decode

$the\ cache\ entry\ that\ memory\ block_0$ can be filled

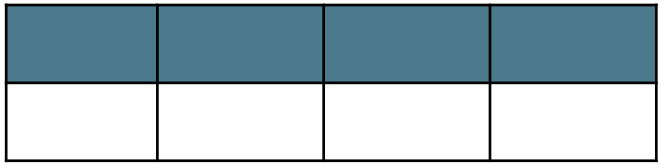
(1)Directed Mapping (1-way)



(2) 2-Way



(3) 4-Way



(4) Fully Associative (8-way)

Project 3 Note

- The executable should be named **CMP**
- Replacement Policy: LRU
- The Default Value: size、associativity
- Parameters Order
- All size parameters should be of multiple of 4
- Two output files
  1. snapshot.rpt
     - The requirement is the same as that for project 1
  2. report.rpt
     - contain the following information for total memory access (hit/miss)