CACHE SIMULATION

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Cache Size : 512 bytes

The output of the simulator is in the following way

1024 bytes :

	LRU	FIFO
Direct	0.705950	0.705950
2-Way	0.708300	0.710200

 2048 bytes :

	LRU	FIFO
Direct	0.849500	0.849500
2-Way	0.850600	0.850650

4096 bytes :

	LRU	FIFO
Direct	0.938950	0.938950
2-Way	0.937050	0.937150

8192 bytes :

	LRU	FIFO
Direct	0.968300	0.968300
2-Way	0.968350	0.968550

16384 bytes :

	LRU	FIFO
Direct	0.981650	0.981650
2-Way	0.981350	0.981450

Direct Mapping (LRU vs FIFO)

For Direct Mapping, as the difference between the size of cache and memory increases the miss ratio increases irrespective of the LRU or FIFO replacement policy i.e. for direct mapping the replacement policy has no effect on the miss ratio.

2-way set Associative(LRU vs FIFO)

For 2-way set mapping,as the difference between the size of cache and memory increases the miss ratio increases, but in this case LRU has better performance (in terms of miss ratio) than FIFO replacement policy.

Direct Mapping vs 2-way set Associative

For cache with size nearly equal to main memory size, Direct mapping works better than 2-way set mapping but as the size of main memory increases, 2-way set mapping works better than Direct mapping (in terms of cache miss ratio)

My Laptop Specifications :

My laptop is SAMSUNG NP300E5C having a cache of 3MB and RAM (memory) of 4GB

L1-D-Cache = 32KB

L1-I-Cache = 32 KB

L2-Cache = 256 KB

L3-Cache = 3 MB

In my views 2-way set associative is better than direct mapping and LRU works better than FIFO replacement technique.