

Caching Homework

Instructions

Fill in the memory access table with the cache lines that each address maps to, along with whether it is a hit or miss and whether a writeback occurs. After you have done this, make a file with one line for each line in the cache table with the format "line number\t{H, M}\t{1,0}" and save the file. An example line in a file might look like (Place in cache line 1, hit, no write-back):

```
1      H      0
```

You need to submit 3 plain text files for this assignment using the above format for the following cache types:

Direct Mapped – 4 word lines, 4 lines (dm.txt)

Fully Associative – 4 word lines, 4 lines. Fill empty spaces from top to bottom and use a LRU replacement algorithm. (fa.txt)

2-Way Set Associative – 4 word lines, 2 lines. Name each set A and B respectively. For cache lines write the line then the set, for example: 1A or 1B (notice caps). Fill in set A first, and use a LRU replacement algorithm (sa.txt)

2 points will be marked off for misnamed files, and only files in the specified format will be accepted for grading.

Memory Accesses

Load/Store	Data	Address	Cache Line	Hit/Miss	Writeback
Load		0x1000 00A0			
Load		0x1000 0000			
Store	TAs	0x1000 0044			
Load		0x1000 00B8			
Load		0x1000 0054			
Store	Are	0x1000 0050			
Load		0x1000 003C			
Load		0x1000 0064			
Store	Not	0x1000 0090			
Load		0x1000 0084			
Store	Robots	0x1000 00AC			
Load		0x1000 001C			
Load		0x1000 0038			
Load		0x1000 006C			
Store	Need	0x1000 0020			
Store	Sleep	0x1000 0060			

Memory

0x1000 0000	an	inquiry	into	the
0x1000 0010	understanding	pleasant	and	useful
0x1000 0020	since	it	is	the
0x1000 0030	understanding	that	sets	man
0x1000 0040	above	the	rest	of
0x1000 0050	sensible	beings	and	gives
0x1000 0060	him	all	the	advantage
0x1000 0070	and	dominion	he	has
0x1000 0080	over	them	it	is
0x1000 0090	certainly	a	subject	even
0x1000 00A0	for	its	nobleness	worth
0x1000 00B0	our	labor	to	inquire