

Cache trace:

0x400020 Instr 1 miss
 0x400024 Instr 2 miss
 0x400028 Addi miss
 0x40002c Bne miss
 0x400020 Instr 1 hit
 0x400024 Instr 2 hit
 0x400028 Addi hit
 0x40002c Bne hit
 0x400020 Instr 1 hit
 0x400024 Instr 2 hit
 0x400028 Addi hit
 0x40002c Bne hit

Cache index	V	Tag	Data
...	?	...	
1000	0-1	0..0 0100 0000 0000	instr1
1001	0 1	0..0 0100 0000 0000	instr2
1010	0-1	0...0 0100 0000 0000	addi
1011	0 1	0..0 0100 0000 0000	bne
...	?		

400020 = 0..0 0100 0000 0000 0000 0010 0000
 400024 = 0..0 0100 0000 0000 0000 0010 0100
 400028 = 0..0 0100 0000 0000 0000 0010 1000
 40002c = 0..0 0100 0000 0000 0000 0010 1100

Example: 4KB direct-mapped data cache, 1-word blocks

Code fragment:

```
lw $s4, 0($s0) # $s0 = 0x1001 0040
lw $s5, 0($s1) # $s1 = 0x1001 c040
lw $s6, 0($s0)
lw $s7, 0($s2) # $s2 = 0x1001 0840
lw $t0, 0($s0)
```

- 1) 0x1001 0040 = 0001 0000 0000 0001 0000 0000 0100 0000
Tag=0001 0000 0000 0001 0000, index=0000 0100 00; miss
- 2) 0x1001 c040 = 0001 0000 0000 0001 1100 0000 0100 0000
Tag=0001 0000 0000 0001 1100, index=0000 0100 00; miss
- 3) 0x1001 0040; see (1) for tag/index, conflict with (2), miss
- 4) 0x1001 0840; miss
- 5) 0x1001 0040; see (1, 3), hit