- CPSC 275: Introduction to Computer Systems

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Fall 2025

- Syllabus
- Schedule
- Resources
- Upload
- Solution

Solution to Homework 27

1.

12	11	10	9	8	7	6	5	4	3	2	1	0
CT	CT	CT	CT	CT	CT	CT	CT	CI	CI	CI	CO	CO

2.

Address: `0x0E34`

A.

12	11	10	9	8	7	6	5	4	3	2	1	0
0	1	1	1	0	0	0	1	1	0	1	0	0
CT	CT	CT	CT	CT	CT	CT	CT	CI	CI	CI	CO	CO

B.

Parameter	Value
Cache block offset (CO)	0x0
Cache set index (CI)	0x5
Cache tag (CT)	0x71
Cache hit? (Y/N)	Y
Cache byte returned	0xB

3.

Address: `0x0DD5`

A.

12	11	10	9	8	7	6	5	4	3	2	1	0
0	1	1	0	1	1	1	0	1	0	1	0	1
CT	CT	CT	CT	CT	CT	CT	CT	CI	CI	CI	CO	CO

B.

Parameter	Value
Cache block offset (CO)	0x1
Cache set index (CI)	0x5

Cache tag (CT)	0x6E
Cache hit? (Y/N)	N
Cache byte returned	-

4.
Address: 0x1FE4

A.

12	11	10	9	8	7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1	0	0	1	0	0
CT	CT	CT	CT	CT	CT	CT	CT	CI	CI	CI	CO	CO

B.

Parameter	Value
Cache block offset (CO)	0x0
Cache set index (CI)	0x1
Cache tag (CT)	0xFF
Cache hit? (Y/N)	N
Cache byte returned	-

5. This problem requires you to work backward from the contents of the cache to derive the addresses that will
hit in a particular set. In this case, set 3 contains one valid line with a tag of 0x32. Since there is only one valid line in the set, four addresses will hit. These addresses have the binary form 0 0110 0100 11xx. Thus, the four hex addresses that hit in set 3 are 0x064C, 0x064D, 0x064E, and 0x064F.

- **Welcome: Sean**
  - LogOut

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