

Help

ASSOCIATIVE CACHES

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In the last sentence of the video, Professor Albonesi says "reduce the hit rate" when he meant to say "increase the hit rate."

ASSOCIATIVE CACHES II

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### 1. CHECK YOUR UNDERSTANDING (1/1 point)

Consider a direct mapped cache, a set associative cache, and a fully associative cache. All have the same capacity and block size. Which of the following are true? [CHECK ALL THAT APPLY]

- ☒ The set associative cache would in general take longer to access than the direct mapped cache. ✓
- ☐ The set associative cache would in general have a higher hit rate than the fully associative cache.
- ☒ The set associative cache would in general require more hardware than the direct mapped cache. ✓

#### EXPLANATION

The additional OR gate for the hit detection logic and multiplexor for the data makes the set associative cache slower than the direct mapped cache.

The set associative cache has less flexibility than the fully associative cache, which means that it generally has a lower hit

rate.

The set associative cache has additional comparators, gates, and muxes compared to the direct mapped cache.

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