

# Quiz 8

1. What are virtual cache, a physical cache, and a virtually-indexed, physically tagged caches?
  1. Virtual caches use virtual addresses for tag, index, and offset calculations
  2. Physical caches use physical addresses for tag, index, and offset calculations
  3. Virtually indexed, physically tagged caches use virtual addresses for indexing, and physical addresses for tagging.
2. What is a TLB?
  1. The TLB is a specialized cache for page table entries (I.e., address translations)
3. Describe two pieces of “metadata” that page table entries contain in addition to the address virtual-to-physical mapping?
  1. Access permissions: r/w/x bits
  2. Per-page caching policies
4. Why is a cache flush necessary as part of a context switch in a virtual cache?
  1. If you don't flush, data from one process's address space may be accessible by another process, if the second process accesses memory at the same virtual address