CS 152 Computer Architecture and Engineering
CS252 Graduate Computer Architecture

Lecture 24 Class Wrap

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http://www.eecs.berkeley.edu/~krste
http://inst.eecs.berkeley.edu/~cs152
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Span of CS152

- Early simple machines, microcoding, pipelining, bypassing, caching, prefetching, address translation and protection, virtual memory, complex pipelining, out-of-order execution, register renaming, branch prediction, VLIW, vectors/SIMD, GPUs, cache coherence, memory consistency models, synchronization, virtual machines, I/O, warehouse-scale computers.

- Just an introduction to main concepts in modern computer architecture, could easily spend a semester course on any one topic!

- Today – putting it all together by exploring some state-of-the-art computing systems:
  - Presentations from last year's Hot Chips conference (HotChips32)
  - All available at hotchips.org website

Computer Architecture in 2021

- Explosion of interest in custom architectures due to end of transistor scaling
  - Alibaba, Apple, Amazon, Bytedance, Facebook, Google, Huawei, Microsoft, Qualcomm, Tencent, Tesla, design and build their own processors and SoCs!
  - Full employment for computer architects.

- But need to learn about application domains
  - Cannot just work with precompiled binaries anymore!

- Get involved in research projects,
  - ADEPT – microprocessor architecture and chip design
  - RISE – machine learning, datacenter software, and security

- Undergrad research experience is the most important part of application to top grad schools!

End of CS152/CS252!

- Thanks for persevering in these tough times!

- We welcome feedback on course eval, or via email