740: Computer Architecture First Assignments to Complete

Prof. Onur Mutlu
Carnegie Mellon University
Fall 2013

- Background brush-up assignments (due September 6)
- Homework 0: student information sheet (due September 6)
- Paper Review Set 1 (due September 9)
- Readings to prepare you for Research and Report Writing

Required Video (for Background)

- Lecture 1: Basics of Computer Architecture (447 Spring 2013)
- http://www.youtube.com/watch?
 v=BJ87rZCGWU0&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG
 6IJ&index=1
- Watch by September 6

Recommended Background Videos and Lectures (I)

- All 447 lecture videos and notes are at:
 - http://www.youtube.com/playlist?list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ
 - http://www.ece.cmu.edu/~ece447/s13/doku.php?id=schedule
- Please watch as many as you can, to brush up on background material
- Required video
 - Lecture 1: Basics of Computer Architecture
 - http://www.youtube.com/watch?
 v=BJ87rZCGWU0&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG
 6IJ&index=1

Recommended Background Videos and Lectures (II)

- Lectures 2-3: Fundamental Concepts and ISA, ISA Tradeoffs
 - http://www.youtube.com/watch?
 v=BqJgYN6S6Qw&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=2
 - http://www.youtube.com/watch?
 v=BqJgYN6S6Qw&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=3
- Lecture 8: Pipelining
 - http://www.youtube.com/watch?
 v=5E_W7EeNs8U&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=8
- Lecture 9: Data Dependence Handling
 - http://www.youtube.com/watch?
 v=Gpz1I47LfDo&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=9
- Lecture 10-11: Branch Prediction
 - http://www.youtube.com/watch? v=XkerLktFtJg&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=11
- Lecture 16: Virtual Memory
 - http://www.youtube.com/watch?v=ppPq ntaAWU&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=16

Recommended Background Videos and Lectures (III)

- Lecture 22: Memory Hierarchy
 - http://www.youtube.com/watch?
 v=JBdfZ5i21cs&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=22
- Lecture 23-24: Caches
 - http://www.youtube.com/watch?
 v=TpMdBrM1hVc&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=23
 - http://www.youtube.com/watch?v=TboaFbjTd <u>E&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=24</u>
- Lecture 30B: Multiprocessors
 - http://www.youtube.com/watch?
 v=7ozCK_Mgxfk&list=PL5PHm2jkkXmidJOd59REog9jDnPDTG6IJ&index=31

 Please go back and watch these videos any time to synchronize your background with the expectation

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Homework 0: Information Sheet

- Our way of getting to know about you fast
- Please attach a recent picture and turn in as PDF
- Please answer thoroughly
- All future grading is predicated on this...
- Due September 6

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Review Set 1: Due September 9

- Mutlu, "Memory Scaling: A Systems Architecture Perspective," IMW 2013. (Think project ideas)
 - http://users.ece.cmu.edu/~omutlu/pub/memory-scaling_imw13.pdf
- Hamming, "You and Your Research," Bell Communications
 Research Colloquium Seminar, 7 March 1986.
 - http://www.cs.virginia.edu/~robins/YouAndYourResearch.html
- Patt, "Requirements, bottlenecks, and good fortune: agents for microprocessor evolution," Proceedings of the IEEE, vol. 89, no. 11, 2001. (Think project ideas)
- Due September 9

Optional Readings

- Amdahl "Validity of the single processor approach to achieving large scale computing capabilities," AFIPS Conference, April 1967.
- G. E. Moore, "Cramming more components onto integrated circuits," Electronics, April 1965
- Ronen et al., "Coming Challenges in Microarchitecture and Architecture," Proceedings of the IEEE, vol. 89, no. 11, 2001.

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Required Reading: Due September 9

- Hamming, "You and Your Research," Bell Communications
 Research Colloquium Seminar, 7 March 1986.
 - http://www.cs.virginia.edu/~robins/YouAndYourResearch.html
- Due September 9 as part of your review set

Supplementary Readings on Research, Writing, Reviews

- Levin and Redell, "How (and how not) to write a good systems paper," OSR 1983.
- Jones, "How to Write a Great Research Paper"
- Smith, "The Task of the Referee," IEEE Computer 1990.
 - Read this to get an idea of the publication process

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