CS350C - Spring 2015

Lectures: TTh 3:30-5pm, GDC 5.302

Piazza: piazza.com/utexas/spring2015/cs350c

Teaching staff:

* Ahmed Gheith (gheith@)
    * office hours: TTh 2pm - 3:30pm, GDC 5.320

All e-mails @cs.utexas.edu

Objective

Help you develop a deeper understanding of high performance processor architecture (software view) and micro-architecture (internal organization).

In order to achieve that we will:

* review the fundamentals of digital design and introduce you to the Verilog hardware design language
* use that knowledge to design a simple processor
* iterate over our architecture and micro-architecture in order to enhance its performance; learning about:
    * RISC vs. CISC
    * Pipelining
    * Superscalar
    * Out-of-order
    * Branch-prediction
    * Caches

The bulk of the work will be done in simulation but you'll also have the opportunity to synthesize your design on an FPGA board and see it run if you're interested.

Evaluation

* 2 in-class exams: 40% (Thursday 3/12, Thursday 5/7)
* Design milestones (~ 12): 50%
* Class participation: 10%

Grade cutoff guidance: A-/A >= 90%, B-/B/B+ >= 80%, C-/C/C+ >= 70%, D-/D/D+ >= 60%

Project submission

Projects will be assigned, tracked, and submitted using a system based on the GIT revision control system. I will teach you enough git basics to get you going but you're encouraged to learn about git if you're not already familiar with it. Here are some online links:

https://www.codeschool.com/courses/try-git

https://www.atlassian.com/git/tutorial

http://git-scm.com/book/en/Getting-Started

Late policy

All assignments are due at 11:59pm central time on the due date. An assignment is considered submitted once it has been pushed to your git repository on the server.

Late assignments will be graded for 50% of the maximum score. You have till the last day of class to submit late assignments.

Textbook

David Harris and Sarah Harris, "Digital Design and Computer Architecture" (Second Edition).

Originality of submitted work: you are required to cite any sources you used in your work (discussions with colleagues, articles, open source projects, google search results, etc). All violations or your inability to explain your work will raise a red flag and will be viewed as suspected plagiarism.

Ask lots of questions and have lots of conversations: Lectures are more useful when they're interactive. I encourage you to ask questions and ask for clarifications but please refrain from side conversations. One conversation at a time.

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