Syllabus

Course Description

This course introduces the concepts of computer architecture by going through multiple levels of abstraction, the numbering systems and their basic computations. It focuses on the instruction-set architecture of the MIPS machine, including MIPS assembly programming, translation between C and MIPS, and between MIPS and machine code. General topics include performance calculations, processor datapath, pipelining, instruction level parallelism, and memory hierarchy, including cache memories.

Required Textbook

Computer Organization and Design - The Hardware/Software Interface 5th Edition, Patterson and Hennessey, Morgan-Kaufmann, 2012. ISBN: 978-0-12-407726-3.

Required Course Materials

Assembler/Simulator: **MARS MIPS**

Grading Criteria

1. Exams (10%, 20%, 30%): open book, 2 midterms and 1 final
2. Assignments (20%): 8, around one per week
3. Projects (20%): details TBA

Assignment grading policy:

1. Code Development (30%): compiles without errors
2. Program Execution (20%): runs successfully
3. Program Design (25%): conforms to spec
4. Documentation (15%): program comments
5. Coding Style (10%): clear and efficient

No late homework or assignments.

Day 1: 1/19

Introduction

Day 2: 1/21

Intro 2