

CS1001

Lecture 5

Overview

- Instruction Execution
- Logic Gates
- Components of a PC
- Memory, Data Storage
- Architecture Comparisons
- Homework Problem 2

Goals

- Follow the basic steps involved in the Fetch/Decode/Execute Instruction Cycle
- Be able to use and understand logic gates/truth tables
- Know the general parts of a personal computer

Goals (2)

- Understand what a “Memory Hierarchy” is and why we use it
- Understand some different architecture paradigms like CISC and RISC

Assignments

- Brookshear, Ch 1.1/1.2, 1.8, 2 (Read)
- Read linked documents on these slides (slides will be posted in courseworks)

Instruction Execution

- Each binary instruction maps to exactly one assembly instruction
 - Very simple translation

Logic Gates

- Simplest of gates can be created by 1 or two transistors
 - <http://hyperphysics.phy-astr.gsu.edu/hbase/electronic/trangate.html>
- A Truth Table is a table of inputs and outputs for a particular logic function (like AND, OR, etc)
- You can create an addition circuit from ANDs and NOTs
 - http://www.brunel.ac.uk/~castjjg/hndcfund/material/java/slgs_half_adder/slgs_half_adder.html

Figure 2.4: The architecture of the machine described in Appendix C

