

ELEC 5200-001/6200-001 (Fall 2013)
Homework 1 Problems
Assigned 8/23/13, due 8/28/13

Problem 1. In general, a system may consist of engine, control, input, storage and output. Identify the equivalent parts for a computing system.

Problem 2: Define the following architectures in one sentence each:

- a. Harvard architecture
- b. Von Neumann architecture
- c. Stored-program computer

Discuss pros and cons of using each of these architectures

Problem 3: Define the phenomenon referred to as “von Neumann bottleneck”. Compare the IAS and MIPS instruction sets with respect to their effectiveness in dealing with the von Neumann bottleneck.

Problem 4: What is the function of the program counter (PC) register? How many bits of data should the PC hold?

Problem 5: What are the inputs and outputs of a control unit?