

CS162, Spring 2004  
Section 7 Quiz 1  
Steve Martin

Directions: Complete the following questions as best you can. You're encouraged to discuss these questions with the people around you. This quiz IS NOT GRADED. Its only intended to help you understand the material.

1. A brand new computer system, the STEEV2000™, has just been released to fanfare around the globe! This machine is unique in that it has a 36-bit virtual address space. It translates these addresses using paging, with a page size of 8 kilobytes. There are 4 bytes per page table entry. Each entry contains 4 bits of protection and use information; the rest is used for addressing.

a) How many pages are in the virtual address space?

b) What is the maximum size of addressable physical memory on this system?

c) Suppose the currently running process makes a call to load data from 36-bit virtual address 0x12345BEEF. Draw a picture of how this address is translated using paging and show how the actual data is found in physical memory.

2. Briefly explain the difference between the user mode and privileged mode of a CPU. Why is this difference important for the overall goals of an operating system?

3. What is the difference between an Interrupt and a System Call?

4. Take a second and email Steve with 3 ideas for how he could make section more useful for you. If you would like to do this anonymously, feel free to use the web comment form and just indicate its for Steve.