Operating Systems – Fall 2003
Quiz Number 2
August 13, 2003
10 Points (10 Minutes)

Name: _____

Question:

Consider a hypothetical microprocessor generating a 16-bit address (for example, assume that the program counter and the address registers are 16 bits wide) and having a 16-bit data bus.

1. What is the maximum memory address space that the processor can access directly if it is connected to a "16-bit memory"?

2. What is the maximum memory address space that the processor can access directly if it is connected to an "8-bit memory"?

3. What architectural features will allow this microprocessor to access a separate "I/O space"?

4. If an input and an output instruction can specify an 8-bit I/O port number, how many 8-bit I/O ports can the microprocessor support? How many 16-bit I/O ports? Explain.