

# CS 3733 Review Problem: Paging in the PDP 11

## Fall 2002

- 1) Consider the following information about the PDP-11 paged memory without virtual memory.
- i) the machine had a word size of 16 bits.
  - ii) a logical address was 16 bits, representing the address of a word.
  - iii) program and data used separate logical address spaces.
  - iv) the machine supported up to 4M words of memory
  - v) the page size was 8K words
  - vi) each process was assumed to use its entire address space.

Answer the following questions:

- a) How many bits of the logical address are used for the page number? a) \_\_\_\_\_
- b) How many bits of the logical address are used for the page offset? b) \_\_\_\_\_
- c) How many words of physical memory did a single program use? c) \_\_\_\_\_
- d) How many bits does a physical address have? d) \_\_\_\_\_
- e) How many bits of the physical address are used for the frame number? e) \_\_\_\_\_
- f) How many bits of the physical address are used for the frame offset? f) \_\_\_\_\_
- g) How many processes could be in physical memory at one time? g) \_\_\_\_\_
- h) How many page table entries did a process have? h) \_\_\_\_\_
- i) How many bits in a page table entry? i) \_\_\_\_\_
- j) This machine did not use a TLB. Why? j) \_\_\_\_\_
- k) Where was the page table for a given process stored? k) \_\_\_\_\_