Date:

HIBA ZUBAIR

SECTION F

18K-1361

DUE DATE: 15TH DEC 2020

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ACTIVITY 2

Physical Memory = 64MB = 2^{26} bytes
virtual address space = 34 bits.
page size = 4B = 2^{12}B
size of conventional page = ?
size of inverted page = ?

For conventional:

Page table size = no. of pgs × PTE size — (1)

$$\text{no. of pgs} = \frac{\text{virtual memory size}}{\text{page size}} = \frac{2^{34}}{2^{12}} = 2^{22}$$

$$\text{PTE size} = \frac{\text{frame no. bits}}{1B} \quad \text{— (2)}$$

$$\text{frame no. bits} = \frac{\text{physical memory}}{\text{page size}}.$$

$$\text{frame no. bits} = \frac{2^{26}}{2^{12}}$$

$$\text{frame no. bits} = 2^{14} = 14 \text{ bits}$$

eq (2) becomes: $\text{PTE size} = \frac{14}{1B} = \frac{14}{8} \approx 2$ bytes.

eq (1) becomes:

Page table size = $2^{22} \times 2 = 8$MB

page table size = 8MB

Victory

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For Inverted:

page table size = frame size x PTE size ⇒ (1)

frame size = $\frac{\text{physical memory size}}{\text{page size}} = \frac{2^{26}}{2^{12}} = 2^{14}$

PTE size = $\frac{\text{Page no. bits}}{1B} = \frac{22}{8} \approx 3B$

eq (1) becomes : page table size =

$2^{14} \times 3$

$= 16KB \times 3$

$= 48KB$.