Linear Page Table Size

Due Sep 26, 2019 at 11:59pm **Points** 3 **Questions** 3 **Time Limit** None
Allowed Attempts Unlimited

This quiz is no longer available as the course has been concluded.

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	less than 1 minute	3 out of 3
LATEST	Attempt 2	less than 1 minute	3 out of 3
	Attempt 1	4 minutes	0 out of 3

Score for this attempt: **3** out of 3
Submitted Sep 26, 2019 at 11:41pm
This attempt took less than 1 minute.

Question 1 — 1 / 1 pts

How big is the page table (in KB) if:

bits in virtual address: 32
page size: 4KB
pte size: 8 bytes

Correct!

8,192

orrect Answers

8,192 (with margin: 0)

ARG bits in virtual address 32
ARG page size 4k
ARG pte size 8

Recall that an address has two components:
[Virtual Page Number (VPN) | Offset]

The number of bits in the virtual address: 32
The page size: 4096 bytes
Thus, the number of bits needed in the offset: 12
Which leaves this many bits for the VPN: 20
Thus, a virtual address looks like this:

V V V V V V V V V V V V V V V V V V V V | O O O O O O O O O O O O

where V is for a VPN bit and O is for an offset bit
To compute the size of the linear page table, we need to know:
- The # of entries in the table, which is 2^(num of VPN bits): 1048576.0
- The size of each page table entry, which is: 8
And then multiply them together. The final result:
8388608 bytes
in KB: 8192.0
in MB: 8.0

Question 2

1 / 1 pts

How big is the page table (in bytes) if:

bits in virtual address: 16
page size: 1KB
pte size: 4 bytes

Correct!

256

orrect Answers

256 (with margin: 0)

RG bits in virtual address 16
ARG page size 1k
ARG pte size 4

Recall that an address has two components:
[Virtual Page Number (VPN) | Offset]

The number of bits in the virtual address: 16
The page size: 1024 bytes
Thus, the number of bits needed in the offset: 10
Which leaves this many bits for the VPN: 6
Thus, a virtual address looks like this:

V V V V V V | O O O O O O O O O O

where V is for a VPN bit and O is for an offset bit
To compute the size of the linear page table, we need to know:
- The # of entries in the table, which is 2^(num of VPN bits): 64.0
- The size of each page table entry, which is: 4
And then multiply them together. The final result:
256 bytes

Question 3

1 / 1 pts

How big is the page table (in KB) if:

bits in virtual address: 24
page size: 2KB
pte size: 4 bytes

Correct!

32

orrect Answers

32 (with margin: 0)

ARG bits in virtual address 24
ARG page size 2k
ARG pte size 4

Recall that an address has two components:
[Virtual Page Number (VPN) | Offset]

The number of bits in the virtual address: 24
The page size: 2048 bytes
Thus, the number of bits needed in the offset: 11
Which leaves this many bits for the VPN: 13
Thus, a virtual address looks like this:

V V V V V V V V V V V V V | O O O O O O O O O O O

where V is for a VPN bit and O is for an offset bit
To compute the size of the linear page table, we need to know:
- The # of entries in the table, which is 2^(num of VPN bits): 8192.0
- The size of each page table entry, which is: 4
And then multiply them together. The final result:
32768 bytes
in KB: 32.0

Quiz Score: **3** out of 3