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★ Course / 16. Virtual Memory / Lecture Videos (49:01)



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LE16.1

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■ Calculator

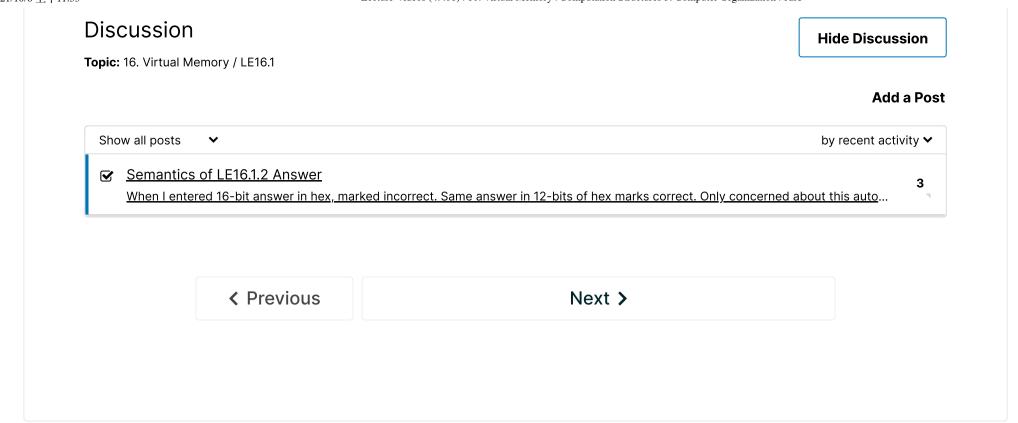
LE16.1.1: Page Maps

0.0/1.0 point (ungraded)

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Consider a virtual memory system for the Beta that uses a single-level pagemap to translate virtual addresses into physical addresses. Assume 32-bit virtual (byte) addresses, a page size of 2^{12} (4096) bytes, and a physical memory of 2^{28} bytes.

		•				
		The Beta produces 32-bit byte a page number?	nddresses, A[31:0]. Wh	nich of these bits should	I be interpreted as the virtual	
	;	address bits specifying virtual រុ	page: A[:	1	
		Assuming each pagemap entry in express your answer as a mathe		and D bits, what is the total pagemap size in bits ? You can pression, e.g., 10*(2^17).		
		pagemap size, in bits:				
		At any given time, what is the ma one? Assume that no virtual pag			at can have their R bit set to	
		Maximum number of page map	entries with R=1:			
S	ubı	mit				
he ph	fol nys	point (ungraded) lowing table shows the first 8 en sical memory and 0 if the page is	, ,		t bit is 1 if the page is resident	
		0 0×7				
		0×9				
		0 0×3				
		0×2				
)×4		. 0×5				
) 0×5				
) 0×4				
)×7	1	I 0×1				
Supp	005	se there are 1024 (2 ¹⁰) bytes per	page.			
		s the physical address (in hex) co s cannot be determined because			Please enter "" if the	
x:						
Vha	t is	s the physical address (in hex) co	orresponding to the vi	rtual address 0×1678? F	Please enter "" if the	
ddr	es	s cannot be determined because	e the page is not resid	ent.		
x:						



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