











PAG	ING: USE LARGER PAGES			
 Larger pages = 16KB = 2¹⁴ 32-bit address space: 2³² 2¹⁸ = 262,144 pages 				
$\frac{2}{2}$	$\frac{32}{14} * 4 = 1MB$ per page table			
 Memory requirement cut to ¼ However pages are huge 				
 Internal fragmentation results 16KB page(s) allocated for small programs with only a few variables 				
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MORE THAN TWO LEVELS - 2							
 Page table entries per page = 512 / 4 = 128 7 bytes - for page table index (PTI) 3029 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Page Directory Index 							
17	VPN	offset					
	Flag	Detail					
	Virtual address	30 bit					
	Page size	512 byte					
	VPN	21 bit					
	Offset	9 bit					
	Page entry per page	128 PTEs lo	$g_2 128 = 7$				
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11: else
12: PDIndex = (VPN & PD MASK) >> PD SHIFT
13: PDEAddr = PDBR + (PDIndex * sizeof(PDE))
14: PDE = AccessMemory(PDEAddr)
15: if (PDE.Valid == False)
16: RaiseException (SEGMENTATION_FAULT)
17: else // PDE is Valid: now fetch FTE from FT

18:	PTINdex = (VPN & PT_MASK) >> PT_SHIFT
19:	PTEAddr = (PDE.PFN << SHIFT) + (PTIndex * sizeof(PTE))
20:	PTE = AccessMemory(PTEAddr)
21:	<pre>if(PTE.Valid == False)</pre>
22:	RaiseException (SEGMENTATION_FAULT)
23:	<pre>else if(CanAccess(PTE.ProtectBits) == False)</pre>
24:	RaiseException (PROTECTION_FAULT);
25:	else
26:	<pre>TLB_Insert(VPN, PTE.PFN , PTE.ProtectBits)</pre>
27:	RetryInstruction()







HYBRID TABLES - 4					
 Consider a lar Heap may hav Free-ing memory Consider our Large sparse statements 	ge sparsely populated heap e been enlarged for memory which was free ory doesn't necessarily shrink the heap realloc example segments waste space	d			
 Page tables at Can be 1 to m Must find space Fragmentation Need a free space 	re now of variable size (no longer fixed) any actual pages ce for variable sized page tables n is possible bace list				
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