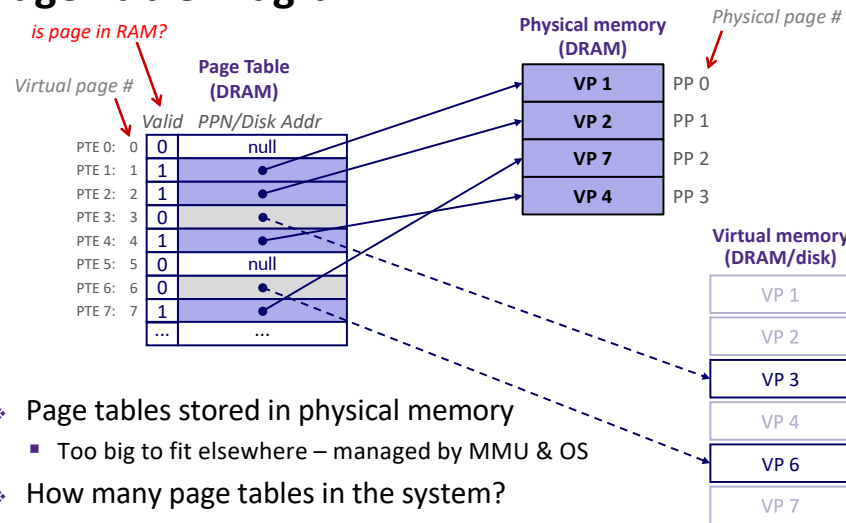


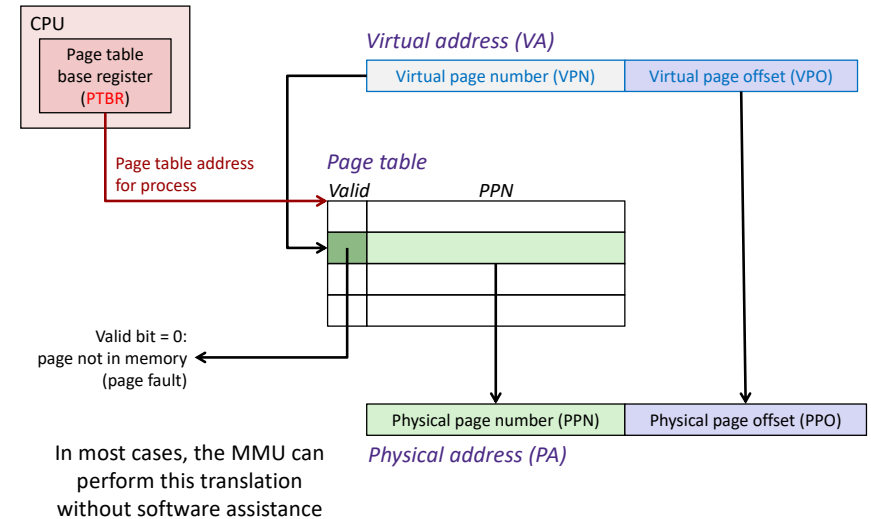
## Page Table Diagram



- ❖ Page tables stored in physical memory
  - Too big to fit elsewhere – managed by MMU & OS
- ❖ How many page tables in the system?
  - One per process

51

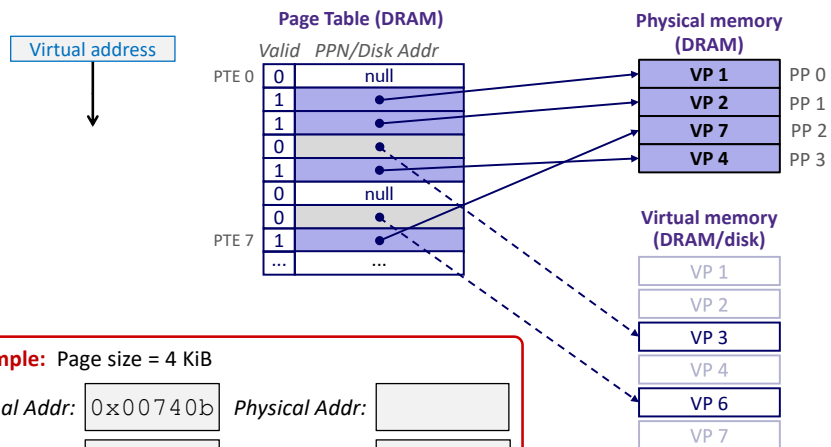
## Page Table Address Translation



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## Page Hit

- ❖ **Page hit:** VM reference is in physical memory



**Example:** Page size = 4 KiB

Virtual Addr: 0x00740b

Physical Addr:

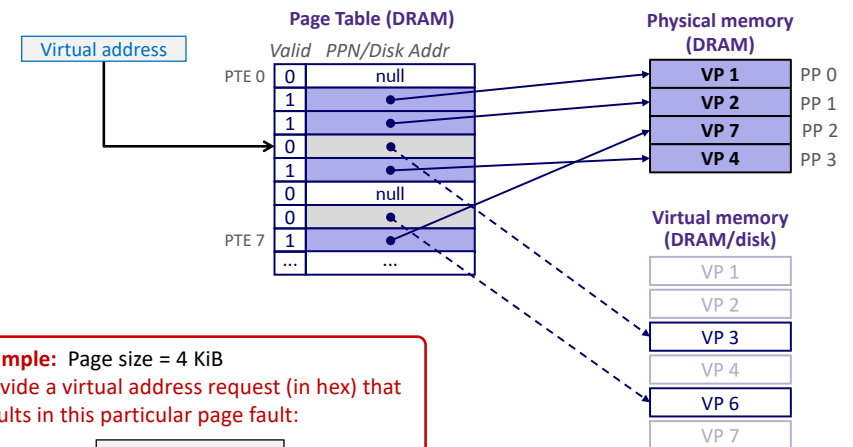
VPN:

PPN:

53

## Page Fault

- ❖ **Page fault:** VM reference is NOT in physical memory



**Example:** Page size = 4 KiB

Provide a virtual address request (in hex) that results in this particular page fault:

Virtual Addr:

54

## Polling Question

- ❖ How many bits wide are the following fields?
- 16 KiB pages
  - 48-bit virtual addresses
  - 16 GiB physical memory

	VPN	PPN
(A)	34	24
(B)	32	18
(C)	30	20
(D)	34	20