



channels. Side channels are observable side effects of actions. 1. READ secret from forbidden address 2. Stash away secret by caching a memory location that

"Stashing" and "retrieving" the secret works via side

3. Retrieve secret by finding which memory location is cached

depends on the secret

## MELTDOWN & SPECTRE FOR NORMAL PEOPLE

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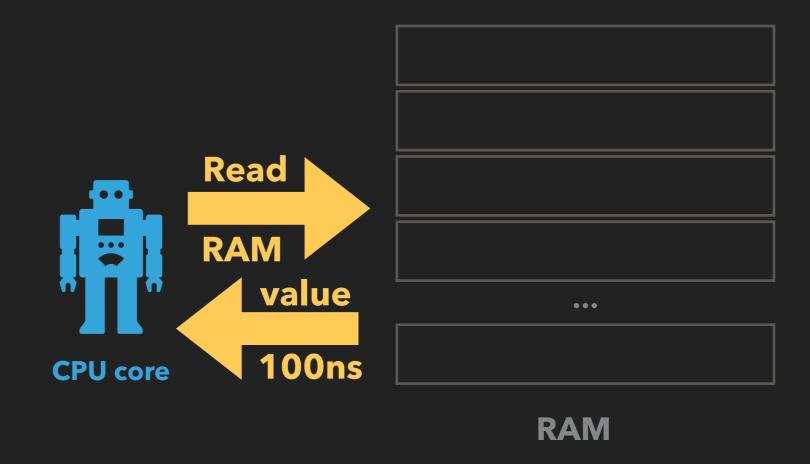






## MELTDOWN: STASHING AWAY - SIDECHANNEL





- Data is stored in RAM
- RAM is very slow
- $\blacktriangleright$  Reading one byte stalls the CPU for hundreds of  $\mu$ OPs

## **MELTDOWN**



"Stashing" and "retrieving" the secret works via side channels.

Side channels are observable side effects of actions.

- READ secret from forbidden address
- Stash away secret by caching a memory location that depends on the secret
- Retrieve secret by finding which memory location is cached