

## MELTDOWN



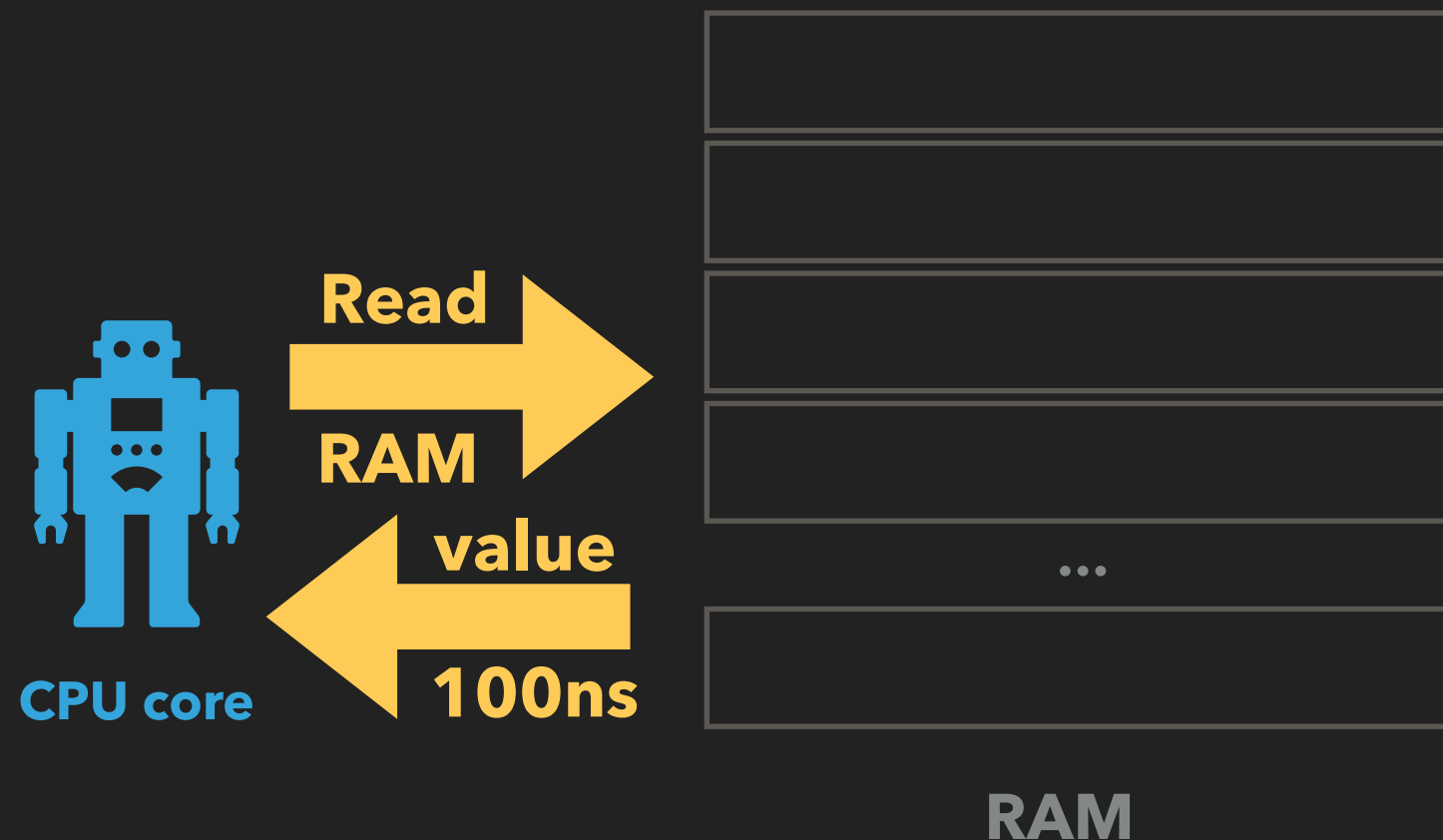
“Stashing” and “retrieving” the secret works via *side channels*.

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



## MELTDOWN: STASHING AWAY – SIDECCHANNEL



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