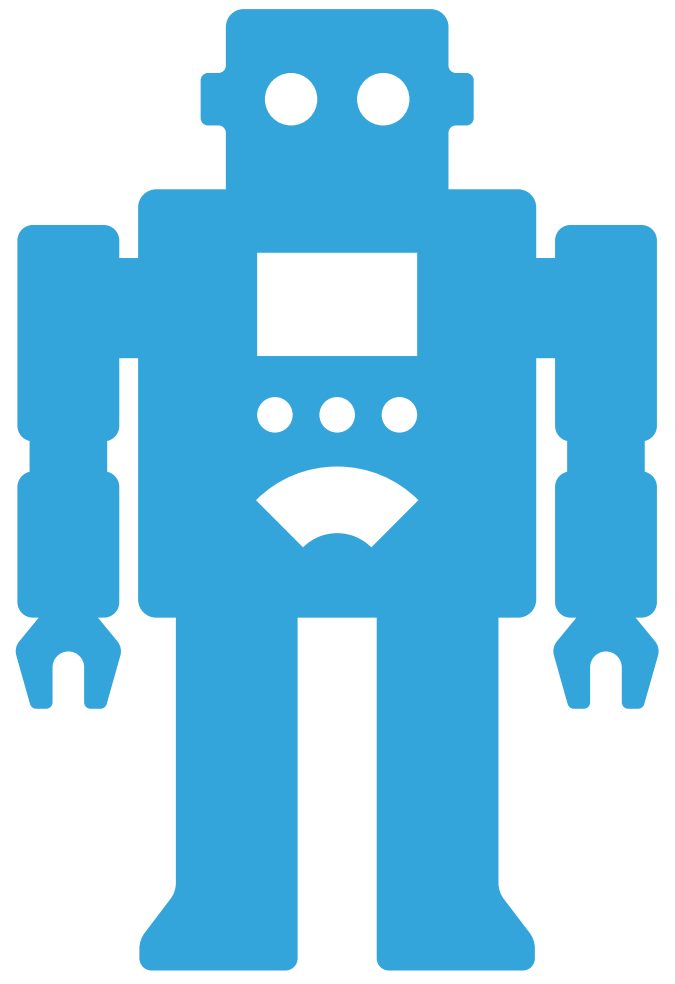
MELTDOWN & SPECTRE FOR NORMAL PEOPLE

MELTDOWN: STASHING AWAY – SIDECHANNEL

31



CPU core


RAM

- Data is stored in RAM
- RAM is very slow
- Reading one byte stalls the CPU for hundreds of µOPs

Read
RAM

value
100ns

VALUE

value at address

address

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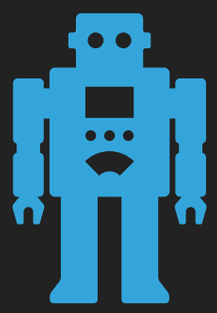
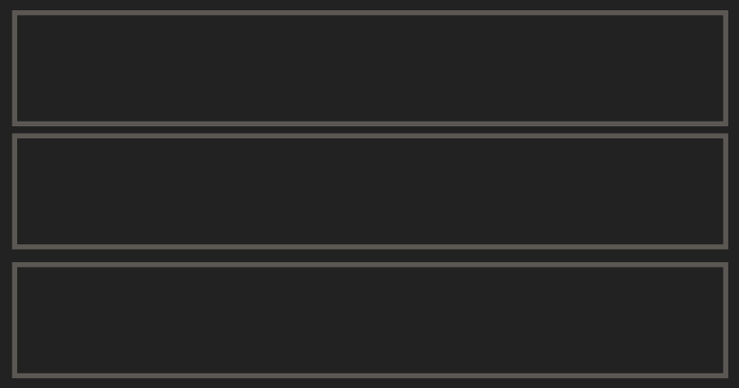
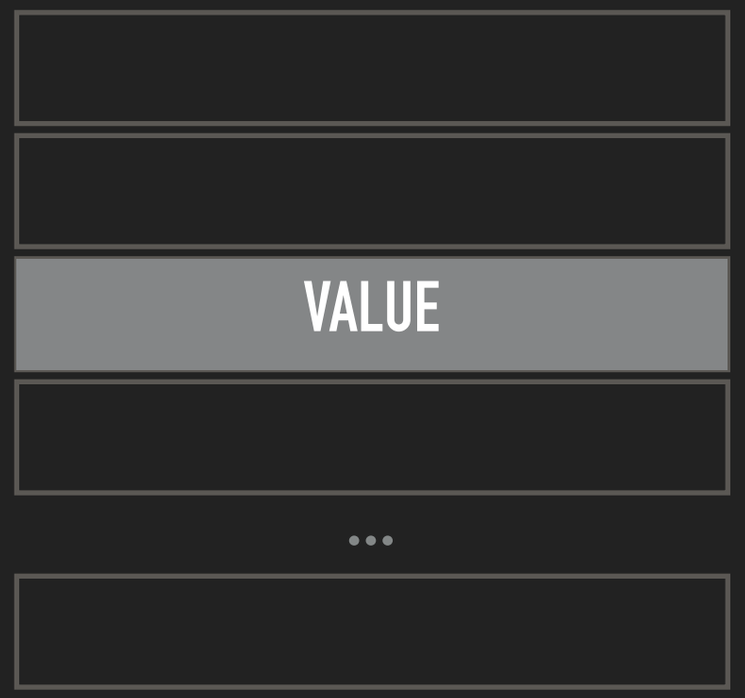


CPU core



Cache



RAM

- Reading one byte stalls the CPU for hundreds of µOPs
- CPU caches considerably speed this up
- E.g. reading cached takes 3ns, reading uncached 103ns

The cache speeds up *"what is the value at address X?"*. This is called *"(address) X is cached"*