

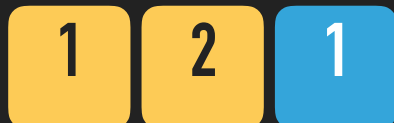


MELTDOWN: READING FORBIDDEN DATA

Meltdown basically works like this:

- READ secret from forbidden address
 - 1 Check that program may read from address
 - 2 Store the read value in register
- Stash away secret
 - 1 *Magic*
- *Retrieve secret (later)*

μOPs:



MELTDOWN: READING FORBIDDEN DATA



μOPs ordered by *instruction*

1 Check access

2 Read into register

1 *Magic*

μOPs ordered by *execution*

2 Read into register

1 *Magic*

1 Check access

The re-ordering on the right happens, when the “forbidden data” is already cached (because cache access is so fast).