



For a CPU the "READ value from memory at 4711" instruction looks like this (µOPs):

2. Store the value at address in register<sup>1</sup>

1. Check that program may read from address

#### MELTDOWN & SPECTRE FOR NORMAL PEOPLE

## "READ" INSTRUCTION

<sup>&</sup>lt;sup>1</sup> Register: The CPUs scratchpad





```
If 1 fails the program is aborted.
This can be handled by the program.
```

# In our burger example: 1. Customer orders a burger 2. Customer has not enough money 3. Customer does not get his burger

## "READ" INSTRUCTION

For a CPU the "READ value from memory at 4711" instruction looks like this (µOPs):

- 1. Check that program may read from address 1
- 2. Store the value at address in register<sup>1</sup> 2
- If <sup>1</sup> fails the program is aborted.

This can be handled by the program.

In our burger example:

- 1. Customer orders a burger
- 2. Customer has not enough money
- 3. Customer does not get his burger

### MELTDOWN: READING FORBIDDEN DATA



Meltdown basically works like this:

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

μOPs: 1 2 1