Microprocessors

COE 381

WEEK 2: BASIC COMPUTER ORGANIZATION

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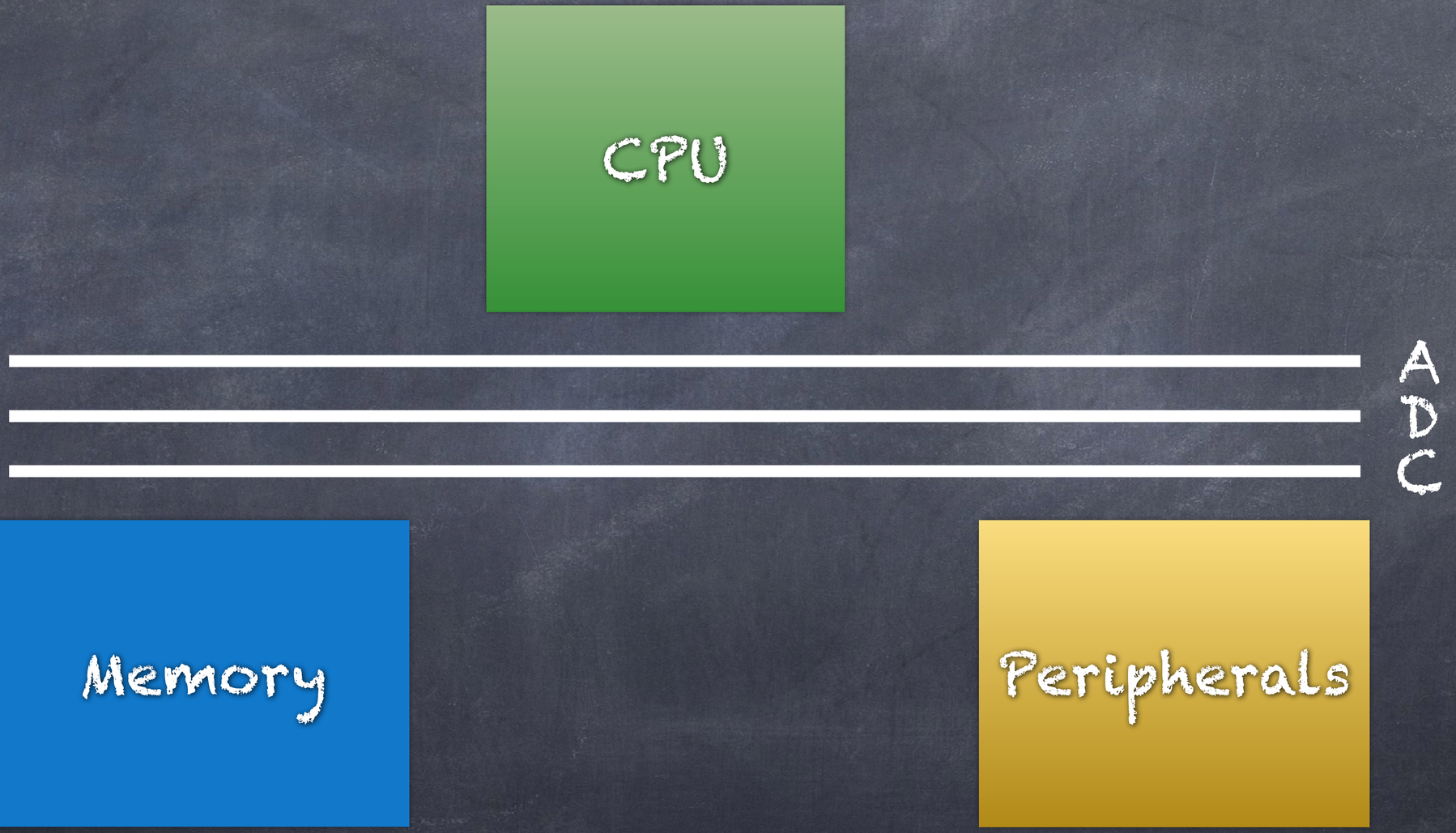
Microprocessors & Microcontrollers

Basic Computer Organization



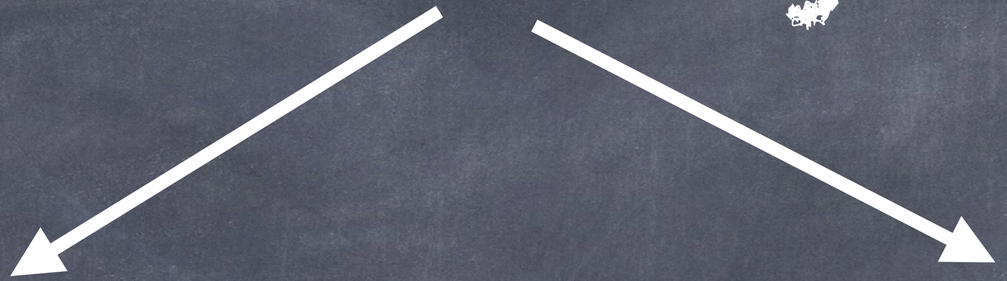
Memory Interfacing Problem

Example:

Consider a CPU with a 16 bit address bus and an 8-bit data bus.

How do you interface 8 memory chips (2K x 4 bit) with it?

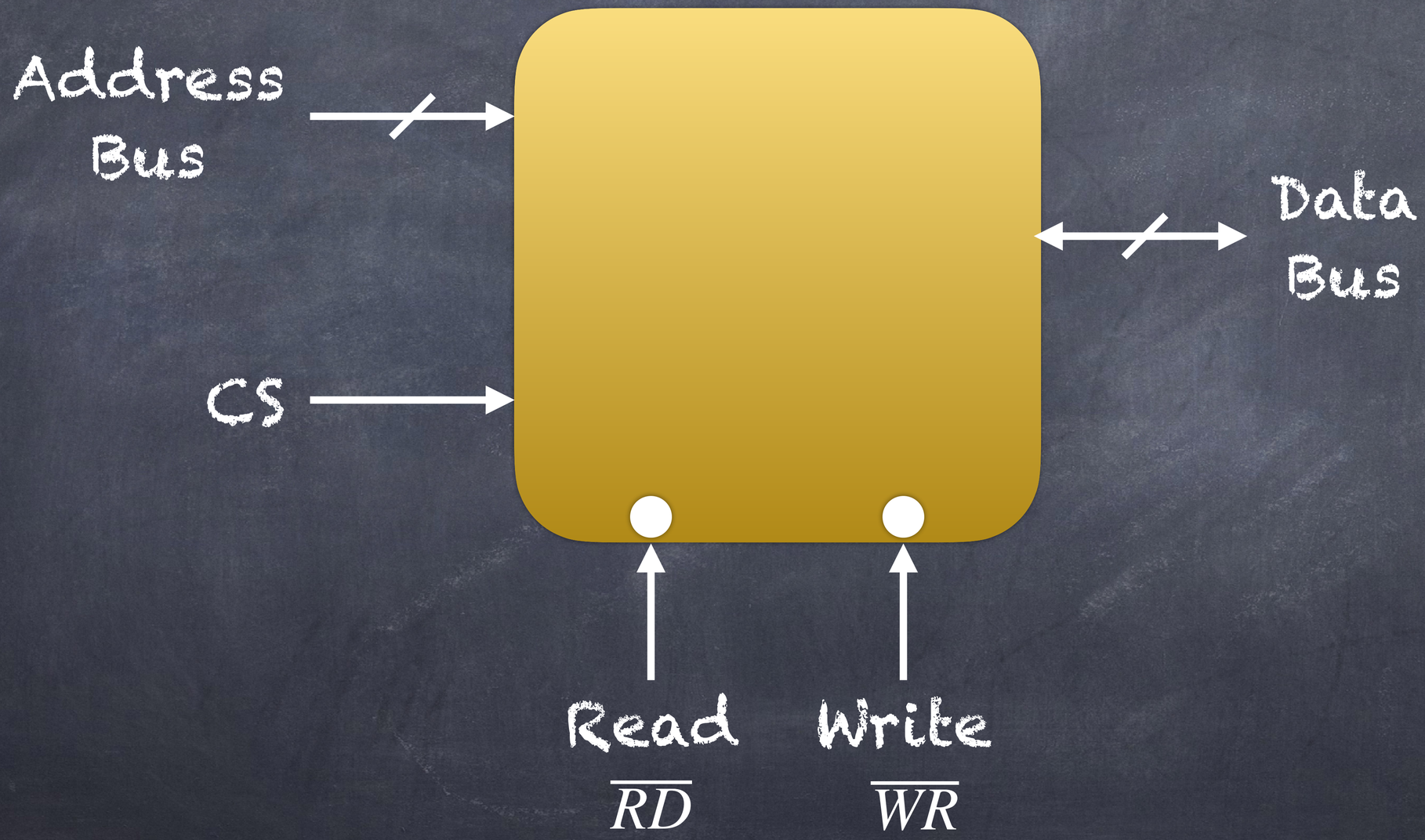
Memory



RAM

ROM

Memory



Memory Interfacing: ROM & RAM

Example:

8KB ROM, 16KB RAM.
CPU => 16 bit Address Bus, 8 bit Address Bus.

ROM Starting Address = 0000H
RAM Starting Address = 8000H

ROM/RAM Size = 4KB

Reading Assignment

- https://www.youtube.com/watch?v=nL34zDTPkcs
- Arduino Architecture - http://meseec.ce.rit.edu/551-projects/fall2017/2-3.pdf
- Arduino Uno Datasheet - https://docs.arduino.cc/resources/datasheets/A000066-datasheet.pdf
- Docs - https://docs.arduino.cc