

This is CS50 AP.

# Test 0: Lightbot and Hardware

# Hardware cont.

# BIOS

- Basic Input Output System
- Contains the instructions that the computer needs to follow to start up.
- Called EFI or Extensible Firmware Interface on a Mac.

# CMOS

- Complementary Metal-Oxide Semiconductor
- Stores information needed by the BIOS such as current date and time.
- Information isn't lost if the computer runs out of power because CMOS has its own battery.

# Graphics Card

Responsible for handling computations relating to coloring in the pixels that make up the computer's display.

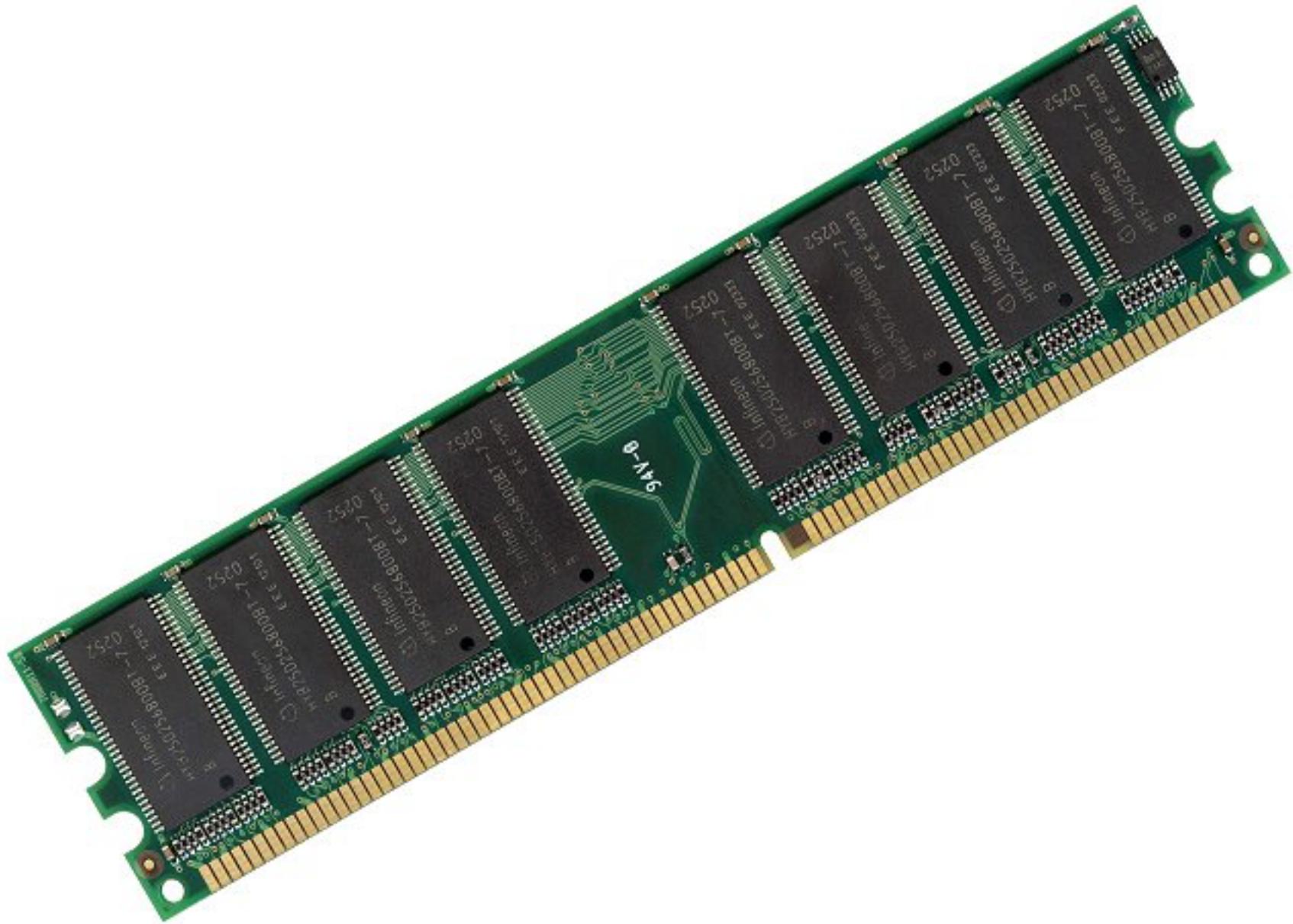


# POSTs

- Power On Self Tests
- Series of tests performed by the BIOS to make ensure all hardware components are functioning properly.
  - First test is to check if RAM is totally readable and writeable.

# RAM

- Random-Access Memory
- Short-term memory used by programs to temporarily store data for quick access
- Typically 2-16 gigabytes



# Peripherals

Keyboard, mouse, printers, other USB devices

# Software

Intangible computer programs capable of running on a computer's hardware.

# Operating System

- Stored on the hard drive.
- Windows 10, OS X, Linux.

# Hard Drive

- Primary form of storage.
- “If RAM is your short-term memory, then the hard drive is where all those embarrassing memories from middle school get stored.”
- Typically several hundreds of gigabytes to terabytes in size.
- Hard Disk Drive (HDD) vs. Solid-State Drive (SSD)



# Kernel

- The lowest-level piece of software in the operating system.
- Serves as a bridge between hardware and software.

# CPU

- Central Processing Unit
- AKA “Processor”
- The brains of the machine.
- Puts the “compute” in “computer.”
  - Performs the logic of software programs.
- Performs thousands of computations every second
  - Measured in gigahertz (GHz)
- Has typically 1-4 MB of memory built in.



# Heatsink

- The CPU, much like my brain, can get overheated when working too hard.
- Cools the CPU using a thermal adhesive, fan, or even a water-based cooling mechanism

