RAM

Chapter 4

Episode: **RAM Technology**

Objective(s): Core 1: 3.2 Given a scenario, install the appropriate RAM.

Episode Description

Dynamic random access memory (DRAM) comes in a number of versions defined by the doubling of commands they process per clock cycle. It's important for techs to recognize these technologies and the speed rating systems used.

Key Terms

- 0:40 - Synchronous dynamic random access memory (SDRAM)
- 2:10 - Double data rate (DDR) SDRAM
- 3:57 - Double data rate 2 (DDR2)
- 6:31 - Objective term - Double data rate 3 (DDR3)
- 8:31 - Objective term - Double data rate 4 (DDR4)

Quick Review

- Different motherboards support a specific RAM technology
- We measure RAM speeds using DDR or PC ratings
- Multiply a DDR speed by eight to get the PC speed

Episode: **RAM Capacity**

Objective(s): Core 1: 3.2 Given a scenario, install the appropriate RAM.

Episode Description

Individual sticks of DRAM will have very different capacities. It's important to understand RAM capacities and how sticks work together to provide the total memory for a system.

Key Terms

- 1:27 - Double-sided RAM
- 1:39 - Single-sided RAM
- 2:10 - Objective term - Channels
- 3:31 - Objective term - Dual-channel memory
- 4:18 - Objective term - Triple-channel
- 4:59 - Objective term - Single-channel

Quick Review

- Every stick of RAM has a specific capacity
- RAM comes in single- and double-sided versions
- RAM uses channels which require RAM sticks to fill the channel
- RAM should have identical capacity in the same channel

Episode: **RAM Features**

Objective(s): Core 1: 3.2 Given a scenario, install the appropriate RAM.

Episode Description

Individual sticks of DRAM will have very different capacities. It's important to understand RAM capacities and how sticks work together to provide the total memory for a system.

Key Terms

- 0:16 - Objective term - Parity vs. error correction code (ECC)
- 2:45 - Objective term - Small outline dual inline memory module (SO-DIMM)
- 4:11 - Serial presence detect (SPD) chip

Quick Review

- Parity and ECC RAM contain extra chips to check for RAM errors
- ECC RAM is only for motherboards that support it
- SO-DIMMs are for smaller spaces
- Almost all RAM has an SPD chip that stores information about the RAM stick
- Tools like CPU-Z read SPD information

Episode: **Virtual Memory**

Objective(s): Core 1: 3.2 Given a scenario, install the appropriate RAM.

CompTIA A+ (220-110x)
Mike Meyers and Steve Nicholson

Episode Description

Running out of memory is something we try to avoid. All operating systems use virtual memory (or RAM), a part of your mass storage set, to act as (very slow) memory in case your real memory runs out.

Key Terms

- 1:35 - Out of memory errors
- 1:57 - Objective term - Virtual memory/virtual RAM
- 4:12 - dir /ah
- 5:21 - Swap file = virtual memory

Quick Review

- Virtual memory is a portion of mass storage that acts as memory
- Should only be used when physical memory is exhausted
- All operating systems have tools to adjust virtual memory use
- In most cases we just let the OS automatically control virtual memory use

Episode: **Installing and Troubleshooting RAM**

Objective(s):

Core 1: 3.2 Given a scenario, install the appropriate RAM.

Core 1: 5.1 Given a scenario, apply the best practice methodology to resolve problems.

CompTIA A+ (220-110x)

Mike Meyers and Steve Nicholson

Episode Description

Upgrading your RAM is one of the quickest tasks that you can do to immediately increase system performance. Whether you are doing a new PC build, or simply updating your system, you are going to need to know how to install and troubleshoot RAM.

Key Terms

- 1:27 - Objective term - Step 1: Identify the problem
- 1:38 - Objective term - Step 2: Establish a theory of probable cause (question the obvious)
- 1:57 - Objective term - Refer to the vendor's instructions for guidance
- 2:16 - Objective term - Step 3: Test the theory to determine the cause

Key Terms

- 2:57 - Objective term - Step 4: Establish a plan of action to resolve the problem and implement the solution
- 3:24 - Objective term - Step 5: Verify full system functionality and, if applicable, implement preventive measures
- 3:30 - Objective term - Step 6: Document the findings, actions, and outcomes

Quick Review

- Review your hardware and software technical requirements before choosing RAM
- RAM sticks have generation-specific notches that line up with the appropriate slot on a motherboard
- Poorly seated RAM is often the main cause of non-functional RAM