Motherboards

Chapter 6

CompTIA A+ (220-110x)

Mike Meyers and Steve Nicholson

Episode: **Form Factors**

Objective(s): Core 1: 3.4 Given a scenario, install and configure motherboards, central processing units (CPUs), and add-on cards.

Episode Description

Motherboards, power supplies, and cases are surprisingly interchangeable due to industry standards called form factors. Techs should know common form factors and the benefits and challenges of each.

Key Terms

- 0:35 - Objective term - Form factors
- 1:07 - I/O area
- 2:26 - Objective term - MicroATX form factors
- 2:44 - Objective term - Mini-ITX form factors
- 3:22 - Objective term - ITX form factor
- 4:42 - I/O shield

Quick Review

- Motherboards and cases follow standardized form factors
- Common form factors include Advanced Technology eXtended (ATX), microATX, Mini Information Technology eXtended (ITX)
- Power supplies offer standardized connectors

Episode: **Chipsets**

Objective(s): Core 1: 3.4 Given a scenario, install and configure motherboards, central processing units (CPUs), and add-on cards.

Episode Description

A motherboard chipset is what determines the RAM capacity, USB capabilities, CPU architecture, and more. Mike explains how the modern chipsets have evolved over the years and why they matter today.

Key Terms

- 1:08 - Northbridge, Southbridge

Quick Review

- Chipsets combine functions from many single-function chips
- Early chipsets offered Northbridge and Southbridge
- Modern chipsets feature Southbridge (CPU handles Northbridge functions)
- Chipsets define RAM capacity, USB capabilities, and much more

Episode: **Choosing the Right Motherboard**

Objective(s): Core 1: 3.4 Given a scenario, install and configure motherboards, central processing units (CPUs), and add-on cards.

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Episode Description

The motherboard is the backbone of a PC. The type and model of motherboard that you choose can have a profound impact on your system and often determines which components you are able to use. What should you look for when picking out a new one? We'll explore that and more as we learn about choosing the right motherboard.

Key Terms

- 0:40 - Motherboards are also known as mainboards, systems boards, backplane boards, and mobos (SM)
- 1:05 - Desktop or laptop
- 1:12 - Objective term - multi-socket for a server

Key Terms

- 2:30 - Objective term - Motherboard form factor
- 2:32 - Objective term - Advanced Technology eXtended (ATX)
- 2:32 - Objective term - Information Technology eXtended (ITX)

Quick Review

- The motherboard is the backbone of a PC and all other components interface with it
- Type of CPU, form factor, and extra RAM capacity are all important considerations when choosing a new motherboard
- When selecting a motherboard, consider its intended use
- Motherboards may be referred to as mainboards, system boards, backplane boards, or mobos

Episode: **Installing and Troubleshooting a Motherboard**

Objective(s):

Core 1: 3.4 Given a scenario, install and configure motherboards, central processing units (CPUs), and add-on cards.
Core 1: 5.1 Given a scenario, apply the best practice methodology to resolve problems.
Core 1: 5.2 Given a scenario, troubleshoot problems related to motherboards, RAM, CPU, and power.

Episode Description

Installing a motherboard into a case is part science and part art. The science comes first. The motherboard must match the case's form factor, and the motherboard and parts must be compatible. Then, the art: the subtle crafts of preparing everything you need; organizing your workspace as you go; planning a few steps ahead to avoid back-tracking; and the soft, patient touch to ensure everything fits together properly.

Key Terms

- 0:41 - Objective term - ESD strap
- 1:15 - Standoffs
- 2:29 - I/O shield
- 3:22 - Objective term - Step 1: Identify the problem
- 3:27 - Objective term - Step 2: Establish a theory of probable cause

Key Terms

- 3:27 - Objective term - Step 3: Test the theory to determine the cause
- 4:04 - Objective term - Step 4: Establish a plan of action to resolve the problem and implement the solution
- 4:40 - Objective term - Step 5: Verify full system functionality and, if applicable, implement preventive measures

Key Terms

- 4:40 - Objective term - Step 6: Document the findings, actions, and outcomes
- 5:07 - Open-air frame/case
- 7:01 - Objective term - Capacitor swelling
- 7:30 - Objective term - Burning smell

Quick Review

- Motherboards come with standoff screws to reduce the risk of electrical damage to the motherboard
- I/O shields are custom-made for the motherboard
- Installing the CPU and heat sink prior to installing the motherboard makes the build process much easier