



Episode: Form Factors

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



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.



- 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



- 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



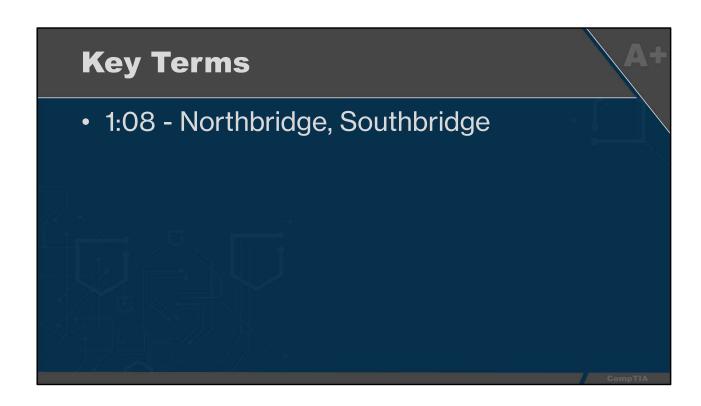
Episode: Chipsets

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



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.







- 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.



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.



- 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



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



- 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



Installing and Troubleshooting a Episode: **Motherboard**

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

Objective(s):

problems. Core 1: 5.2 Given a scenario, troubleshoot problems related to motherboards, RAM, CPU, and power.



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.



- 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



- 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



- 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



- 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

