

Comparative Study on Different Types of Motherboards

By: Yu, Derick Angelo

Introduction

A motherboard, by definition, is a printed circuit that contains the principal components of a computer or other device, with connectors into which other circuit boards can be slotted. The motherboard is a computer's central communications backbone connectivity point, this is where all components and external peripherals connect. Motherboards can be found in all computers, especially desktop and laptop PCs (Kirvan, 2022).

Discussion

Motherboards come in different sizes, functionalities, and compatibility, providing needs to different types of users, from basic setups to high-end workstations. There are different types of motherboards which differ in form factors. Understanding these differences is crucial for selecting the right motherboard for specific requirements.

Form Factor	Build	CPU Slots	Memory Slots	Chipsets	BIOS	PCI Slots	SATA Ports	Built-in Features
AT Motherboard	Large, legacy	1	2-3	Early chipsets	Legacy	2-3	0-2	Limited expansion, no USB support
ATX Motherboard	Standard size	1	4-8	Modern chipsets	UEFI/BIOS	3-7	4-8	USB ports, onboard audio, LAN support
BTX Motherboard	Improved airflow	1	4-8	Modern chipsets	UEFI/BIOS	3-6	4-8	Better cooling, USB, audio, LAN
Extended-ATX Motherboard	Larger ATX	1	8-12	Advanced chipsets	UEFI/BIOS	4-8	6-10	Supports multi-GPU, high RAM capacity
LPX Motherboard	Compact, legacy	1	1-2	Early chipsets	Legacy	1-2	1-2	Limited upgrade options
Micro-ATX Motherboard	Compact ATX	1	2-4	Modern chipsets	UEFI/BIOS	2-4	4-6	USB, onboard audio, LAN
Mini-ITX Motherboard	Smallest size	1	2	Modern chipsets	UEFI/BIOS	1	2-4	Ideal for compact PCs, Wi-Fi onboard
Mini-ATX Motherboard	Small form	1	2-4	Modern chipsets	UEFI/BIOS	2-3	4-6	Optimized for mid-size builds
Pico BTX Motherboard	Ultra-compact	1	1	Efficient chipsets	UEFI/BIOS	0-1	1-2	Energy efficient, limited expansion
Standard-ATX Motherboard	Standard size	1	4-8	Modern chipsets	UEFI/BIOS	3-7	4-8	Well-rounded features

References

BasuMallick, C. (2024, May 13). What is a motherboard? Definition, components, and functions. Spiceworks Inc.
<https://www.spiceworks.com/tech/hardware/articles/what-is-motherboard/>

Hasons Computers. (2024, October 17). Types of motherboard. Hasons.
<https://hasonss.com/blogs/types-of-motherboard/?srsltid=AfmBOoocXJZSjTvR-X-gkYqUaWAXmek2QurlLmFGzBdgCMsB24gkTUW>

Kirvan, P. (2022, June 6). motherboard. WhatIs.
<https://www.techtarget.com/whatis/definition/motherboard#:~:text=A%20motherboard%20is%20the%20main,especially%20desktop%20and%20laptop%20PCs.>

Pedamkar, P. (2023, July 3). Types of motherboard. EDUCBA.
<https://www.educba.com/types-of-motherboard/>