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Portfolio #5

Comparative Study On Different Types Of Motherboards

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Introduction:

The motherboard is a critical component of any computer system, acting as the main circuit board where essential hardware components, including the CPU, RAM, storage, and peripheral devices, interconnect. Over the years, various motherboard types have been developed, catering to different needs such as size constraints, performance requirements, and technological advancements. This study presents a detailed comparison of popular motherboard types, emphasizing their features and applications.

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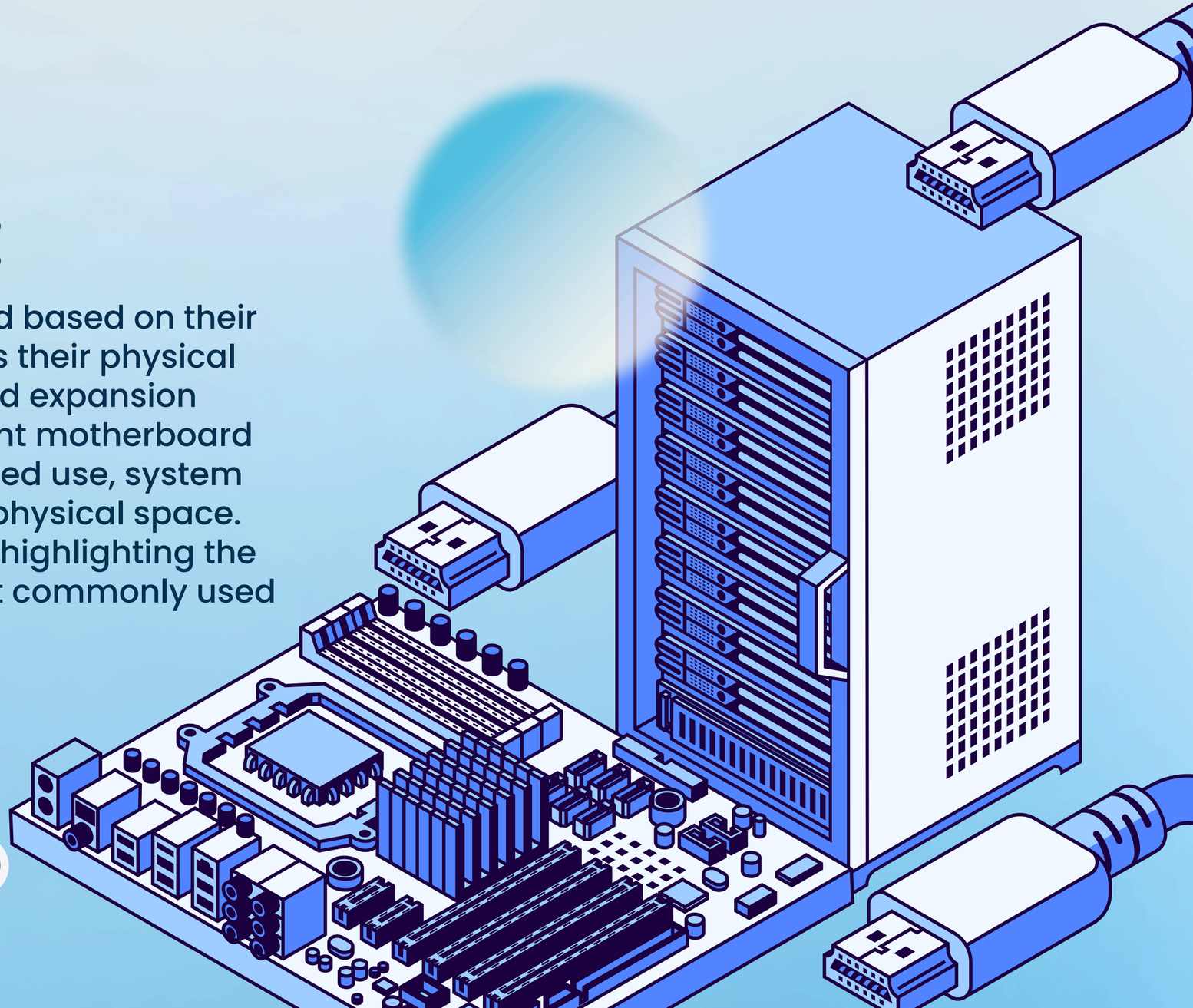
Discussion:

Motherboards are categorized based on their form factor, which determines their physical dimensions, compatibility, and expansion capabilities. Choosing the right motherboard involves balancing the intended use, system requirements, and available physical space. Below is a comparative table highlighting the differences between the most commonly used motherboard types.



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Form factor	build	CPU slots	Memory slots	Chipsets	BIOS/UEFI	PCI slots	SATA ports	Built-in Features
AT Motherboard	large and legacy design	1	2-4	Legacy chipsets	Legacy BIOS	Few	2-4	Minimal, outdated design
ATX Motherboard	Standard modern layout	1	2-8	Mainstream chipsets	BIOS/UEFI	Multiple	4-8	USB 3.0, Ethernet
BTX Motherboard	Improved airflow design	1	2-4	Cooling-optimized	BIOS/UEFI	Limited	4-6	Enhanced thermal layout
Extended-ATX (E-ATX)	Larger than ATX, high-end use	1	4-12	High-performance	UEFI	Many	6-10	Gaming, workstation-ready
LPX Motherboard	Low-profile	1	2	Basic chipsets	Legacy BIOS	Few	2-3	Integrated video/audio
Micro-ATX Motherboard	Smaller than ATX	1	2-4	Moderate performance	BIOS/UEFI	Fewer	4-6	Cost-efficient setups
Mini-ITX Motherboard	Compact for small PCs	1	1-2	Low-power chipsets	UEFI	Fewer	2-4	Wi-Fi, Bluetooth options
Mini-ATX Motherboard	Slightly larger than ITX	1	2	Basic	BIOS/UEFI	Very limited	2-3	Space-constrained PCs
Pico BTX Motherboard	Ultra-compact, niche design	1	1	Minimal chipsets	UEFI	few	1-2	Highly compact builds

Standard-ATX	**Universal standard**	1	**2-8**	Versatile chipsets	**BIOS/UEFI**	**Multiple**	**4-8**	**Gaming, office use**

REFERENCES:

- Comprehensive Guide to Motherboard Form Factors, Hardware Review Journal, 2023
- Motherboard Evolution and Modern Applications, PC Architecture Insights, 2022.
- Chipsets and Peripheral Connectivity, Advanced Tech Magazine, 2021.