

Portfolio #5

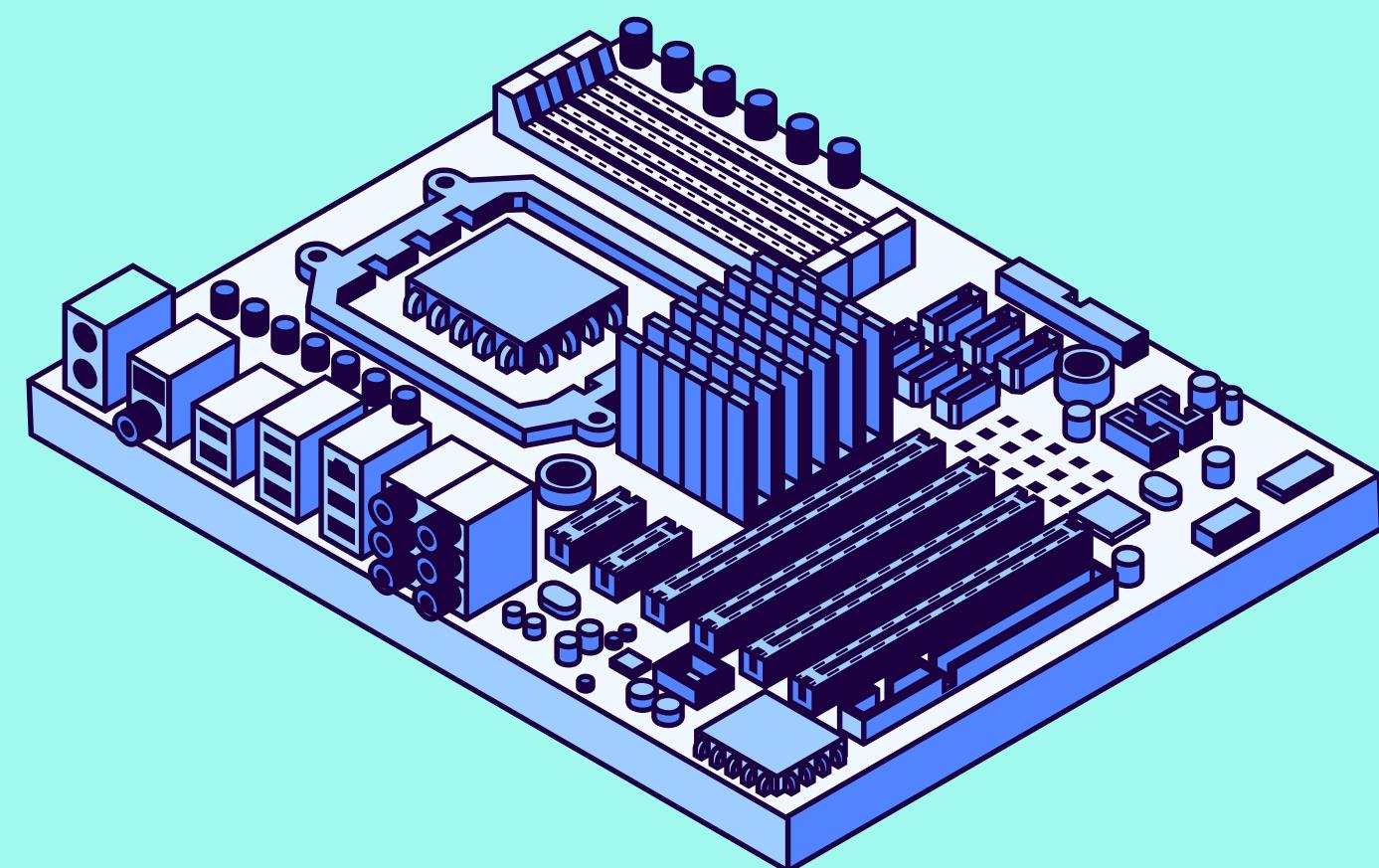
# *Comparative Study on Different Types of Motherboards*

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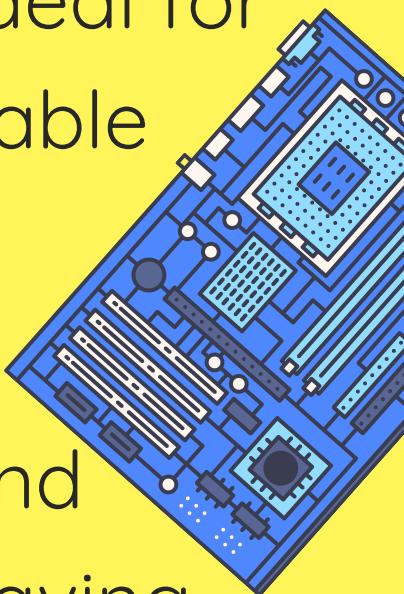
# *Introduction to motherboards:*

Motherboards are the backbone of a computer, connecting all its components to ensure smooth operation. They come in various types, each designed for specific uses and levels of performance. Some motherboards are built for everyday tasks, while others are optimized for gaming, professional work, or servers. This study compares different types of motherboards to help users understand their features, benefits, and ideal applications. By looking at these differences, we aim to guide beginners in choosing the right motherboard for their needs.



# **Discussion:**

Motherboards are categorized mainly by size, compatibility, and purpose. The most common types are ATX, Micro-ATX, and Mini-ITX. ATX motherboards are the most popular for general use because they provide many slots and ports, making them versatile. Micro-ATX is a smaller version, ideal for compact builds but still offers good performance. Mini-ITX is even smaller, suitable for portable systems but has limited slots and features.



Each type also differs in cost and performance. ATX motherboards are balanced in price and functionality, making them ideal for most users. Micro-ATX is more affordable and space-saving but may not support high-end features. Mini-ITX is compact and portable but often more expensive due to its small size.

Choosing the right motherboard depends on what the user needs. For gaming or multitasking, an ATX motherboard is a great choice. For a budget-friendly option, Micro-ATX works well. If portability is key, Mini-ITX is best. Understanding the differences, users can pick a motherboard that fits their budget and computing requirements.

# *Different kinds of motherboards*

AT Motherboard

ATX Motherboard

BTX Motherboard

Extended-ATX Motherboard

LPX Motherboard

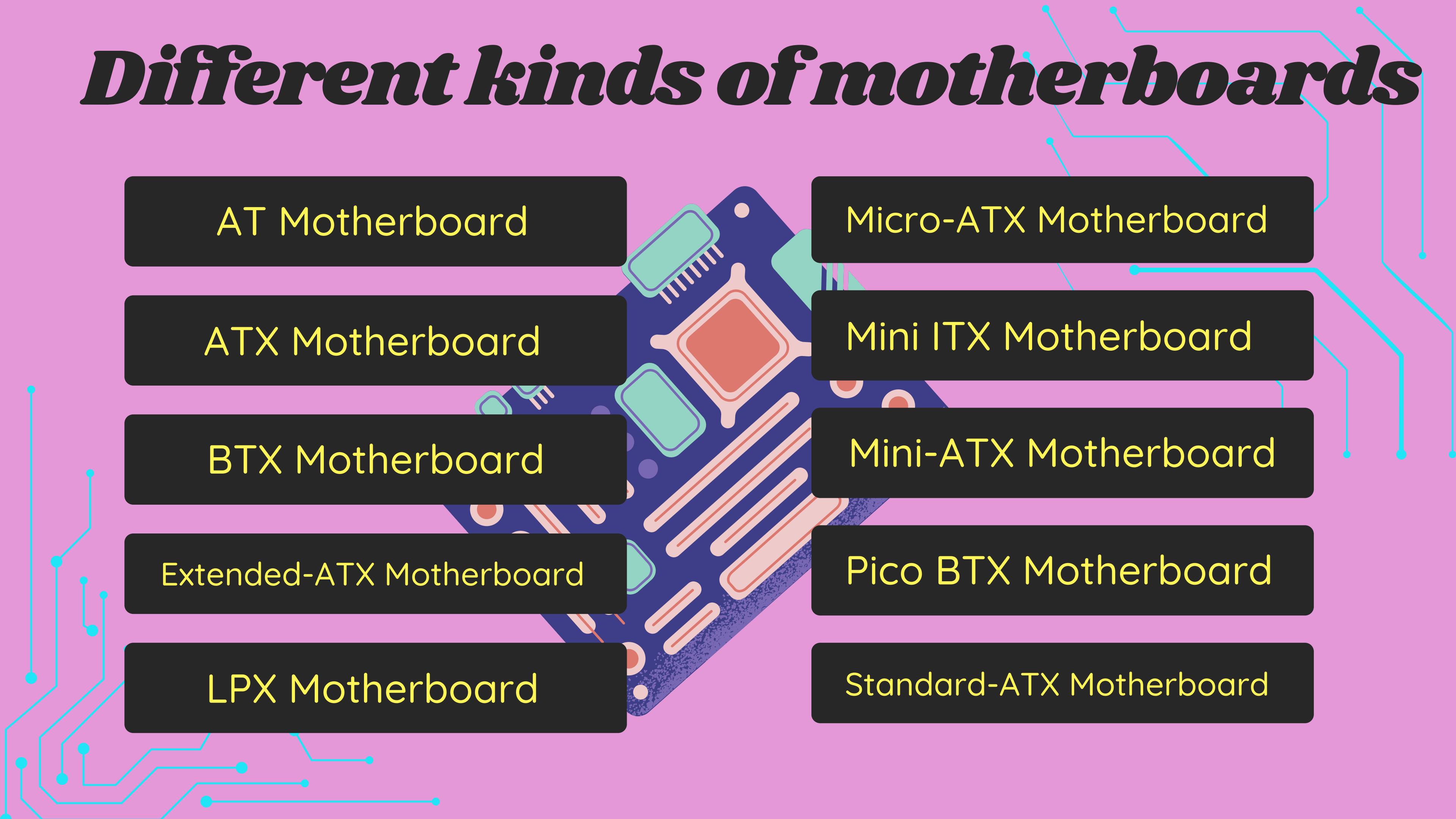
Micro-ATX Motherboard

Mini ITX Motherboard

Mini-ATX Motherboard

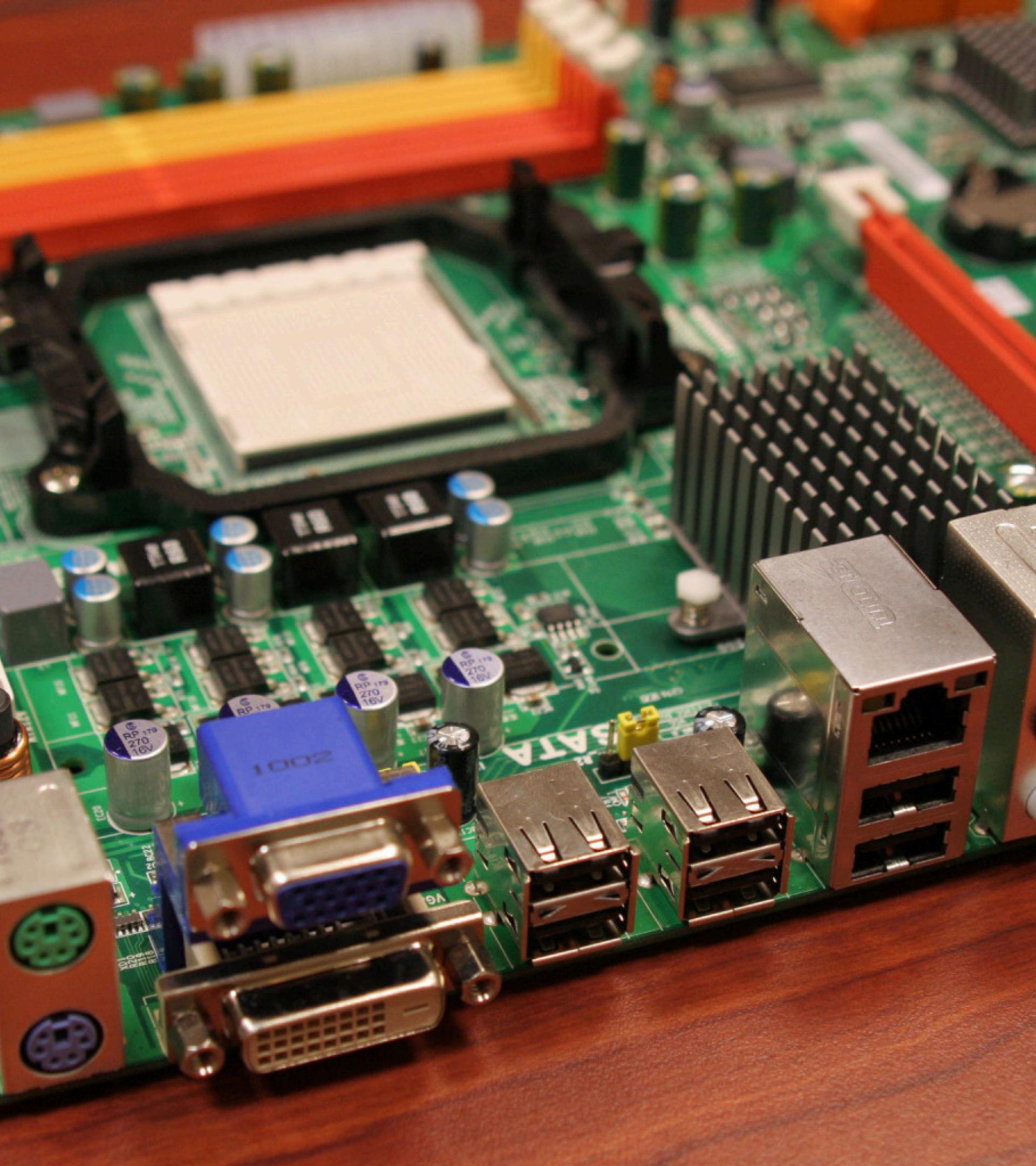
Pico BTX Motherboard

Standard-ATX Motherboard



# *AT Motherboard*

- Build: Large and bulky, designed for older computer systems.
- CPU Slots: Supports a single CPU slot.
- Memory Slots: Limited number of slots, typically for older RAM types.
- Chipsets: Outdated and less capable of modern tasks.
- BIOS: Basic and lacks advanced features seen in modern systems.
- PCI Slots: Few slots, limited expandability.
- SATA: Not supported; uses older connectors like IDE.
- Built-in Features: Minimal, no integrated audio, video, or USB ports.



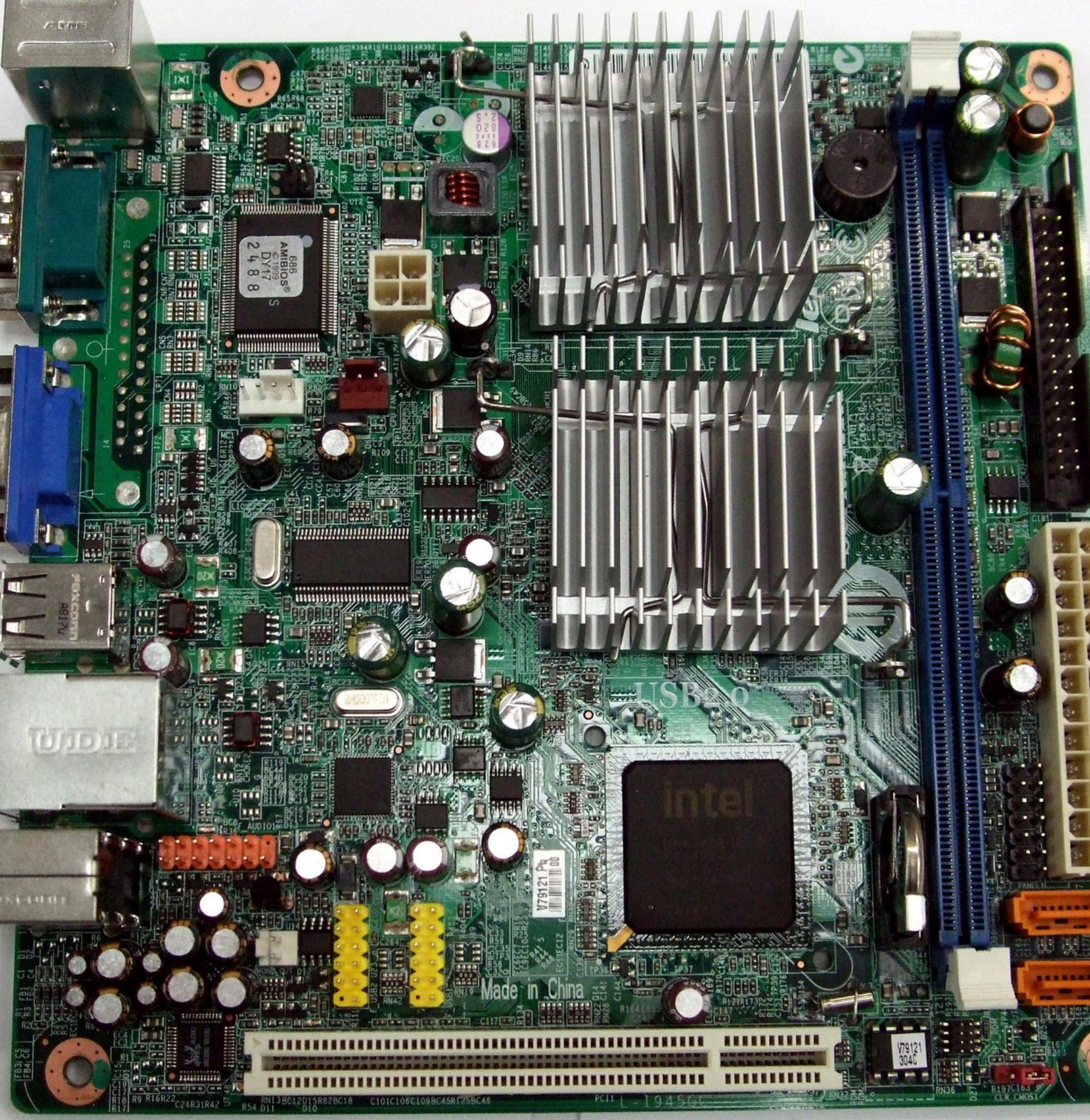
# **ATX Motherboard**

- Build: Standard size, widely compatible with most cases.
- CPU Slots: Usually supports one CPU.
- Memory Slots: Up to four or more slots for modern RAM.
- Chipsets: Wide range of chipsets for various performance levels.
- BIOS: Advanced BIOS with user-friendly settings.
- PCI Slots: Multiple slots for GPUs, sound cards, etc.
- SATA: Supports multiple SATA ports for storage.
- Built-in Features: USB ports, onboard audio, Ethernet, and sometimes Wi-Fi.



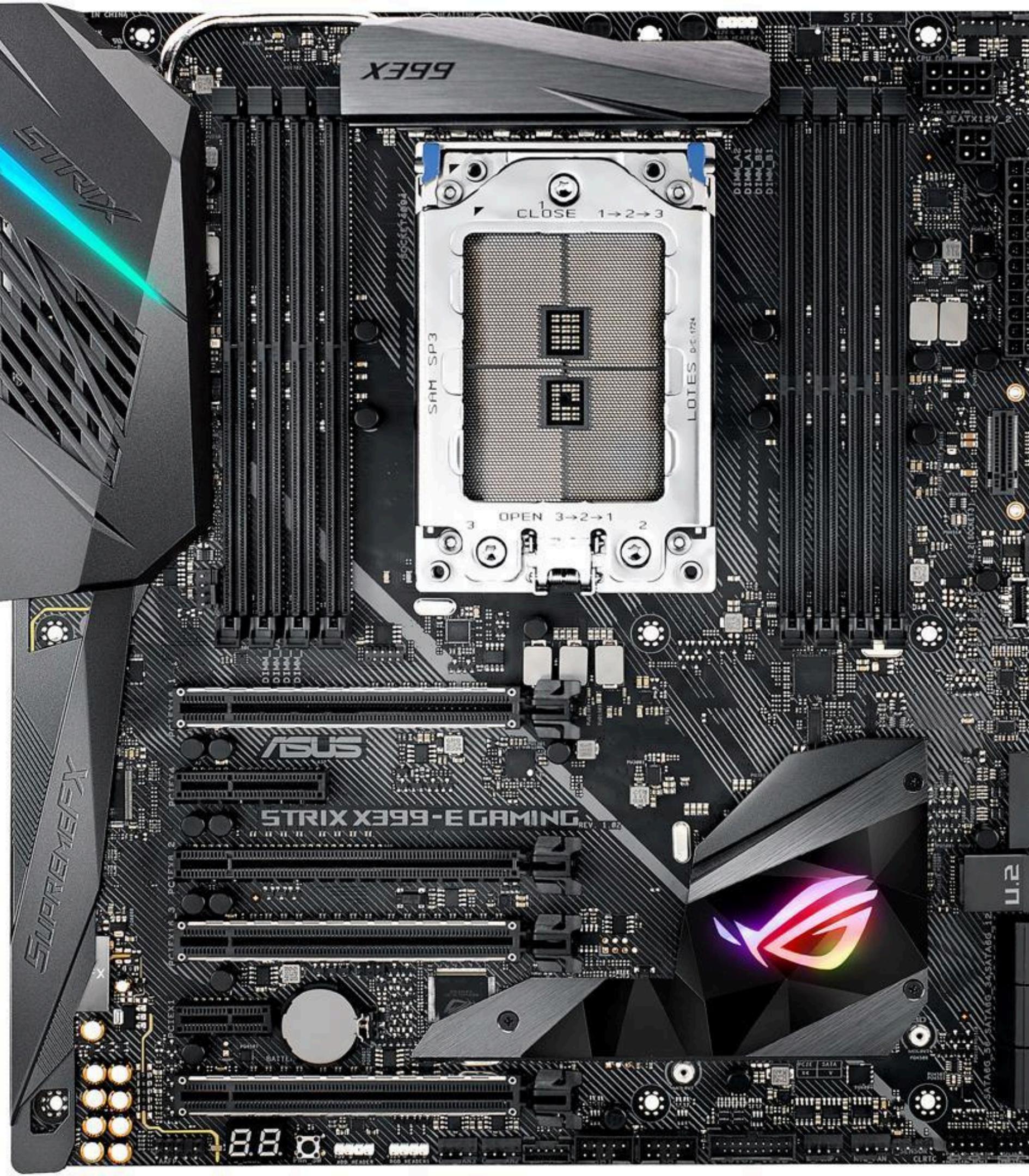
# ***BTX Motherboard***

- Build: Designed for better cooling and airflow, but less common.
- CPU Slots: Single CPU slot.
- Memory Slots: Similar to ATX, often up to four slots.
- Chipsets: Supports modern chipsets but is not widely used.
- BIOS: Similar functionality to ATX BIOS.
- PCI Slots: Comparable to ATX, but fewer due to compact design.
- SATA: Supported, though fewer ports compared to ATX.
- Built-in Features: Basic onboard features like audio and Ethernet.



# **Extended-ATX (E-ATX) Motherboard**

- Build: Larger than ATX, designed for high-performance setups.
- CPU Slots: Supports one or sometimes two CPUs.
- Memory Slots: Up to eight or more slots for large RAM capacity.
- Chipsets: High-end chipsets for professional or gaming use.
- BIOS: Advanced with extensive settings for overclocking.
- PCI Slots: Multiple slots for GPUs and other expansions.
- SATA: High number of SATA ports for storage.
- Built-in Features: Advanced options like multiple USB ports, Wi-Fi, and RGB lighting.



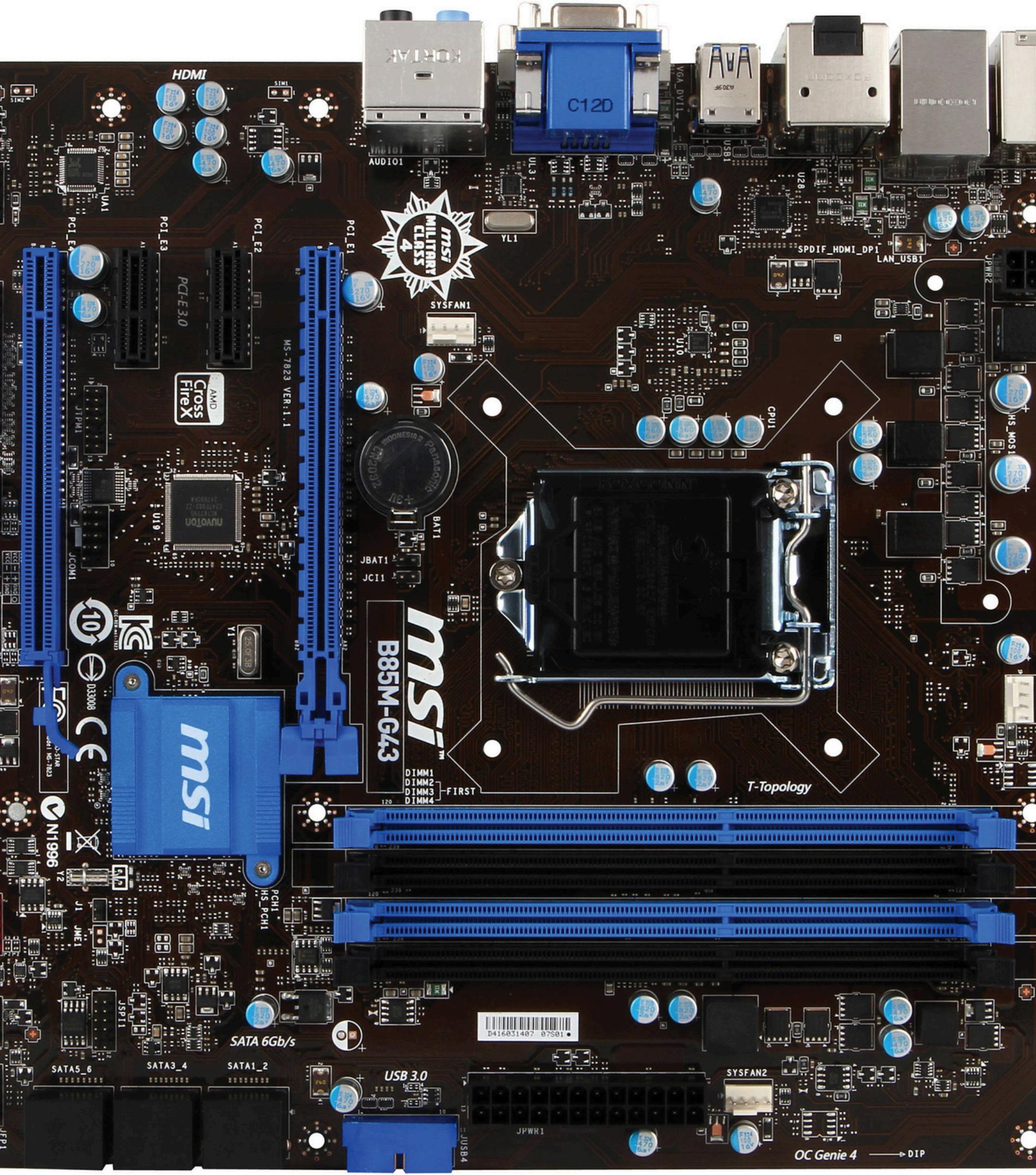
# **LPX Motherboard**

- Build: Compact and low-profile, designed for older slim cases.
- CPU Slots: Single CPU slot.
- Memory Slots: Limited slots for RAM.
- Chipsets: Basic and outdated.
- BIOS: Simple and lacks modern options.
- PCI Slots: Very few, limited expansion.
- SATA: Not supported, uses older connections.
- Built-in Features: Minimal, often lacks onboard audio or USB.



# **Micro-ATX Motherboard**

- Build: Smaller than ATX, designed for compact builds.
- CPU Slots: Supports one CPU.
- Memory Slots: Typically four slots for RAM.
- Chipsets: Offers both budget and mid-range chipsets.
- BIOS: Similar to ATX, with fewer customization options.
- PCI Slots: Fewer slots than ATX.
- SATA: Supports multiple SATA ports.
- Built-in Features: Onboard audio, USB ports, and Ethernet.



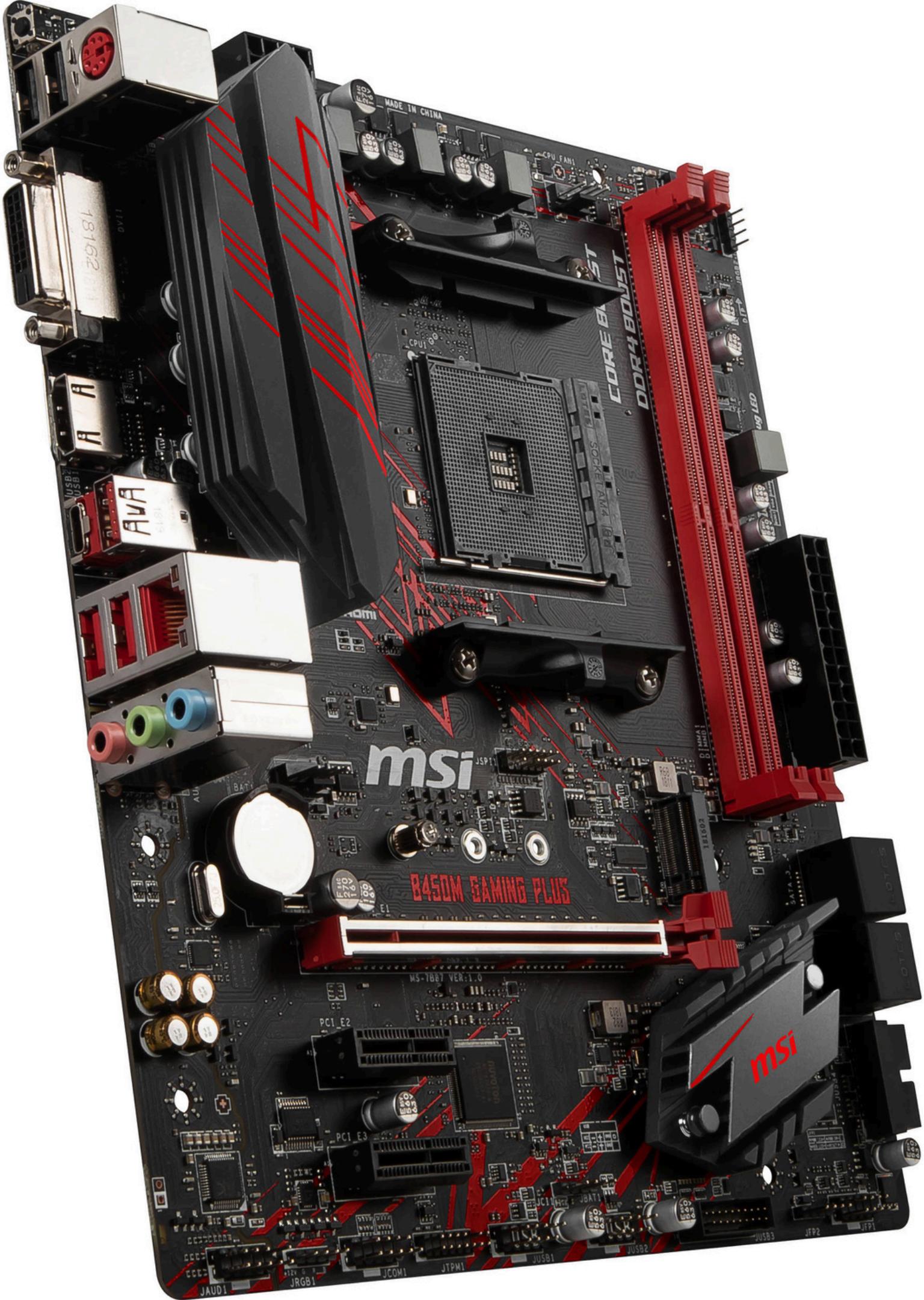
# **Mini-ITX Motherboard**

- Build: Very small, designed for compact and portable systems.
- CPU Slots: Supports one CPU.
- Memory Slots: Usually two slots for RAM.
- Chipsets: Limited to mid-range or budget options.
- BIOS: Basic, with fewer settings than larger boards.
- PCI Slots: Typically one slot, limiting expansion.
- SATA: Fewer ports, often two to four.
- Built-in Features: Onboard audio, Ethernet, and sometimes Wi-Fi.



# **Mini-ATX Motherboard**

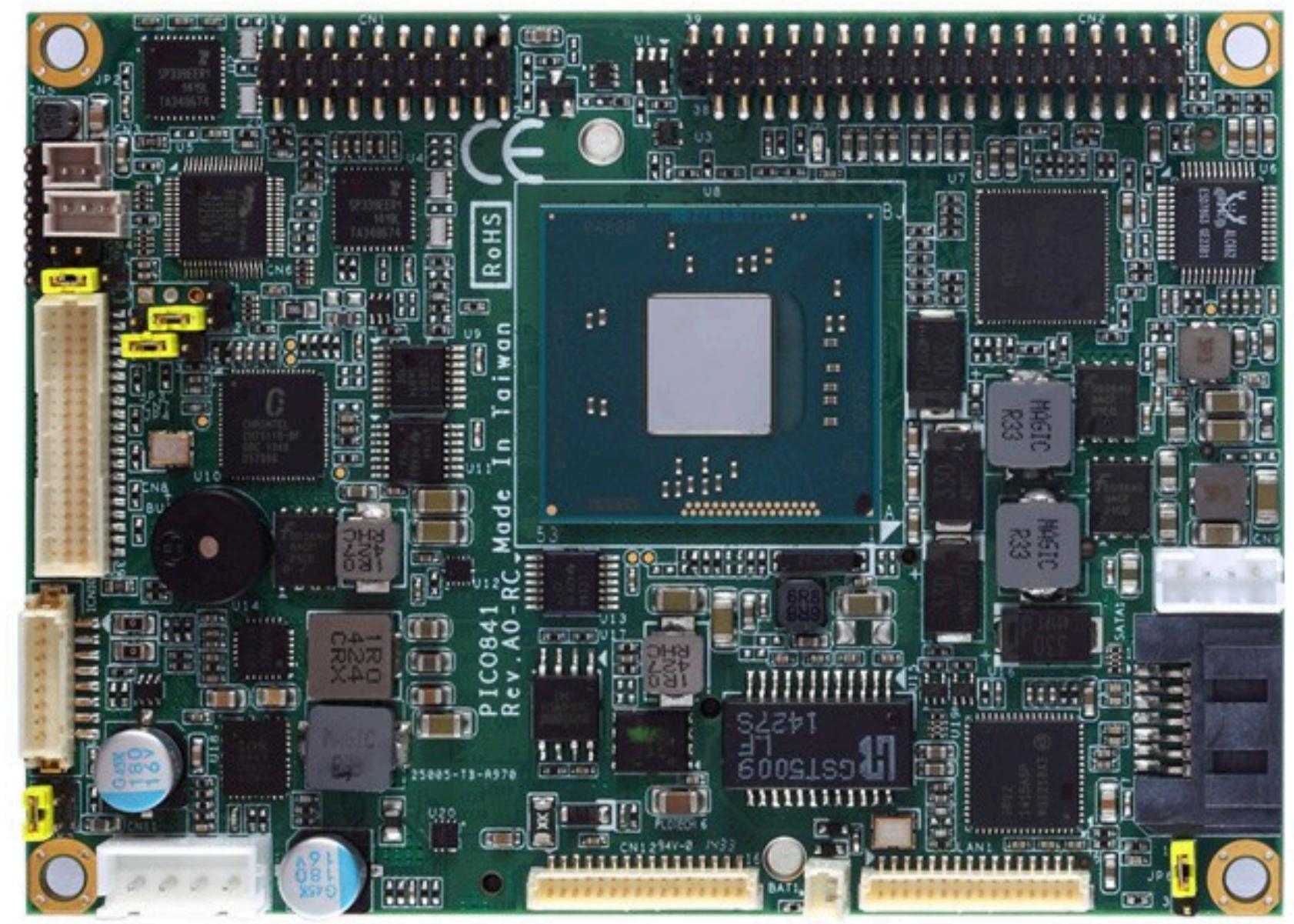
- Build: A smaller version of ATX, less common.
- CPU Slots: Supports one CPU.
- Memory Slots: Limited, often two to four slots.
- Chipsets: Budget or mid-range chipsets.
- BIOS: Basic but functional.
- PCI Slots: Few slots, similar to Micro-ATX.
- SATA: Adequate for small setups, usually two to four ports.
- Built-in Features: Basic onboard options like audio and USB.



# **Pico-BTX**

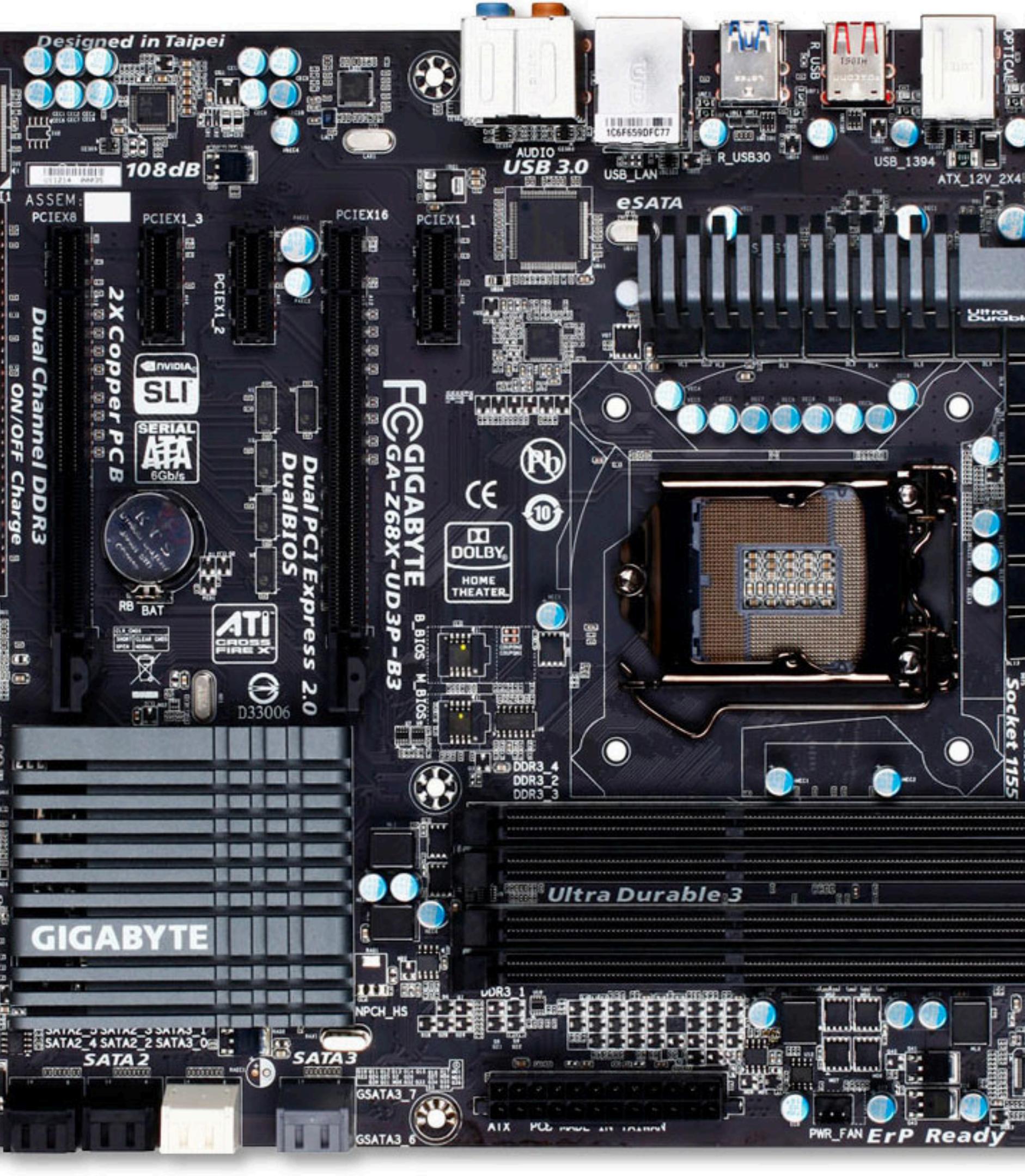
## **Motherboard**

- Build: Ultra-compact version of BTX, rarely used today.
- CPU Slots: Single CPU slot.
- Memory Slots: Limited, often two slots.
- Chipsets: Supports low-power or budget chipsets.
- BIOS: Basic with minimal settings.
- PCI Slots: Very few, usually one or none.
- SATA: Limited to one or two ports.
- Built-in Features: Minimal, sometimes integrated audio or Ethernet.



# **Standard-ATX Motherboard**

- Build: Full-sized board, the most widely used format.
- CPU Slots: One CPU slot.
- Memory Slots: Up to four or more slots for RAM.
- Chipsets: Wide range, from budget to high-end options.
- BIOS: Feature-rich and user-friendly.
- PCI Slots: Multiple slots for expansions.
- SATA: Several ports for storage devices.
- Built-in Features: Includes USB, onboard audio, and Ethernet.



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