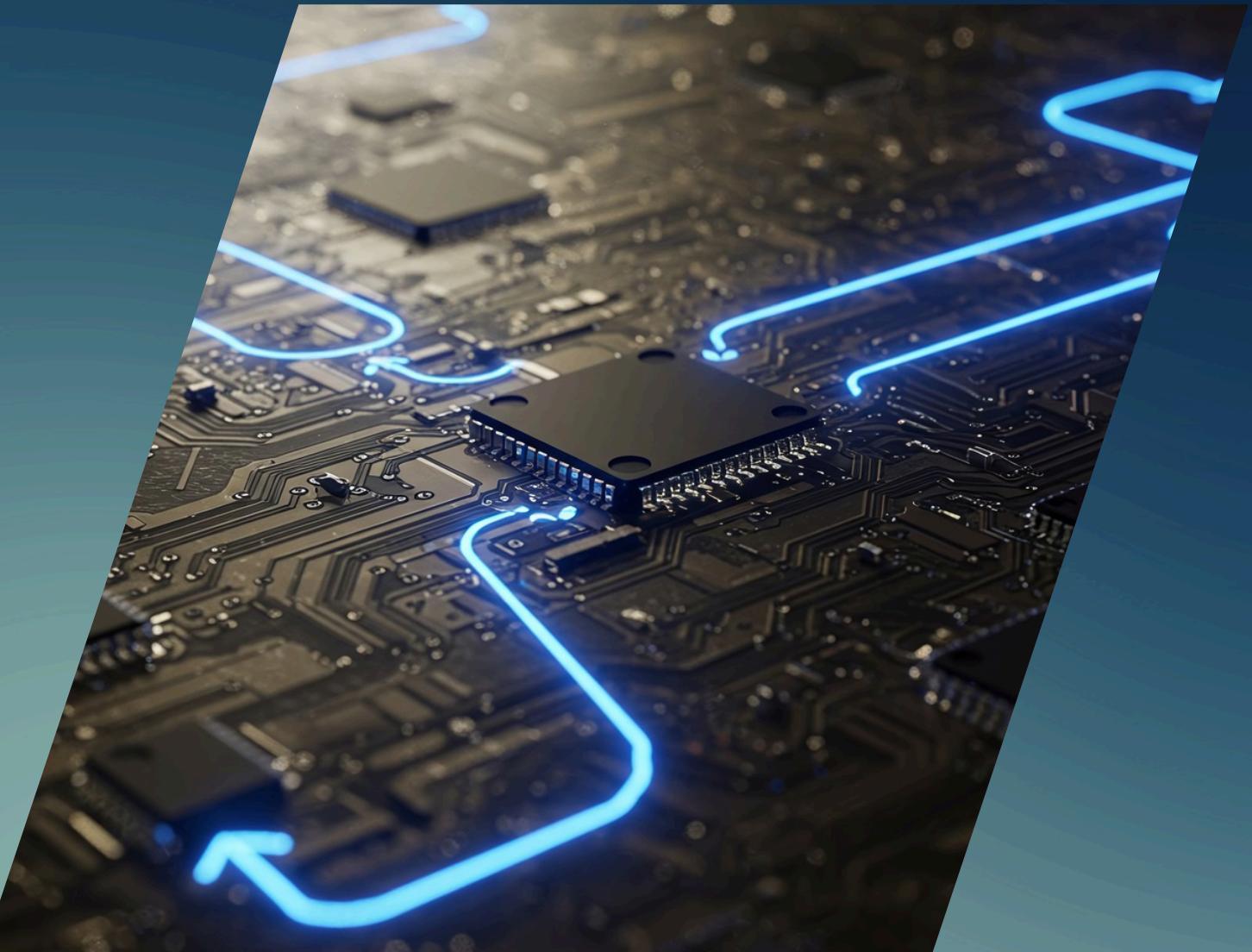


Portfolio#5

DIFFERENT TYPES OF MOTHERBOARDS

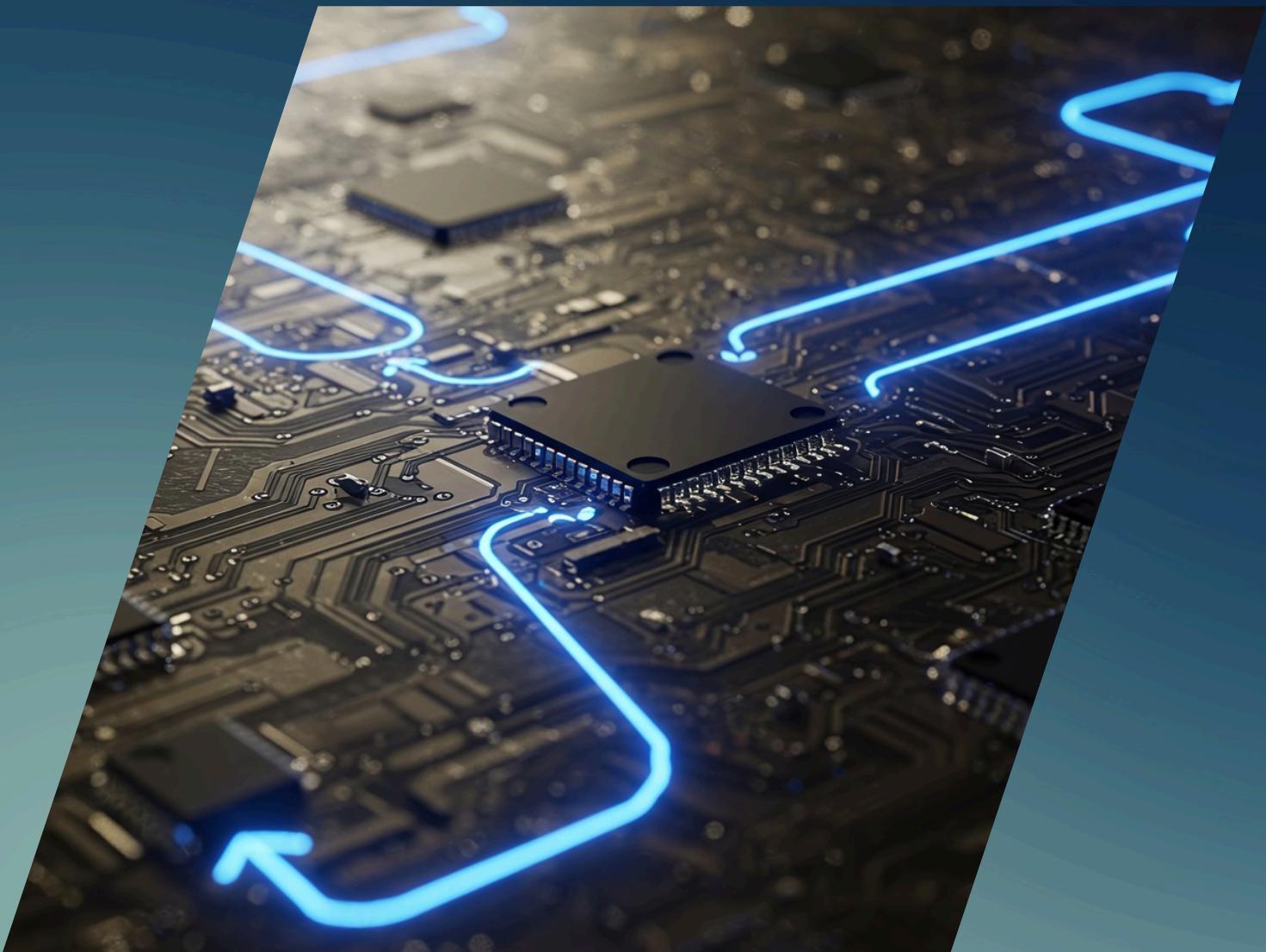
Introduction

A single printed circuit board (PCB), often known as the system board or motherboard, serves at the heart of every PC. It contains the CPU, the system's memory, timing, and control functions, as well as external interface capabilities (I/O). They handle all data transactions between the CPU (central processing unit) and peripheral devices. Motherboards have developed significantly over time, from several interconnected PCBs to a multilayered design that incorporates numerous components into a compact package. This consolidation improves performance by enabling quicker data flow from the motherboard to peripheral devices.



Discussion

Different motherboard types serve specific needs. AT and LPX were early, now mostly outdated designs. ATX motherboards are the most common, balancing size and expandability. Extended-ATX (E-ATX) is a larger version for high-end systems with extra CPU and memory slots. Micro-ATX and Mini-ATX are smaller boards fitting compact cases but with fewer expansion options. Mini-ITX is even smaller, ideal for very compact or portable systems. BTX and Pico BTX were designed to improve airflow but didn't become widespread. Standard-ATX and Extended-ATX remain popular for full-sized desktops and workstations.



Hardware vs Software

Form Factor	Build	CPU Slots	Memory Slots	Chipsets	BIOS	PCI Slots	SATA	Built-in Features
AT Motherboard	Large and heavy, used in early PCs (obsolete today)	1	2	Early Intel 430FX / similar	Legacy BIOS	3-4 ISA, few PCI	None (used IDE)	Very limited ports, no USB support
ATX Motherboard	Standard full-tower / mid-tower design	1	2-4	Intel or AMD mainstream chipsets	UEFI or Legacy BIOS	3-6 expansion slots	4-6 SATA ports	Common onboard LAN, audio, and USB
BTX Motherboard	Designed for better thermal airflow	1	2-4	Intel BTX-series chipsets	UEFI / BIOS	4-7	4-6	Improved cooling layout, neater cable routing
Extended-ATX (E-ATX)	Oversized board for high-end or workstation builds	1-2	4-8	Performance or workstation chipsets	UEFI	5-8	6-8 + M.2 support	Supports multiple GPUs and extra features
LPX Motherboard	Slimline form for compact OEM desktops	1	2	OEM LPX design (uses riser card)	Legacy BIOS	Expansion via riser card	None (IDE only)	Limited upgrade paths and I/O options
Micro-ATX Motherboard	Smaller alternative to ATX for compact cases	1	2-4	Same chipsets as ATX boards	UEFI / BIOS	1-4	4-6	Often includes onboard graphics and LAN
Mini-ITX Motherboard	Ultra-small form factor for mini PCs	1	2	Modern compact Intel/AMD chipsets	UEFI	1 × PCIe x16 slot	2-4 + M.2	Built-in Wi-Fi, Bluetooth, LAN
Mini-ATX Motherboard	Rare, mid-sized board between ATX and Micro-ATX	1	2-4	Standard consumer chipsets	UEFI	2-4	4-6	Decent balance of expandability and size
Pico-BTX Motherboard	Tiny version of BTX for embedded or small PCs	1	1-2	Intel BTX-family chipset	UEFI	1-2 (often via riser)	2-4	Compact, efficient, good airflow in small cases
Standard-ATX Motherboard	Full-size consumer board, common in desktops	1	2-4	Intel / AMD chipsets	UEFI	3-7	4-6	Multiple expansion slots, USB, LAN, audio

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THANK YOU