A comprehensive glossary of motherboard related terms

IN THIS GUIDE

A comprehensive glossary on motherboard terms. An explanation to all the terms you are likely to come across.

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Term	Definition
ACPI	Advanced Configuration and Power Interface: the successor to DPMA for controlling power management and monitoring the health of the system.
ACR	Advanced Communication Riser: a rival riser card architecture to Intel's CNR specification, which emerged at about the same time and offers similar features.
AGP	Accelerated Graphics Port: an Intel-designed 32-bit PC bus architecture introduced in 1997 allowing graphics cards direct access to the system bus (currently up to 100MHz), rather than going through the slower 33MHz PCI bus. AGP uses a combination of frame buffer memory local to the graphics controller, as well as system memory, for graphics data storage, vastly increasing the amount of memory available for 3D textures.
AMR	Audio Modem Riser: an Intel specification that defines a new architecture for the design of motherboards. AMR allows manufacturers create motherboards without analogue I/O functions. Instead, these functions are placed on a separate card which plugs in perpendicular to the motherboard so that the motherboard and "riser" card form a right angle.
AT Bus	The 16-bit bus started with the IBM-AT (Advanced Technology) systems. It is still the standard interface for most PC expansion cards. It is also known as the ISA (Industry Standard Architecture) bus.
ATA	AT Attachment: the specification, formulated in the 1980s by a consortium of hardware and software manufacturers, that defines the IDE drive interface. AT refers to the IBM PC/AT personal computer and its bus architecture. IDE drives are sometimes referred to as ATA drives or AT bus drives. The newer ATA-2 specification defines the EIDE interface, which improves upon the IDE standard. See also IDE and EIDE.
ATAPI	Advanced Technology Packet Interface: a specification that defines device side characteristics for an IDE connected peripheral, such as CD-ROM or tape drives. ATAPI is essentially an adaptation of the SCSI command set to the IDE interface.
ATX	The predominant motherboard form factor since the mid-1990s. It improves on the previous standard, the Baby AT form factor, by rotating the orientation of the board 90 degrees. This allows for a more efficient design, with disk drive cable connectors nearer to the drive bays and the CPU closer to the power supply and cooling fan.
Baby AT	The form factor used by most PC motherboards in the early 1990s. The original motherboard for the PC-AT measured 12in by 13in. Baby AT motherboards are a little smaller, 8.5in by 11in.
Backside Bus	A special microprocessor bus that connects the CPU to a Level 2 cache. See also Frontside Bus.
BIOS	Basic Input Output System: a set of low-level routines in a computer's ROM that application programs (and operating systems) can use to read characters from the keyboard, output characters to printers, and interact with the hardware in other ways. It also provides the initial instructions for POST (Power On Self-Test) and booting the system files.
Bus Master IDE	Capability of the PIIX element of Triton chipset to effect data transfers from disk to memory with minimum intervention by the CPU, saving its horsepower for

	other tasks.
Cache	An intermediate storage capacity between the processor and the RAM or disk drive. The most commonly used instructions are held here, allowing for faster processing.
Chipset	A number of integrated circuits designed to perform one or more related functions.
CMOS RAM	Complementary Metal Oxide Semiconductor Random Access Memory: a bank of memory that stores a PC's permanent configuration information, including type identifiers for the drives installed in the PC, and the amount of RAM present. It also maintains the correct date, time and hard drive information for the system.
CNR	Communications and Networking Riser: An Intel riser card architecture that provides expanded audio, modem and networking functions.
Concurrent PCI	An enhancement to the PCI bus architecture that allows PCI and ISA buses to transfer data simultaneously.
DIP Switch	Switch mounted on PC board for configuration options.
DMA	Direct Memory Access: a process by which data moves directly between a disk drive (or other device) and system memory without requiring the involvement of the CPU, thus allowing the system to continue processing other tasks while the new data is being retrieved.
DPMA	Dynamic Power Management System: Intel's extensive set of power management features built in at the chipset level, with particular emphasis on intelligent power conservation and standby facilities.
EIDE	Enhanced Integrated Device Electronics or Enhanced Intelligent Drive Electronics: an enhanced version of the IDE drive interface that expands the maximum disk size from 504Mb to 8.4Gb, more than doubles the maximum data transfer rate, and supports up to four drives per PC (as opposed to two in IDE systems). EIDE's primary competitor is SCSI-2, which also supports large hard disks and high transfer rates.
EISA	Extended Industry Standard Architecture: an open 32-bit extension to the ISA 16-bit bus standard designed by Compaq, AST and other clone makers in response to IBM''s proprietary MCA (Micro Channel Architecture) 32-bit bus design. Unlike the Micro Channel, an EISA bus is backward-compatible with 8-bit and 16-bit expansion cards designed for the ISA bus.
ESCD	Region of non-volatile memory used by BIOS and ICU (Intel Configuration Utility) or PnP operating system to record information about the current configuration of the system.
ESDI	Enhanced Small Device Interface: an interface standard developed by a consortium of the leading PC manufacturers for connecting disk drives to PCs. Introduced in the early 1980s, ESDI was two to three times faster than the older ST-506 standard. It has long since been superseded by the IDE, EIDE and SCSI interfaces.
Expansion Bus	An input/output bus typically comprised of a series of slots on the motherboard. Expansion boards are plugged into the bus. ISA, EISA, PCI and VL-Bus are examples of expansion buses used in a PC.
FDD	The interface which allows a floppy or tape drive to be connected to the motherboard.
Frontside Bus	The bus within a microprocessor that connects the CPU with main memory. See also Backside Bus.
Heat Sink	A structure, attached to or part of a semiconductor device that serves the purpose of dissipating heat to the surrounding environment; usually metallic and often aluminium.
Host Adapter	A plug-in board or circuitry on the motherboard that acts as the interface between the system bus and a peripheral device. IDE and SCSI are examples of peripheral interfaces that call their controllers host adapters.

IDE	Integrated Device Electronics or Intelligent Drive Electronics: a drive-interface specification for small to medium-size hard disks (disks with capacities up to 504Mb) in which all the drive's control electronics are part of the drive itself, rather than on a separate adapter connecting the drive to the expansion bus. This high level of integration shortens the signal paths between drives and controllers, permitting higher data transfer rates and simplifying adapter cards. See also EIDE and SCSI.
IRQ	An Interrupt ReQuest signal is generated by a device to request processing time from the CPU. Each time a keyboard button is pressed or a character is printed to a screen, an IRQ is generated by the requesting device. No two devices can share the same IRQ. A PC has 16 IRQs.
ISA	Industry Standard Architecture: the architectural standard for the IBM XT (8-bit) and the IBM AT (16-bit) bus designs. In ISA systems, an adapter added by plugging the card into one of the 16-bit expansion slots enables expansion devices like network cards, video adapters and modems to send data to and receive data from the PC's CPU and memory 16 bits at a time. See also EISA.
Jumper	Small metal blocks with black plastic handles for enabling or disabling specific functions on a motherboard or expansion card.
Local Bus	A bus which co-exists with the main bus and connects the processor itself to the main memory. PCI is now the standard local bus architecture, having replaced the older VL-Bus.
LPX	A motherboard form factor which allows for smaller cases used in some desktop model PCs. The distinguishing characteristic of LPX is that expansion boards are inserted into a riser that contains several slots and are therefore parallel, rather than perpendicular, to the motherboard.
MCA	Micro Channel Architecture: a 32-bit bus architecture introduced by IBM for their PS/2 series microcomputers. Incompatible with original PC/AT (ISA) architecture.
Motherboard	The PC's main printed circuit board which houses the processor, memory and other components.
NLX	An Intel-designed motherboard form factor. It features a number of improvements over the ATX design providing support for new technologies such as AGP and allows easier access to motherboard components.
Northbridge	Refers to the System Controller component of a Pentium chipset, responsible for integrating the cache and main memory DRAM control functions and for managing the host and PCI buses. See also Southbridge.
PCI	Peripheral Component Interface: the 32-bit bus architecture (64-bit with multiplexing), developed by DEC, IBM, Intel, and others, that is widely used in Pentium-based PCs. A PCI bus provides a high-bandwidth data channel between system board components such as the CPU and devices such as hard disks and video adapters. Superseded the VL-Bus, which was widely used in 486 PCs in the early 1990s.
PIO	Mode Programmed Input Output Mode: a method of transferring data to and from a storage device (hard disk or CD device) controller to memory via the computer's I/O ports, where the CPU plays a pivotal role in managing the throughput. For optimal performance a controller should support the drive''s highest PIO mode (usually PIO mode 4).
PIXX	PCI ISA IDE Xcelerator: a key component of the Peripheral Bus Controller chipset, responsible for integrating many common I/O functions found in ISA-based PC systems.
POST	Power-On Self-Test: a set of diagnostic routines that run when a computer is first turned on.
PS/2	An IBM personal computer series introduced in 1987, superseding the original PC line. It introduced the 3.5in floppy disk, VGA graphics and Micro Channel bus. The latter has since given way to the PCI bus.
RAS Line	Physical track on motherboard used to select which sides of which SIMMs will be

	involved in a data transfer. A given chipset supports only a certain number of RAS lines, thereby dictating how many SIMMs can be accommodated. A pair of SIMMs uses one RAS line; a pair of DIMMs uses two.
SCSI	Small Computer System Interface: an American National Standards Institute (ANSI) interface between the computer and peripheral controllers. SCSI excels at handling large hard disks and permits up to eight devices to be connected along a single bus provided by a SCSI connection. The original 1986 SCSI-1 standard is now obsolete and references to "SCSI" generally refer to the "SCSI-2" variant. Also features in Narrow, Wide and UltraWide flavours. See also IDE.
Southbridge	Refers to the Peripheral Bus Controller component of a Pentium chipset, responsible for implementing a PCI-to-ISA bridge function and for managing the ISA bus and all the ports. See also Northbridge.
System Bus	The primary pathway between the CPU, memory and high-speed peripherals to which expansion buses, such as ISA, EISA, PCI and VL-Bus, can connect. Importantly raised from 66MHz to 100MHz in early 1998 with the release of the 440BX Pentium II chipset. Also referred to as the external bus or host bus.
Ultra DMA	A hard drive protocol which doubled the previous maximum I/O throughput to 33 MBps.
USB	Universal Serial Bus: Intel's standard for attaching peripherals to PCs. Designed for low to medium data throughput, it should remove the need to install many devices internally once it gains widespread acceptance.
VESA	Video Electronics Standards Association: the consortium of computer manufacturers responsible for the SVGA video standard and the VL-Bus local-bus architecture.
VLB	VESA Local Bus or VL-Bus: the 32-bit local-bus standard created by the Video Electronics Standards Association (VESA) to provide a fast data connection between CPUs and local-bus devices. The VL-Bus was widely used in 486 PCs, but has since been replaced by the Intel PCI Bus.
VRM	Voltage Regulator Module: used to absorb the voltage difference between a CPU which may be added in the future and the motherboard.
ZIF	Socket A Zero Insertion Force socket allows the processor to be upgraded easily and without the need for specialist tools. It clamps down on the microprocessor pins using a small lever located to the side of the socket. Socket 5 and Socket 7 are common types of ZIF socket.