

Definitions

Introduction to computer hardware

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'030	A type of CPU formerly manufactured by Motorola for use in Macintoshes. Technically called the 68030. Fairly slow.
'040	A type of CPU formerly manufactured by Motorola for use in Macintoshes. Technically called the 68040. Fairly slow, but faster than the '030.
'286	A type of CPU formerly manufactured by Intel for use in PCs. Technically called the 80286. Very slow. A CISC CPU.
'386	A type of CPU formerly manufactured by Intel for use in PCs. Technically called the 80386. Very slow, but faster than the '286. A CISC CPU.
'486	A type of CPU formerly manufactured by Intel for use in PCs. Technically called the 80486. Fairly slow, but much faster than the '286 and '386. A CISC CPU.
ASCII	<i>American Standard Code for Information Interchange.</i> An encoding scheme in which characters (letters, numbers, and punctuation marks) are represented as numbers.
BIOS	<i>Basic Input/Output System.</i> A sort of program stored in ROM that is loaded as soon as you turn on your computer. The BIOS tells your computer how to deal with input (from a keyboard, mouse, <i>etc.</i>) and output (to a monitor, printer, <i>etc.</i>) The BIOS also tells your computer how to find an operating system like Windows or Mac OS on a hard drive connected to the computer. In short, the BIOS “bootstraps” your computer—it gets it started until an operating system takes over.
bit	Put simply, a 0 or a 1. Represented physically in a computer by a transistor; a transistor that’s “on” represents a 1 while a transistor that’s “off” represents a 0.
bus	A path along which data travels between computer components. A computer has several different types of buses, however. For instance, the “system bus” is the path along which data travels between the CPU, cache, and RAM. The “I/O bus” is the path along which data travels between input devices (<i>e.g.</i> , keyboard, mouse) and output devices (<i>e.g.</i> , printer, monitor). The “expansion bus” is the path along which data travels between expansion cards and the CPU.
cache	A type of memory found in small quantities on a motherboard or inside of a CPU that is used to store very frequently used data or instructions. It often tries to “guess” what information the CPU will want next from RAM. (Cache sits between RAM and the CPU, grabbing information from RAM and passing it onto the CPU when desired.)

CISC	<i>Complex Instruction Set Computer.</i> A CPU that understands rather complex instructions. <i>E.g.</i> , “add these two numbers, multiply them by two, and subtract one.” Contrast this rather complicated instruction with a simple one like “add these two numbers and do nothing else.” CISC CPUs tend to be slower than RISC CPUs because of their complexity. Intel processors (‘286, ‘386, ‘486, Pentium, Pentium Pro, Pentium II) are CISC CPUs.
computer	An electronic device designed to accept input, process it at a high speed, and display the results. <i>E.g.</i> , a calculator can be considered a small computer because it accepts your input (via its buttons), performs a calculation, and displays its answer on its screen.
DIMM	<i>Dual In-line Memory Module.</i> A type of RAM module (chip) that gets plugged into your motherboard. (DIMMs have 168 pins in two rows.)
EDO RAM	<i>Extended Data Out RAM.</i> A type of RAM. Slower than SDRAM.
giga-	Okay, giga- doesn’t exactly equal 1,000,000,000. In the computer world, at least, this prefix means 1,073,741,824. So, 1 gigabit actually equals 1,073,741,824 bits, which is the same thing as 1,024 megabits, which is the same thing as 1,048,576 kilobits.
instruction	A task that a CPU is capable of executing. ADD is one such an instruction; SUBTRACT is another instruction. The execution of an instruction often involves registers. For instance, when a CPU executes the ADD instruction, it adds the number stored in one register to the number stored in another register, placing the sum in a third register.
ISA	<i>Industry Standard Architecture.</i> A type of expansion bus popular in older PCs. Slower than PCI.
kilo-	Okay, kilo- doesn’t exactly equal 1,000. In the computer world, at least, this prefix means 1,024. So, 1 kilobit actually equals 1,024 bits.
mega-	Okay, mega- doesn’t exactly equal 1,000,000. In the computer world, at least, this prefix means 1,048,576. So, 1 megabit actually equals 1,048,576 bits, which is the same thing as 1,024 kilobits.
motherboard	The main circuit board (the green plastic thing) in a computer containing vital components like the CPU, RAM, ROM (and BIOS), expansion slots, <i>etc.</i>
PCI	<i>Peripheral Component Interconnect.</i> A type of expansion bus popular in newer PCs. Faster than ISA.
Pentium	A type of CPU formerly manufactured by Intel for use in PCs. Fairly fast. A CISC CPU.
Pentium II	A type of CPU manufactured by Intel for use in PCs. Very fast; faster than the Pentium and somewhat faster than the Pentium Pro. A CISC CPU.
Pentium Pro	A type of CPU formerly manufactured by Intel for use in PCs. Well suited for business computers. Very fast; faster than the Pentium and not much slower than the Pentium II. A CISC CPU.

port	A connector on the back of a computer into which you can plug devices like a mouse, keyboard, printer, etc. Several types of ports exist. For instance, a “serial port” is used by mice, modems, and other devices; data travels through a serial port serially— <i>i.e.</i> , one bit at a time. A “parallel port” is used by printers, usually; data travels through a parallel port in parallel— <i>i.e.</i> , several bits at a time.
POST	<i>Power-On Self Test</i> . A series of tests performed by a computer’s BIOS when the computer is turned on that ensures that the computer is in working order (<i>i.e.</i> , that nothing’s broken, that a keyboard and mouse are connected to the computer, <i>etc.</i>).
PowerPC	A type of CPU manufactured by IBM and Motorola for use in Macintoshes. Very fast. A RISC CPU.
RAM	<i>Random Access Memory</i> . A temporary storage area that a CPU uses to run programs and store data. When you load Microsoft Word, Microsoft Word is essentially copied from your hard disk into RAM, where it can be accessed by your computer’s CPU. RAM is much faster than a hard drive, and so it is desirable to run programs from it rather than directly from a hard drive. RAM is a type of volatile memory, which means that its contents are lost when you turn off your computer. Hard drives, by contrast, are a type of non-volatile memory, whose contents are not lost when you turn off your computer.
register	A small piece of memory within a CPU that can store a number. Often, a register is comprised of 32 transistors— <i>i.e.</i> , 32 bits.
RISC	<i>Reduced Instruction Set Computer</i> . A CPU that understands very simple instructions. <i>E.g.</i> , “add these two numbers and do nothing else.” Contrast this simple instruction with a rather complicated one like “add these two numbers, multiply them by two, and subtract one.” RISC CPUs tend to be faster than CISC CPUs because of their simplicity. The PowerPC processor, used in Apple Macintoshes nowadays, are RISC CPUs.
ROM	<i>Read Only Memory</i> . A type of non-volatile memory that contains information that never changes. The CPU can only read this information; it cannot change it. A computer’s BIOS is stored in ROM.
SCSI	<i>Small Computer Systems Interface</i> . A type of expansion bus popular in older Macintoshes and high-end PCs. Allows you to daisy-chain peripherals together. Often used for scanners, hard drives, and CD-ROM drives. Very fast.
SDRAM	<i>Synchronous Dynamic RAM</i> . A type of RAM. Faster than EDO RAM.
SIMM	<i>Single In-line Memory Module</i> . A type of RAM module (chip) that gets plugged into your motherboard. (SIMMs have either 30 or 72 pins in one row.)
transistor	A tiny electrical device used to represent a bit that can be either “on” or “off.” A transistor that is “on” represents a 1, while a transistor that is “off” represents a 0. CPUs nowadays have millions of transistors inside of them.

USB	<i>Universal Serial Bus.</i> A recently developed type of bus used to connect peripherals to a PC (via a port on the back of your computer). USB peripherals can be daisy-chained—one connected to another in a long chain.
virtual memory	Hard disk space used by your computer as if it were RAM. Lets you run more programs at once (since it provides you with more space in which to store running programs). But, since hard drives are slower than RAM, the consequence of using virtual memory is, often, slower computing.
VRAM	<i>Video RAM.</i> RAM used exclusively by your monitor. Not to be confused with “virtual memory.”