

OVER
10,000
ENTRIES

Microsoft

Computer Dictionary

Fifth Edition

- Fully updated with the latest technologies, terms, and acronyms
- Easy to read, expertly illustrated
- Definitive coverage of hardware, software, the Internet, and more!



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Introduction

The *Microsoft Computer Dictionary, Fifth Edition* is designed to be a comprehensive and authoritative source of definitions for computer-related terms and abbreviations. The dictionary includes terms drawn from a wide variety of topics relevant to computer users, including software, hardware, networking, data storage, graphics, games, information processing, the Internet and the World Wide Web, gaming, history, jargon and slang, organizations, programming, and standards.

Although this book covers nearly every aspect of computing, it does not include entries on most companies or on most makes and models of computers, nor does it contain entries on most application software products. The few exceptions to this rule of thumb are key companies and products that have a historical or universal importance within the computing industry.

This dictionary emphasizes terminology that the average computer user will encounter in documentation, online help, computer manuals, marketing and sales materials, the popular media, and the computer trade press. Because most computer users operate personal computers and desktop systems at home, work, or both, the majority of the entries in this dictionary cover the terminology used in describing and working with these systems. However, some specialized or highly technical language is included that pertains to areas of industry, academia, software and hardware development, and research. These terms have been included because they have a bearing on more common computer terminology or because they are of historical significance.

Changes in the Fifth Edition

The fifth edition of the *Microsoft Computer Dictionary* has been revised and expanded to include over 10,000 entries, reflecting the many advances in the computer field and

including several areas that have come into prominence in the public eye, such as networking, Web authoring, and new technologies, such as .NET. The content from the Year 2000 appendix has been integrated into the body of the dictionary and a new appendix on emoticons and instant messaging symbols has been added.

Order of Presentation

Entries are alphabetized by letter. Spaces are ignored, as are characters such as hyphens and slashes; for example, *Baud-dot code* falls between *baud* and *baud rate*, and *machine-independent* falls between *machine identification* and *machine instruction*. Numbers and symbols are located at the beginning of the book and are listed in ascending ASCII order. If an entry begins with a letter or letters but contains a number, it is listed alphabetically, according to the initial letter(s), and then according to ASCII order. Thus, V20 precedes V.2x, and both precede VAB.

Entries

Entries are of two types: main entries, which contain full definitions, and synonymous cross-references, which contain *See* references to the appropriate main entries. Synonymous cross-references are generally secondary or less common ways of referring to a main entry. The definition at the main entry can be substituted as a definition for the synonymous cross-reference.

Format

Information in each main entry is presented in a consistent format: entry name in boldface, spelling variants (if any), part of speech, definition, illustration or table reference (if any), acronym (if any), alternative names (if any), and cross-references (if any).

Main Entries

Entries that are acronyms or abbreviations for one or more words or concatenations of two or more words have those words spelled out at the beginning of the definition. The letters in these words or phrases that make up the acronym, abbreviation, or concatenation are in boldface.

When a main entry is spelled exactly the same as another main entry, the two entries are differentiated by the use of a superscript numeral after each term. These entries are called homographs, and they are generally different parts of speech. For example,

e-mail¹ (*noun*)

e-mail² (*verb*)

Spelling Variants

When a main entry has one or more variations in the way it is spelled, each spelling variant follows the main entry, after the word *or*.

Parts of Speech

Entries are broken down into four parts of speech, in addition to prefixes, abbreviated as follows:

n. noun

vb. verb

adj. adjective

adv. adverb

Definitions

Each of the more than 10,000 entries is written in clear, standard English. Many go beyond a simple definition to provide additional detail and to put the term in context for a typical computer user. When an entry has more than one sense or definition, the definitions are presented in a numbered list, to make it easier to distinguish the particular, sometimes subtle, variations in meaning.

Illustration and Table References

Some entries have affiliated illustrations or tables that aid in defining the entry. In most cases, illustrations and tables appear on the same page as the entries to which they apply.

In some instances, however, page layout requirements have forced them to a subsequent page. Entries with illustrations or tables usually have references at the end of the definition for an entry, in the following formats:

See the illustration.

See the table.

Acronyms

Some terminology in the computer field, particularly computer standards and Internet slang, can be shortened to form acronyms. Sometimes the acronym is the more common way to refer to the concept or object; in these cases, the acronym is the main entry. In other cases, the acronym is not as commonly used as the words or phrase for which it stands. In these cases, the words or phrase constitute the main entry. The acronym is given after the definition for these entries in the following format:

Acronym:

Alternative Names

Some items or concepts in the computer field can be referred to by more than one name. Generally, though, one way is preferred. The preferred terminology is the main entry. Alternative names are listed after any acronyms; otherwise they are listed after the definition in the following format:

Also called:

Cross-References

Cross-references are of three types: *See*, *See also*, and *Compare*. A *See* reference is used in an entry that is a synonymous cross-reference and simply points to another entry that contains the information sought. A *See also* reference points to one or more entries that contain additional or supplemental information about a topic and follows any acronyms or alternative names after the definition. A *Compare* reference points to an entry or entries that offer contrast and follows any *See also* references; otherwise it follows any acronyms or alternative names after the definition.

3-D-rendered
sphere3-D-rendered sphere
with bump mapping

Bump mapping. A 3-D-rendered sphere showing bump mapping.

bundle *vb.* To combine products for sale as a lot. Frequently, operating system software and some widely used applications are bundled with a computer system for sale.

bundled software *n.* **1.** Programs sold with a computer as part of a combined hardware/software package. **2.** Smaller programs sold with larger programs to increase the latter's functionality or attractiveness.

burn *vb.* **1.** To write data electronically into a programmable read-only memory (PROM) chip by using a special programming device known variously as a PROM programmer, PROM blower, or PROM blaster. *Also called:* blast, blow. *See also* PROM. **2.** To create read-only memory compact discs (CD-ROMs). **3.** To write data electronically on a flash memory chip or a PC Card Type III. Unlike PROM chips or CD-ROM, flash memory media can be burned, or flashed, repeatedly with new information. *Also called:* flash.

burn in *vb.* **1.** To keep a new system or device running continuously so that any weak elements or components will fail early and can be found and corrected before the system becomes an integral part of the user's work routine. Such a test is often performed at the factory before a device is shipped. **2.** To make a permanent change in the phosphor coating on the inside of a monitor screen by leaving the monitor on and keeping a bright, unchanging image on the screen for extended periods. Such an image will remain visible after the monitor is turned off. Burning in was a danger with older PC monitors; it is no longer a concern with most new PC monitors. *Also called:* ghosting.

burst¹ *n.* Transfer of a block of data all at one time without a break. Certain microprocessors and certain buses have features that support various types of burst transfers. *See also* burst speed (definition 1).

burst² *vb.* To break fanfold continuous-feed paper apart at its perforations, resulting in a stack of separate sheets.

burster *n.* A device used to burst, or break apart at the perforations, fanfold continuous-feed paper.

burst extended-data-out RAM *n.* *See* BEDO DRAM.

burst mode *n.* A method of data transfer in which information is collected and sent as a unit in one high-speed transmission. In burst mode, an input/output device takes control of a multiplexer channel for the time required to send its data. In effect, the multiplexer, which normally merges input from several sources into a single high-speed data stream, becomes a channel dedicated to the needs of one device until the entire transmission has been sent. Burst mode is used both in communications and between devices in a computer system. *See also* burst¹.

burst rate *n.* *See* burst speed (definition 1).

burst speed *n.* **1.** The fastest speed at which a device can operate without interruption. For example, various communications devices (as on networks) can send data in bursts, and the speed of such equipment is sometimes measured as the burst speed (the speed of data transfer while the burst is being executed). *Also called:* burst rate. **2.** The number of characters per second that a printer can print on one line without a carriage return or linefeed. Burst speed measures the actual speed of printing, without consideration of the time taken to advance paper or to move the print head back to the left margin. Almost always, the speed claimed by the manufacturer is the burst speed. By contrast, *throughput* is the number of characters per second when one or more entire pages of text are being printed and is a more practical measurement of printer speed in real-life situations.

bursty *adj.* Transmitting data in spurts, or bursts, rather than in a continuous stream.

bus *n.* A set of hardware lines (conductors) used for data transfer among the components of a computer system. A bus is essentially a shared highway that connects different parts of the system—including the processor, disk-drive controller, memory, and input/output ports—and enables them to transfer information. The bus consists of specialized groups of lines that carry different types of information. One group of lines carries data; another carries memory addresses (locations) where data items are to be found; yet another carries control signals. Buses are characterized by the number of bits they can transfer at a single

B

time, equivalent to the number of wires within the bus. A computer with a 32-bit address bus and a 16-bit data bus, for example, can transfer 16 bits of data at a time from any of 2^{32} memory locations. Most PCs contain one or more expansion slots into which additional boards can be plugged to connect them to the bus.

bus enumerator *n.* A device driver that identifies devices located on a specific bus and assigns a unique identification code to each device. The bus enumerator is responsible for loading information about the devices onto the hardware tree. *See also* bus, device driver, hardware tree.

bus extender *n.* **1.** A device that expands the capacity of a bus. For example, IBM PC/AT computers used a bus extender to add onto the earlier PC bus and allow the use of 16-bit expansion boards in addition to 8-bit boards. *See also* bus. **2.** A special board used by engineers to raise an add-on board above the computer's cabinet, making it easier to work on the circuit board.

business graphics *n.* *See* presentation graphics.

business information system *n.* A combination of computers, printers, communications equipment, and other devices designed to handle data. A completely automated business information system receives, processes, and stores data; transfers information as needed; and produces reports or printouts on demand. *Acronym:* BIS. *See also* management information system.

business logic *n.* A set of rules and calculations built into a business information application. The application uses business logic to sort incoming information and respond accordingly. Business logic functions as a set of guidelines that ensure the application's actions conform to the specific needs of a business.

business software *n.* Any computer application designed primarily for use in business, as opposed to scientific use or entertainment. In addition to the well-known areas of word processing, spreadsheets, databases, and communications, business software for microcomputers also encompasses such applications as accounting, payroll, financial planning, project management, decision and support systems, personnel record maintenance, and office management.

Business Software Alliance *n.* International organization of computer software companies that promotes the interests of the software industry. This alliance focuses on educating the public on the importance of software, advancing free and open world trade, and supporting legislation opposing software piracy and Internet theft. The Business Software Alliance has offices in the United States, Europe, and Asia, with members in more than 60 nations around the world. *Acronym:* BSA.

business-to-business *n.* *See* B2B.

business-to-consumer *n.* *See* B2C.

bus mastering *n.* In modern bus architectures, the ability of a device controller card—a network adapter or a disk controller, for example—to bypass the CPU and work directly with other devices to transfer data into and out of memory. Enabling devices to take temporary control of the system bus for data transfer and bus mastering frees the CPU for other work. This in turn improves performance in tasks, such as video replay and multiple-user queries to large databases, that require simultaneous data access and intensive processing. The technology known as direct memory access (DMA) is a well-known example of bus mastering. *See also* bus, controller, direct memory access. *Compare* PIO.

bus mouse *n.* A mouse that attaches to the computer's bus through a special card or port rather than through a serial port. *See also* mouse. *Compare* serial mouse.

bus network *n.* A topology (configuration) for a LAN (local area network) in which all nodes are connected to a main communications line (bus). On a bus network, each node monitors activity on the line. Messages are detected by all nodes but are accepted only by the node(s) to which they are addressed. A malfunctioning node ceases to communicate but does not disrupt operation (as it might on a ring network, in which messages are passed from one node to the next). To avoid collisions that occur when two or more nodes try to use the line at the same time, bus networks commonly rely on collision detection or token passing to regulate traffic. *See the illustration. Also called:* bus topology, linear bus. *See also* collision detection, contention, CSMA/CD, token bus network, token passing. *Compare* ring network, star network.

computers and special-purpose devices such as digital cameras and cellular telephones.

micro-electromechanical systems *n.* See MEMS.

microelectronics *n.* The technology of constructing electronic circuits and devices in very small packages. The most significant advance in microelectronics technology has been the integrated circuit. Circuits that 40 years ago required a roomful of power-hungry vacuum tubes can now be fabricated on a silicon chip smaller than a postage stamp and require only a few milliwatts of power. *See also* integrated circuit.

microfiche *n.* A small sheet of film, about 4 by 6 inches, used for recording photographically reduced images, such as document pages, in rows and columns forming a grid pattern. The resulting images are too small to read with the naked eye, and a microfiche reader is required to view the documents. *Compare* microfilm.

microfilm *n.* A thin strip of film stored on a roll and used to record sequential data images. As with microfiche, a special device magnifies the images so that they can be read. *See also* CIM (definition 2), COM (definition 4). *Compare* microfiche.

microfloppy disk *n.* A 3.5-inch floppy disk of the type used with the Macintosh and with IBM and compatible microcomputers. A microfloppy disk is a round piece of polyester film coated with ferric oxide and encased in a rigid plastic shell equipped with a sliding metal cover. On the Macintosh, a single-sided microfloppy disk can hold 400 kilobytes (KB); a double-sided (standard) disk can hold 800 KB; and a double-sided high-density disk can hold 1.44 megabytes (MB). On IBM and compatible machines, a microfloppy can hold either 720 KB or 1.44 MB of information. *See also* floppy disk.

microfluidics *n.* Technology for control and manipulation of fluids on a microscopic scale using microscopic pumps and valves placed on a chip. Microfluidics devices have implications for a number of medical, pharmaceutical, genomics, and other biotechnology applications.

microform *n.* The medium, such as microfilm or microfiche, on which a photographically reduced image, called a *microimage*, is stored. A microimage usually represents text, such as archived documents. *See also* microfiche, microfilm, micrographics.

micrographics *n.* The techniques and methods for recording data on microfilm. *See also* microform.

microimage *n.* A photographically reduced image, usually stored on microfilm or microfiche, that is too small to be read without magnification. *See also* microform, micrographics.

microinstruction *n.* An instruction that is part of the microcode. *See also* microcode.

microjustification *n.* *See* microspace justification.

microkernel *n.* **1.** In programming, the strictly hardware-dependent part of an operating system that is intended to be portable from one type of computer to another. The microkernel provides a hardware-independent interface to the rest of the operating system, so only the microkernel needs to be rewritten to port the operating system to a different platform. *See also* kernel, operating system. **2.** A kernel that has been designed with only the basic features and typically in a modular fashion.

micrologic *n.* A set of instructions, stored in binary form, or a set of electronic logic circuits that defines and governs the operation within a microprocessor.

microminiature *n.* An extremely small circuit or other electronic component, especially one that is a refinement of an already miniaturized element.

microphone *n.* **1.** A device that converts sound waves into analog electrical signals. Additional hardware can convert the microphone's output into digital data that a computer can process; for example, to record multimedia documents or analyze the sound signal. **2.** A communications program that runs on the Macintosh computer.

microphotonics *n.* Technology for directing light on a microscopic scale. Microphotonics employs tiny mirrors or photonic crystals to reflect and transmit specific wavelengths of light, which can carry digital signals. Microphotonics technology has implications for optical networks under development for the telecommunications industry. *See also* MEMS, optical switching.

microprocessor *n.* A central processing unit (CPU) on a single chip. A modern microprocessor can have several million transistors in an integrated-circuit package that can easily fit into the palm of one's hand. Microprocessors are at the heart of all personal computers. When memory and power are added to a microprocessor, all the pieces, excluding peripherals, required for a computer are present.

The most popular lines of microprocessors today are the 680x0 family from Motorola, which powers the Apple Macintosh line, and the 80x86 family from Intel, which is at the core of all IBM PC-compatible computers. *See also* 6502, 65816, 6800, 68000, 68020, 68030, 68040, 80286, 80386DX, 80386SX, 8080, 8086

microprogramming *n.* The writing of microcode for a processor. Some systems, chiefly minicomputers and mainframes, allow modification of microcode for an installed processor. *See also* microcode.

microsecond *n.* One millionth (10^{-6}) of a second.
Abbreviation: μ s.

microsite *n.* **1.** A small Web site targeted to a single message or topic and nested within a larger site. Microsites geared to promotional and sales of specific products and services may be integrated into popular Web sites by advertisers. **2.** A small Web site with a single focus. *Also called:* minisite.

Microsoft Access *n.* *See* Access.

Microsoft Active Accessibility *n.* *See* Active Accessibility.

Microsoft DOS *n.* *See* MS-DOS.

Microsoft Excel *n.* *See* Excel.

Microsoft Foundation Classes *n.* A C++ class library developed by Microsoft. The Microsoft Foundation Class library, or MFC, provides the framework and classes that make it easier and faster for programmers to build Windows applications. MFC supports ActiveX and is bundled with several C++ compilers, including Microsoft Visual C++, Borland C++, and Symantec C++. *Acronym:* MFC. *See also* ActiveX, C++. *Compare* Application Foundation Classes.

Microsoft FrontPage *n.* A program you can use to create and manage Internet and intranet sites without programming; FrontPage is available as part of one of the Microsoft Office suites or as a stand-alone product.

Microsoft intermediate language *n.* The CPU-independent instruction set into which .NET Framework programs are compiled. It contains instructions for loading, storing, initializing, and calling methods on objects.

Combined with metadata and the common type system, Microsoft intermediate language allows for true cross-language integration. Prior to execution, MSIL is converted to machine code. It is not interpreted. *Acronym:* MSIL.

Microsoft Internet Explorer *n.* *See* Internet Explorer.

Microsoft Knowledge Base *n.* *See* KB (definition 2).

Microsoft Management Console *n.* *See* MMC.

Microsoft MapPoint *n.* *See* MapPoint.

Microsoft Money *n.* *See* Money.

Microsoft MSN Explorer *n.* *See* MSN Explorer.

Microsoft MSN Messenger Service *n.* *See* .NET Messenger Service.

Microsoft .NET Messenger Service *n.* *See* .NET Messenger Service.

Microsoft Network *n.* *See* MSN.

Microsoft Office *n.* *See* Office.

Microsoft Operations Manager *n.* A server and application management solution developed by Microsoft Corporation to deliver event and performance management for the Windows 2000-based environment and .NET Enterprise Server applications. Operations management features include enterprise event log reports from across the corporate network, proactive monitoring and alert messaging, and reporting and trend analysis for problem tracking. Microsoft Operations Manager provides flexibility through sophisticated management rules, which can be customized to meet the needs of individual businesses. Microsoft Operations Manager support for management technology standards permits easy integration with other enterprise management systems.

Microsoft Outlook *n.* *See* Outlook.

Microsoft PowerPoint *n.* *See* PowerPoint.

Microsoft Project *n.* A software application developed by Microsoft Corporation to simplify the planning and management of projects. Microsoft Project includes features that help you build and manage projects, set schedules and milestones, and communicate and share ideas with team members.



volatile memory *n.* **1.** Memory, such as RAM, that loses its data when the power is shut off. *Compare* nonvolatile memory. **2.** Memory used by a program that can change independently of the program, such as memory shared by another program or by an interrupt service routine.

volt *n.* The unit used to measure potential difference or electromotive force. One volt is defined as the potential across which 1 coulomb of charge will do 1 joule of work, or the potential generated by 1 ampere of current flowing through 1 ohm of resistance. *See also* electromotive force.

voltage *n.* *See* electromotive force.

voltage regulator *n.* A circuit or circuit component that maintains a constant output voltage despite variations in input voltage.

volts alternating current *n.* The measure of the peak-to-peak voltage swing of an electrical signal. *Acronym:* VAC.

volume *n.* **1.** A disk or tape that stores computer data. Sometimes, large hard disks are divided into several volumes, each of which is treated as a separate disk. **2.** The loudness of an audio signal.

volume label *n.* A name for a disk or tape. MS-DOS systems, which seldom use disk names except in directory listings, use the term *volume label*. Apple Macintosh systems, which often refer to disks by name, use the term *volume name*.

volume name *n.* *See* volume label.

volume reference number *n.* *See* volume serial number.

volume serial number *n.* The optional identifying volume number of a disk or tape. MS-DOS systems use the term *volume serial number*. Apple Macintosh systems use the term *volume reference number*. A volume serial number is not the same as a volume label or volume name. *Compare* volume label.

VON *n.* Acronym for **voice on the net**. A broad category of hardware and software technology for real-time voice and video transmission over the Internet. The term was coined by Jeff Pulver, who formed a group called the VON Coalition, which opposes regulation of VON technology and promotes VON to the public.

von Neumann architecture *n.* The most common structure for computer systems, attributed to the mathematician John von Neumann. It uses the concept of a program that can be permanently stored in a computer and manipulated or made self-modifying through machine-based instructions. Sequential processing is characteristic of von Neu-

mann architecture. Parallel architectures have evolved to improve on the encumbrances of sequential instructions. *See also* parallel computer.

von Neumann bottleneck *n.* Competition between data and instructions for CPU time. Mathematician John von Neumann was the first to show that a computer based on architecture linking a single processor with memory will actually spend more time retrieving data from memory than processing it. The bottleneck arises when the processor has to trade off between executing a large number of instructions per second and reading in a large amount of data in the same time. *See also* CPU.

VPD *n.* Acronym for **virtual printer device driver**. *See* virtual device driver.

VPN *n.* *See* virtual private network.

VR *n.* *See* virtual reality.

VRAM *n.* *See* video RAM.

VRC *n.* Acronym for **vertical redundancy check**. A method for checking the accuracy of transmitted data. VRC generates an extra bit (parity bit) for each character transmitted. The parity bit indicates whether the character contains an odd or an even number of 1 bits. If its value does not match the type of the character, that character is assumed to be incorrectly transmitted. *See also* parity. *Compare* LRC.

VRML *n.* Acronym for **Virtual Reality Modeling Language**. A scene description language for creating 3-D interactive Web graphics similar to those found in some video games, allowing the user to “move around” within a graphic image and interact with objects. VRML, a subset of Silicon Graphics’ Inventor File Format (ASCII), was created by Mark Pesce and Tony Parisi in 1994. VRML files can be created in a text editor, although CAD packages, modeling and animation packages, and VRML authoring software are the tools preferred by most VRML authors. VRML files reside on an HTTP server; links to these files can be embedded in HTML documents, or users can access the VRML files directly. To view VRML Web pages, users need a VRML-enabled browser or a VRML plug-in for Internet Explorer or Netscape Navigator. *See also* 3-D graphic, HTML document, HTTP server (definition 1).

v-root *n.* *See* virtual root.

V series *n.* The series of ITU-T (formerly CCITT) recommendations relating to modems and modem communications over the public phone system, including signaling, coding, and circuit characteristics. *See* the table.