

## **Glossary**

Excerpted from: PC Magazine 1994 Computers Buyer's Guide  
by John Dvorak  
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**adapter** Also known as an add-on card, controller, expansion card, or I/O card. Adapters are installed in expansion slots to enhance the processing power of the computer or to communicate with other devices. Examples of adapters include asynchronous communication, floppy disk-controller, and expanded memory.

**address** A unique memory location permitting reading or writing of data to/from that location. Network interface cards and CPUs often use shared addresses in RAM to move data between programs.

**analog-to-digital converter (ADC)** A device that converts analog input signals to digital output signals used to represent the amplitude of the original signal.

**application software** A computer program designed to help people perform a certain type of work. An application can manipulate text, numbers, graphics, or a combination of elements. Some application packages focus on a single task and offer greater computer power while others, called integrated software, offer less power but include several applications, such as word processing, spreadsheet, and database programs. An application may also be referred to as software, program, instructions, or task. See also *software*

**areal density** The amount of data that can be stored in one area of a disk-hard or floppy.

**ASCII (American Standard Code for Information Interchange)** The data alphabet used in the IBM PC to determine the composition of the 7-bit string of 0s and 1s that represents each character (alphabetic, numeric, or special). It is a standard way to transmit characters.

**asynchronous communication (ASYNC)** A type of serial communication by which data is passed between devices. "Asynchronous" means that the timing of each character transmitted is independent of other characters.

**average access time** The time (in milliseconds) that a disk drive takes to find the right track in response to a request (the seek time), plus the time it takes to get to the right place on the track (the latency).

**back up** To make a copy of a file, group of files, or the entire contents of a hard disk.

**baud rate** A measure of the actual rate of symbols transmitted per second, which may represent more than one bit. A given baud rate may have more than one bps (bits per second) rate. Baud rate is often used interchangeably with bps, although this is technically incorrect.

**binary** A numbering system with two digits, 0 and 1, used by computers to store and process information.

**BIOS (basic input/output system)** A collection of primitive computer routines (stored in ROM in a PC) that control peripherals such as the video display, disk drives, and keyboard.

**bisynchronous (BISNYC)** Computer communications in which both sides simultaneously transmit and receive data.

**bit** A binary digit: the smallest piece of information that can be recognized and processed by a computer. A bit is either 0 or 1. Bits can form larger units of information called nibbles (4 bits), bytes (8 bits), and words (usually 16 bits). See also *data bit*

**bits per second (bps)** The number of data bits sent per second between two modems. Used as a measure of the rate at which digital information is handled, manipulated, or transmitted. Similar, but not identical, to baud rate.

**buffer** An area of RAM (usually 512 bytes plus another 16 for overhead) in which DOS stores data temporarily. See also *frame buffer*

**bus** A group of wires used to carry a set of related signals or information within a computer from one device to another.

**byte** A sequence of adjacent binary digits that the computer considers a unit. A byte consists of 8 bits.

**cache** An amount of RAM set aside to hold data that is expected to be accessed again. The second access, which finds the data in RAM, is very fast. (Pronounced like "cash.")

**CGA** IBM's first color graphics standard, capable of 320 by 320 resolution at four colors (or gray shades on laptops), or 640 by 200 at two colors (black and white). CGA-only laptops are behind the times.

**chip** An integral part of the PC. These are very tiny, square or rectangular slivers of material (usually silicon) with electrical components built in. Some of the chips in a computer aid in memory, but the most important chip is the microprocessor. This is the "8088", "286", "386", or "486" that is referred to when talking about a specific machine's features.

**clone** An IBM PC/XT- or AT-compatible computer made by another manufacturer.

**cluster** A hard-disk term that refers to a group of sectors, the smallest storage unit recognized by DOS. On most modern hard disks, four 512-byte sectors make up a cluster, and one or more clusters make up a track.

**CMOS (complementary metal oxide semiconductor) chip** A type of memory chip that retains its data when power is turned off as long as it retains a trickle of power from a battery.

**coding** The act of programming a computer; specifically, generating source code in the language of the program's choice. The most popular languages used by programmers are Pascal, C, and C++.

**COM** Communications port or serial port used by modems, mice, and some printers. DOS assigns these ports as COM1, COM2, and sometimes COM3 and COM4. DOS also lets you refer to the first communications port as AUX. **Note:** Some programs count communications ports starting with 0, so "Port 0" or "Communications Port 0" would be COM1, and "Port 1" would be COM2.

**communications parameters** Settings that define how your communications software will handle incoming data and transmit outgoing data. Parameters include bits per second, parity, data bits, and stop bits.

**convergence** A video term that describes the way in which the three beams that generate the three color dots (red, green, blue) should meet. When all three dots are excited at the same time and their relative distance is perfect, the result is pure white. Deviation from this harmony (due to an incorrect relationship of the beams to each other) results in poor convergence. This causes white pixels to show bits of color and can decrease image sharpness and resolution.

**CPU (central processing unit)** The functional "brain" of a computer; the element that does the actual adding and subtracting of 0s and 1s and the manipulation and moving of data that is essential to computing.

**database** A file consisting of a number of records or tables, each of which is constructed of fields (in column format) of a particular type, together with a collection of operations that facilitate searching, sorting, recombination, and similar acts.

**data bits** The bits sent by a modem. These bits make up characters and don't include the bits that make up the communications parameters. See also *bit*

**device** Any piece of computer hardware.

**device-level interface** An interface that uses an external controller to connect the disk drives to the PC. Among its other functions, the controller converts the serial stream of data read from the drive into parallel data for the host computer's bus. ST506 and ESDI are device-level interfaces.

**digital-to-analog converter (DAC)** A circuit that accepts digital input signals and converts them to analog output signals. Sometimes called DAC chips, they are used in VGA video cards, for example.

**directory** A list of file names and locations of files on a disk.

**disk** A circular metal platter or mylar diskette with magnetic material on both sides that stores programs and data. Disks are rotated continuously so that read/write heads mounted on movable or fixed arms can read or write programs or data to and from the disk. See also *floppy disk, hard disk*

**disk cache** A portion of a computer's RAM set aside for temporarily holding information read from a disk. The disk cache does not hold entire files as does a RAM disk, but information that has either been recently requested from a disk or has previously been written to a disk.

**disk defragmenter** Defragmentation is the rewriting of all the parts of a file on contiguous sectors. When files on a hard disk drive are being updated, the information tends to be written all over the disk, causing delays in file retrieval. Defragmentation reverses this process, and is often achieved with special defragmentation programs that provide up to 75 percent improvement in the speed of disk access and retrieval.

**disk drive** The motor that actually rotates the disk, plus the read/write heads and associated mechanisms, usually in a mountable housing. Sometimes used synonymously to mean the entire disk subsystem.

**disk format** Refers to the method in which data is organized and stored on a floppy or hard disk.

**diskette** See *floppy disk*

**DOS (disk operating system)** A set of programs that control the communications between components of the computer. Examples of DOS functions are: displaying characters on the screen, reading and writing to a disk, printing, and accepting commands from the keyboard. DOS is a widely used operating system on IBM-compatible personal computers (PCs).

**dot matrix printer** A type of printer technology using a print head with pins to poke out arrays of dots that form

text and graphics.

**dot pitch** A color monitor characteristic; specifically, the distance between the holes in the shadow mask. It indirectly describes how far apart the individual dots are on screen. The smaller the dot pitch, the finer the image's "grain." Some color monitors, such as the Sony Trinitron, use a slot mask (also known as an aperture grille) that is perforated by strips, not holes, in the shadow mask. In this case, the dots are arranged in a linear fashion, and their density is called striped dot pitch. (Monochrome monitors do not use a shadow mask and therefore do not have a dot pitch.)

**download** To receive information from another modem and computer over the telephone lines. It is the opposite of upload.

**DRAM (dynamic random-access memory)** The most commonly used type of memory, found on video boards as well as on PC system boards. DRAM is usually slower than VRAM (video random-access memory), since it has only a single access pathway.

**drive array** A storage system composed of several hard disks. Data is divided among the different drives for greater speed and higher reliability.

**DSDD (double-sided, double-density)** On PCs and laptops, DSDD means 720K 3 1/2-inch diskettes or 360K 5 1/4-inch diskettes.

**DSHD (double-sided, high-density)** On PCs and laptops, DSHD means 1.44Mb 3 1/2-inch diskettes or 1.2Mb 5 1/4-inch diskettes.

**EISA (Extended Industry Standard Architecture)** Primarily a desktop specification for high-performance computers. Competes with IBM's Micro Channel architecture (MCA). EISA computers can use existing PC, XT, and AT add-in cards; MCA computers can't. See also Micro Channel architecture

**E-mail (electronic mail)** The exchange of messages via a bulletin board or on-line service. One user leaves the message on the service "addressed" to another user. The other user later connects to the same service and can read the message and reply to it.

**expanded memory** Memory that can be used by some DOS software to access more than the normal 640K (technically, more than 1Mb). 80386, 80386SX, and 80486 computers can create expanded memory readily by using an EMS (expanded memory specification) driver provided with DOS, through Microsoft Windows, or through a memory manager such as Quarterdeck QEMM or Qualitas 386 To The Max. To use expanded memory, a program must be EMS-aware or run under an environment such as Microsoft Windows. 8088- and 80286-based computers often need special hardware to run expanded memory. See also memory

**extended memory** Memory above 1Mb in 80286 and higher computers. Can be used for RAM disks, disk caches, or Microsoft Windows, but requires the processor to operate in a special mode (protected mode or virtual real mode). With a special driver, you can use extended memory to create expanded memory. See also *memory*, *RAM*, *ROM*

**file** A collection of related records treated as a unit. In a computer system, a file can exist on magnetic tape, disk, or as an accumulation of information in system memory. A file can contain data, programs, or both.

**floppy disk** A removable, rotating, flexible magnetic storage disk. Floppy disks come in a variety of sizes, but 3 1/2-inch and 5 1/4-inch are the most popular. Storage capacity is usually between 360K and 1.44MB. Also called flexible disk or diskette. See also *disk*, *hard disk*

**floppy drive** A disk drive designed to read and write data to a floppy disk for transfer to and from a computer.

**format** A DOS command that records the physical organization of tracks and sectors on a disk.

**frame buffer** A large section of memory used to store an image to be displayed on-screen as well as parts of the image that lie outside the limits of the display. See also *buffer*

**GCR (group coded recording)** A hard-disk term for a storage process where bits are packaged as groups, with each group assigned to and stored under a particular code. Used by RLL drives.

**graphics coprocessor** Similar to a math coprocessor in concept, a programmable chip that can speed video performance by carrying out graphics processing independently of the microprocessor. Graphics coprocessors can speed up performance in two ways: by taking over tasks the main processor would lose time performing and by optimizing for graphics. Video adapter cards with graphics coprocessors are expensive compared to those without them, but they speed up graphics operations considerably. Among the coprocessor's common abilities are drawing graphics primitives and converting vectors to bitmaps.

**handshaking** A modem term that describes the initial exchange between modems. It's like "are you there?" with the response "I am here."

**hard disk** A mass storage device that transfers data between the computer's memory and the disk storage media. Hard disks are nonremovable, rotating, rigid, magnetic storage disks. There are some types of hard disk with removable rigid media in the form of disk packs. See also *disk*

**hardware** The physical components of a computer.

**head actuator** In a disk drive, the mechanism that moves the read/write head radially across the surface of the platter of the disk drive.

**high-speed modem** A modem operating at speeds from 9,600 to 19,200 bits per second.

**host system** In telecommunications, the system that you have called up and to which you are connected, such as a BBS (bulletin board system) or an on-line service such as CompuServe.

**Hz (Hertz)** A unit of measurement. This used to be called cycles per second.

**IDE (integrated drive electronics)** A disk drive with its own controller electronics built in to save space and money. Many laptops use IDE drives.

**instructions** See *application software*

**Intel** A major manufacturer of integrated circuits used in computers. Intel makes the 8086 family of microprocessors and its derivatives: the 8088, 80286, 80386SX and DX, and 80486SX and DX. These are the chips used in the IBM PC family of computers and all the computers discussed in this book.

**integrated circuit (IC)** A tiny complex of electronic components and their connections that is produced in or on a slice of material (such as silicon). A single IC can hold many electronic elements. Also called a chip.

**interlaced and noninterlaced scanning** Two monitor schemes with which to paint an image on the screen. Interlaced scanning takes two passes, painting every other line on the first pass and filling in the rest of the lines on the second pass. Noninterlaced scanning paints all the lines in one pass and then paints an entirely new frame. Noninterlaced scanning is preferable because it reduces screen flicker, but it's more expensive.

**interleaving** A hard-disk term that describes a method of arranging disk sectors to compensate for relatively slow computers. Spreads sectors apart instead of arranging them consecutively. For example, 3:1 interleaving means your system reads one out of every three tracks on one rotation. The time required for the extra spin lets the read/write head catch up with the disk drive, which might otherwise outrun the head's ability to read the data. Thanks to track buffering and the speed of today's PCs, interleaving is obsolete. Look for a "1:1 interleaving," which indicates a noninterleaved drive.

**I/O (input/output)** Input is the data flowing into your computer. Output is the data flowing out. I/O can refer to the parallel and serial ports, keyboard, video display, and hard and floppy disks.

**interrupt request (IRQ)** A request for attention and service made to the CPU. The keyboard and the serial and parallel ports all have interrupts. Setting two peripherals to the same IRQ is a cause of hair pulling among desktop PC users; laptops don't suffer the problem as badly because they have few, if any, add-on products that need interrupts set.

**ISA (Industry Standard Architecture)** Computers using the same bus structure and add-in cards as the IBM PC, XT, and AT. Also called classic bus. It comes in an 8-bit and 16-bit version. Most references to ISA mean the 16-bit version. Many machines claiming ISA compatibility will have both 8- and 16-bit connectors on the motherboard.

**kilobyte (KB)** 1,024 bytes. Sometimes abbreviated as k (lowercase), K-byte, K, or KB for kilobyte and Kb for kilobit (1,024 bits). When in doubt about whether an abbreviation refers to kilobytes or kilobits, it's probably kilobytes, with these exceptions: the speed of a modem (as in 2.4 kilobits per second) and the transfer rate of a floppy disk (as in 500 kilobits per second).

**local area network (LAN)** A small- to moderate-size network in which communications are usually confined to a relatively small area, such as a single building or campus.

**logical drive** A drive that has been created by the disk operating system (DOS). This is done either at the preference of the user or because the DOS version does not allow a formatted capacity in excess of 32MB. A user with a 100MB hard disk will want to use more than 32MB, so a program will tell DOS there are a bunch of "logical" drives that add up to 100MB. DOS 5.0 eliminates this need.

**log on or log off** The process of connecting or disconnecting your computer to another system by modem.

**MB** See *megabyte*

**mega** One million, but with computers it typically means 1,048,576 (1,024 times 1,024).

**megabyte (MB)** 1,048,576 bytes (1,024 times 1,024). Used to describe the total capacity of a hard or floppy disk or the total amount of RAM. Sometimes abbreviated as Mb, M, MB, or meg for megabyte; and Mb, M-bit, or Mbit for megabit. When in doubt, it's probably megabyte, not megabit, with these exceptions: the capacity of a single memory chip (a 1-megabit chip; you need eight chips plus an optional ninth parity-checking chip to get 1 megabyte of memory), the throughput of a network (4 megabits per second), and the transfer speed of a hard disk (5 megabits per second).

**megahertz (MHz)** One million cycles per second, typically used in reference to a computer's clock rate. Both the clock rate and the processor type (80286, 80386, etc.) determine the power and speed of a computer.

**memory** A device that stores data in a computer. Internal memories are very fast and are either read/write random-access memory (RAM) or read-only memory (ROM). Bulk storage devices are either fixed disk, floppy disk, tape, or optical memories; these hold large amounts of data, but are slower to access than internal memories. See also *expanded memory*, *extended memory*, *RAM*, *ROM*

**MHz** See also *megahertz*

**Micro Channel architecture (MCA)** The basis for the IBM Micro Channel bus, used in high-end models of IBM's PS/2 series of personal computers. See also *EISA*

**microprocessor** An integrated circuit (IC) that communicates, controls, and executes machine language instructions.

**microsecond** 1/1,000,000 (one-millionth) of a second.

**millisecond (ms)** 1/1,000 (one-thousandth) of a second. Hard disks are rated in milliseconds. Modern laptop hard disks have drives of 20 to 40 milliseconds, meaning they can find the average piece of data in 1/25 to 1/50 of a second. Older hard disks were about 100 milliseconds. Higher numbers mean slower performance.

**modem** A combination of the words modulate and demodulate. A device that allows a computer to communicate with another computer over telephone lines.

**multimedia** The presentation of information on a computer using sound, graphics, animation, video, and text.

**nanosecond** 1/1,000,000,000 (one-billionth) of a second. Memory chips are rated in nanoseconds, typically 80 to 150 nanoseconds. Higher numbers indicate slower chips.

**NetWare** A popular series of network operating systems and related products made by Novell.

**network** A continuing connection between two or more computers that facilitates sharing files and resources.

**online/offline** When connected to another computer via modem and telephone lines, a modem is said to be online. When disconnected, it is offline.

**operating system (OS)** A set of programs residing in ROM and/or on disk that controls communications between components of the computer and the programs run by the computer. MS-DOS is an operating system.

**OS/2 (Operating System/2)** An operating system developed by IBM and Microsoft for use with Intel's microprocessors. Unlike its predecessor, DOS, OS/2 is a multitasking operating system. This means many programs can run at the same time.

**OS/2 Extended Edition** IBM's proprietary version of OS/2; it includes built-in communications and database-management facilities.

**parallel port** A port that transmits or receives 8 bits (1 byte) of data at a time between the computer and external devices. Mainly used by printers. LPT1 is a parallel port, for example.

**PCL (printer command language)** Usually refers to Hewlett-Packard laser printers. Most H-P compatibles support PCL 4. H-P's newest printers (the III series) use PCL 5, which includes scalable fonts and monochrome support for HPGL.

**peripheral** A device that performs a function and is external to the system board. Peripherals include displays, disk drives, and printers.

**pixel** A pixel is the smallest information building block of an on-screen image. On a color monitor screen, each pixel is made of one or more triads (red, green, and blue). Resolution is usually expressed in terms of the number of pixels that fit within the width and height of a complete on-screen image. In VGA, the resolution is 640 by 480 pixels; in SuperVGA, it is 800 by 600 pixels.

**platter** The actual disk inside a hard-disk drive; it carries the magnetic recording material. All but the thinnest disk drives have multiple platters, most of which have two sides that can be used for data storage. (On multiple-platter drives, one side of each platter is usually reserved for storing control information.)

**port** The channel or interface between the microprocessor and peripheral devices.

**program** See *application software*

**programming language** Any artificial language that can be used to define a sequence of instructions that can ultimately be processed and executed by the computer.

**PROM (programmable read-only memory)** A (usually) permanent memory chip programmed after manufacture (unlike a ROM chip). EPROMs (erasable PROMs) and EEPROMs (electrically erasable PROMs) can be erased and reprogrammed several times.

**protocol** Rules governing communications, including flow control (start-stop), error detection or correction, and parameters (data bits, stop bits, parity). If they use the same protocols, products from different vendors can communicate.

**RAM (random-access memory)** Also known as read-write memory; the memory used to execute application programs. See also *memory*

**RAM disk** VDISK (virtual disk) that can be used in place of a hard or floppy disk for frequently accessed files. A RAM disk is dangerous for storing data because the contents are lost if the computer crashes or if power is turned off. Most users with extra RAM use it for a disk cache rather than as a RAM disk. See also *memory*

**read/write head** The part of the hard disk that writes data to or reads data from a platter. It functions like a coiled wire that reacts to a changing magnetic field by producing a minute current that can be detected and amplified by the electronics of the disk drive.

**refresh rate** See *vertical frequency*

**RGB (red, green, blue)** The triad, the three colors that make up one pixel of a color monitor. See also *triad*

**RLL (run length limited)** A hard-disk method of encoding information magnetically that uses a scheme (GCR) to store blocks of data instead of single bits of data. It allows greater storage densities and higher transfer speeds than the other method in use (MFM).

**ROM (read-only memory)** The memory chip(s) that permanently store computer information and instructions. Your computer's BIOS (basic input/output system) information is stored in a ROM chip. Some laptops even have the operating system (DOS) in ROM.

**RS-232C** An electrical standard for the interconnection of equipment established by the Electrical Industries Association; the same as the CCITT code V.24. RS-232C is used for serial ports.

**SCSI (small computer system interface)** A system-level interface designed for general purpose applications that allows up to seven devices to be connected to a single host adapter. It uses an 8-bit parallel connection that produces a maximum transfer rate of 5Mb per second. The term is pronounced "scuzzy."

**sector** The basic storage unit on a hard disk. On most modern hard disks, sectors are 512 bytes each, four sectors make up a cluster, and there are 17 to 34 sectors in a track—although newer drives may have a different number of sectors.

**serial port** The "male" connector (usually DB-9 or DB-25) on the back of your computer. It sends out data one bit at a time. It is used by modems and, in years past, for daisy-wheel and other printers. The other port on your computer is the parallel port, which is a "female" connector. It is used for printers, backup systems, and mini-networking (LANs). See also *COM*.

**shadow mask** Inside the color monitor just behind the screen, it is drilled with small holes, each of which corresponds to a triad. The shadow mask helps guide the electron beams so that each beam hits only one phosphor dot in the triad.

**shell** A piece of software providing direct communication between the user and the operating system. The main inner part of the system, called the kernel, is enclosed by the shell program, as in a nut.

**slot mask** Also known as an aperture grille, it serves the same function as the shadow mask on a monitor.



**spindle** One part of a hard disk, around which the platters rotate.

**software** Programming tools such as languages, assemblers, and compilers; control programs such as operating systems; or application programs such as electronic spreadsheets and word processors. Software instructs the computer to perform tasks. See also *application software*

**spreadsheet** An application commonly used for budgets, forecasting and other finance-related tasks. Data and formulas to calculate those data are entered into ledger-like forms (spreadsheets or worksheets) for analysis, tracking, planning, and evaluation of impacts on economic strategy.

**synchronous communication** Fixed-rate serial communication, eliminating the need for transmitting inefficient start-stop information. PC-to-mainframe communication may be synchronous; most PC-to-PC communication is asynchronous. Most laptop modems are asynchronous only. If you're not sure whether you need a synchronous-asynchronous modem, you probably don't.

**system-level interface** A connection between the hard disk and its host system that puts control and data-separation functions on the drive itself (and not on the external controller). SCSI and IDE are system-level interfaces.

**telecommunication** Using your computer to communicate with another computer via telephone lines and your modem.

**track** The circular path traced across the spinning surface of a disk platter by the read/write head inside the hard-disk drive. The track consists of one or more clusters.

**track buffer** Memory sometimes built into disk-drive electronics, sufficient to store the contents of one full track. This allows the drive to read the entire track quickly, in one rotation, then slowly send the information to your CPU. It eliminates the need for interleaving and can speed up drive operation.

**transfer rate** The speed at which a disk drive can transfer information between its platters and your CPU. The transfer rate is typically measured in megabytes per second, megabits per second, or megahertz.

**transmission speed** See *baud rate*

**triad** Three phosphor-filled dots (one red, one green, one blue) arranged in a triangular fashion within a monitor. Each of the three electron guns is dedicated to one of these colors. As the guns scan the screen, each active triad produces a single color, which is determined by the combination of excited color dots and by how active each dot is. See also *RGB*

**utility program** A program designed to perform maintenance work on a system or on system components, e.g. a storage backup program, a disk and file recovery program, or a resource editor.

**V.** The CCITT international communications standards, pronounced "vee-dot." Various V. standards cover speed (modulation), error correction, data compression, and signaling characteristics.

**vertical frequency** This is also called the vertical refresh rate, or the vertical scan frequency. It is a monitor term that describes how long it takes to draw an entire screenful of lines, from top to bottom. Monitors are designed for specific vertical and horizontal frequencies. Vertical frequency is a key factor in image flicker. Given a low enough vertical frequency (53 Hz, for example) nearly everyone will see a flicker because the screen isn't rewritten quickly enough. A high vertical frequency (70 Hz on a 14-inch monitor) will eliminate the flicker for most people.

**VGA** IBM's third (1987) and current mainstream graphics standard, capable of 640-by-480-pixel resolution at 16 colors or gray shades. SuperVGA (800 by 600) resolution is important on desktop PCs. A handful of laptops support SuperVGA when connected to an external monitor; they use regular VGA when driving the built-in display. Some laptop vendors use "text mode" VGA, which means the monitor displays only 400 pixels, not 480, vertically, and uses double-scan CGA (640 by 400) for graphics.

**VRAM (video random-access memory)** Special-purpose RAM with two data paths for access, rather than the one path in conventional RAM. The two paths let a VRAM board handle two functions at once: display refresh and processor access. VRAM doesn't force the system to wait for one function to finish before starting the other, so it permits faster operation for the video subsystem.

**wide area network (WAN)** Usually a moderate to large network in which communications are conducted over the telephone lines using modems.

**write protection** Keeping a file or disk from being written over or deleted. 3 1/2-inch floppy disks use a sliding write-protect tab in the lower-left corner (diagonally across from the beveled corner of the disk) to keep the computer from writing to the disk. When the opening is hidden by the tab (no light passes), you can write to the disk; tab open, you can't write. This can be confusing because it's the exact opposite of how a 5 1/4-inch disk works. Most file management utilities allow you to write-protect individual files.

**XMA (extended memory specification)** Interface that lets DOS programs cooperatively use extended memory in 80286 and higher computers. One such driver is Microsoft's HIMEM.SYS, which manages extended memory and HMA (high memory area), a 64K block just above 1MB.