

# EXHIBIT A

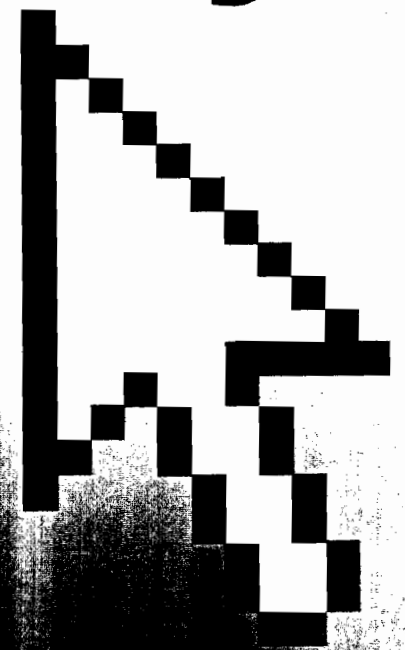
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# Computer Dictionary

Fifth Edition

- *Fully updated with the latest technologies, terms, and acronyms*
- *Easy to read, expertly illustrated*
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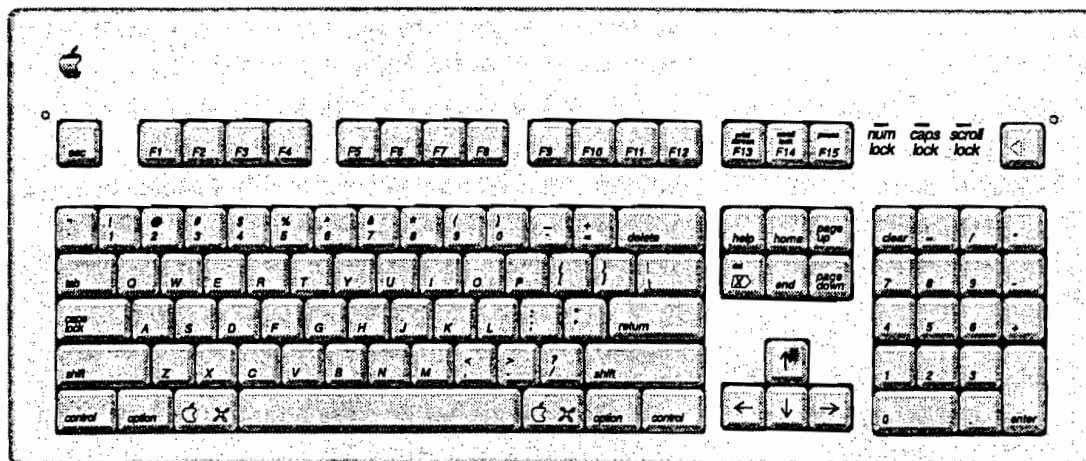
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**Acquisitions Editor:** Alex Blanton  
**Project Editor:** Sandra Haynes

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### Apple Extended Keyboard.

**Apple Filing Protocol** *n.* See AFP.

**Apple key** *n.* A key on Apple keyboards labeled with an outline of the Apple logo. On the Apple Extended Keyboard, this key is the same as the Command key, which functions similarly to the Control key on IBM and compatible keyboards. It is generally used in conjunction with a character key as a shortcut to making menu selections or starting a macro.

**Apple Macintosh** *n.* See Macintosh.

**Apple Newton** *n.* See Newton.

**AppleScript** *n.* A script language developed by Apple Computer, Inc., for Macintosh computers running under the Mac OS to execute commands and automate functions. See also script.

**AppleShare** *n.* A file server software developed by Apple Computer, Inc., that works with the Mac OS and allows one Macintosh computer to share files with another on the same network. See also file server, Mac OS.

**applet** *n.* A program that can be downloaded over the Internet and executed on the recipient's machine. Applets are often written in the Java programming language and run within browser software, and they are typically used to customize or add interactive elements to a Web page.

**AppleTalk** *n.* An inexpensive local area network developed by Apple Computer, Inc., for Macintosh computers that can be used by Apple and non-Apple computers to communicate and share resources such as printers and file servers. Non-Apple computers must be equipped with AppleTalk hardware and suitable software. The network

uses a layered set of protocols similar to the ISO/OSI reference model and transfers information in the form of packets called frames. AppleTalk supports connections to other AppleTalk networks through devices known as bridges, and it supports connections to dissimilar networks through devices called gateways. See also bridge, frame (definition 2), gateway.

**AppleTalk Phase 2** *n.* The extended AppleTalk Internet model designed by Apple Computer, Inc., that supports multiple zones within a network and extended addressing capacity.

**AppleWorks** *n.* A suite of productivity applications, formerly known as ClarisWorks, distributed by Apple Computer, Inc., and shipped on the iMac computer. AppleWorks/ClarisWorks is an integrated product that includes support for word processing, spreadsheets, databases, drawing, painting, charting, and the Internet.

**appliance** *n.* 1. See server appliance. 2. See information appliance. 3. A device with a single or limited purpose with functionality. This functionality is similar to a simple consumer appliance.

**appliance server** *n.* 1. An inexpensive computing device used for specific tasks including Internet connectivity or file-and-print services. The server is usually easy to use but does not possess the capabilities or software of a typical server for general office use. 2. See server appliance.

**application** *n.* A program designed to assist in the performance of a specific task, such as word processing, accounting, or inventory management. Compare utility.

**application binary interface** *n.* A set of instructions that specifies how an executable file interacts with the hardware

processor. Advantages of using an assembly language include increased execution speed and direct programmer interaction with system hardware. *See also* assembler, compiler, high-level language, low-level language, machine code.

**assembly listing** *n.* A file created by an assembler that includes the statements of an assembly language program, the machine language generated by the assembler, and a list of the symbols used in the program. *See also* assembler, assembly language.

**assertion** *n.* A Boolean statement used in a program to test a condition that, if the program is operating correctly, should always evaluate as true; otherwise the program will typically terminate with an appropriate error message. Assertions are used for debugging programs and for documenting how a program should operate.

**assignment operator** *n.* An operator used to assign a value to a variable or data structure. *See also* assignment statement, operator (definition 1).

**assignment statement** *n.* A programming language statement used to assign a value to a variable. It usually consists of three elements: an expression to be assigned, an assignment operator (typically a symbol such as = or :=), and a destination variable. On execution of the assignment statement, the expression is evaluated and the resulting value is stored in the specified destination. *See also* assignment operator, expression, variable.

**associate** *vb.* To inform the operating system that a particular file name extension is linked to a specific application. When a file is opened that has an extension associated with a given application, the operating system automatically starts the application and loads the file.

**Association Control Service Element** *n.* An Open Systems Interconnection (OSI) method to establish a call between two applications by checking the identities and contexts of the application entities and performing an authentication security check. *Acronym:* ACSE. *See also* ISO/OSI reference model.

**Association for Computing Machinery** *n.* A membership society founded in 1947 and devoted to the advancement of knowledge and technical proficiency of information processing professionals. *Acronym:* ACM.

**Association of C and C++ Users** *n.* An organization of people interested in the programming language C and its variants. Members of the association include professional

programmers, manufacturers and vendors of compilers, and nonprofessional programming enthusiasts.

*Acronym:* ACCU.

**associative storage** *n.* A memory-based storage method in which data items are accessed not on the basis of a fixed address or location but by analysis of their content. *Also called:* content-addressed storage.

**associativity** *n.* *See* operator associativity.

**asterisk** *n.* *See* \*.

**asymmetrical transmission** *n.* A form of transmission used by high-speed modems, typically those that operate at rates of 9600 bps or more, that allows simultaneous incoming and outgoing transmission by dividing a telephone line bandwidth into two channels: one in the range of 300 to 450 bps and one at a speed of 9600 bps or more.

**asymmetric digital subscriber line** *n.* *See* ADSL.

**asymmetric digital subscriber loop** *n.* *See* ADSL.

**asymmetric modem** *n.* A modem that transmits data to the telephone network and receives data from the network at different speeds. Most commonly, an asymmetric modem will have a maximum download speed substantially higher than its upload speed. *See also* modem.

**asynchronous** *adj.* Pertaining to, being, or characteristic of something that is not dependent on timing. For example, asynchronous communications can start and stop at any time instead of having to match the timing governed by a clock.

**asynchronous chip** *n.* A microprocessor chip that does not need to operate in sync with a system clock. Asynchronous chip operations do not need to be timed to clock speed and draw power only when operations are in progress. This allows asynchronous chips the potential for greater computational speed and lower power consumption than traditional chips.

**asynchronous communications** *n.* Computer-to-computer communications in which the sending and receiving computers do not rely on timing as a means of determining where transmissions begin and end. *Compare* synchronous communications.

**asynchronous device** *n.* A device whose internal operations are not synchronized with the timing of any other part of the system.

**asynchronous operation** *n.* An operation that proceeds independently of any timing mechanism, such as a clock.

## C

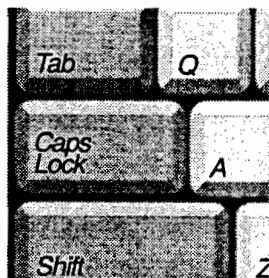
**capacitance** *n.* The ability to store an electric charge. Capacitance is measured in farads. A capacitance of 1 farad will hold 1 coulomb of charge at a potential of 1 volt. In practical use, a farad is an extremely large amount of capacitance; typical capacitors have values of microfarads ( $10^{-6}$ ) or picofarads ( $10^{-12}$ ). *See also* capacitor.

**capacitor** *n.* A circuit component that provides a known amount of capacitance (ability to store an electric charge). A capacitor typically consists of two conductive plates separated by an insulating (dielectric) material. If other factors remain constant, capacitance increases as the plates are made larger or brought closer together. A capacitor blocks direct current but passes alternating current to an extent that depends on its capacitance and on the frequency of the current. *See also* capacitance.

**capacity** *n.* The amount of information a computer or an attached device can process or store. *See also* computer.

**caps** *n.* Short for capital letters. *Compare* lowercase.

**Caps Lock key** *n.* A toggle key that, when on, shifts the alphabetic characters on the keyboard to uppercase. The Caps Lock key does not affect numbers, punctuation marks, or other symbols. *See the illustration.*



**Caps Lock key.**

**capstan** *n.* On a tape recorder, a polished metal post against which a turning rubber wheel (called a pinch roller) presses to move a length of magnetic tape placed between the wheel and the post. The capstan controls the speed of the tape as it moves past the recording head. *See also* pinch roller.

**capture** *vb.* In communications, to transfer received data into a file for archiving or later analysis.

**capture board** *n.* *See* video capture card.

**capture card** *n.* *See* video capture card.

**Carbon** *n.* Code name for the Application Program Interfaces (API) and shared libraries used to write applications for Macintosh OS X. Since Macintosh OS X is an entirely different system rather than an update of the previous

Macintosh OS, Carbon bridges the gap between the systems, allowing developers to rewrite their programs to OS X without rewriting the code for the entire application. Carbon allows OS X native applications to run under earlier versions of the Macintosh OS without modification but with OS X advantages.

**carbon copy** *n.* *See* cc.

**carbonize** *vb.* To update a Macintosh application for OS X. Although older versions of Macintosh applications will run under OS X, only those that have been carbonized will be able to use OS X-specific advantages.

**carbon ribbon** *n.* A ribbon used with impact printers, especially daisy-wheel printers, and with typewriters for highest-quality output. A carbon ribbon is made of a thin strip of Mylar coated on one side with a carbon film. Characters printed with a carbon ribbon are extremely crisp and free from the fuzziness that can be associated with an inked cloth ribbon. *Also called:* film ribbon, Mylar ribbon. *See also* daisy-wheel printer. *Compare* cloth ribbon.

**card** *n.* **1.** A printed circuit board or adapter that can be plugged into a computer to provide added functionality or new capability. These cards provide specialized services, such as mouse support and modem capabilities, that are not built into the computer. *See also* adapter, board, printed circuit board. **2.** In programs such as the HyperCard hypertext program, an on-screen representation of an index card on which information can be stored and “filed” (saved) for future reference. *See also* hypertext. **3.** A manila card about 3 inches high by 7 inches long on which 80 columns of data could be entered in the form of holes punched with a keypunch machine. The punched holes corresponded to numbers, letters, and other characters and could be read by a computer that used a punched-card reader. *Also called:* punched card. *See also* card reader (definition 2).

**card cage** *n.* An enclosure area for holding printed circuit boards (cards). Most computers have an area with protective metal and mounting brackets where cards are installed. The term originally came from an external box that held rack-mounted cards or peripherals and resembled a cage.

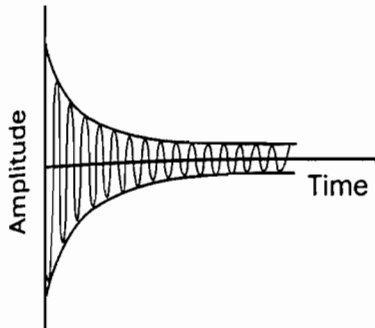
**carder** *n.* A person who engages in online credit card fraud. Specifically, a carder steals credit card numbers, either to purchase merchandise (often computer-related) from Web-based stores or to trade the stolen numbers with like-minded individuals—again, over the Internet. Carders

**entry** *n.* 1. A unit of information treated as a whole by a computer program. 2. The process of inputting information.

**entry point** *n.* A place in a program where execution can begin.

**enumerated data type** *n.* A data type consisting of a sequence of named values given in a particular order.

**envelope** *n.* 1. In communications, a single unit of information that is grouped with other items, such as error-checking bits. 2. The shape of a sound wave, caused by changes in amplitude. See the illustration.



**Envelope.**

**envelope delay** *n.* In communications, the difference in travel times of different frequencies in a signal. If the frequencies reach their destination at different times, signal distortion and errors can result. *Also called:* delay distortion.

**environment** *n.* 1. The configuration of resources available to the user. *Environment* refers to the hardware and the operating system running on it. For example, Windows and Macintosh are called windowing environments because they are based on screen regions called windows. 2. In microcomputing, *environment* refers to a definition of the specifications, such as command path, that a program operates in.

**EOF** *n.* See end-of-file (definition 1).

**EOL** *n.* Acronym for end of line. A control (nonprinting) character that signals the end of a data line in a data file.

**EOT** *n.* See end-of-transmission.

**EPIC** *n.* 1. Short for Explicitly Parallel Instruction Computing. A technology developed jointly by Intel and Hewlett-Packard as the foundation of the 64-bit instruction set architecture incorporated in IA-64, the basis of the Merced chip. EPIC technology is designed to enable IA-64 processors to execute instructions efficiently and extremely quickly. Core elements include explicit parallelism based on software identification of instructions that the processor

can execute concurrently; improved execution of branch paths; and earlier loads from memory. *See also* IA-64, Merced. 2. Short for Electronic Privacy Information Center. A public-interest research center based in Washington, D.C., dedicated to directing public attention toward civil liberties and online privacy related to electronic communication, cryptography, and related technologies.

**epitaxial layer** *n.* In semiconductors, a layer that has the same crystal orientation as the underlying layer.

**EPP** *n.* Acronym for Enhanced Parallel Port, a high-speed port for peripheral devices other than printers and scanners—that is, for devices such as external drives. Specified in the IEEE 1284 standard, EPP describes bidirectional parallel ports that provide data throughput of 1 Mbps or more, as opposed to the 100 Kbps to 300 Kbps typical of the older, de facto standard Centronics ports. *See also* IEEE 1284, input/output port. *Compare* ECP.

**EPP IEEE standard** *n.* An IEEE standard relating to the Enhanced Parallel Port (EPP) protocol. This protocol was originally developed by Intel, Xircom, and Zenith Data Systems as a means to provide a high-performance parallel port link that would still be compatible with the standard parallel port. This protocol capability was implemented by Intel in the 386SL chip set (82360 I/O chip), prior to the establishment of the IEEE 1284 committee and the associated standards work. The EPP protocol offered many advantages to parallel port peripheral manufacturers and was quickly adopted by many as an optional data transfer method. A loose association of about 80 interested manufacturers was formed to develop and promote the EPP protocol. This association became the EPP Committee and was instrumental in helping to get this protocol adopted as one of the IEEE 1284 advanced modes. *See also* communications protocol, IEEE 1284, parallel port.

**EPROM** *n.* Acronym for erasable programmable read-only memory. A nonvolatile memory chip that is programmed after it is manufactured. EPROMs can be reprogrammed by removing the protective cover from the top of the chip and exposing the chip to ultraviolet light. Though EPROMs are more expensive than PROM chips, they can be more cost-effective if many changes are required. *Also called:* reprogrammable read-only memory (R PROM). *See also* EEPROM, PROM, ROM.

**.eps** *n.* The file extension that identifies Encapsulated PostScript files. *See also* EPS.

ISO/OSI MODEL	
ISO/OSI Layer	Focus
Application <i>(highest level)</i>	Program-to-program transfer of information
Presentation	Text formatting and display, code conversion
Session	Establishing, maintaining, and coordinating communication
Transport	Accurate delivery, service quality
Network	Transport routes, message handling and transfer
Data-link	Coding, addressing, and transmitting information
Physical	Hardware connections

**Transport layer.**

**Transport Layer Security** *n.* See TLS.

**transpose<sup>1</sup>** *n.* The result of rotating a matrix.

**transpose<sup>2</sup>** *vb.* **1.** To reverse, as the order of the letters *h* and *t* in *hte*, in correcting the spelling of *the*; or reversing two wires in a circuit. **2.** In mathematics and spreadsheets, to rotate a matrix (a rectangular array of numbers) about a diagonal axis.

**transputer** *n.* Short for **transistor computer**. A complete computer on a single chip, including RAM and an FPU, designed as a building block for parallel computing systems.

**trap<sup>1</sup>** *n.* See interrupt.

**trap<sup>2</sup>** *vb.* **1.** To intercept an action or event before it occurs, usually in order to do something else. Trapping is commonly used by debuggers to allow interruption of program execution at a given spot. See also interrupt, interrupt handler. **2.** To slightly overlap adjacent colors in preparing material for printing. Page layout and prepress programs trap color to prevent gaps between colors caused by minor variations in registration during printing.

**trapdoor** *n.* See back door.

**trap handler** *n.* See interrupt handler.

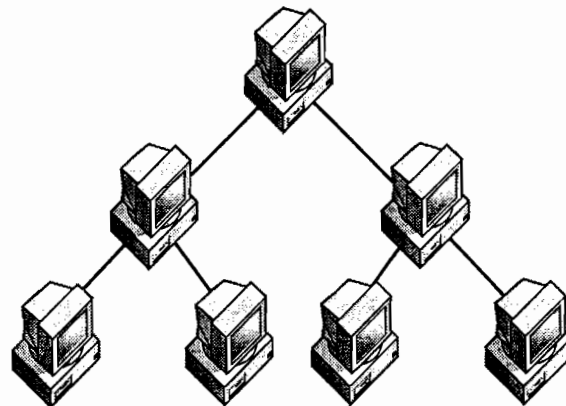
**Trash** *n.* An icon on the screen in the Macintosh Finder, resembling a garbage can. To delete a file or eject a diskette, the user drags the icon for the file or diskette to the Trash. However, until the user shuts down the system or

chooses the menu option "Empty Trash," a file in the Trash is not actually deleted; the user can retrieve it by double-clicking the Trash icon and dragging the file's icon out of the resulting window. Compare Recycle Bin.

**traverse** *vb.* In programming, to access in a particular order all of the nodes of a tree or similar data structure.

**tree** *n.* A data structure containing zero or more nodes that are linked together in a hierarchical fashion. If there are any nodes, one node is the root; each node except the root is the child of one and only one other node; and each node has zero or more nodes as children. See also child (definition 2), graph, leaf, node (definition 3), parent/child (definition 2), root.

**tree network** *n.* A topology for a local area network (LAN) in which one machine is connected to one or more other machines, each of which is connected to one or more others, and so on, so that the structure formed by the network resembles that of a tree. See the illustration. See also bus network, distributed network, ring network, star network, token ring network, topology.



**Tree network.**

**tree search** *n.* A search procedure performed on a tree data structure. At each step of the search, a tree search is able to determine, by the value in a particular node, which branches of the tree to eliminate, without searching those branches themselves. See also branch (definition 1), tree structure.

**tree structure** *n.* Any structure that has the essential organizational properties of a tree. See also tree.

**tree view** *n.* A hierarchical representation of the folders, files, disk drives, and other resources connected to a computer or network. For example, Windows Explorer uses a tree view to display the resources that are attached to a computer or a network. See also resource.





from the common language runtime. *See also* managed code.

**unmoderated** *adj.* Of, pertaining to, or characteristic of a newsgroup or mailing list in which all articles or messages received by the server are automatically available or distributed to all subscribers. *Compare* moderated.

**unmount** *vb.* To remove a disk or tape from active use. *Compare* mount.

**unpack** *vb.* To restore packed data to its original format. *Compare* pack.

**unpopulated board** *n.* A circuit board whose sockets are empty. *Compare* fully populated board.

**unread** *adj.* **1.** Of, pertaining to, or being an article in a newsgroup that a user has not yet received. Newsreader client programs distinguish between “read” and “unread” articles for each user and download only unread articles from the server. **2.** Of, pertaining to, or being an e-mail message that a user has received but has not yet opened in an e-mail program.

**unrecoverable error** *n.* A fatal error—one that a program is unable to recover from without the use of external recovery techniques. *Compare* recoverable error.

**unreliable protocol** *n.* A communications protocol that makes a “best effort” attempt to deliver a transmission but does not provide for verifying that the transmission arrives without error.

**unroll** *adj.* *See* inline (definition 1).

**unset** *vb.* To make the value of a bit position equal to 0. *Compare* set (definition 1).

**unshielded cable** *n.* Cable that is not surrounded with a metal shield. If the wires in an unshielded cable are not at least twisted around each other in pairs, the signals they carry have no protection from interference by external electromagnetic fields. Consequently, unshielded cable should be used only over very short distances. *Compare* coaxial cable, ribbon cable, twisted-pair cable, UTP.

**unshielded twisted pair** *n.* *See* UTP.

**unshielded twisted-pair wiring** *n.* *See* UTP.

**unsolicited commercial e-mail** *n.* *See* spam.

**unsubscribe** *vb.* **1.** In a newsreader client program, to remove a newsgroup from the list of newsgroups to which

one subscribes. *See also* newsgroup. **2.** To remove oneself as a recipient on a mailing list. *See also* mailing list.

**untar<sup>1</sup>** *n.* A utility, available for systems in addition to UNIX, for separating the individual files out of an archive assembled using the UNIX *tar* program. *Compare* tar<sup>1</sup>.

**untar<sup>2</sup>** *vb.* To separate the individual files out of an archive assembled with the UNIX *tar* program. *Compare* tar<sup>2</sup>.

**unzip** *vb.* To uncompress an archive file that has been compressed by a program such as compress, gzip, or PKZIP.

**up** *adj.* Functioning and available for use; used in describing computers, printers, communications lines on networks, and other such hardware.

**UPC** *n.* Acronym for **Universal Product Code**. A system of numbering commercial products using bar codes. A UPC consists of 12 digits: a number system character, a five-digit number assigned to the manufacturer, a five-digit product code assigned by the manufacturer, and a modulo 10 check digit. *See also* bar code.

**update<sup>1</sup>** *n.* A new release of an existing software product. A software update usually adds relatively minor new features to a product or corrects errors (bugs) found after the program was released. Updates are generally indicated by small changes in software version numbers, such as 4.0b from 4.0. *See also* version number. *Compare* release<sup>1</sup>.

**update<sup>2</sup>** *vb.* To change a system or a data file to make it more current.

**update query** *n.* A database query that changes a set of records according to search conditions or criteria.

**upflow** *n.* In the data warehousing process, the stage during which stored information is checked for completeness, summarized, and readied for distribution. *See also* data warehouse<sup>2</sup>. *Compare* downflow, inflow, metaflow.

**upgrade<sup>1</sup>** *n.* The new or enhanced version of a product.

**upgrade<sup>2</sup>** *vb.* To change to a newer, usually more powerful or sophisticated version.

**uplink** *n.* The transmission link from an earth station to a communications satellite.

**upload<sup>1</sup>** *n.* **1.** In communications, the process of transferring a copy of a file from a local computer to a remote computer by means of a modem or network. **2.** The copy of the file that is being or has been transferred.

