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Microsoft

Computer Dictionary

Fifth Edition

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Advanced Encryption Standard *n.* See AES.

Advanced Interactive Executive *n.* See AIX.

Advanced Mobile Phone Service *n.* See AMPS.

Advanced Power Management *n.* An older power management technology used in mobile PCs before the implementation of Advanced Configuration and Power Interface (ACPI). Advanced Power Management is a software interface that functions between the BIOS power-management software that is specific to the hardware and a power-management policy driver that is run by the operating system. *Acronym:* APM.

Advanced Program-to-Program Communication *n.* See APPC.

Advanced Research Projects Agency Network *n.* See ARPANET.

Advanced RISC *n.* Short for **Advanced reduced instruction set computing**. A specification for a RISC microchip architecture and system environment designed by MIPS Computer Systems to provide binary compatibility among software applications. *See also* RISC.

Advanced RISC Computing Specification *n.* The minimum hardware requirements enabling a RISC-based system to comply with the Advanced Computing Environment standard. *See also* Advanced RISC.

Advanced RISC Machines *n.* See ARM.

Advanced SCSI Programming Interface *n.* An interface specification developed by Adaptec, Inc., for sending commands to SCSI host adapters. The interface provides an abstraction layer that insulates the programmer from considerations of the particular host adapter used. *Acronym:* ASPI. *See also* adapter, SCSI.

Advanced Streaming Format *n.* An open file format specification for streaming multimedia files containing text, graphics, sound, video, and animation. Advanced Streaming Format (ASF) does not define the format for any media streams within the file. Rather, it defines a standardized, extensible file “container” that is not dependent on a particular operating system or communication protocol, or on a particular method (such as HTML or MPEG-4) used to compose the data stream in the file. An ASF file consists of three objects: a Header object containing information about the file itself, a Data object containing the media streams, and an optional Index object that can help support random access to data within the file. The ASF

specification has been submitted to the ISO (International Organization for Standardization) for consideration.

Acronym: ASF. *See also* streaming.

adventure game *n.* A role-playing computer game in which the player becomes a character in a narrative. In order to complete the game, the player must solve problems and avoid or overcome attacks and other forms of interference from the game’s environment and other characters. The first adventure game was called “Adventure.” It was developed in 1976 by Will Crowther of Bolt, Baranek & Newman. *See also* arcade game, computer game, role-playing game.

AE *n.* Acronym for application entity. In the ISO/OSI reference model, one of the two software parties involved in a communications session. *See also* ISO/OSI reference model.

A/E/C SYSTEMS conference *n.* Annual conference of the architecture, engineering, and construction industry. The conference promotes the exchange of information on new techniques and technologies used by these industries.

.aero *n.* One of seven new top-level domain names approved in 2000 by the Internet Corporation for Assigned Names and Numbers (ICANN). .aero is meant for use with air-transport industry-related Web sites. The seven new domain names became available for use in the spring of 2001.

AES *n.* Acronym for **Advanced Encryption Standard**. A cryptographic algorithm specified by the National Institute of Standards and Technology (NIST) to protect sensitive information. AES is specified in three key sizes: 128, 192, and 256 bits. AES replaces the 56-bit key Data Encryption Standard (DES), which was adopted in 1976. *See also* DES.

AFC *n.* *See* Application Foundation Classes.

AFDW *n.* *See* Active Framework for Data Warehousing.

affinity *n.* For Network Load Balancing, the method used to associate client requests to cluster hosts. When no affinity is specified, all network requests are load balanced across the cluster without respect to their source. Affinity is implemented by directing all client requests from the same IP address to the same cluster host. *See also* client request, IP address.

AFIPS *n.* Acronym for **American Federation of Information Processing Societies**. An organization formed in 1961 for the advancement of computing and information-related

from experience, and the ability to make inferences given incomplete information. Two common areas of artificial-intelligence research are expert systems and natural-language processing. *Acronym:* AI. *See also* expert system, natural-language processing.

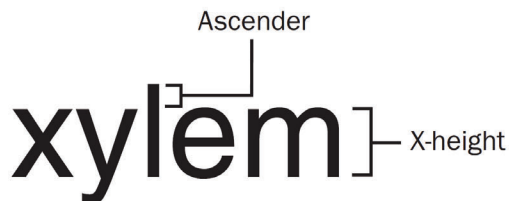
artificial life *n.* The study of computer systems that simulate some aspects of the behavior of living organisms. Artificial life includes systems in which programs intended to perform some particular task compete for survival and reproduction based on their performance; the offspring can combine pieces of code and undergo random variations, and the programs so modified compete in turn, until an optimal solution is found.

artificial neural network *n.* A form of computer artificial intelligence that uses software based on concepts understood from biological neural networks to adaptively perform a task. *Acronym:* ANN.

AS *n.* *See* autonomous system.

.asc *n.* A file name extension most commonly indicating that the file contains ASCII text that can be processed by all types of word processing software, including MS-DOS Edit, Windows Notepad, Windows 9x or Windows NT WordPad, and Microsoft Word. Some systems may use this extension to indicate that a file contains image information. *See also* ASCII.

ascender *n.* The portion of a lowercase letter that extends above the main body (x-height) of the letter. *See the illustration. See also* base line, x-height. *Compare* descender.



Ascender.

ascending order *n.* The arrangement of a sequence of items from lowest to highest, such as from 1 to 10 or from A to Z. The rules for determining ascending order in a particular application can be very complicated: capital letters before lowercase letters, extended ASCII characters in ASCII order, and so on.

ascending sort *n.* A sort that results in the arrangement of items in ascending order. *See also* alphanumeric sort, ascending order. *Compare* descending sort.

ascii *n.* In an FTP client program, the command that instructs the FTP server to send or receive files as ASCII text. *See also* ASCII, FTP client. *Compare* binary².

ASCII *n.* Acronym for **A**merican **S**tandard **C**ode for **I**nformation **I**nterchange. A coding scheme using 7 or 8 bits that assigns numeric values to up to 256 characters, including letters, numerals, punctuation marks, control characters, and other symbols. ASCII was developed in 1968 to standardize data transmission among disparate hardware and software systems and is built into most minicomputers and all PCs. ASCII is divided into two sets: 128 characters (standard ASCII) and an additional 128 (extended ASCII). *See also* ASCII file, character, character code, control character, extended ASCII, standard ASCII. *Compare* EBCDIC.

ASCII character set *n.* A standard 7-bit code for representing ASCII characters using binary values; code values range from 0 to 127. Most PC-based systems use an 8-bit extended ASCII code, with an extra 128 characters used to represent special symbols, foreign-language characters, and graphic symbols. *See also* ASCII, character, EBCDIC, extended ASCII, standard ASCII.

ASCII EOL value *n.* The sequence of bytes that indicates the end of a line of text. For Windows and MS-DOS systems, this is the hexadecimal sequence 0D 0A or the decimal sequence 13 10. Data files imported from other kinds of computers might not display correctly if the software used is not capable of recognizing these differences and adjusting for them. *See also* ASCII, EOL.

ASCII file *n.* A document file in ASCII format, containing characters, spaces, punctuation, carriage returns, and sometimes tabs and an end-of-file marker, but no formatting information. *Also called:* ASCII file, text file, text-only file. *See also* ASCII, text file. *Compare* binary file.

ASCII transfer *n.* The preferred mode of electronic exchange for text files. In ASCII mode, character conversions to and from the network-standard character set are performed. *See also* ASCII. *Compare* binary transfer.

ASCIIZ string *n.* In programming, an ASCII string terminated by the NULL character (a byte containing the character whose ASCII value is 0). *Also called:* null-terminated string.

ASF *n.* *See* Advanced Streaming Format.

Asian-Pacific Network Information Center *n.* *See* APNIC.

computer-readable *adj.* Of, pertaining to, or characteristic of information that can be interpreted and acted on by a computer. Two types of information are referred to as computer-readable: bar codes, magnetic tape, magnetic-ink characters, and other formats that can be scanned in some way and read as data by a computer; and machine code, the form in which instructions and data reach the computer's microprocessor.

computer revolution *n.* The societal and technological phenomenon involving the swift development and widespread use and acceptance of computers—specifically single-user personal computers. The impact of these machines is considered revolutionary for two reasons. First, their appearance and success were rapid. Second, and more important, their speed and accuracy produced a change in the ways in which information can be processed, stored, and transferred.

computer science *n.* The study of computers, including their design, operation, and use in processing information. Computer science combines both theoretical and practical aspects of engineering, electronics, information theory, mathematics, logic, and human behavior. Aspects of computer science range from programming and computer architecture to artificial intelligence and robotics.

computer security *n.* The steps taken to protect a computer and the information it contains. On large systems or those handling financial or confidential data, computer security requires professional supervision that combines legal and technical expertise. On a microcomputer, data protection can be achieved by backing up and storing copies of files in a separate location, and the integrity of data on the computer can be maintained by assigning passwords to files, marking files read-only to avoid changes to them, physically locking a hard disk, storing sensitive information on floppy disks kept in locked cabinets, and installing special programs to protect against viruses. On a computer that many people have access to, security can be maintained by requiring personnel to use passwords and by granting only approved users access to sensitive information. *See also* bacterium, encryption, virus.

computer simulation *n.* *See* simulation.

computer system *n.* The configuration that includes all functional components of a computer and its associated hardware. A basic microcomputer system includes a console, or system unit, with one or more disk drives, a monitor, and a keyboard. Additional hardware, called *peripherals*, can include such devices as a printer, a

modem, and a mouse. Software is usually not considered part of a computer system, although the operating system that runs the hardware is known as system software.

computer telephone integration *n.* A process allowing computer applications to answer incoming calls, provide database information on-screen at the same time the call comes in, automatically route and reroute calls by drag-and-drop, automatically dial and speed-dial outgoing calls from a computer-resident database, and identify incoming customer calls and transfer them to predetermined destinations. *See also* drag-and-drop.

Computer Telephony Expo *n.* *See* CT Expo.

computer typesetting *n.* Typesetting operations that are partially or totally controlled by computers. Partial control can involve the transmittal of text directly from the source to the typesetter, without a paste-up stage. Full computerization can include the digitization of all graphics, which would then also be transmitted directly to the typesetter and regenerated without paste-up.

computer users' group *n.* *See* user group.

computer utility *n.* *See* utility.

computer virus *n.* *See* virus.

computer vision *n.* The processing of visual information by a computer. Computer vision is a form of artificial intelligence that creates a symbolic description of images that are generally input from a video camera or sensor in order to convert the images to digital form. Computer vision is often associated with robotics. *Acronym:* CV. *See also* artificial intelligence, robotics.

Computer Vision Syndrome *n.* A change in a user's vision caused by prolonged exposure to computer monitors. Symptoms of Computer Vision Syndrome (CVS) can include blurred vision, dry, burning eyes, focusing problems, and headaches. CVS may be controlled with regular breaks from the computer, use of monitor filters or color adjustments, or adjustments to eyeglass prescriptions. *Acronym:* CVS.

COM recorder *n.* Short for computer output microfilm recorder. A device that records computer information on microfilm.

COMSAT *n.* *See* Communication Satellite Corporation.

CON *n.* The logical device name for *console*; reserved by the MS-DOS operating system for the keyboard and the screen. The input-only keyboard and the output-only

C

for microcomputers based on Intel microprocessors. The first system, CP/M-80, was the most popular operating system for 8080- and Z80-based microcomputers. Digital Research also developed CP/M-86 for 8086/8088-based computers, CP/M-Z8000 for Zilog Z8000-based computers, and CP/M-68K for Motorola 68000-based computers. When the IBM PC and MS-DOS were introduced, common use of CP/M by end users dwindled. DRI continues to enhance the CP/M line, supporting multitasking with the Concurrent CP/M and MP/M products. *See also* MP/M.

CPM *n.* *See* critical path method.

CPRM *n.* Acronym for **C**ontent **P**rotection for **R**ecordable **M**edia. Technology developed to control the use of copyrighted digital music and video material by blocking the transfer of protected files to portable media such as zip disks and smart cards. CPRM would be added to storage devices and provide data scrambling and identification codes to block the copying of copyrighted files.

cps *n.* *See* characters per second.

CPSR *n.* Acronym for **C**omputer **P**rofessionals for **S**ocial **R**esponsibility. A public advocacy organization of computer professionals. CPSR was originally formed out of concern over the use of computer technology for military purposes but has extended its interest to such issues as civil liberties and the effect of computers on workers.

CPU *n.* Acronym for **c**entral **p**rocessing **u**nit. The computational and control unit of a computer. The CPU is the device that interprets and executes instructions. Mainframes and early minicomputers contained circuit boards full of integrated circuits that implemented the CPU. Single-chip central processing units, called *microprocessors*, made possible personal computers and workstations. Examples of single-chip CPUs are the Motorola 68000, 68020, and 68030 chips and the Intel 8080, 8086, 80286, 80386, and i486 chips. The CPU—or microprocessor, in the case of a microcomputer—has the ability to fetch, decode, and execute instructions and to transfer information to and from other resources over the computer's main data-transfer path, the bus. By definition, the CPU is the chip that functions as the “brain” of a computer. In some instances, however, the term encompasses both the processor and the computer's memory or, even more broadly, the main computer console (as opposed to peripheral equipment). *See* the illustration. *See also* microprocessor.



CPU.

CPU-bound *adj.* *See* computation-bound.

CPU cache *n.* A section of fast memory linking the CPU (central processing unit) and main memory that temporarily stores data and instructions the CPU needs to execute upcoming commands and programs. Considerably faster than main memory, the CPU cache contains data that is transferred in blocks, thereby speeding execution. The system anticipates the data it will need through algorithms. *Also called:* cache memory, memory cache. *See also* cache, CPU, VCACHE.

CPU cycle *n.* **1.** The smallest unit of time recognized by the CPU (central processing unit)—typically a few hundred-millionths of a second. **2.** The time required for the CPU to perform the simplest instruction, such as fetching the contents of a register or performing a no-operation instruction (NOP). *Also called:* clock tick.

CPU fan *n.* An electric fan usually placed directly on a CPU (central processing unit) or on the CPU's heat sink to help dissipate heat from the chip by circulating air around it. *See also* CPU, heat sink.

CPU speed *n.* A relative measure of the data-processing capacity of a particular CPU (central processing unit), usually measured in megahertz. *See also* CPU.

CPU time *n.* In multiprocessing, the amount of time during which a particular process has active control of the CPU (central processing unit). *See also* CPU, multiprocessing.

CR *n.* *See* carriage return.

crack *vb.* **1.** To gain unauthorized access to a network by breaching its security. **2.** To decipher encrypted information.

cracker *n.* A person who overcomes the security measures of a computer system and gains unauthorized access. The goal of some crackers is to obtain information ille-

Table E.1 Exclusive OR.

<i>a</i>	<i>b</i>	<i>a XOR b</i>
0	0	0
0	1	1
1	0	1
1	1	0

.exe *n.* In MS-DOS, a filename extension that indicates that a file is an executable program. To run an executable program, the user types the filename without the .exe extension at the prompt and presses Enter. *See also* executable program.

executable¹ *adj.* Of, pertaining to, or being a program file that can be run. Executable files have extensions such as .bat, .com, and .exe.

executable² *n.* A program file that can be run, such as file0.bat, file1.exe, or file2.com.

executable program *n.* A program that can be run. The term usually applies to a compiled program translated into machine code in a format that can be loaded into memory and run by a computer's processor. In interpreter languages, an executable program can be source code in the proper format. *See also* code (definition 1), compiler (definition 2), computer program, interpreter, source code.

execute *vb.* To perform an instruction. In programming, execution implies loading the machine code of the program into memory and then performing the instructions.

execute in place *n.* The process of executing code directly from ROM, rather than loading it from RAM first. Executing the code in place, instead of copying the code into RAM for execution, saves system resources. Applications in other file systems, such as on a PC Card storage device, cannot be executed in this way. *Acronym:* XIP.

execution time *n.* The time, measured in clock ticks (pulses of a computer's internal timer), required by a microprocessor to decode and carry out an instruction after it is fetched from memory. *Also called:* E-time. *See also* instruction time.

executive *n.* The set of kernel-mode components that form the base operating system for Microsoft Windows NT or later. *See also* operating system.

executive information system *n.* A set of tools designed to organize information into categories and reports. Because it emphasizes information, an executive information system differs from a decision support system

(DSS), which is designed for analysis and decision making. *Acronym:* EIS. *Compare* decision support system.

exerciser *n.* A program that exercises a piece of hardware or software by running it through a large set of operations.

exit *vb.* In a program, to move from the called routine back to the calling routine. A routine can have more than one exit point, thus allowing termination based on various conditions.

expanded *adj.* A font style that sets characters farther apart than the normal spacing. *Compare* condensed.

expanded memory *n.* A type of memory, up to 8 MB, that can be added to IBM PCs. Its use is defined by the Expanded Memory Specification (EMS). Expanded memory is not accessible to programs in MS-DOS, so the Expanded Memory Manager (EMM) maps pages (blocks) of bytes from expanded memory into page frames in accessible memory areas. Expanded memory is not needed in Windows 9x, all versions of Windows NT, and Windows 2000. *See also* EEMS, EMS, Expanded Memory Manager, page frame.

Expanded Memory Manager *n.* A driver that implements the software portion of the Expanded Memory Specification (EMS) to make expanded memory in IBM and compatible PCs accessible. *Acronym:* EMM. *See also* EMS, expanded memory, extended memory.

Expanded Memory Specification *n.* *See* EMS.

expansion *n.* A way of increasing a computer's capabilities by adding hardware that performs tasks that are not part of the basic system. Expansion is usually achieved by plugging printed circuit boards (expansion boards) into openings (expansion slots) inside the computer. *See also* expansion board, expansion slot, open architecture (definition 2), PC Card, PCMCIA slot.

expansion board *n.* A circuit board that is plugged into a computer's bus (main data transfer path) to add extra functions or resources to the computer. Typical expansion boards add memory, disk drive controllers, video support, parallel and serial ports, and internal modems. For laptops and other portable computers, expansion boards come in credit card-sized devices called PC Cards that plug into a slot in the side or back of the computer. *Also called:* expansion board, extender board. *See also* expansion slot, PC Card, PCMCIA slot.

expansion bus *n.* A group of control lines that provide a buffered interface to devices. These devices can be located

message transfer agent *n.* See MTA.

messaging *n.* The use of computers and data communication equipment to convey messages from one person to another, as by e-mail, voice mail, or fax.

messaging application *n.* An application that enables users to send messages (such as e-mail or fax) to each other.

Messaging Application Programming Interface *n.* See MAPI.

messaging client *n.* An application program that enables its user to send or receive messages (such as e-mail or fax) to and from other users with the help of a remote server.

messaging-oriented middleware *n.* See MOM.

meta- *prefix* Literally, a prefix that describes a process or characteristic beyond the normal meaning of the word without the prefix. For example, metaphysics is “beyond physics.” In computing, meta- is usually attached to a word to indicate that the “metaterm” describes, defines, or acts upon objects or concepts of the same type as itself. So, for example, metadata is data about data and a meta-tool is a tool for working on tools.

metacharacter *n.* A character embedded in a program source or a data stream that conveys information about other characters, rather than itself representing a character. A simple example is the backslash (\) character, which, when used in strings in the C programming language, indicates that the letter following the backslash is part of an escape sequence that enables C to display a nongraphic character. See also escape character.

metacompiler *n.* A compiler that produces compilers. The UNIX utility *yacc* (Yet Another Compiler-Compiler) is a metacompiler. If it is given a language specification, yacc produces a compiler for that language. See also compiler (definition 2).

Meta-Content Format *n.* An open format for describing information about content of a structured body of data such as a Web page, a set of files on a Windows desktop, or a relational database. Meta-Content Format might be used for indexes, data dictionaries, or price lists. *Acronym:* MCF.

metadata or **meta data** *n.* **1.** Data about data. For example, the title, subject, author, and size of a file constitute metadata about the file. See also data dictionary, repository. **2.** In the Microsoft .NET Framework, information that describes every element managed by the runtime: an

assembly, loadable file, type, method, and so on. This can include information required for debugging and garbage collection, as well as security attributes, marshaling data, extended class and member definitions, version binding, and other information required by the runtime.

Metadata Interchange Specification *n.* A set of specifications dealing with the exchanging, sharing, and managing of metadata. *Acronym:* MDIS. See also metadata (definition 1).

metafile *n.* A file that contains or defines other files. Many operating systems use metafiles to contain directory information about other files on a given storage device.

metaflow *n.* One of the four stages of the data warehousing process, during which metadata (data about data) is tracked and managed; the business modeling stage. During metaflow, the operational environment is mapped to the data warehouse environment. See also data warehouse (definition 2), downflow, inflow, metadata (definition 1), upflow.

metalanguage *n.* A language used to describe other languages. Backus-Naur form (BNF) is a metalanguage commonly used to define programming languages. Also called: language-description language. See also Backus-Naur form.

metal-oxide semiconductor *n.* See MOS.

metal-oxide semiconductor field-effect transistor *n.* See MOSFET.

metaoperating system *n.* An operating system under which several other operating systems are active. Also called: supervisor.

metatag or **meta tag** *n.* A tag in an HTML or XML document that allows a Web-page creator to include such information as the author's name, keywords identifying content, and descriptive details (for example, non-text objects on the page). The information that is marked with metatags does not appear on the Web page when a user views it in a browser, but it can be viewed in the HTML or XML source. Metatags are included in the head of a document and are often used to assist search engines in indexing the page. See also HTML, source, tag, XML.

method *n.* In object-oriented programming, a process performed by an object when it receives a message. See also object (definition 2), object-oriented programming.

Metropolitan Area Exchange *n.* See MAE (definition 2).

metropolitan area network *n.* See MAN.