# McGRAW-HILL

# DICTIONARY OF

# COMPUTING & COMMUNICATIONS

MORE THAN 11,000 ESSENTIAL TERMS

COVERS EVERY DISCIPLINE OF COMPUTING & COMMUNICATIONS

PROVIDES SYNONYMS, ACRONYMS, AND ABBREVIATIONS

# McGraw-Hill

# Dictionary of

# Computing &
# Communications

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# Preface

The McGraw-Hill *Dictionary of Computing & Communications* provides a compendium of more than 11,000 terms that are not only central to these fields but are relevant in virtually every area of science, engineering, and commerce. The coverage includes terminology in computer science, telecommunications, aerospace and other fields of engineering, control systems, electromagnetism, electronics, navigation, optics, and systems engineering.

The definitions are drawn from the McGraw-Hill *Dictionary of Scientific and Technical Terms*, 6th edition (2003). Each one is classified according to the field with which it is primarily associated. The pronunciation of each term is provided along with synonyms, acronyms, and abbreviations where appropriate. A guide to the use of the *Dictionary* is included, explaining the alphabetical organization of terms, the format of the book, cross referencing, and how synonyms, variant spellings, abbreviations, and similar information are handled. A pronunciation key is also provided to assist the reader. An appendix provides conversion tables for commonly used scientific and technical units as well as charts, a "family tree" of programming languages, and listings of useful mathematical, technical, and scientific data.

Many of the terms used in computing and communications are found in specialized dictionaries and glossaries; this dictionary, however, aims to provide the user with the convenience of a single, comprehensive reference. It is the editors' hope that it will serve the needs of scientists, engineers, specialists in information technology, students, teachers, librarians, and writers for high-quality information, and that it will contribute to scientific literacy and communication.

**Mark D. Licker**
Publisher

# Staff

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# How to Use the Dictionary

**ALPHABETIZATION.** The terms in the McGraw-Hill Dictionary of Computing & Communications are alphabetized on a letter-by-letter basis; word spacing, hyphen, comma, and solidus in a term are ignored in the sequencing. For example, an ordering of terms would be:

**absolute-value computer**      **airborne radar**
**absolute vector**      **air navigation**
**accuracy control system**
**ac/dc receiver**

**FORMAT.** The basic format for a defining entry provides the term in boldface, the field is small capitals, and the single definition in lightface:

**term** |FIELD| Definition.

A field may be followed by multiple definitions, each introduced by a boldface number:

**term** |FIELD| **1.** Definition. **2.** Definition. **3.** Definition.

A term may have definitions in two or more fields:

**term** |COMMUN| Definition.   |COMPUT SCI| Definition.

A simple cross-reference entry appears as:

**term** *See* another term.

A cross reference may also appear in combination with definitions:

**term** |COMMUN| Definition.   |COMPUT SCI| *See* another term.

**CROSS REFERENCING.** A cross-reference entry directs the user to the defining entry. For example, the user looking up "chroma band-pass amplifier" finds:

**chroma band-pass amplifier** *See* burst amplifier.

The user then turns to the "B" terms for the definition. Cross references are also made from variant spellings, acronyms, abbreviations, and symbols.

**ACK** *See* acknowledge character.
**A-O-I gate** *See* AND-OR-INVERT gate.
**bps** *See* bit per second.
**chip** *See* microchip.

vii

**ALSO KNOWN AS ..., etc.**    A definition may conclude with a mention of a synonym of the term, a variant spelling, an abbreviation for the term, or other such information, introduced by "Also known as ...," "Also spelled ...," "Abbreviated ...," "Symbolized ...," "Derived from ...." When a term has more than one definition, the positioning of any of these phrases conveys the extent of applicability. For example:

**term**   |COMPUT  SCI| **1.** Definition. Also known as synonym. **2.** Definition. Symbolized T.

In the above arrangement, "Also known as ..." applies only to the first definition; "Symbolized ..." applies only to the second definition.

**term**   |COMMUN| **1.** Definition. **2.** Definition.   |COMPUT SCI| Definition. Also known as synonym.

In the above arrangement, "Also known as ..." applies only to the second field.

**term**   |COMPUT  SCI| Also   known   as   synonym. **1.**   Definition. **2.** Definition.   |COMMUN|   Definition.

In the above arrangement, "Also known as ..." applies only to both definitions in the first field.

**term**   Also known as synonym.   |COMMUN| **1.** Definition. **2.** Definition. |COMPUT SCI|  Definition.

In the above arrangement, "Also known as ..." applies to all definitions in both fields.

# Fields and Their Scope

[AERO ENG] **aerospace engineering**—The branch of engineering pertaining to the design and construction of aircraft and space vehicles and of power units, and dealing with the special problems of flight in both the earth's atmosphere and space, such as in the flight of air vehicles and the launching, guidance, and control of missiles, earth satellites, and space vehicles and probes.

[COMMUN] **communications**—The science and technology by which information is collected from an originating source; converted into a form suitable for transmission; transmitted over a pathway such as a satellite channel, under-water acoustic channel, telephone cable, or fiber-optic link; and reconverted into a form suitable for interpretation by a receiver.

[COMPUT SCI] **computer science**—The study of computing, including computer hardware, software, programming, networking, database systems, information technology, interactive systems, and security.

[CONT SYS] **control systems**—The study of those systems in which one or more outputs are forced to change in a desired manner as time progresses.

[ELEC] **electricity**—The science of physical phenomena involving electric charges and their effects when at rest and when in motion.

[ELECTROMAG] **electromagnetism**—The branch of physics dealing with the observations and laws relating electricity to magnetism, and with magnetism produced by an electric current.

[ELECTR] **electronics**—The technological area involving the manipulation of voltages and electric currents through the use of various devices for the purpose of performing some useful action with the currents and voltages; this field is generally divided into analog electronics, in which the signals to be manipulated take the form of continuous currents or voltages, and digital electronics, in which signals are represented by a finite set of states.

[ENG] **engineering**—The science by which the properties of matter and the sources of power in nature are made useful to humans in structures, machines, and products.

[ENG ACOUS] **engineering acoustics**—The field of acoustics that deals with the production, detection, and control of sound by electrical devices, including the study, design, and construction of such things as microphones, loudspeakers, sound recorders and reproducers, and public address sytems.

|FL MECH| **fluid mechanics**—The science concerned with fluids, either at rest or in motion, and dealing with pressures, velocities, and accelerations in the fluid, including fluid deformation and compression or expansion.

|GEOPHYS| **geophysics**—The branch of geology in which the principles and practices of physics are used to study the earth and its environment, that is, earth, air, and (by extension) space.

|GRAPHICS| **graphic arts**—The fine and applied arts of representation, decoration, and writing or printing on flat surfaces together with the techniques and crafts associated with each: includes painting, drawing, engraving, etching, lithography, photography, and printing arts.

|IND ENG| **industrial engineering**—A branch of engineering dealing with the design, development, and implementation of integrated systems of humans, machines, and information resources to provide products and services.

|MATH| **mathematics**—The deductive study of shape, quantity, and dependence; the two main areas are applied mathematics and pure mathematics, the former arising from the study of physical phenomena, the latter involving the intrinsic study of mathematical structures.

|NAV| **navigation**—The science or art of directing the movement of a craft, such as a ship, small marine craft, underwater vehicle, land vehicle, aircraft, missile, or spacecraft, from one place to another with the assistance of onboard equipment, objects, or devices, or of systems external to the craft.

|OPTICS| **optics**—The study of phenomena associated with the generation, transmission, and detection of electromagnetic radiation in the spectral range extending from the long-wave edge of the x-ray region to the short-wave edge of the radio region; and the science of light.

|PHYS| **physics**—The science concerned with those aspects of nature which can be understood in terms of elementary principles and laws.

|SOLID STATE| **solid-state physics**—The branch of physics centering on the physical properties of solid materials; it is usually concerned with the properties of crystalline materials only, but it is sometimes extended to include the properties of glasses or polymers.

|STAT| **statistics**—The science dealing with the collection, analysis, interpretation, and presentation of masses of numerical data.

|SYS ENG| **systems engineering**—The branch of engineering dealing with the design of a complex interconnection of many elements (a system) to maximize an agreed-upon measure of system performance.

# Pronunciation Key

## Vowels

| | |
|---|---|
| a | as in bat, that |
| ā | as in bait, crate |
| ä | as in bother, father |
| e | as in bet, net |
| ē | as in beet, treat |
| i | as in bit, skit |
| ī | as in bite, light |
| ō | as in boat, note |
| ȯ | as in bought, taut |
| u̇ | as in book, pull |
| ü | as in boot, pool |
| ə | as in but, sofa |
| au̇ | as in crowd, power |
| ȯi | as in boil, spoil |
| yə | as in formula, spectacular |
| yü | as in fuel, mule |

## Semivowels/Semiconsonants

| | |
|---|---|
| w | as in wind, twin |
| y | as in yet, onion |

## Stress (Accent)

ˈ    precedes syllable with primary stress

ˌ    precedes syllable with secondary stress

ꞌ    precedes syllable with variable or indeterminate primary/secondary stress

## Consonants

| | |
|---|---|
| b | as in bib, dribble |
| ch | as in charge, stretch |
| d | as in dog, bad |
| f | as in fix, safe |
| g | as in good, signal |
| h | as in hand, behind |
| j | as in joint, digit |
| k | as in cast, brick |
| k̲ | as in Bach (used rarely) |
| l | as in loud, bell |
| m | as in mild, summer |
| n | as in new, dent |
| n̲ | indicates nasalization of preceding vowel |
| ŋ | as in ring, single |
| p | as in pier, slip |
| r | as in red, scar |
| s | as in sign, post |
| sh | as in sugar, shoe |
| t | as in timid, cat |
| th | as in thin, breath |
| t̲h̲ | as in then, breathe |
| v | as in veil, weave |
| z | as in zoo, cruise |
| zh | as in beige, treasure |

## Syllabication

·    Indicates syllable boundary when following syllable is unstressed

# Contents

# A

**A AND NOT B gate**   *See* AND NOT gate.
{ 'ā an nöt 'bē ‚gāt }

**abbreviated dialing**   |COMMUN| A feature which requires less than the usual number of dialing operations to connect two or more subscribers.
{ ə'brē·vē·ād·əd 'dī·liŋ }

**ABC**   *See* automatic brightness control.

**abend**   |COMPUT SCI| An unplanned program termination that occurs when a computer is directed to execute an instruction or to process information that it cannot recognize. Also known as blow up; bomb; crash.   { 'ab·end }

**able**   |COMPUT SCI| A name for the hexadecimal digit whose decimal equivalent is 10.   { 'ā·bəl }

**abnormal propagation**   |COMMUN| Phenomena of unstable or changing atmospheric or ionospheric conditions acting upon transmitted radio waves, preventing such waves from following their normal path, thereby causing difficulties and disruptions of communications.
{ ab'nör·məl ‚präp·ə'gā·shən }

**abnormal reflections**   |ELECTROMAG| Sharply defined reflections of substantial intensity at frequencies greater than the critical frequency of the ionized layer of the ionosphere.
{ ab'nör·məl re'flek·shənz }

**abnormal statement**   |COMPUT SCI| An element of a FORTRAN V (UNIVAC) program which specifies that certain function subroutines must be called every time they are referred to.
{ ab'nör·məl 'stāt·mənt }

**abort**   |COMPUT SCI| To terminate a procedure, such as the running of a computer program or the printing of a document, while it is still in progress.
{ ə'bört }

**abrupt junction**   |ELECTR| A *pn* junction in which the concentration of impurities changes suddenly from acceptors to donors.   { ə'brəpt 'jəŋk·shən }

**abs**   |COMPUT SCI| A special function occurring in ALGOL, which yields the absolute value, or modulus, of its argument.

**absolute address**   |COMPUT SCI| The numerical identification of each storage location which is wired permanently into a computer by the manufacturer.   { 'ab·sə‚lüt ə'dres }

**absolute addressing**   |COMPUT SCI| The identification of storage locations in a computer program by their physical addresses.   { 'ab·sə ‚lüt ə'dres·iŋ }

**absolute category rating mean opinion score**   |COMMUN| Methodology for subjectively testing audio quality where participants are presented with sound samples, one at a time, and are asked to grade them on a 5-point scale. For the NRSC FM IBOC tests, the MOS scale used was 5 = excellent, 4 = good, 3 = fair, 2 = poor, 1 = bad. Abbreviated ACR-MOS.   { ¦ab·sə‚lut kad·ə‚gör·ē rād·iŋ mēn 'ə·'pin·yən ‚skör }

**absolute cell reference**   |COMPUT SCI| A cell reference used in a formula in a spreadsheet program that does not change when the formula is copied or moved.   { ¦ab·sə‚lüt 'sel ‚ref·rəns }

**absolute code**   |COMPUT SCI| A code used when the addresses in a program are to be written in machine language exactly as they will appear when the instructions are executed by the control circuits.   { 'ab·sə‚lüt 'köd }

**absolute gain of an antenna**   |ELECTROMAG| Gain in a given direction when the reference antenna is an isotropic antenna isolated in space. Also known as isotropic gain of an antenna.
{ 'ab·sə‚lüt ‚gän əv ən an'ten·ə }

**absolute index of refraction**   *See* index of refraction.   { 'ab·sə‚lüt 'in‚deks əv ri'frak·shən }

**absolute instruction**   |COMPUT SCI| A computer instruction in its final form, in which it can be executed.   { 'ab·sə‚lüt in'strək·shən }

**absolute programming**   |COMPUT SCI| Programming with the use of absolute code.   { 'ab·sə‚lüt 'prö·gram·iŋ }

**absolute refractive constant**   *See* index of refraction.   { 'ab·sə‚lüt ri'frak·tiv 'kän·stənt }

**absolute-value computer**   |COMPUT SCI| A computer that processes the values of the variables rather than their increments.   { 'ab·sə‚lüt 'val·yü kəm'pyüd·ər }

**absolute vector**   |COMPUT SCI| In computer graphics, a vector whose end points are given in absolute coordinates.   { 'ab·sə‚lüt 'vek·tər }

**absorption circuit**   |ELECTR| A series-resonant circuit used to absorb power at an unwanted signal frequency by providing a low impedance to ground at this frequency.   { əb'sörp·shən 'sər·kət }

**absorption control**   *See* absorption modulation.
{ əb'sörp·shən kən'tröl }

**absorption fading**   |COMMUN| Slow type of fading, primarily caused by variations in the absorption rate along the radio path.   { əb'sörp·shən 'fād·iŋ }

**absorption loss** |COMMUN| That part of the transmission loss due to the dissipation or conversion of either sound energy or electromagnetic energy into other forms of energy, either within the medium or attendant upon a reflection. { əb'sȯrp·shən ˌlȯs }

**absorption modulation** |ELECTR| A system of amplitude modulation in which a variable-impedance device is inserted in or coupled to the output circuit of the transmitter. Also known as absorption control; loss modulation. { əb'sȯrp·shən mäd·yü'lā·shən }

**abstract automata theory** |COMPUT SCI| The mathematical theory which characterizes automata by three sets: input signals, internal states, and output signals; and two functions: input functions and output functions. { 'abz·trakt ȯ'tam·ə·tə 'thē·ə·rē }

**abstract data type** |COMPUT SCI| A mathematical model which may be used to capture the essentials of a problem domain in order to translate it into a computer program; examples include queues, lists, stacks, trees, graphs, and sets. Abbreviated ADT. { 'abz·trakt 'dad·ə ˌtīp }

**ACAS** See airborne collision avoidance system.

**accelerated graphics port** |COMPUT SCI| A personal computer graphics bus that transfers data at a greater rate than a PCI bus. { ak,sel·ə,rād·əd 'graf·iks ˌpȯrt }

**acceleration time** |COMPUT SCI| The time required for a magnetic tape transport or any other mechanical device to attain its operating speed. { ak,sel·ə'rā·shən ˌtīm }

**accentuation** |ELECTR| The enhancement of signal amplitudes in selected frequency bands with respect to other signals. { ak,sen·chə'wā·shən }

**accentuator** |ELECTR| A circuit that provides for the first part of a process for increasing the strength of certain audio frequencies with respect to others, to help these frequencies override noise or to reduce distortion. Also known as accentuator circuit. { ak'sen·chə,wād·ər }

**accentuator circuit** See accentuator. { ak'sen·chə,wād·ər 'sər·kət }

**accept** |COMPUT SCI| A data transmission statement which is used in FORTRAN when the computer is in conversational mode, and which enables the programmer to input, through the teletypewriter, data the programmer wishes stored in memory. { ak'sept }

**access** |COMPUT SCI| The reading of data from storage or the writing of data into storage. { 'ak ˌses }

**access arm** |COMPUT SCI| The mechanical device which positions the read/write head on a magnetic storage unit. { 'ak,ses ˌärm }

**access code** |COMMUN| **1.** Numeric identification for internetwork or facility switching. **2.** The preliminary digits that a user must dial to be connected through an automatic PBX to the serving switching center. |COMPUT SCI| A sequence of characters which a user must enter into a terminal in order to use a computer system. { 'ak,ses ˌkōd }

**access control** |COMPUT SCI| A restriction on the operations that a user of a computer system may perform on files and other resources of the system. { 'ak,ses kən,trōl }

**access-control list** |COMPUT SCI| A column of an access matrix, containing the access rights of various users of a computer system to a given file or other resource of the system. { 'ak,ses kən,trōl ,list }

**access-control mechanism** See reference monitor. { 'ak,ses kən'trōl ¦me·kə·ni·zəm }

**access-control register** |COMPUT SCI| A storage device which controls the word-by-word transmission over a given channel. { 'ak,ses kən'trōl ,rej·ə·stər }

**access-control words** |COMPUT SCI| Permanently wired instructions channeling transmitted words into reserved locations. { 'ak,ses kən 'trōl ,wərdz }

**access gap** See memory gap. { 'ak,ses ,gap }

**access line** |COMMUN| Four-wire circuit between a subscriber or a local PBX to the serving switching center. { 'ak,ses ,līn }

**access management** |COMPUT SCI| The use of techniques to allow various components of a computer's operating system to be used only by authorized personnel. { 'ak,ses ,man·ij·mənt }

**access matrix** |COMPUT SCI| A method of representing discretionary authorization information, with rows representing subjects or users of the system, columns corresponding to objects or resources of the system, and cells (intersections of rows and columns) composed of allowable operations that a subject may apply to an object. { 'ak,ses ,mā·triks }

**access mechanism** |COMPUT SCI| The mechanism of positioning reading or writing heads onto the required tracks of a magnetic disk. { 'ak,ses 'mek·ə,niz·əm }

**access method** |COMMUN| The procedures required to obtain access to a communications network. |COMPUT SCI| A set of programming routines which links programs and the data that these programs transfer into and out of memory. { 'ak,ses ,meth·əd }

**access mode** |COMPUT SCI| A programming clause in COBOL which is required when using a random-access device so that a specific record may be read out of or written into a mass storage bin. { 'ak,ses ,mōd }

**access privileges** |COMPUT SCI| The extent to which a user of a computer in a network is allowed to use and read, write to, and execute files in other computers in the network. { 'ak ,ses ,priv·ə·ləj·əs }

**access protocol** |COMMUN| A set of rules observed by all nodes in a local-area network so that one node can get the attention of another and its data packet can be transferred, and so that no two data packets can be simultaneously transmitted over the same medium. { 'ak,ses ,prōd·ə,kȯl }

**access provider** See service provider. { 'ak,ses prə,vīd·ər }

2

**access time** |COMPUT SCI| The time period required for reading out of or writing into the computer memory. { 'ak·ses ‚tīm }

**access type** |COMPUT SCI| One of the allowable operations that a given user of a computer system governed by access controls may perform on a file or other resource of the system, such as own, read, write, or execute. { 'ak·ses ‚tīp }

**accounting package** |COMPUT SCI| A set of special routines that allow collection of information about the usage level of various components of a computer system by each production program. { ə'kaunt·iŋ 'pak·ij }

**accumulator** |COMPUT SCI| A specific register, in the arithmetic unit of a computer, in which the result of an arithmetic or logical operation is formed; here numbers are added or subtracted, and certain operations such as sensing, shifting, and complementing are performed. Also known as accumulator register; counter. { ə'kyü·myə ‚lād·ər }

**accumulator jump instruction** |COMPUT SCI| An instruction which programs a computer to ignore the previously established program sequence depending on the status of the accumulator. Also known as accumulator transfer instruction. { ə'kyü·myə,lād·ər ‚jəmp in'strək·shən }

**accumulator register** See accumulator. { ə'kyü·myə,lād·ər 'rej·ə·stər }

**accumulator shift instruction** |COMPUT SCI| A computer instruction which causes the word in a register to be displaced a specified number of bit positions to the left or right. { ə'kyü·myə ‚lād·ər 'shift in'strək·shən }

**accumulator transfer instruction** See accumulator jump instruction. { ə'kyü·myə,lād·ər 'trans·fər in'strək·shən }

**accuracy control system** |COMPUT SCI| Any method which attempts error detection and control, such as random sampling and squaring. { 'ak·yə·rə·sē kən'trōl ‚sis·təm }

**ACK** See acknowledge character.

**acknowledge character** |COMPUT SCI| A signal that a receiving station transmits in order to indicate that a block of information has been received and that its validity has been checked. Also known as acknowledgement. Abbreviated ACK. { ak'nä·lij 'kar·ək·tər }

**acknowledgement** See acknowledge character. { ak'nä·lij·mənt }

**acoustic convolver** See convolver. { ə'küs·tik kən'välv·ər }

**acoustic filter** See filter. { ə'küs·tik 'fil·tər }

**acoustooptic interaction** |OPTICS| A way to influence the propagation characteristics of an optical wave by applying a low-frequency acoustical field to the medium through which the wave passes. { ə¦küs·tō¦äp·tik ‚in·tə'rak·shən }

**acoustooptic modulator** |OPTICS| A device utilizing acoustooptic interaction ultrasonically to vary the amplitude or the phase of a light beam. Also known as Bragg cell. { ə¦küs·tō¦äp·tik 'mäd·yə,lād·ər }

**acoustooptics** |OPTICS| The science that deals with interactions between acoustic waves and light. { ə¦küs·tō¦äp·tiks }

**acquisition** |ELECTR| Also known as target acquisition. **1.** Of acquisition radars, the process of detecting and locating a target so as to permit reliable tracking and possible identification of it or other determinations about it. **2.** Of precision tracking radars, the detecting and tracking of a target designated to it by another radar or other initial data source to support continued intended action. |ENG| The process of pointing an antenna or a telescope so that it is properly oriented to allow gathering of tracking and telemetry data from a satellite or space probe. { ‚ak·wə'zish·ən }

**acquisition tone** |COMPUT SCI| An audible tone that verifies entry into a computer. { ‚ak·wə 'zish·ən ‚tōn }

**ACR-MOS** See absolute category rating mean opinion score.

**action entries** |COMPUT SCI| The lower right-hand portion of a decision table, indicating which of the various possible actions result from each of the various possible conditions. { 'ak·shən ‚en·trēz }

**action portion** |COMPUT SCI| The lower portion of a decision table, comprising the action stub and action entries. { 'ak·shən ‚pòr·shən }

**action stub** |COMPUT SCI| The lower left-hand portion of a decision table, consisting of a single column listing the various possible actions (transformations to be done on data and materials). { 'ak·shən ‚stəb }

**activation record** |COMPUT SCI| A variable part of a program module, such as data and control information, that may vary with different instances of execution. { ‚ak·tə'vā·shən 'rek·ərd }

**active array** |ELECTROMAG| A radar antenna composed of many radiating elements, each of which contains an amplifier, generally solid state in nature, for the final amplification of the signal transmitted; when the elements are also phased controlled for electronic beam steering, the term active phased array is used. { ¦ak·tiv ə'rā }

**active balance** |COMMUN| Summation of all return currents, in telephone repeater operation, at a terminal network balanced against the impedance of the local circuit or drop. { 'ak·tiv 'bal·əns }

**active cell** |COMPUT SCI| The cell that continues the value being used or modified in a spreadsheet program, and that is highlighted by the cell pointer. Also known as current cell. { ¦ak·tiv 'sel }

**active communications satellite** |AERO ENG| Satellite which receives, regenerates, and retransmits signals between stations. { 'ak·tiv kə ‚myü·nə'kā·shənz 'sad·ə,līt }

**active computer** |COMPUT SCI| When two or more computers are installed, the one that is on-line and processing data. { 'ak·tiv kəm'pyüd·ər }

**active device** |ELECTR| A component, such as an electron tube or transistor, that is capable of amplifying the current or voltage in a circuit. { 'ak·tiv di'vīs }

**active electronic countermeasures** |ELECTR| The major subdivision of electronic countermeasures that concerns electronic jamming

and electronic deceptions. { 'ak·tiv ə,lek'trän·ik 'kaunt·ər,mezh·ərz }

**active file** |COMPUT SCI| A collection of records that is currently being used or is available for use. { 'ak·tiv 'fīl }

**active filter** |ELECTR| A filter that uses an amplifier with conventional passive filter elements to provide a desired fixed or tunable pass or rejection characteristic. { 'ak·tiv 'fil·tər }

**active jamming** *See* jamming. { 'ak·tiv 'jam·iŋ }

**active logic** |ELECTR| Logic that incorporates active components which provide such functions as level restoration, pulse shaping, pulse inversion, and power gain. { 'ak·tiv 'läj·ik }

**active master file** |COMPUT SCI| A relatively active computer master file, as determined by usage data. { 'ak·tiv 'mas·tər 'fīl }

**active master item** |COMPUT SCI| A relatively active item in a computer master file, as determined by usage data. { 'ak·tiv 'mas·tər 'ī·təm }

**active-matrix liquid-crystal display** |ELEC| A liquid-crystal display that has an active element, such as a transistor or diode, on every picture element. Abbreviated AMLCD. { ¦ak·tiv ¦mā·triks ¦lik·wid 'kris·təl di,splā }

**active-RC filter** |ELEC| An active filter whose frequency-sensitive mechanism is the charging of a capacitor (C) through a resistor (R), giving a characteristic frequency at which the impedances of the resistor and the capacitor are equal. { ¦ak·tiv ¦är¦sē 'fil·tər }

**active region** |ELECTR| The region in which amplifying, rectifying, light emitting, or other dynamic action occurs in a semiconductor device. { 'ak·tiv 'rē·jən }

**active-RLC filter** |ELEC| An integrated-circuit filter that uses both inductors (L), made as spirals of metallization on the top layer, and amplifiers, connected to simulate negative resistors (R), that enhance the performance of the inductors as well as capacitors (C). { ¦ak·tiv ¦är¦el¦sē fil·tər }

**active satellite** |AERO ENG| A satellite which transmits a signal. { 'ak·tiv 'sad·ə,līt }

**active sonar** |ENG| A system consisting of one or more transducers to send and receive sound, equipment for the generation and detection of the electrical impulses to and from the transducer, and a display or recorder system for the observation of the received signals. { 'ak·tiv 'sō,när }

**active termination** |COMPUT SCI| A means of ending a chain of peripheral devices connected to a small computer system interface (SCSI) port, suitable for longer chains, where it can reduce electrical interference. { ¦ak·tiv ,tər·mə'nā·shən }

**active window** |COMPUT SCI| In a windowing environment, the window in which the user is currently working and which receives keyboard input. { 'ak·tiv 'win,dō }

**activity** |COMPUT SCI| The use or modification of information contained in a file. { ,ak'tiv·əd·ē }

**activity level** |COMPUT SCI| **1.** The value assumed by a structural variable during the solution of a programming problem. **2.** A measure

of the number of times that use or modification is made of the information contained in a file. { ,ak'tiv·əd·ē 'lev·əl }

**activity ratio** |COMPUT SCI| The ratio between used or modified records and the total number of records in a file. { ,ak'tiv·əd·ē ,rā·shō }

**activity sequence method** |COMPUT SCI| A method of organizing records in a file so that the records most frequently used are located where they can be found most quickly. { ak'tiv·əd·ē 'sē·kwəns ,meth·əd }

**actual argument** |COMPUT SCI| The variable which replaces a dummy argument when a procedure or macroinstruction is called up. { 'ak·chə·wəl 'är·gyə·mənt }

**actual decimal point** |COMPUT SCI| The period appearing on a printed report as opposed to the virtual point defined only by the data structure within the computer. { 'ak·chə·wəl 'des·məl 'point }

**actual instruction** *See* effective instruction. { 'ak·chə·wəl in'strək·shən }

**actual key** |COMPUT SCI| A data item in COBOL computer language which can be used as an address. { 'ak·chə·wəl 'kē }

**acyclic feeding** |COMPUT SCI| A method employed by alphanumeric readers in which the trailing edge or some other document characteristic is used to activate the feeding of the succeeding document. { ā'sik·lik 'fēd·iŋ }

**Ada** |COMPUT SCI| A computer language that was chosen by the United States Department of Defense to support the development of embedded systems, and uses the language Pascal as a base to meet the reliablity and efficiency requirements imposed by these systems. { 'ā·də }

**adapter** |COMPUT SCI| A device which converts bits of information received serially into parallel bit form for use in the inquiry buffer unit. { ə'dap·tər }

**adaptive antenna** |ELECTROMAG| An antenna that adjusts its pattern automatically to be the inverse to any nonuniform distribution in angle of offending interference sources, tending to "whiten" or make appear uniform the noise in angle and minimizing the effects of strong jamming. { ə'dap·tiv an'ten·ə }

**adaptive communications** |COMMUN| A communications system capable of automatic change to meet changing inputs or changing characteristics of the device or process being controlled. Also known as self-adjusting communications; self-optimizing communications. { ə'dap·tiv kə,myü·nə'kā·shənz }

**adaptive control** |CONT SYS| A control method in which one or more parameters are sensed and used to vary the feedback control signals in order to satisfy the performance criteria. { ə'dap·tiv kən'trōl }

**adaptive differential pulse-code modulation** |COMMUN| A method of compressing speech and music signals in which the transmitted signals represent differences between input signals and predicted signals, and these

predicted signals are synthesized by predictors with response functions representative of the short- and long-term correlation inherent in the signal. Abbreviated ADPCM. { ə¦dap·tiv ˌdif·ə ¦ren·chəl 'pəls ˌcōd ˌmäj·ə,lā·shən }

**adaptive equalization** |COMMUN| A signal-processing technique designed to compensate for impairments in received signals over a communications channel resulting from imperfect transmission characteristics. { ə'dap·tiv ˌē·kwə·lə,zā·shən }

**adaptive filter** |ELECTR| An electric filter whose frequency response varies with time, as a function of the input signal. { ə,dap·tiv 'fil·tər }

**adaptive robot** |CONT SYS| A robot that can alter its responses according to changes in the environment. { ə'dap·tiv 'rō,bät }

**adaptive signal processing** |COMMUN| The design of adaptive systems for signal-processing applications. { ə¦dap·tiv ¦sig·nəl 'prä·sə·siŋ }

**adaptive system** |SYS ENG| A system that can change itself in response to changes in its environment in such a way that its performance improves through a continuing interaction with its surroundings. { ə'dap·tiv 'sis·təm }

**adaptive system theory** |COMPUT SCI| The branch of automata theory dealing with adaptive, or self-organizing, systems. { ə'dap·tiv 'sis·təm ,the·ə·rē }

**adaptor** |COMPUT SCI| A printed circuit board that is plugged into an expansion slot in a computer to communicate with an external peripheral device. { ə'dap·tər }

**Adcock antenna** |ELECTROMAG| A pair of vertical antennas separated by a distance of one-half wavelength or less and connected in phase opposition to produce a radiation pattern having the shape of a figure eight. { 'ad·käk ,an'ten·ə }

**Adcock direction finder** |NAV| A radio direction finder utilizing one or more pairs of Adcock antennas. { 'ad·käk də'rek·shən ,fīn·dər }

**ADCON** See address constant. { 'ad,kän }

**add** See add operation. { ad }

**adder** |COMPUT SCI| A computer device that can form the sum of two or more numbers or quantities. |ELECTR| A circuit in which two or more signals are combined to give an output-signal amplitude that is proportional to the sum of the input-signal amplitudes. Also known as adder circuit. { 'ad·ər }

**adder circuit** See adder. { 'ad·ər ,sər·kət }

**add-in** |COMPUT SCI| An electronic component that can be placed on a printed circuit board already installed in a computer to enhance the computer's capability. { 'ad ,in }

**adding circuit** |ELECTR| A circuit that performs the mathematical operation of addition. { 'ad·iŋ 'sər·kət }

**adding machine** |COMPUT SCI| A device which performs the arithmetical operation of addition and subtraction. { 'ad·iŋ mə,shēn }

**add-in program** |COMPUT SCI| A computer program that enhances the capabilities of a particular application. { 'ad,in ,prō·grəm }

**addition item** |COMPUT SCI| An item which is to be filed in its proper place in a computer. { ə'di·shən 'īd·əm }

**addition record** |COMPUT SCI| A new record inserted into an updated master file. { ə'di·shən ,rek·ərd }

**addition table** |COMPUT SCI| The part of memory that holds the table of numbers used in addition in a computer employing table look-up techniques to carry out this operation. { ə'di·shən ,tā·bəl }

**additive white Gaussian noise** Noise that contains equal energy per frequency across the spectrum of the noise employed. Also known as white noise. Abbreviated AWGN. { 'ad·əd·iv wīt ¦gau·sē·ən 'nóiz }

**add-on** |COMPUT SCI| A peripheral device, such as a printer or disk drive, that is added to a basic computer. { 'ad,ön }

**add-on memory** |COMPUT SCI| Computer storage that is added to the original main storage to enhance the computer's processing capability. { 'ad,ön 'mem·rē }

**add operation** |COMPUT SCI| An operation in computer processing in which the sum of two or more numbers is placed in a storage location previously occupied by one of the original numbers. Also known as add. { 'ad ,äp·ə,rā·shən }

**address** |COMPUT SCI| The number or name that uniquely identifies a register, memory location, or storage device in a computer. { 'ad·res }

**addressable** |COMPUT SCI| Capable of being located by a computer through an addressing technique. { ə'dres·ə·bəl }

**addressable cursor** |COMPUT SCI| A cursor that can be moved by software or keyboard controls to any point on the screen. { ə'dres·ə·bəl 'kər·sər }

**address book** |COMPUT SCI| A feature in an e-mail program for storing e-mail addresses. { 'ad·rəs ,búk }

**address bus** |COMPUT SCI| An internal computer communications channel that carries addresses from the central processing unit to components under the unit's control. { 'ad·res ,bəs }

**address computation** |COMPUT SCI| The modification by a computer of an address within an instruction, or of an instruction based on results obtained so far. Also known as address modification. { 'ad·res ,käm·pyə'tā·shən }

**address constant** |COMPUT SCI| A value, or its expression, used in the calculation of storage addresses from relative addresses for computers. Abbreviated ADCON. Also known as base address; presumptive address; reference address. { 'ad·res ,kän·stənt }

**address conversion** |COMPUT SCI| The use of an assembly program to translate symbolic or relative computer addresses. { 'ad·res kən ,vər·zhən }

**address counter** |COMPUT SCI| A counter which increments an initial memory address as a block of data is being transferred into the memory

locations indicated by the counter. { 'ad·res ˌkaůnt·ər }

**address field** |COMPUT SCI| The portion of a computer program instruction which specifies where a particular piece of information is located in the computer memory. { 'ad·res ˌfēld }

**address format** |COMPUT SCI| A description of the number of addresses included in a computer instruction. { 'ad·res ˌför·mat }

**address-free program** |COMPUT SCI| A computer program in which all addresses are represented as displacements from the expected contents of a base register. { 'ad·res ˌfrē 'prō· grəm }

**address generation** |COMPUT SCI| An addressing technique which facilitates addressing large storages and implementing dynamic program relocation; the effective main storage address is obtained by adding together the contents of the base register of the index register and of the displacement field. { 'ad·res ˌjen·ə'rā·shən }

**addressing** |COMPUT SCI| **1.** The methods of locating and gaining access to information in a computer's storage. **2.** The methods of selecting a particular peripheral device from several that are available at a given time. { ə'dres·iŋ }

**addressing mode** |COMPUT SCI| The specific technique by means of which a memory reference instruction will be spelled out if the computer word is too small to contain the memory address. { ə'dres·iŋ ˌmōd }

**addressing system** |COMPUT SCI| A labeling technique used to identify storage locations within a computer system. { ə'dres·iŋ ˌsis·təm }

**address interleaving** |COMPUT SCI| The assignment of consecutive addresses to physically separate modules of a computer memory, making possible the very-high-speed access of a sequence of contiguously addressed words, since all modules operate nearly simultaneously. { 'ad·res ˌin·tər'lēv·iŋ }

**addressless instruction format** *See* zero-address instruction format. { ə'dres·ləs ˌin 'strək·shən 'för·mat }

**address modification** *See* address computation. { 'ad·res ˌmäd·ə·fə'kā·shən }

**address part** |COMPUT SCI| That part of a computer instruction which contains the address of the operand, of the result, or of the next instruction. { 'ad·res ˌpärt }

**address register** |COMPUT SCI| A register wherein the address part of an instruction is stored by a computer. { 'ad·res ˌrej·ə·stər }

**address resolution** |COMPUT SCI| **1.** The process of obtaining the actual machine address needed to perform an operation. **2.** The process by which the address used to identify a workstation on a local-area network is translated to an address that can be handled on the Internet. { 'ad·res ˌrez·ə,lü·shən }

**address sort routine** |COMPUT SCI| A debugging routine which scans all instructions of the program being checked for a given address. { 'ad·res 'sört ˌrü'tēn }

**address space** |COMPUT SCI| The number of storage locations available to a computer program. { 'ad·rəs ˌspās }

**address track** |COMPUT SCI| A path on a magnetic tape, drum, or disk on which are recorded addresses used in the retrieval of data stored on other tracks. { 'ad·res ˌtrak }

**address translation** |COMPUT SCI| The assignment of actual locations in a computer memory to virtual addresses in a computer program. { 'ad·res tranz'lā·shən }

**add-subtract time** |COMPUT SCI| The time required to perform an addition or subtraction, exclusive of the time required to obtain the quantities from storage and put the sum or difference back into storage. { 'ad səb'trakt ˌtīm }

**add time** |COMPUT SCI| The time required by a computer to perform an addition, not including the time needed to obtain the addends from storage and put the sum back into storage. { 'ad ˌtīme }

**add-to-memory technique** |COMPUT SCI| In direct-memory-access systems, a technique which adds a data word to a memory location; permits linear operations such as data averaging on process data. { ˌad tə ˌmem·rē 'tek·nēk }

**ad hoc inquiry** |COMPUT SCI| A single request for a piece of information, such as a report. { 'ad ˌhäk in'kwī·rē }

**A-display** |ELECTR| A radar display in cartesian coordinates; the targets appear as vertical deflection lines; their Y coordinates are proportional to signal intensity; their X coordinates are proportional to distance to targets. Also known as A-indicator; A-scan; A-scope. { 'ā di,splā }

**adjacency** |COMPUT SCI| A condition in character recognition in which two consecutive graphic characters are separated by less than a specified distance. { ə'jās·ən·sē }

**adjacent-channel interference** |COMMUN| Interference that is caused by a transmitter operating in an adjacent channel. Also known as A-scan; A-scope. { ə'jās·ənt 'chan·əl in·tər 'fir·əns }

**adjacent-channel selectivity** |ELECTR| The ability of a radio receiver to respond to the desired signal and to reject signals in adjacent frequency channels. { ə'jās·ənt 'chan·əl sə,lek'tiv·əd·ē }

**adjusted decibel** |ELECTR| A unit used to show the relationship between the interfering effect of a noise frequency, or band of noise frequencies, and a reference noise power level of −85 dBm. Abbreviated dBa. Also known as decibel adjusted. { ə'jəs·təd 'des·ə,bel }

**ADP** *See* automatic data processing.

**ADPCM** *See* adaptive differential pulse-code modulation.

**ADSEL** *See* Mode S.

**ADSL** *See* asymmetric digital subscriber line; asynchronous digital subscriber loop. { a·dē·es 'el *or* 'ad·səl }

**ADT** *See* abstract data type.

**Advanced Research Projects Agency Network** |COMPUT SCI| The computer network developed