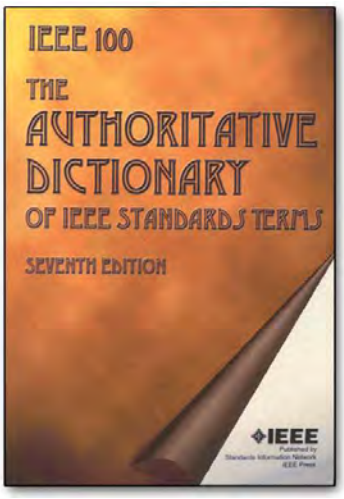
IEEE 100
The Authoritative Dictionary of IEEE Standards Terms

Seventh Edition



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Introduction

IEEE standards establish an authoritative common language that defines quality and sets technical criteria. By guaranteeing consistency and conformity through open consensus, IEEE standards add value to products, facilitate trade, drive markets, and ensure safety. That's why leading companies, organizations, and industries around the globe rely on them.

Critical components of this common language are the terms and definitions that are at the foundation of the vast body of IEEE standards. In the past decade alone, hundreds of terms—describing the latest tools, techniques, and best practices—have been added to the lexicon of IEEE standards.

In this newly updated *Authoritative Dictionary of IEEE Standards Terms,* professional experts and students alike will gain an in-depth understanding and appreciation for the breadth of coverage of IEEE standards terms and definitions not found in any other single source.

The seventh edition of IEEE 100 has been revised to include nearly 35 000 technical terms and definitions from over 800 standards—covering areas such as power and energy, communications, information technology, and transportation systems. In addition to an extensive list of widely used acronyms and abbreviations, this new edition also contains detailed abstracts of each term's associated standard(s). What's more, all definitions are augmented by a combination of indispensable information, including:

- Preferred and popular usage of each term
- Variations in meanings among different technical specialties
- Cross-indexing to related works
- Key explanatory notes for further term clarification

In preparing this latest edition of the Dictionary, we realized that the standards community desired more than just a compilation of IEEE standardized terms and definitions. They needed an authoritative resource created by the organization that develops and produces the standards from which the terms and definitions are derived—the IEEE. In addition, we determined the Dictionary needed to be not only user friendly, but also rich in information. In other words, it needed to be the *Authoritative Dictionary of IEEE Standards Terms.*

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Director, IEEE Standards Publishing Programs

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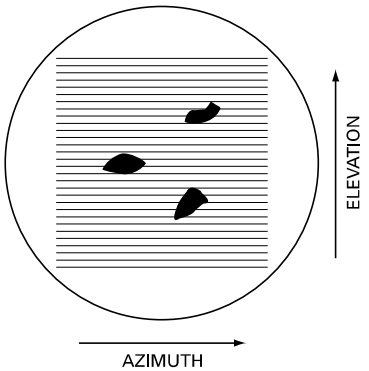
C conditioning A North American term for a type of conditioning that controls attenuation, distortion, and delay distortion, thus making transmission impairments of a circuit lie within specified limits. *See also:* D conditioning. (C) 610.7-1995

CCR *See:* condition code register.

CCS Hundreds of call seconds per hour. A measure of traffic intensity or event data. *Synonym:* call attempts per hour. *See also:* time-consistent traffic measures. (COM/TA) 973-1990w

CD *See:* compact disc; collision detection.

C-display A rectangular display in which each target appears as an intensity-modulated blip with azimuth indicated by the horizontal coordinate and angle of elevation by the vertical coordinate.



C-display

(AES) 686-1997

CDL *See:* Computer Design Language.

CDO *See:* unattended automatic exchange.

CD1 *See:* clocked data one.

CDP *See:* commercial data processing.

CDR *See:* critical design review.

CD-ROM *See:* compact disc read-only memory.

CD-ROM storage A read-only form of optical storage employing compact discs to store information. (C) 610.10-1994w

CD state The state of an analog pin when it is isolated from the core circuit and all test circuits. *Note:* When a pin is in the CD state, there may be residual elements to which it remains connected. *See also:* core disconnect; residual element. (C/TT) 1149.4-1999

CD0 *See:* clocked data zero.

C-effective A capacitance value, often computed as an approximation to a resistor/inductor/capacitor (RLC) network or a π-model, that characterizes the admittance of an interconnect structure at a particular driver. The reduction of real parasitics and pin capacitances to a C-effective allows the calculation of delay and slew values from cell characterization data which assumes a pure capacitive output load. *Synonym:* effective capacitance. (C/DA) 1481-1999

CEI (television) The initials of the official French name, Commission Éléctrotechnique Internationale, of the International Electrotechnical Commission (IEC). (BT/AV) 201-1979w

ceiling The result obtained by rounding a number up to the nearest integer. For example, the ceiling of 5.3 is 6. *Contrast:* floor. (C) 1084-1986w

ceiling area lighting (illuminating engineering) A general lighting system in which the entire ceiling is, in effect, one large luminaire. *Note:* Ceiling area lighting includes luminous ceilings and louvered ceilings. *See also:* luminous ceiling; louvered ceiling. (EEC/IE) [126]

ceiling cavity ratio (illuminating engineering) For a cavity formed by the ceiling, the plane of the luminaire, and the wall surfaces between these two planes, the CCR is computed by using the distance from the plane of the luminaire to the ceiling (h_c as the cavity height in the equations given in the definition of "cavity ratio." (EEC/IE) [126]

ceiling current (excitation systems for synchronous machines) The maximum direct current that the excitation system is able to supply from its terminals for a specified time. (PE/EDPG) 421.2-1990, 421.1-1986r

ceiling direct voltage (direct potential rectifier unit) The average direct voltage at rated direct current with rated sinusoidal voltage applied to the alternating-current line terminals, with the rectifier transformer set on rated voltage tap and with voltage regulating means set for maximum output. *See also:* rectification; power rectifier. (IA/EEC/PCON) [62], [110]

ceiling projector (illuminating engineering) A device designed to produce a well-defined illuminated spot on the lower portion of a cloud for the purpose of providing a reference mark for the determination of the height of that part of the cloud. (EEC/IE) [126]

ceiling ratio (illuminating engineering) The ratio of the luminous flux which reaches the ceiling directly to the upward component of the luminaire. (EEC/IE) [126]

ceiling voltage (1) (excitation systems for synchronous machines) The maximum direct voltage that the excitation system is able to supply from its terminals under defining conditions. *Notes:* 1. The no-load ceiling voltage is determined with the excitation system supplying no current. 2. The ceiling voltage under load is determined with the excitation system supplying ceiling current. 3. For excitation systems whose supply depends on the synchronous machine voltage and (if applicable) current, the nature of power system disturbance and specific design parameters of the excitation system and the synchronous machine influence the excitation system output. For such systems, the ceiling voltage is determined considering an appropriate voltage drop and (if applicable) current increase. 4. For excitation systems employing a rotating exciter, the ceiling voltage is determined at rated speed. (PE/EDPG) 421.1-1986r

(2) (excitation systems) The maximum direct voltage that the excitation system is able to supply from its terminals under defined conditions. (PE/EDPG) 421.2-1990

ceiling voltage, exciter nominal The ceiling voltage of an exciter loaded with a resistor having an ohmic value equal to the resistance of the field winding to be excited and with this field winding at a temperature of (A) 75°C for field windings designed to operate at rating with a temperature rise of 60°C or less; or (B) 100°C for field windings designed to operate at rating with a temperature rise greater than 60°C. (PE/EDPG) 421-1972s

ceilometer (navigation aid terms) An instrument for measuring the height of clouds. (AES/GCS) 172-1983w

celestial fix (navigation aid terms) A position fix established by observation of celestial bodies. (AES/GCS) 172-1983w

celestial-inertial navigation equipment (navigation aid terms) An equipment employing both celestial and inertial sensors. *Synonyms:* astro-inertial navigation equipment; stellar-inertial navigation equipment. (AES/GCS) 172-1983w

celestial mechanics (communication satellite) The mechanics of motion of celestial bodies, including satellites. (COM) [19]

celestial navigation (navigation aid terms) Navigation with the aid of celestial bodies. Applied principally to the measurement of the altitudes of a celestial body. (AES/GCS) 172-1983w

cell (1) (lead-acid batteries for photovoltaic systems) The basic electrochemical unit, characterized by an anode and a cathode used to receive, store, and deliver electrical energy. For a lead-acid system, the cell is characterized by a nominal two-volt potential. (PV) 937-1987s

(2) (batteries for photovoltaic systems) The basic electrochemical unit, characterized by an anode, a cathode, and electrolyte, used to receive, store, and deliver electrical energy. *Notes:* 1. For a nickel-cadmium cell, the nominal voltage is 1.2 V. 2. For a lead-acid cell, the nominal voltage is 2.0 V. (PV) 1013-1990, 1144-1996, 1145-1990s

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medium interface connector (MIC) A connector interface at which signal transmit and receive characteristics are specified for attaching stations and concentrators. One class of MICs is the connection between the attaching stations and the lobe cabling. A second set is the attachment interface between the concentrator and its lobes. A third set is the interface between the concentrator and the trunk cabling. Two types of connectors are specified: one for connecting to STP media and one for connecting to UTP media. (C/LM) 8802-5-1998

medium ion (dc electric-field strength and ion-related quantities) Ion comprised of several molecules or molecular clusters bound together by charge that is larger and less mobile than a small ion due to more mass or a greater number of molecular clusters. Typical radius is in the range of 10^{-9} m to 2×10^{-8} m. Mobility is in the range of 10^{-7} m^2/Vs to 10^{-5} m^2/Vs. (T&D/PE) 539-1990, 1227-1990r

medium noise (sound recording and reproducing system) The noise that can be specifically ascribed to the medium. *See also:* noise. 191-1953w

medium-pulse-repetition-frequency waveform A pulsed-radar waveform whose pulse-repetition frequency (PRF) is such that targets of interest are ambiguous with respect to both range and Doppler shift. *See also:* high-pulse-repetition-frequency waveform; low-pulse-repetition-frequency waveform. (AES) 686-1997

medium scale integration (MSI) (A) Pertaining to an integrated circuit containing between 100 and 500 transistors in its design. *Contrast:* large scale integration; very large scale integration; small scale integration; ultra-large scale integration. **(B)** Pertaining to an integrated circuit containing between 10 and 100 elements. (C) 610.10-1994

medium voltage (1) (cable systems in power generating stations) 601 to 15 000 V. (PE/EDPG) 422-1977

(2) (system voltage ratings) A class of nominal system voltages greater than 1000 V and less than 100 000 V. *See also:* low voltage; nominal system voltage; high voltage. (IA/PSE/APP) 241-1990r, [80]

medium-voltage aluminum-sheathed power cable (aluminum sheaths for power cables) Cable used in an electric system having a maximum phase-to-phase rms ac voltage above 1 000 V to 72 500 V, the cable having an aluminum sheath as a major component in its construction. (PE/IC) 635-1989r

medium-voltage power cable (1) (cable systems in power generating stations) Cables designed to supply power to utilization devices of the plant auxiliary system, operated at 601 to 15 000 V. (PE/EDPG) 422-1977

(2) Cable designed to supply power to utilization devices of the plant auxiliary system, operated at 5000–46 000 V in sizes ranging from 8 AWG (8.37 mm^2) to 2000 kcmil (1010.0 mm^2). (PE/IC) 1185-1994

medium-voltage system (electric power for industrial and commercial systems only) An electric system having a maximum root-mean-square alternating-current voltage above 1000 volts to 72 500 volts. *See also:* voltage classes. (IA/PSE) 570-1975w

meet *See:* AND.

meg Colloquial reference for megabyte. (C) 610.10-1994w

mega (M) (A) (mathematics of computing) A prefix indicating one million (10^6). **(B) (mathematics of computing)** In statements involving size of computer storage, a prefix indicating 2^{20}, or 1 048 576. (C) 1084-1986

megabyte Either 1 000 000 bytes or 2^{20} bytes. *Notes:* 1. The user of these terms shall specify the applicable usage. If the usage is 2^{10} or 1024 bytes, or multiples thereof, then note 2 below shall also be included with the definition. 2. As used in IEEE Std 610.10-1994, the terms kilobyte (kB) means 2^{10} or 1024 bytes, megabyte (MB) means 1024 kilobytes, and gigabyte (GB) means 1024 megabytes. *See also:* gigabyte. (C) 610.10-1994w

megacycle One million cycles. (C) 610.10-1994w

megahertz (MHz) (1) A unit of frequency equal to 1 000 000 cycles per second. (LM/C) 802.7-1989r

(2) A unit of frequency equal to 1 000 000 Hz, that is, 10^6 Hz. (C) 610.7-1995

Meissner oscillator An oscillator that includes an isolated tank circuit inductively coupled to the input and output circuits of an amplifying device to obtain the proper feedback and frequency. *See also:* oscillatory circuit. (AP/ANT) 145-1983s

mel A unit of pitch. By definition, a simple tone of frequency 1000 hertz, 40 decibels above a listener's threshold, produces a pitch of 1000 mels. *Note:* The pitch of any sound that is judged by the listener to be *n* times that of the 1-mel tone is *n* mels. (SP) [32]

melting channel The restricted portion of the charge in a submerged resistor or horizontal-ring induction furnace in which the induced currents are concentrated to effect high energy absorption and melting of the charge. *See also:* induction heating. (IA) 54-1955w, 169-1955w

melting-speed ratio (1) The ratio between between 0.1 s and 300 s or 600 s minimum melting currents, whichever is specified, which designates the relative speed of the fuse link. (SWG/PE) C37.40-1993

(2) (of a fuse) A ratio of the current magnitudes required to melt the current-responsive element at two specified melting times. *Notes:* 1. Specification of the current wave shape is required for time less than one-tenth of a second. 2. The lower melting time in present use is 0.1 s, and the higher minimum melting current times are 100 a for low-voltage fuses and 300 s or 600 s, whichever specified, for high-voltage fuses. (SWG/PE) C37.100-1992

melting time (1) (protection and coordination of industrial and commercial power systems) The time required to melt the current-responsive element on a specified overcurrent. Where the fuse is current limiting in less than half-cycle, the melting time may be approximately half or less of the clearing time. (IA/PSP) 242-1986r

(2) (of a fuse) The time required for overcurrent to sever the current-responsive element. (SWG/PE/SWG-OLD) C37.100-1992, C37.40-1993, C37.40b-1996

member In data management, a subunit contained in a partitioned data set. (C) 610.5-1990w

membrane keyboard A type of keyboard in which the keys are not raised, rather it is composed of a semi-flexible plastic sheet with a conductive surface below. *Synonym:* pressure-sensitive keyboard. (C) 610.10-1994w

membrane potential The potential difference, of whatever origin, between the two sides of a membrane. *See also:* electrobiology. (EMB) [47]

memory (1) All of the addressable storage in a processing unit and other internal storage that is used to execute instructions. *See also:* main storage. (C) 610.10-1994w

(2) *See also:* storage medium; storage.

memory action (of a relay) A method of retaining an effect of an input after the input ceases or is greatly reduced, so that this input can still be used in producing the typical response of the relay. *Note:* For example, memory action in a high-speed directional relay permits correct response for a brief period after the source of voltage input necessary to such response is short-circuited. (PE) C37.100-1992

memory address An address of a particular storage location in memory. (C) 610.10-1994w

memory address register A register containing the address of the memory location to be accessed. (C) 610.10-1994w

memory agent A module that uses split transactions to assume all the rights and responsibilities of some number of remote memory modules. (C/BA) 896.4-1993w

memory allocation and protection (A) To allocate physical sections of memory into logical partitions with read/write protection provided within each partition. **(B)** Pertaining to the hardware components that perform the allocation as in (A). (C) 610.10-1994

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microcode assembler A computer program that translates microprograms from symbolic form to binary form. (C) 610.12-1990

microcomputer (micro) A computer that contains at least one microprocessor as its main computing element. *Note:* The distinction between a microcomputer, minicomputer, and mainframe is not yet standardized, however, in 1991 a typical mainframe is IBM's 3090, a typical minicomputer is Digital's VAX, and a typical microcomputer is IBM's PS/2. (C) 610.10-1994w

microcopy A copy of an image or document so reduced in size from its original that it cannot be read by the unaided human eye. For example, microform, microfiche, microfilm, microimage. (C) 610.2-1987

microcycle *See:* machine cycle.

microelectronic device (electric and electronics parts and equipment) An item of inseparable parts and hybrid circuits, usually produced by integrated circuit techniques. Typical examples are microcircuit, integrated circuit package, micromodule. (GSD) 200-1975w

microfacsimile Transmission and reception of microimages via facsimile communication. (C) 610.2-1987

microfiche A sheet of microfilm capable of containing microimages in a grid pattern. The sheet usually contains a title that can be read without magnification. *Synonym:* fiche. (C) 610.2-1987

microfilm (A) A high resolution film for recording microimages. **(B)** To record microimages on film. *See also:* computer output microfilm. (C) 610.2-1987, 610.10-1994

microfilmer *See:* computer output microfilmer.

microfloppy disk A floppy disk that is 3.5 inches wide. *Contrast:* minifloppy disk. (C) 610.10-1994w

microfont* *See:* optical character recognition-B.

* Deprecated.

microform A medium that contains micro-images. For example, microfiche, microfilm. (C) 610.2-1987

micrographics That branch of science and technology concerned with methods and techniques for converting information to or from microform. *Synonym:* microphotographics. *See also:* office automation. (C) 610.2-1987

microimage An image that is too small to be read by the human eye without magnification. (C/C) 610.2-1987, 610.10-1994w

microinstruction In microprogramming, an instruction that specifies one or more of the basic operations needed to carry out a machine language instruction. Types include diagonal microinstruction, horizontal microinstruction, and vertical microinstruction. *See also:* nanoinstruction; microcode; microprogram. (C) 610.10-1994w, 610.12-1990

micrometer (laser maser) A unit of length equal to 10^{-6} m. In common practice a micrometer is a micron. (LEO) 586-1980w

micron (metric system) The millionth part of a meter. *Note:* According to the set of submultiple prefixes now established in the International System of Units, the preferred term would be micrometer. However, use of the same word to denote a small length, and also to denote an instrument for measuring a small length, could occasionally invite confusion. Therefore it seems unwise to deprecate, at this time, the continued use of the word micron. (Std100) [123]

microoperation In microprogramming, one of the basic operations needed to carry out a machine language instruction. *See also:* microinstruction. (C) 610.12-1990

microphone An electroacoustic transducer that responds to sound waves and delivers essentially equivalent electric waves. (T&D/PE/SP) 539-1990, [32]

microphonics (1) (general) The noise caused by mechanical shock or vibration of elements in a system. (SP) 151-1965w

(2) (interference terminology) Electrical interference caused by mechanical vibration of elements in a signal transmission system. *See also:* signal. (IE) [43]

(3) (electron tube) (microphonic effect) (microphonism) The undesired modulation of one or more of the electrode currents resulting from the mechanical vibration of one or more of the valve or tube elements. *See also:* electron tube. (ED) 161-1971w

microphonics, microphonic noise Electrical noise caused by mechanical or audio induced vibration of the detector assembly. (NPS) 325-1996

microphonism *See:* microphonics.

microphotographics *See:* micrographics.

microprint A positive microcopy photographically printed onto paper. (C) 610.2-1987

microprocessor An integrated circuit that contains the logic elements for manipulating data and for making decisions. *See also:* microcomputer; processor. (C) 610.10-1994w

microprogram (software) A sequence of instructions, called microinstructions, specifying the basic operations needed to carry out a machine language instruction. *See also:* control store; microcode. (C) 610.12-1990, 610.10-1994w

microprogrammable computer A microprogrammed computer in which microprograms can be created or altered by the user. *Contrast:* fixed-instruction computer. (C) 610.12-1990, 610.10-1994w

microprogrammed computer A computer in which machine language instructions are implemented by microprograms rather than by hard-wired logic. *Note:* A microprogrammed computer may or may not be a microcomputer; the concepts are not related despite the similarity of the terms. *See also:* microarchitecture; microprogrammable computer. (C) 610.12-1990, 610.10-1994w

microprogramming (1) The process of designing and implementing the control logic of a computer by identifying the basic operations needed to carry out each machine language instruction and representing these operations as sequences of instructions in a special memory called control store. This method is an alternative to hard wiring the control signals necessary to carry out each machine language instruction. Techniques include bit steering, compaction, residual control, single-level encoding, two-level encoding. *See also:* microinstruction; microcode; microprogram. (C) 610.12-1990

(2) The process of designing and implementing the control logic of a computer by identifying the basic operations needed to carry out each machine language instruction and then representing these operations in appropriate sequence in a special memory, called a control store. (C) 610.10-1994w

micropublishing The production and distribution of information via microform. The information may be original or may have been previously published in another form. (C) 610.2-1987

micropulsation Small magnitude fluctuations (usually much less than 10^{-6} of the Earth's magnetic field) with periods on the order of seconds or minutes ($f<1$ Hz). *Note:* Micropulsations usually result from current fluctuations in the E region. (AP/PROP) 211-1997

microradiometer (radio-micrometer) A thermosensitive detector of radiant power in which a thermopile is supported on and connected directly to the moving coil of a galvanometer. *Note:* This construction minimizes lead losses and stray electric pickup. *See also:* electric thermometer. (EEC/PE) [119]

micrositing Of, or related to, the characteristics of a particular wind-turbine site, as contrasted to those characteristics that prevail over the entire windfarm. (DESG) 1094-1991w

microspark (overhead-power-line corona and radio noise) A spark breakdown occurring in the miniature air gap formed by two conducting or insulating surfaces. (This is sometimes called a "gap discharge.") (T&D/PE) 539-1990

microstrip (1) A class of planar transmission lines consisting of one or more thin conducting strips of finite width parallel to a single extended conducting ground plane. In its common form, the strips are affixed to an insulating substrate attached

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character. In telegraphy, this group is a character. (PE) 599-1985w

nonsystematic jitter *See:* uncorrelated jitter.

nonterminal node (data management) In a tree, a node that can have one or more subtrees. *Synonyms:* branch node; internal node. *Contrast:* terminal node. *See also:* root node. (C) 610.5-1990w

no-test trunk access method Used to connect to an end user's line, the no-test trunk access method contains a direct metallic path and is primarily used for loop and customer premise equipment (CPE) testing purposes. (SCC31) 1390.3-1999

nonthermal fire hazard A hazard resulting from combustion products (such as smoke and toxic and corrosive fire products). (DEI) 1221-1993w

nontouching loop set (network analysis) A set of loops no two of which have a common node. (CAS) 155-1960w

nontransitive dependency A type of dependency among attributes in a relation, in which a nonprime attribute A is said to be nontransitively dependent on another attribute B if and only if A is dependent on B, and there is another attribute C that is functionally dependent on B but does not functionally determine A. *Contrast:* transitive dependency. (C) 610.5-1990w

nonuniformity (transmission lines and waveguides) The degree with which a characteristic quantity, for example, impedance, deviates from a constant value along a given path. *Note:* It may be defined as the maximum amount of deviation from a selected nominal value. For example, the nonuniformity of the characteristic impedance of a slotted coaxial line may be 0.05 ohm due to dimensional variations. (IM/HFIM) [40]

non-utility generator A facility for generating electricity that is not exclusively owned by an electric utility and that operates connected to an electric utility system. (PE/PSE) 858-1993w

nonvented fuse (or fuse unit) A fuse without intentional provision for the escape of arc gases, liquids, or solid particles to the atmosphere during circuit interruption. (SWG/PE) C37.40-1993, C37.100-1992

nonvented power fuse (installations and equipment operating at over 600 volts, nominal) A fuse without intentional provision for the escape of arc gases, liquids, or solid particles to the atmosphere during circuit interruption. (NESC/NEC) [86]

nonventilated (power and distribution transformers) So constructed as to provide no intentional circulation of external air through the enclosure. (PE/TR) C57.12.80-1978r

nonventilated dry-type transformer (power and distribution transformers) (dry-type general purpose distribution and power transformers) A dry-type transformer which is so constructed as to provide no intentional circulation of external air through the transformer, and operating at zero gauge pressure. (PE/TR) C57.94-1982r, C57.12.80-1978r

nonventilated enclosure An enclosure so constructed as to provide no intentional circulation of external air through the enclosure. *Note:* Doors or removable covers are usually gasketed and humidity control may be provided by filtered breathers. (SWG/PE) C37.100-1992, C37.23-1987r

nonvolatile memory (1) A memory in which the data content is retained when power is no longer supplied to it. (ED) 641-1987w, 1005-1998

(2) Memory whose contents are retained after power has been shut off. (C/BA) 14536-1995

(3) Computer memory whose contents are preserved when the system power is off. (C/BA) 1275-1994

(4) Memory that retains its contents even through power failures. (C/MM) 1596-1992

(5) Read/write storage that is preserved through losses of power. (C/MM) 1212-1991s

nonvolatile random-access memory (NVRAM) A semi-permanent type of data storage (memory) that is backed up by batteries to maintain stored data even if system power is lost. Can be both read and changed by the system. (PE/SUB) 1379-1997

nonvolatile storage (1) (test, measurement, and diagnostic equipment) A storage device which can retain information in the absence of power. Contrast to volatile storage. (MIL) [2]

(2) A type of storage whose contents are not lost when power is lost. *Contrast:* volatile storage. *See also:* erasable storage; bubble memory. (C) 610.10-1994w

no-op *See:* no-operation.

no-operation (no-op) (1) (computers) An instruction that specifically instructs the computer to do nothing, except to proceed to the next instruction in sequence. *Synonym:* no-op. (C) [20], [85]

(2) (software) A computer operation whose execution has no effect except to advance the instruction counter to the next instruction. Used to reserve space in a program or, if executed repeatedly, to wait for a given event. Often abbreviated no-op. *Synonyms:* no-op; do-nothing operation. (C) 610.12-1990

no-op instruction *See:* dummy instruction.

NOR (1) (mathematics of computing) A Boolean operator having the property that if P is a statement, Q is a statement, R is a statement, . . . , then the NOR of P,Q,R,. . . is true if and only if all statements are false. *Note:* P NOR Q is often represented by P ↓ Q. *Synonym:* nondisjunction.

P	Q	P↓Q
0	0	1
0	1	0
1	0	0
1	1	0

NOR truth table

(C) 1084-1986w

(2) (software) *See also:* notice of revision. (C) 610.12-1990

NOR element *See:* NOR gate.

NOR gate A gate that performs the Boolean operation of nondisjunction. *Synonyms:* inclusive NOR gate; NOR element; NOT-OR. *See also:* OR gate. (C) 610.10-1994w

norator A two-terminal ideal element the current through which and the voltage across which can each be arbitrary. (CAS) [13]

normal (1) (state of a superconductor) The state of a superconductor in which it does not exhibit superconductivity. Example: Lead is normal at temperatures above a critical temperature. *See also:* superconductivity; superconducting. (ED) [46]

(2) (power generation) *See also:* preferred.

(3) *See also:* interference, normal-mode; normal-mode interference. (SUB/PE) C37.1-1994

normal base current Rated current of a transformer corresponding to its rated voltage and rated base kilovoltamperes. (PE/TR) C57.109-1993

normal base power transfers (power operations) Those power transfers that are considered to be a part of normal base system loadings for the condition being analyzed. Other transfers, such as emergency power or opportunistic economy energy transfers, are excluded even though they may be provided for in contractual arrangements. (PE/PSE) 858-1987s

normal binary *See:* binary.

normal character (N_char) N_chars represent, at the minimum, the 256 values of a byte (i.e., all the data characters) plus a control character representing an end_of_packet marker. (C/BA) 1355-1995

normal clear A term used to express the normal indication of the signals in an automatic block system in which an indication to proceed is displayed except when the block is occupied. *See also:* centralized traffic-control system. (EEC/PE) [119]

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`Wait_For_Child_Process` procedure for an inactive process, the remaining resources are returned to the system. The last resource to be returned to the system is the process ID. At this time, the lifetime of the process ends. (C) 1003.5-1999

process list An ordered set of runnable processes that all have the same ordinal value for their priority. The ordering of processes on the list is determined by a scheduling policy or policies. The set of process lists includes all runnable processes in the system. (C/PA) 1003.1b-1993s

process management The direction, control, and coordination or work performed to develop a product or perform a service. Example is quality assurance. (C) 610.12-1990

process metric A metric used to measure characteristics of the methods, techniques, and tools employed in developing, implementing, and maintaining the software system. (C/SE) 1061-1998

process model A model of the processes performed by a system; for example, a model that represents the software development process as a sequence of phases. *Contrast:* structural model. (C) 610.3-1989w

processor (1) (A) (computers) (hardware). A data processor. **(B) (computers)** (pascal computer programming language). A system or mechanism that accepts a program as input, prepares it for execution, and executes the process so defined with data to produce results. *Note:* A processor may consist of an interpreter, a compiler and run-time system, or other mechanism, together with an associated host computing machine and operating system, or other mechanism for achieving the same effect. A compiler in itself, for example, does not constitute a processor. (Std100/SUB/PE) 812-1984, C37.1-1994

(2) (software) A computer program that includes the compiling, assembling, translating, and related functions for a specific programming language, for example, Cobol processor, Fortran processor. *See also:* multiprocessor. (C) [20], [85]

(3) The combination of the IU, FPU, and CP (if present). (C/MM) 1754-1994

(4) (A) A device that interprets and executes instructions, consisting of at least an instruction control unit and an arithmetic unit. *See also:* coprocessor; preprocessor. **(B)** A device that contains a central processing unit. (C) 610.10-1994

Processor A main system processor unit that executes operating system code and manages system resources. It is usually constrained on the number of CSRs it can devote to the functions of a given I/O Unit. (C/MM) 1212.1-1993

processor architecture The system-visible interfaces to a central processor, including its instruction set, stack and register structures, and trap and interrupt-handling methods. (C) 610.10-1994w

process-oriented simulation A simulation in which the process is considered more important than the outcome; for example, a model of a radar system in which the objective is to replicate exactly the radar's operation, and duplication of its results is a lesser concern. *Contrast:* outcome-oriented simulation. (C) 610.3-1989w

processor interface (PI) (FASTBUS acquisition and control) The interface device between a processor and a FASTBUS segment. (NID) 960-1993

processor storage *See:* internal storage.

process standard A standard that deals with the series of actions or operations used in making or achieving a product. (C) 610.12-1990

process step Any task performed in the development, implementation, or maintenance of software (for example, identifying the software components of a system as part of the design). (C/SE) 1061-1992s

processtag (microprocessor operating systems parameter types) A "tag" returned by one function for use by another. Its contents may not be examined or changed. Its form is system dependent. A processtag is only valid within a given process and should not be passed between processes. (C/MM) 855-1985s

process-to-process communication The transfer of data between processes. (C) 1003.5-1999

procurement document (nuclear power quality assurance) Purchase requisitions, purchase orders, drawings, contracts, specifications, or instructions used to define requirements for purchase. (PE/NP) [124]

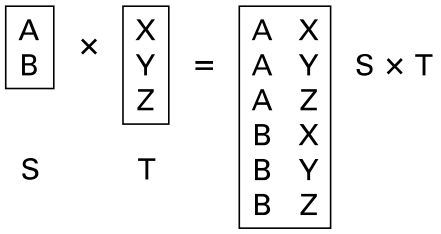
procurement documents (nuclear power generating station) Those documents such as specifications, contracts, letters of intent, work orders, purchase orders or proposals and their acceptance which authorize the seller to perform services or supply equipment, material or facilities to the purchaser. *Note:* This term applies specifically to the subject matter of IEEE Std 467-1980. (PE/NP) 467-1980w

producer (1) The node on a ringlet that transmits a send packet to the consumer and deletes the echo packet that is returned. (C/MM) 1596-1992

(2) A unit that adds a message to a DMA queue. (C/MM) 1212.1-1993

product (1) (mathematics of computing) The result of a multiplication operation. (C) 1084-1986w

(2) (data management) A relational operator that builds a relation from two specified relations consisting of all possible concatenated pairs of tuples, one from each of the two original relations. (See the corresponding figure.)



product

(C) 610.5-1990w

(3) An element of the physical or system architecture, specification tree, or system breakdown structure that is a subordinate element to the system and is comprised of two or more subsystems. It represents a major consumer product (e.g., automobile, airplane) of a system or a major life-cycle process product (e.g., simulator, building, robot) related to a life-cycle process that supports a product or group of products. (C/SE) 1220-1994s

(4) A software object used to define a set of related software. Filesets are contained within products. (C/PA) 1387.2-1995

(5) Any output of the software development Activities (e.g., document, code, or model). *See also:* Activity. (C/SE) 1074-1997

product analysis The process of evaluating a product by manual or automated means to determine if the product has certain characteristics. (C) 610.12-1990

product and process data package The evolving output of the systems engineering process that documents hardware designs, software designs with their associated documentation, and life-cycle processes. (C/SE) 1220-1994s

product baseline In configuration management, the initial approved technical documentation (including, for software, the source code listing) defining a configuration item during the production, operation, maintenance, and logistic support of its life cycle. *Contrast:* developmental configuration; functional baseline; allocated baseline. *See also:* product configuration identification. (C) 610.12-1990

product certification *See:* certification.

product characteristic An observable attribute of a product. This includes functional, physical, and performance characteristics (e.g., gain and bandwidth of an amplifier). (SCC20) 1226-1998

product code *See:* bar code; universal product code.

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voice processing Information processing in which the human voice is the data input. *See also:* office automation. (C) 610.2-1987

void volume ratio The volume of the void spaces between stones divided by the total volume occupied by the stones in a stone-filled collecting pit. (SUB/PE) 980-1994

volatile (electronic data processing) Pertaining to a storage device in which data cannot be retained without continuous power dissipation, for example, an acoustic delay line. *Note:* Storage devices or systems employing nonvolatile media may or may not retain data in the event of planned or or accidental power removal. (C/MIL) 162-1963w, [2]

volatile flammable liquid A flammable liquid having a flash point below 38°C (100°F) or whose temperature is above its flash point. (NESC/NEC) [86]

volatile storage A type of storage in which information cannot be retained without continuous power application. *Contrast:* nonvolatile storage. (C) 610.10-1994w

volcas A voice-operated device that switches loss out of the transmitting branch and inserts loss in the receiving branch under control of the subscriber's speech. The name is derived from the initial letters of the expression voice-operated loss control and suppressor. *See also:* voice-frequency telephony. (EEC/PE) [119]

volt (metric practice) (unit of electric potential difference and electromotive force) The difference of electric potential between two points of a conductor carrying a constant current of one ampere, when the power dissipated between these points is equal to one watt. (QUL) 268-1982s

volta effect *See:* contact potential.

voltage (1) (electromotive force) (general) (along a specified path in an electric field). The dot product line integral of the electric field strength along this path. *Notes:* 1. Voltage is a scalar and therefore has no spatial direction. 2. As here defined, voltage is synonymous with potential difference only in an electrostatic field. 3. In cases in which the choice of the specified path may make a significant difference, the path is taken in an equiphase surface unless otherwise noted. 4. It is often convenient to use an adjective with voltage, for example, phase voltage, electrode voltage, line voltage, etc. The basic definition of voltage applies and the meaning of adjectives should be understood or defined in each particular case. *See also:* reference voltage. (Std100) 270-1966w
(2) (A) (voltage of circuit not effectively grounded) The highest nominal voltage available between any two conductors of the circuit. *Note:* If one circuit is directly connected to and supplied from another circuit of higher voltage (as in the case of an autotransformer), both are considered to be of the higher voltage, unless the circuit of the lower voltage is effectively grounded, in which case its voltage is not determined by the circuit of the higher voltage. Direct connection implies electric connection as distinguished from connection merely through electromagnetic or electrostatic induction. **(B)** (voltage of a constant current circuit) The highest normal full-load voltage of the current. **(C)** (voltage of an effectively grounded circuit) The highest nominal voltage available between any conductor of the circuit and ground unless otherwise indicated. **(D)** The effective (rms) potential difference between any two conductors or between a conductor and ground. Voltages are expressed in nominal values unless otherwise indicated. The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation. The operating voltage of the system may vary above or below this value. (NESC) C2-1997
(3) (surge arresters) (electromotive force) The voltage between a part of an electric installation connected to a grounding system and points on the ground at an adequate distance (theoretically at an infinite distance) from any earth electrodes. (PE) [8], [84]
(4) (of a circuit) The greatest root-mean-square (effective) difference of potential between any two conductors of the circuit concerned. Some systems, such as 3-phase 4-wire, single-phase 3-wire, and 3-wire direct-current may have various circuits of various voltages. (NESC/NEC) [86]

voltage amplification (1) An increase in signal voltage magnitude in transmission from one point to another or the process thereof. *See also:* amplifier. (Std100) 270-1966w
(2) (transducer) The scalar ratio of the signal output voltage to the signal input voltage. Warning: By incorrect extension of the term decibel, this ratio is sometimes expressed in decibels by multiplying its common logarithm by 20. It may be correctly expressed in decilogs. *Note:* If the input and.or output power consist of more than one component, such as multifrequency signal or noise, then the particular components used and their weighting must be specified. *See also:* transducer. (Std100) 270-1966w
(3) (magnetic amplifier) The ratio of differential output voltage to differential control voltage. (MAG) 107-1964w

voltage and power directional relay (power system device function numbers) A relay that permits or causes the connection of two circuits when the voltage difference between them exceeds a given value in a predetermined direction and causes these two circuits to be disconnected from each other when the power flowing between them exceeds a given value in the opposite direction. (SUB/PE) C37.2-1979s

voltage attenuation (1) (data transmission) An adjustable device for reducing the amplitude of a wave without introducing distortion. An adjustable passive network that reduces the power level of a signal without introducing appreciable distortion. (PE) 599-1985w
(2) (analog computer) A device for reducing the amplitude of a signal without introducing appreciable distortion. (C) 165-1977w

voltage at the instant of chopping The voltage at the instant of the initial discontinuity. (PE/PSIM) 4-1995

voltage balance relay A balance relay that operates by comparing the magnitudes of two voltage inputs. (SWG/PE) C37.100-1992

voltage buildup (rotating machinery) The inherent establishment of the excitation current and induced voltage of a generator. (PE) [9]

voltage circuit (1) (A) (ac high-voltage circuit breakers) That part of the synthetic test circuit from which the major part of the test voltage is obtained. **(B)** An input circuit to which is applied a voltage or a current that is a measure of primary voltage. (SWG/PE) C37.081-1981
(2) (instrument) That combination of conductors and windings of the instrument to which is applied the voltage of the circuit in which a given electrical quantity is to be measured, or a definite fraction of that voltage, or a voltage or current dependent upon it. *See also:* moving element; instrument; watthour meter. (EEC/AII) [102]
(3) That part of the synthetic test circuit from which the major part of the test voltage is obtained. (SWG/PE) C37.083-1999

voltage clamp (converter circuit elements) (self-commutated converters) A clamp that limits the peak voltage across a semiconductor device. (IA/SPC) 936-1987w

voltage clamping ratio (low voltage varistor surge arresters) A figure of merit measure of the varistor voltage clamping effectiveness as determined by the ratio of clamping voltage to rated root-mean-square (rms) voltage, or by the ratio of clamping voltage to rated direct-current (dc) voltage. (PE) [8]

voltage class *See:* medium-voltage power cable; control cable; low-level analog signal cable; low-level digital signal circuit cable; low-voltage power cable (s).

voltage classes Voltage classes are as shown in the corresponding figure.

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