AMERICAN NATIONAL DICTIONARY
FOR INFORMATION PROCESSING

AMERICAN NATIONAL STANDARDS COMMITTEE
X3 — COMPUTERS & INFORMATION PROCESSING

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Adopted for Use by the Federal Government

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See Notice on Inside Front Cover

AMERICAN NATIONAL DICTIONARY FOR INFORMATION PROCESSING
This DICTIONARY has been adopted for Federal Government use as a basic reference document to promote a common understanding of information processing terminology.

Details concerning the specific use of this DICTIONARY are contained in Federal Information Processing Standards Publication 11-1, DICTIONARY FOR INFORMATION PROCESSING. For a complete list of publications available in the FIPS Series, write to the Office of ADP Standards Management, Institute for Computer Sciences and Technology, National Bureau of Standards, Washington, D.C. 20234.
American National Dictionary
for
Information Processing

American National Standards Committee
X3 — Computers and Information Processing

Secretariat: Computer and Business Equipment Manufacturers Association
Foreword
The communication of facts and ideas depends upon a mutual understanding of terminology. This is particularly true in the rapidly growing field of information processing, in which there is a continuing need for a comprehensive source of technical terms and definitions.

By direction of the American National Standards Committee on Computers and Information Processing (X3) the Technical Committee on Vocabulary (X3K5) prepared this American National Dictionary for Information Processing (ANDIP). The Dictionary is based on the American National Standard Vocabulary for Information Processing, X3.12-1970, published by the American National Standards Institute. The Dictionary was developed not only by combining existing lexicons, but also by studying the use of terms throughout the field of computers and information processing. Technical Committee X3K5, in consultation with other X3 technical committees, used proposed and approved American national standards and vocabularies submitted by other bodies as the sources of terms and definitions. The Dictionary influenced the development of sections of the International Organization for Standardization Vocabulary of Data Processing, prepared by ISO Technical Committee 97, Subcommittee 1 (ISO/TC 97/SC 1), and includes terms and definitions from that vocabulary.

Advances in the field of information processing cause changes in terminology. Suggestions for changes or additions to this document should be addressed to the Computer and Business Equipment Manufacturers association, 1828 L Street NW, Washington, DC 20036.

The members of Technical Committee who participated in the development of this Dictionary were:

M. H. Weik, Jr., Chairman
J. R. Wood, Vice-Chairman
J. L. Walkowicz, Secretary
E. A. Anderson
L. A. Difford
P. M. Gaynor
C. R. Gethmann
Dr. S. Gorn
F. T. Grampp
R. R. Hegland
T. D. C. Kuch
T. Leach
R. P. Mullinax
A. J. Neumann
Dr. G. Patterson (Deceased)
R. D. Prigge
H. E. Thiess
C. K. Vanderhoof

Sequence of Entries
The sequence of entries in this Dictionary is determined on a letter-by-letter basis, in other words, only the letters of the alphabet are used to determine the sequence of entries.

Organization of an Entry
An entry consists of a term or the abbreviation or acronym for a term followed by a commentary. When a commentary includes several different definitions for that term, each definition is a separate item. When an item is used to refer to all the terms having the same last word, it lists all of these terms in natural order and precedes this list with the word "See".
Selection of Terms
A term is a word or group of words to be defined. In this Dictionary, the singular form of the noun and the infinitive form of the verb are the terms most often selected to be defined. If the term can be abbreviated, the abbreviation is given in parentheses immediately following the term.

Organization of a Commentary
A commentary consists of one or more items (definitions or references) arranged in the following order:

Noun Form
General Definitions
(1) International Definition
(2) USA Definition
(3) References

Specific Definitions (for special disciplines)
(4) International Definition
(5) USA Definition
(6) References

Verb Form (if applicable)
General Definitions
(7) International Definition
(8) USA Definition
(9) References

Specific Definitions (for special disciplines)
(10) International Definition
(11) USA Definition
(12) References

Adjective Form (if applicable)
General Definitions
(13) International Definition
(14) USA Definition
(15) References

Specific Definitions (for special disciplines)
(16) International Definitions
(17) USA Definition
(18) References

Each item may include an item number, a source label, a usage label, a descriptive phrase, an annotation, and a reference to other terms, in that order.

Item Number
Each item in a commentary is numbered consecutively starting with item (1). If the commentary consists of only one item, the item number is omitted.

Source Label
This label precedes the definition and identifies the source of the definition. Definitions bearing the source label (ISO) are based on material developed by the International Organization for Standardization. All other definitions are based on sundry authoritative sources.

Usage Label
This label is a word or phrase that indicates the area or manner of usage of the item. For example, the label “In programming” indicates an area of usage, and the label “Loosely,” indicates a manner of usage. The usage label is followed by a comma.

Descriptive Phrase
This states, or provides an initial statement of, the definition of the term and may be assumed to be preceded by the phrase, “(the term) is defined as.” The descriptive phrase completes the initial sentence. The part of speech of the term being defined is indicated by the introductory words in the descriptive phrase, where the word “to,” indicates a verb,
“pertaining to” indicates a modifier, and other words indicate a noun.

**Annotation**
This part of the definition consists of any number of complete sentences. These sentences follow the descriptive phrase and provide additional descriptive or explanatory information.

**References**
A reference consists of a symbol or phrase to direct the user to another item in the same commentary or to another entry or item in the Dictionary. If the term being defined is an acronym or abbreviation, the complete unabbreviated term is given and the term is defined in a separate entry (except where the abbreviation or acronym is predominantly used: e.g., FORTRAN.) An italicized term occurring in a commentary indicates that the term, or a grammatically different form of it, has been defined elsewhere in the Dictionary. Also, the reference symbols (Deprecated term for, Synonymous with, Synonym for, Contrast with, See, and See also) explain the nature of the reference as described below. The reference symbols are described in the order in which they would occur within an entry:

- **Deprecated term for.** Indicates that the term should not be used (because it is obsolete, misleading, ambiguous, or jargon) and refers to the preferred term.

- **Synonymous with.** Identifies terms that have the same meaning as the defined term, and which refer to the defined term with a “Synonym for” reference symbol.

- **Synonym for.** Refers to a defined term that has the same meaning.

- **Contrast with.** Refers to a term that has an opposite or substantively different meaning.

- **See.** Refers to multiple-word terms that have the same last word or words.

- **See also.** Refers to related terms that have a similar, but not synonymous, meaning.
absolute address
(1) (ISO) An address in a computer language that identifies a storage location or a device without the use of any intermediate reference.
(2) An address that is permanently assigned by the machine designer to a storage location.
(3) Synonymous with explicit address, machine address, specific address.

absolute addressing
(ISO) A method of addressing in which the address part of an instruction contains an absolute address.

absolute coding
Coding that uses computer instructions with absolute addresses. Synonymous with specific coding.

abstract symbol
(1) (ISO) A symbol whose meaning and use have not been determined by a general agreement but have to be defined for each application of the symbol.
(2) In optical character recognition, a symbol whose form does not suggest its meaning and use; these should be defined for each specific set of applications.

access
See direct access, direct access storage, immediate access storage, random access, remote access, serial access.

access arm
A part of a disk storage unit that is used to hold one or more reading and writing heads.

access mode
A technique that is used to obtain a specific logical record from, or to place a specific logical record into, a file assigned to a mass storage device.

access time
(1) (ISO) The time interval between the instant at which an instruction control unit initiates a call for data and the instant at which delivery of the data is completed. Access time equals latency plus transfer time.
(2) The time interval between the instant at which data are requested to be stored and the instant at which storage is started.
(3) (ISO) Deprecated term for cycle time.

accounting machine
(1) A keyboard-actuated machine that prepares accounting records.
(2) A machine that reads data from external storage media, such as cards or
tapes, and automatically produces accounting records or tabulations, usually on continuous forms.

(3) See electrical accounting machines.

**accumulator**
(ISO) A register in which the result of an operation is formed.

**accuracy**
(1) (ISO) A quality held by that which is free of error.
(2) (ISO) A qualitative assessment of freedom from error, a high assessment corresponding to a small error.
(3) (ISO) A quantitative measure of the magnitude of error, preferably expressed as a function of the relative error, a high value of this measure corresponding to a small error.
(4) Contrast with precision.

**accuracy control character**
A control character used to indicate whether the data with which it is associated are in error or are to be disregarded, or cannot be represented on a particular device. Synonymous with error control character.

**ACK**
The acknowledge character.

**acknowledge character (ACK)**
(1) (ISO) A transmission control character transmitted by a station as an affirmative response to the station with which the connection has been set up.
(2) A transmission control character transmitted by a receiver as an affirmative response to a sender. An acknowledge character may also be used as an accuracy control character.
(3) See negative acknowledge character.

**acoustic delay line**
A delay line whose operation is based on time of propagation of sound waves in a given medium. Synonymous with sonic delay line.

**acoustic memory**
Deprecated term for acoustic storage.

**acoustic storage**
A storage device consisting of acoustic delay lines.

**actual instruction**
(ISO) Deprecated term for effective instruction.

**actual key**
In COBOL, a key that directly expresses the physical location of a logical record on a mass storage medium.

**add**
See false add.

**addend**
(ISO) In an addition operation, a number or quantity added to the augend.

**adder**
(1) (ISO) A device whose output data are a representation of the sum of the numbers represented by its input data.
(2) A device whose output is a representation of the sum of the quantities represented by its inputs.
(3) See full adder, half adder, parallel adder, serial adder.

**adder subtracter**
(ISO) A device that acts as an adder or subtracter depending upon the control signal received. The adder subtracter may be constructed so as to yield the sum and the difference at the same time.
addition
See parallel addition, serial addition.

addition without carry
(ISO) Deprecated term for non-equality operation.

address
(1) (ISO) A character or group of characters that identifies a register, a particular part of storage, or some other data source or destination.
(2) (ISO) To refer to a device or an item of data by its address.
(3) See absolute address, base address, direct address, effective address, four address, four-plus-one address, generated address, immediate address, indexed address, indirect address, instruction address, machine address, multiaddress, multilevel address, n-level address, one-level address, real address, relative address, relocatable address, self-relative address, single-address, specific address, symbolic address, synthetic address, two-level address, virtual address, zero-level address.

addressability
In micrographics, the number of addressable positions, within a specified film frame, as follows: number of addressable horizontal positions by number of addressable vertical positions, e.g., 4000 by 4000.

addressable vertical positions
(1) In micrographics, the number of positions, within a specified film frame, at which a horizontal line can be placed.
(2) In computer graphics, the number of positions, within a specified raster, at which a full length horizontal line can be placed.

address format
(1) The arrangement of the address parts of an instruction. The expression plus-one is frequently used to indicate that one of the addresses specifies the location of the next instruction to be executed, such as one-plus-one, two-plus-one, three-plus-one, four-plus-one.
(2) The arrangement of the parts of a single address, such as those required for identifying channel, module, track, etc. in a magnetic disk system.

addressing
See absolute addressing, deferred addressing, direct addressing, immediate addressing, implied addressing, indirect addressing, one-ahead addressing, relative addressing, repetitive addressing, self-relative addressing, symbolic addressing.

address modification
Any arithmetic, logic or syntactic operation performed on an address.

address part
(ISO) A part of an instruction that usually contains only an address or part of an address.

address register
(1) A register in which an address is stored.
(2) See base address register, instruction address register.
address track
(ISO) A track that contains addresses.

adjacency
In character recognition, a condition in which the character spacing reference lines of two consecutively printed characters printed on the same line are separated by less than a specified distance.

administrative data processing
(ISO) Automatic data processing used in accounting or in management. Synonymous with business data processing.

ADP
Automatic data processing.

algebraic language
An algorithmic language many of whose statements are structured to resemble the structure of algebraic expressions, e.g., ALGOL, FORTRAN.

algebraic manipulation
The processing of mathematical expressions without concern for the numeric values of the symbols that represent numbers.

ALGOL (Algorithmic language)
A language used to express computer programs by algorithms.

algorithm
(ISO) A finite set of well-defined rules for the solution of a problem in a finite number of steps, e.g., a full statement of an arithmetic procedure for evaluating sin x to a stated precision.

algorithmic language
(ISO) An artificial language established for expressing algorithms.

alias
An alternate label. For example, a label and one or more aliases may be used to refer to the same data element or point in a computer program.

allocation
See dynamic storage allocation, storage allocation.

alphabet
(1) (ISO) An ordered set of all the letters used in a language, including letters with diacritical signs where appropriate, but not including punctuation marks.
(2) An ordered set of symbols used in a language, e.g., the Morse code alphabet, the 128 ASCII characters.

alphabetic character set
(ISO) A character set that contains letters and may contain control characters, special characters, and the space character, but not digits.

alphabetic character subset
(ISO) A character subset that contains letters and may contain control characters, special characters, and the space character, but not digits.

alphabetic code
(ISO) A code according to which data is represented using an alphabetic character set.

alphabetic coded character set
(ISO) A coded character set whose character set is an alphabetic character set.

alphabetic string
(1) (ISO) A string consisting solely of letters from the same alphabet.
(2) A character string consisting solely of
letters and associated special characters from the same alphabet.

alphabetic word
(1) (ISO) A word consisting solely of letters from the same alphabet.
(2) A word consisting of letters and associated special characters, but not digits.

alphanemic
Synonym for alphanumeric.

alphanumeric
Pertaining to a character set that contains letters, digits, and usually other characters such as punctuation marks. Synonymous with alphanemic.

alphanumeric character set
(ISO) A character set that contains both letters and digits and may contain control characters, special characters, and the space character.

alphanumeric character subset
(ISO) A character subset that contains both letters and digits and may contain control characters, special characters, and the space character.

alphanumeric code
(ISO) A code according to which data is represented using an alphanumeric character set.

alphanumeric coded character set
(ISO) A coded character set whose character set is an alphanumeric character set.

alphanumeric data
(ISO) Data represented by letters and digits, perhaps with special characters and the space character.

analog
(1) (ISO) Pertaining to representation by means of continuously variable physical quantities.
(2) Contrast with digital, discrete.
(3) See network analog.

analog computer
(1) (ISO) A computer in which analog representation of data is mainly used.
(2) A computer that operates on analog data by performing physical processes on these data.
(3) Contrast with digital computer.

analog data
(ISO) Data represented by a physical quantity that is considered to be continuously variable and whose magnitude is made directly proportional to the data or to a suitable function of the data.

analog representation
(ISO) A representation of the value of a variable by a physical quantity that is considered to be continuously variable, the magnitude of the physical quantity being made directly proportional to the variable or to a suitable function of the variable.

analysis
(1) The methodical investigation of a problem, and the separation of the problem into smaller related units for further detailed study.
(2) See flow analysis, numerical analysis.

analyst
(ISO) A person who defines problems and develops algorithms and procedures for their solution.

analyzer
See differential analyzer, digital differential analyzer, network analyzer.
AND
(ISO) A logic operator having the property that if P is a statement, Q is a statement, R is a statement..., then the AND of P,Q,R... is true if all statements are true, false if any statement is false. P AND Q is often represented by P·Q, PQ, PAQ. Synonymous with logical multiply.

AND element
(1) (ISO) A logic element that performs the boolean operation of conjunction.
(2) Synonym for AND gate.

AND gate
(1) A gate that implements the logic AND operator.
(2) Synonym for AND element.

AND-not operation
(ISO) Deprecated term for exclusion.

AND operation
(ISO) Synonym for conjunction.

annotation
An added descriptive comment or explanatory note.

anticipatory buffering
A technique by which data are stored in a buffer before they are needed.

aperture
(1) (ISO) One or more adjacent characters in a mask that cause retention of the corresponding characters.
(2) An opening in a data medium or device such as a card or magnetic core; e.g., the aperture in an aperture card combining a microfilm with a punched card, or in a multiple aperture core.
(3) A part of a mask that permits retention of the corresponding portions of data.
(4) See multiple aperture core.
aperture card
A processable card of standard dimensions into which microfilm frames can be inserted.

aperture core
See multiple aperture core.

application-oriented language
A problem-oriented language whose statements contain or resemble the terminology of the occupation or profession of the user, e.g., a report program generator.

arbitrary sequence computer
(ISO) A computer in which each instruction explicitly determines the location of the next instruction to be executed.

architecture
See computer architecture.

argument
(1) (ISO) An independent variable.
(2) (ISO) Any value of an independent variable.

arithmetical instruction
(ISO) Synonym for arithmetic instruction.

arithmetic and logic unit
(ISO) A part of a computer that performs arithmetic operations, logic operations, and related operations.

arithmetic check
Synonym for mathematical check.

arithmetic instruction
(ISO) An instruction in which the operation part specifies an arithmetic operation. Synonymous with arithmetical instruction.

arithmetic operation
(1) (ISO) An operation that follows the rules of arithmetic.
arithmetic overflow
(1) (ISO) That portion of a numeric word expressing the result of an arithmetic operation by which its word length exceeds the word length provided for the number representation. Synonymous with overflow.
(2) (ISO) That portion of a word expressing the result of an operation by which its word length exceeds the storage capacity of the intended storage device.

arithmetic register
(ISO) A register that holds the operands or the results of operations such as arithmetic operations, logic operations, and shifts.

arithmetic shift
(ISO) A shift, applied to the representation of a number in a fixed-radix numeration system and in a fixed-point representation system, in which only the characters representing the absolute value of the number are moved. An arithmetic shift is usually equivalent to multiplying the number by a positive or a negative integral power of the radix except for the effect of any rounding.

arithmetic underflow
(ISO) In an arithmetic operation, a result whose absolute value is too small to be represented within the range of the numeration system in use. For example, the condition existing, particularly when a floating-point representation system is used, when the result is smaller than the non-zero quantity that can be represented; the result may underflow because of the generation of a negative exponent that is outside the permissable range.

arithmetic unit
(ISO) A part of a computer that performs arithmetic operations, and related operations.

array
An arrangement of elements in one or more dimensions.

array pitch
Synonym for row pitch.

artificial intelligence
(1) The capability of a device to perform functions that are normally associated with human intelligence, such as reasoning, learning, and self-improvement.
(2) See also machine learning.

artificial language
(1) (ISO) A language whose rules are explicitly established prior to its use.
(2) Contrast with natural language.

ASCII (American National Standard Code for Information Interchange)
The standard code, using a coded character set consisting of 7-bit coded characters (8-bits including parity check), used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters.

assemble
(1) (ISO) To translate a program expressed in an assembly language into a computer language and perhaps to link subroutines. Assembling is usually accomplished by substituting the computer language operation code for the assembly language operation code and by substituting absolute addresses, immediate addresses, relocatable ad-
addresses, or virtual addresses for symbolic addresses.

(2) To prepare a machine language program from a symbolic language program by substituting absolute operation codes for symbolic operation codes and absolute or relocatable addresses for symbolic addresses.

assemble-and-go
An operating technique in which there are no stops between the assembling, loading, and execution of a computer program.

assembled origin
The address of the initial storage location assigned to a computer program by an assembler, a compiler, or a linkage editor.

assemble duration
(ISO) Synonym for assembling time.

assembler
(ISO) A computer program used to assemble. Synonymous with assembly program.

assembling phase
(ISO) Synonym for assembly phase.

assembling time
(ISO) The elapsed time taken for the execution of an assembler. Synonymous with assemble duration.

assembly language
(1) (ISO) A computer-oriented language whose instructions are usually in one-to-one correspondence with machine instructions. Synonymous with computer-dependent language, computer-oriented language.

assembly phase
(ISO) Of a run, the logical subdivision that includes the execution of the assembler. Synonymous with assembling phase.

assembly program
(ISO) Synonym for assembler.

assignment statement
(1) An instruction used to express a sequence of operations, or used to assign operands to specified variables, or symbols, or both.
(2) In COBOL, a statement used to associate a file with the symbolic name of a device.

associative storage
(1) (ISO) A storage device whose storage locations are identified by their contents, or by part of their contents, rather than by their names or positions. Synonymous with content-addressed storage.
(2) Contrast with parallel search storage.

asynchronous computer
(1) (ISO) A computer in which each event or the performance of each operation starts as a result of a signal generated by the completion of the previous event or operation, or on the availability of the parts of the computer required for the next event or operation.
(2) Contrast with synchronous computer.

asynchronous operation
(1) (ISO) An operation that occurs without a regular or predictable time relationship to a specified event, e.g., the calling of an error diagnostic routine
that may receive control at any time
during the execution of a computer
program.
(2) A sequence of operations in which op-
erations are executed out of time coin-
cidence with any event.
(3) Synonymous with asynchronous working.

asynchronous working
(ISO) Synonym for asynchronous operation.

attribute
See data attribute.

augend
(ISO) In an addition operation, a number
or quantity to which numbers or quantities
are added.

automated data medium
Synonym for machine readable medium.

automatic
(ISO) Pertaining to a process or device
that, under specified conditions, functions
without intervention by a human operator.

automatic carriage
A control mechanism for a typewriter or
other listing device that can automatically
control the feeding, spacing, skipping, and
ejecting of paper or preprinted forms.

automatic check
(1) A check performed by equipment
built-in specifically for checking pur-
poses. Synonymous with built-in check, hardware check.
(2) Contrast with programmed check.

automatic coding
Synonym for automatic programming.

automatic control engineering
(ISO) That branch of science and tech-
nology which deals with the design and
use of automatic control devices and sys-
tems.

automatic data processing (ADP)
(1) (ISO) Data processing largely per-
formed by automatic means.
(2) (ISO) The branch of science and tech-
nology concerned with methods and
techniques relating to data processing
largely performed by automatic means.
(3) Pertaining to data processing equip-
ment such as electrical accounting ma-
chines and electronic data processing
equipment.

automatic-feed punch
A punch that automatically moves punch
cards from a card hopper, along a card
path and to a card stacker.

automatic programming
The process of using a computer to per-
form some stages of the work involved in
preparing a computer program.
Synonymous with automatic coding.

automatic punch
Synonym for card punch.

automation
(1) (ISO) The implementation of processes
by automatic means.
(2) (ISO) The conversion of a procedure,
a process, or equipment to automatic
operation.
(3) The theory, art, or technique of mak-
ing a process more automatic.
(4) The investigation, design, development,
and application of methods of render-
ing processes automatic, self-moving,
or self-controlling.
auxiliary operation
An offline operation performed by equipment not under control of the central processing unit.

auxiliary storage
(1) (ISO) A storage device that is not main storage.
(2) Storage that supplements another storage.
(3) Contrast with main storage.

available time
(1) (ISO) The time during which a functional unit can be used.
(2) Synonymous with uptime.
(3) Contrast with maintenance time.

average conditional information content
(ISO) Synonym for conditional entropy.

average information content
(ISO) Synonym for entropy.

average information rate
(ISO) In information theory, the mean entropy per character per time unit; in mathematical notation, this $H^*$ equals the mean entropy per character $H'$ divided by the mathematical expectation $T$ of the duration $T_i$ of any one character $x_i$ from the character set $x_i, \ldots, x_n$;

\[
H^* = \frac{H'}{\tau} \quad \text{where} \quad \tau = \sum_{i=1}^{n} \tau_i p(x_i)
\]

The average information rate may be expressed in a unit such as Shannon per second.

average transinformation content
(ISO) Synonym for mean transinformation content.

average transinformation rate
The mean transinformation content per character per time unit; in mathematical notation this $T^*$ equals the mean transinformation content per character $T'$ divided by the mathematical expectation, T of the duration $T_{ij}$ of any one pair of characters $x_i, y_j$ from sets $x_i, \ldots, x_n$ and $y_j, \ldots, y_m$;

\[
T^* = \frac{T'}{\tau} \quad \text{where} \quad \tau = \sum_{i=1}^{n} \sum_{j=1}^{m} \tau_{ij} p(x_i, y_j)
\]

The average transinformation rate per time may be expressed in a unit such as Shannon per second.
background processing
(1) The execution of lower priority computer programs when higher priority programs are not using the system resources.
(2) Contrast with foreground processing.

backspace
(1) To move back the reading or display position according to a prescribed format.
(2) Contrast with space(4).

backspace character (BS)
(ISO) A format effector that causes the print or display position to move one position backward along the line without producing the printing or display of any graphic.

Backus Naur form (BNF)
A metalanguage used to specify or describe the syntax of a language in which each symbol, by itself, represents a set of strings of symbols. Synonymous with Backus normal form.

Backus normal form (BNF)
Synonym for Backus Naur form.

balanced error
(ISO) A set of errors the distribution of which has the mean value zero.

balanced merge
An external sort that places strings created by an internal sort phase on half of the available storage devices and then merges strings by moving them back and forth between an equal number of devices until the merging process is complete.

balanced merge sort
(1) A merge sort, which is an external sort, such that the sorted subsets created by the internal sorts are equally distributed among half of the available auxiliary storage devices. The subsets are merged onto the other half of the auxiliary storage devices and the process is repeated until all items are in one sorted set.
(2) Contrast with unbalanced merge sort.

band
(1) (ISO) A group of tracks on a magnetic drum or on one side of a magnetic disk.
(2) In data communication, the frequency spectrum between two defined limits.

bank
See data bank.

bar
See type bar.

bar printer
An impact printer in which the type slugs are carried on a type bar.

base
(1) (ISO) In the numeration system commonly used in scientific papers, the number that is raised to the power denoted by the exponent and then multiplied by the mantissa to determine the real number represented, e.g., the number 6.25 in the expression $2.7 \times 6.25^{1.5} = 42.1875$.
(2) A reference value.
(3) A number that is multiplied by itself as many times as indicated by an exponent.
(4) Contrast with radix.
(5) See complement base, data base, floating-point base.
base address
(1) (ISO) A numeric value that is used as a reference in the calculation of addresses in the execution of a computer program.
(2) A given address from which an absolute address is derived by combination with a relative address.

base address register
(ISO) A register that holds the base address. Synonym for base register.

base register
Synonym for base address register.

batch processing
(1) The processing of data or the accomplishment of jobs accumulated in advance in such a manner that each accumulation thus formed is processed or accomplished in the same run.
(2) The processing of data accumulated over a period of time.
(3) Loosely, the execution of computer programs serially.
(4) Pertaining to the technique of executing a set of computer programs such that each is completed before the next program of the set is started.
(5) Pertaining to the sequential input of computer programs or data.
(6) See remote batch processing, sequential batch processing.

baud
(1) A unit of signalling speed equal to the number of discrete conditions or signal events per second. For example, one baud equals one-half dot cycle per second in Morse code, one bit per second in a train of binary signals, and one 3-bit value per second in a train of signals each of which can assume one of eight different states.
(2) In asynchronous transmission, the unit of modulation rate corresponding to one unit interval per second, i.e., if the duration of the unit interval is 20 milliseconds, the modulation rate is 50 baud.

BCD
Binary-coded decimal notation.

beginning-of-tape marker
(1) (ISO) A marker on a magnetic tape used to indicate the beginning of the permissible recording area, e.g., a photo reflective strip, a transparent section of tape.
(2) Contrast with end-of-tape marker.

BEL
The bell character.

bell character (BEL)
(ISO) A control character that is used when there is a need to call for human attention and that may activate alarm or other attention devices.

benchmark problem
(1) A problem used to evaluate the performance of hardware or software or both.
(2) A problem used to evaluate the performance of several computers relative to each other, or a single computer relative to system specifications.

bias
(1) (ISO) A systematic deviation of a value from a reference value.
(2) The amount by which the average of a set of values departs from a reference value.
(3) See ordering bias.

bias error
(ISO) An error due to bias.
bidirectional flow
(ISO) In flowcharting, flow that can occur over the same flowline in either direction.

binary
(1) (ISO) Pertaining to a selection, choice, or condition that has two possible different values or states.
(2) (ISO) Pertaining to a fixed radix numeration system having a radix of two.
(3) See Chinese binary, column binary, row binary.

binary arithmetic operation
(1) (ISO) An arithmetic operation in which the operands and the result are represented in the pure binary numeration system.
(2) Synonym for dyadic operation.

binary boolean operation
(ISO) Deprecated term for dyadic boolean operation.

binary card
A card containing data in column binary or row binary form.

binary cell
(1) (ISO) A storage cell that can hold one binary character.
(2) A storage cell of one binary digit capacity, e.g., a single-bit register.

binary code
A code that makes use of exactly two distinct characters, usually 0 and 1.

binary-coded decimal code
Synonym for binary-coded decimal notation.

binary-coded decimal interchange code
See extended binary-coded decimal interchange code.

binary-coded decimal notation (BCD)
(ISO) A binary-coded notation in which each of the decimal digits is represented by a binary numeral, e.g., in binary-coded decimal notation that uses the weights 8-4-2-1, the number “twenty three” is represented by 0010 0011 (compare its representation 10111 in the pure binary numeration system). Synonymous with binary-coded decimal code, binary-coded decimal representation, coded decimal notation.

binary-coded decimal representation
Synonym for binary-coded decimal notation.

binary-coded notation
(ISO) A binary notation in which each of the decimal digits is represented by a binary numeral.

binary digit (BIT)
(1) (ISO) In binary notation, either of the characters, 0 or 1.
(2) (ISO) Synonym for bit.
(3) See equivalent-binary-digit factor.

binary element
(ISO) A constituent element of data that takes either of two values or states. The term bit, originally the abbreviation for the term binary digit, is misused in the sense of binary element or in the sense of Shannon.

binary element string
(ISO) A string consisting solely of binary elements.

binary notation
(1) (ISO) Any notation that uses two different characters, usually the binary digits 0 and 1, e.g., the gray code. The gray code is a binary notation
but not a pure binary numeration system.

(2) Fixed-radix notation where the radix is two. For example, in binary notation the numeral 110.01 represents the number $1 \times 2^2 + 1 \times 2^1 + 1 \times 2^{-2}$, that is, six and a quarter.

**binary number**
Loosely, a binary numeral.

**binary numeral**
(1) (ISO) A numeral in the pure binary numeration system, e.g., the binary numeral 101 is equivalent to the Roman numeral V.
(2) A binary representation of a number, e.g., 101 is a binary numeral and a V is the equivalent Roman numeral.

**binary numeration system**
(ISO) Synonym for pure binary numeration system.

**binary operation**
(ISO) Deprecated term for binary arithmetic operation, boolean operation.

**binary operator**
Synonym for dyadic operator.

**binary search**
(ISO) A dichotomizing search in which, at each step of the search, the set of items is partitioned into two equal parts, some appropriate action being taken in the case of an odd number of items.

**binary symmetric channel**
(ISO) A channel designed to convey messages consisting of binary characters and that has the property that the conditional probabilities of changing any one character to the other character are equal.

**bind**
(ISO) To assign a value to a variable: in particular, to assign a value to a parameter.

**binder-hole card**
A card that contains one or more holes for binding.

**bionics**
A branch of technology relating the functions, characteristics, and phenomena of living systems to the development of mechanical systems.

**biquinary code**
(ISO) A notation in which a decimal digit $n$ is represented by a pair of numerals, $a$ being 0 or 1, $b$ being 0, 1, 2, 3, or 4, and $5a + b$ being equal to $n$. The two digits are often represented by a series of two binary numerals.

**bistable**
Pertaining to a device capable of assuming either one of two stable states.

**bistable circuit**
(1) (ISO) A trigger circuit that has two stable states. Synonymous with bistable trigger circuit.
(2) Synonym for flip-flop.

**bistable trigger circuit**
Synonym for bistable circuit.

**bit**
(1) (ISO) In the pure binary numeration system, either of the digits 0 and 1. Synonymous with binary digit.
(2) (ISO) Deprecated term for binary element, Shannon.
(3) See check bit, information bits, parity bit, redundancy check bit, sign bit.
bit position
(ISO) A character position in a word in a binary notation.

bit string
(ISO) A string consisting solely of bits.

blank
A part of a data medium in which no characters are recorded.

blank character
A graphic representation of the space character.

blip
(ISO) Synonym for document mark.

block
(1) (ISO) A string of records, a string of words, or a character string, formed for technical or logic reasons to be treated as an entity.
(2) A set of things, such as words, characters, or digits, handled as a unit.
(3) A collection of contiguous records recorded as a unit. Blocks are separated by interblock gaps and each block may contain one or more records.
(4) A group of bits, or n-ary digits, transmitted as a unit. An encoding procedure is generally applied to the group of bits or n-ary digits for error-control purposes.
(5) See program block.

block cancel character
(ISO) A cancel character used to indicate that the preceding portion of the block, back to the most recently occurring block mark, is to be disregarded. Synonymous with block ignore character.

block character
See end-of-transmission-block character.

block diagram
(1) (ISO) A diagram of a system, instrument, or computer in which the principal parts are represented by suitably annotated geometrical figures to show both the basic functions of the parts and the functional relationships between them.
(2) Contrast with flowchart.

block gap
(ISO) Synonym for interblock gap(1).

block ignore character
Synonym for block cancel character.

block length
(1) (ISO) The number of records, words, or characters in a block.
(2) A measure of the size of a block, usually specified in units such as records, words, computer words, or characters.

block structure
A hierarchy of program blocks.

block transfer
(ISO) The process, initiated by a single action, of transferring one or more blocks of data.

blowback
In micrographics, an enlargement.

BNF
(1) Backus Naur form.
(2) Backus normal form.

boolean
Pertaining to the processes used in the algebra formulated by George Boole.
boolean add
Synonym for OR.

boolean complementation
(Iso) Deprecated term for negation.

boolean function
(Iso) A switching function in which the number of possible values of the function and each of its independent variables is two.

boolean operation
(1) (Iso) Any operation in which each of the operands and the result take one of two values.
(2) (Iso) An operation that follows the rules of boolean algebra.
(3) See dyadic boolean operation, n-adic boolean operation, n-ary boolean operation.

boolean operation table
(Iso) An operation table in which each of the operands and the result take one of two values.

boolean operator
(1) (Iso) An operator each of the operands of which and the result of which take one of two values.
(2) See dyadic operator, monadic operator.

bootstrap
(1) (Iso) An existing version, perhaps a primitive version, of a computer program that is used to establish another version of the computer program.
(2) A technique or device designed to bring itself into a desired state by means of its own action, e.g., a machine routine whose first few instructions are sufficient to bring the rest of itself into the computer from an input device.
(3) That part of a computer program used to establish another version of the computer program.
(4) (Iso) To use a bootstrap.
(5) See also bootstrap loader, initial program loader.

bootstrap loader
(1) (Iso) An input routine in which simple preset computer operations are used to load instructions which in turn cause further instructions to be loaded until the complete computer program is in storage.
(2) See also bootstrap, initial program loader.

borrow
(1) An arithmetically negative carry.
(2) See end-around borrow.

borrow digit
(Iso) A digit that is generated when a difference in a digit place is arithmetically negative and that is transferred for processing elsewhere. In a positional representation system, a borrow digit is transferred to the digit place with the next higher weight for processing there.

branch
(1) A set of instructions that are executed between two successive branch instructions.
(2) A direct path joining two nodes of a network or graph.
(3) Loosely, a conditional jump.
(4) (Iso) In the execution of a computer program, to select one from a number of alternative sets of instructions.
(5) To select a branch as in (1).
(6) (Iso) Deprecated term for jump.

branch instruction
(1) (Iso) An instruction that controls branching. Synonymous with decision instruction.
(2) (ISO) Deprecated term for *jump instruction*.

**branchpoint**
(1) (ISO) A point in a *computer program* at which *branching* occurs, in particular the *address* or the *label* of an *instruction*.
(2) A place in a *routine* where a *branch* is selected.

**breakpoint**
(ISO) A place in a *computer program*, usually specified by an *instruction*, where its *execution* may be *interrupted* by external intervention or by a *monitor program*.

**breakpoint halt**
(ISO) A *closed loop* consisting of a single *jump instruction* that effects a *jump* to itself, often used to achieve a *breakpoint*. Synonymous with *breakpoint instruction*, dynamic stop.

**breakpoint instruction**
(ISO) Synonym for *breakpoint halt*.

**b-register**
(ISO) Deprecated term for *index register*.

**BS**
The *backspace character*.

**bubble sort**
An *exchange sort* in which the sequence of examination of pairs of *items* is reversed whenever an exchange is made. Synonymous with *sifting sort*.

**buffer**
(1) A *routine* or *storage* used to compensate for a difference in rate of flow of *data*, or time of occurrence of events, when *transferring* data from one device to another.
(2) An isolating circuit used to prevent a driven circuit from influencing the driving circuit.
(3) To allocate and schedule the use of *buffers*.

**buffering**
See *anticipatory buffering*.

**buffer storage**
(ISO) A *storage device* that is used to compensate for differences in the rate of flow of data between components or, of an automatic *data processing system*, for the time of occurrence of events in the components.

**bug**
A *mistake* or *malfunction*.

**built-in check**
Synonym for *automatic check*.

**bulk storage**
(ISO) Synonym for *mass storage*.

**burst**
(1) In *data communication*, a sequence of *signals* counted as one *unit* in accordance with some specific criterion or measure.
(2) To separate continuous-form paper into discrete sheets.
(3) See *error burst*.

**bus**
One or more conductors used for *transmitting signals* or power.

**business data processing**
(1) *Data processing* for business purposes, e.g., recording and summarizing the financial transactions of a business.
(2) (ISO) Synonym for *administrative data processing*. 
byte

(1) (ISO) A binary character string operated upon as a unit and usually shorter than a computer word.

(2) See n-bit byte.
calculating punch
(ISO) A calculator with a card reader and a card punch that reads the data on a punched card, performs some arithmetic operations or logic operations on the data, and punches the results on the same or another punched card. Synonymous with multiplying punch.

calculator

(1) (ISO) A data processor, especially suitable for performing arithmetical operations, that requires frequent intervention by a human operator.

(2) A device for carrying out logic and arithmetical digital operations of any kind.

calculus of variations

The theory of maxima and minima of definite integrals whose integrand is a function of the dependent variables, the independent variables, and their derivatives.

call

(1) (ISO) The action of bringing a computer program, a routine, or a subroutine into effect, usually by specifying the entry conditions and jumping to an entry point.

(2) In data communication, the action performed by the calling party, or the operations necessary in making a call, or the effective use made of a connection between two stations.

(3) (ISO) In computer programming, to execute a call.

(4) To transfer control to a specified closed subroutine.

(5) Synonymous with cue.

(6) See subroutine call.

calling sequence

(ISO) An arrangement of instructions and in some cases of data also, that is necessary to perform a call.

can

The cancel character.

cancel character (CAN)

(1) (ISO) A control character used by some convention to indicate that the data with which it is associated are in error or are to be disregarded. Synonymous with ignore character.

(2) An accuracy control character used to indicate that the data with which it is associated are in error or are to be disregarded.

(3) See block cancel character.

capacitor storage

(ISO) A storage device that uses the capacitive properties of certain materials.

capacity

See channel capacity, storage capacity.

card

See aperture card, binary card, binder hole card, check card, double card, edge coated card, edge-notched card, edge-punched card, flash card, header card, Hollerith card, laced card, magnetic card, mark-sensing card, processable scored card, punch card, punched card, scored card, short card, source data card, stub card, trailer card.

card column

(1) (ISO) A line of punch positions parallel to the shorter edge of a punch card.

(2) A line of punch positions parallel to the Y-datum line of a punch card.
card deck
(ISO) A group of related punched cards.

card feed
(ISO) The mechanism that moves punch cards from the card hopper to the card track.

card field
A specific combination of punch positions, mark sensing positions, or both, on a card.

card form
See printed card form.

card hopper
(1) (ISO) The part of a card-processing device that holds the cards to be processed and makes them available to a card feed mechanism.
(2) Contrast with card stacker.

card image
A one-to-one representation of the hole patterns of a punched card, e.g., a matrix in which a one represents a punch and a zero represents the absence of a punch.

card jam
(ISO) A malfunction of a card-processing device in which cards become jammed.

card punch
(1) A device that punches holes in a card to represent data.
(2) (ISO) Deprecated term for keypunch.

card reader
(1) (ISO) A device that reads or senses the holes in a punched card, transforming the data from hole patterns to electrical signals.
(2) An input device that senses hole patterns in a punched card and translates them into machine language. Synonymous with punched card reader.

card row
(1) (ISO) A line of punch positions parallel to the longer edge of a punch card.
(2) A line of punch positions parallel to the X-datum line of a punch card.

cards
See continuous-form cards.

card set
Cards and forms, bound in a manner that provides multiple copies of source data.

card stacker
(1) (ISO) The part of a card-processing device that receives the cards after they have been processed.
(2) Contrast with card hopper.

card storage
See magnetic card storage.

card track
The part of a card-processing device that moves and guides the card through the device.

carriage
See automatic carriage.

carriage control tape
(1) A tape that is used to control vertical tabulation of printing positions or display positions.
(2) A tape that contains line feed control data for a printing device.

carriage return
The operation that prepares for the next character to be printed or displayed at the specified first position on the same line.
carriage return character (CR)
(1) (ISO) A format effector that causes the print or display position to move to the first position on the same line.
(2) A format effector that causes the location of the printing or display position to be moved to the first space on the same printing or display line.
(3) Contrast with new line character.

carry
(1) (ISO) The action of transferring a carry digit.
(2) One or more digits, produced in connection with an arithmetic operation on one digit place of two or more numerals in positional notation, that are forwarded to another digit place for processing there.
(3) The number represented by the digit or digits in (2).
(4) Most commonly, a digit as defined in (2), that arises when the sum or product of two or more digits equals or exceeds the radix of the number representation system.
(5) Less commonly, a borrow.
(6) The command directing that a carry be forwarded.
(7) (ISO) To transfer a carry digit.
(8) To forward a carry.
(9) See addition without carry, cascaded carry, complete carry, end-around carry, high-speed carry, partial carry, standing-on-nines carry.

cascaded carry
(1) (ISO) In parallel addition, a procedure in which the addition results in a partial sum numeral and a carry numeral which are in turn added; this process is repeated until no carries are generated.
(2) Contrast with high-speed carry.

catalog
An ordered compilation of item descriptions and sufficient information to afford access to the items.

cathode ray storage
(ISO) An electrostatic storage that uses a cathode ray beam for access to data.

cathode ray tube display (CRT display)
(1) A device that presents data in visual form by means of controlled electron beams.
(2) The data display produced by the device as in (1).

cell
See binary cell, magnetic cell, storage cell.

central processing unit (CPU)
(ISO) A unit of a computer that includes circuits controlling the interpretation and execution of instructions. Synonymous with central processor, main frame.

central processor
Synonym for central processing unit.

chad
(1) (ISO) The material separated from a punched tape or a punched card when forming a hole.
(2) Synonymous with chip.

chadless tape
(ISO) Punched tape that has been
punched in such a way that chad is not formed.

chain
(1) See Markov chain.
(2) See also chained list.

chain code
An arrangement in a cyclic sequence of some or all of the possible different n-bit words, in which adjacent words are related such that each is derivable from its neighbor by displacing the bits one digit position to the left, or right, dropping the leading bit and inserting a bit at the end. The value of the inserted bit needs only to meet the requirement that a word must not recur before the cycle is complete, e.g., 000 001 010 101 011 111 110 100 000 ...

chained list
(ISO) A list in which the items may be dispersed but in which each item contains an identifier for locating the next item.

chaining search
(ISO) A search in which each item contains means for locating the next item to be considered in the search.

chain printer
(ISO) An impact printer in which the type slugs are carried by the links of a revolving chain.

change character
See font change character.

change dump
(ISO) A selective dump of those storage locations whose contents have changed.

channel
(1) A path along which signals can be sent, e.g., data channel, output channel.
(2) The portion of a storage medium that is accessible to a given reading or writing station, e.g., track, band.
(3) (ISO) In information theory, that part of a communication system that connects the message source with the message sink. Mathematically, this part can be characterized by the set of conditional probabilities of occurrence of all the possible messages received at the message sink when a given message emanates from the message source.
(4) In data communication, a means of one way transmission. Contrast with circuit.
(5) See binary symmetric channel, input channel, input-output channel, output channel.

channel capacity
(ISO) The measure of the ability of a given channel subject to specific constraints to transmit messages from a specified message source expressed either as the maximum possible mean transinformation content per character, or as the maximum possible average transinformation rate.

chapter
(ISO) Deprecated term for segment.

character
(1) (ISO) A member of a set of elements upon which agreement has been reached and that is used for the organization, control, or representation of data. Characters may be letters, digits, punctuation marks, or other symbols, often represented in the form of a spatial arrangement of adjacent or connected strokes or in the form of
(1) A letter, digit, or other symbol that is used as part of the organization, control, or representation of data. A character is often in the form of a spatial arrangement of adjacent or connected strokes.

(3) See accuracy control character, acknowledge character, alphanumeric character set, alphanumeric character subset, backspace character, bell character, blank character, block cancel character, cancel character, carriage return character, check character, code extension character, control character, cyclic redundancy check character, data link escape character, delete character, device control character, end-of-medium character, end-of-text character, end-of-transmission-block character, end-of-transmission character, enquiry character, erase character, escape character, font change character, form feed character, gap character, graphic character, group separator character, horizontal tabulation character, illegal character, line feed character, negative acknowledge character, new-line character, null character, print control character, redundancy check character, shift-in character, shift-out character, sign character, space character, special character, start-of-heading character, start-of-text character, substitute character, synchronous idle character, transmission control character, vertical tabulation character.

corrective boundary
In character recognition, the largest rectangle, with a side parallel to the document reference edge, each of whose sides is tangential to a given character outline.

corrective check
A check that verifies the observance of rules for the formation of characters.

corrective display device
(ISO) A display device that gives a representation of data only in the form of characters. Synonymous with read-out device.

corrective fill
(ISO) To insert as often as necessary into a storage medium the representation of a specified character that does not itself convey data but may delete unwanted data.

corrective information rate
(ISO) Synonym for character mean entropy.

corrective characteristic
(1) (ISO) In a floating-point representation, the numeral that represents the exponent.

(2) (ISO) The integer part, which may be positive or negative, of the representation of a logarithm.

(3) Contrast with mantissa.

corrective mean entropy
(ISO) In information theory, the mean per character of the entropy for all possible messages from a stationary message source; in mathematical notation, if $H_m$ is the entropy of the set of all sequences of $m$ characters from the source, then this
mean per character $H'$ equals:

$$H' = \lim_{m \to \infty} \frac{H_m}{m}$$

The mean entropy per character may be expressed in a unit such as a Shannon per character. Synonymous with character average information content, character information rate, character mean information content.

character mean information content

(ISO) Synonym for character mean entropy.

character mean transinformation content

(ISO) In information theory, the mean per character of the mean transinformation content for all possible messages from a stationary message source; in mathematical notation, if $T_m$ is the mean transinformation content for all pairs of corresponding input and output sequences of $m$ characters, then this mean per character $T'$ equals:

$$T' = \lim_{m \to \infty} \frac{T_m}{m}$$

The mean transinformation content per character may be expressed in a unit such as Shannon per character.

character outline

The graphic pattern established by the stroke edges of a character.

character printer

(1) (ISO) A device that prints a single character at a time, e.g., a typewriter.

Synonymous with character-at-a-time printer.

(2) Contrast with line printer, page printer.

character reader

(ISO) An input unit that performs character recognition.

character recognition

(1) (ISO) The identification of characters by automatic means.

(2) See magnetic ink character recognition, optical character recognition, pattern recognition.

character set

(1) (ISO) A finite set of different characters upon which agreement has been reached and that is considered complete for some purpose, e.g., each of the character sets in ISO Recommendation R646 “6- and 7-bit coded character sets for information processing interchange”.

(2) An ordered set of unique representations called characters, e.g., the 26 letters of the English alphabet, boolean 0 and 1, the set of symbols in the Morse code, and the 128 ASCII characters.

(3) See alphabetic character set, alphanumeric coded character set, alphanumeric character set, coded character set, numeric character set, numeric coded character set.

character spacing reference line

In character recognition, a vertical line that is used to evaluate the horizontal spacing of characters. It may be a line that equally divides the distance between the sides of a character boundary or that coincides with the centerline of a vertical stroke.
character string
(ISO) A string consisting solely of characters.

class subset
(1) (ISO) A selection of characters from a character set, comprising all characters that have a specified common feature, e.g., in each of the character sets of ISO Recommendation R646 "6- and 7-bit coded character sets for information processing interchange", the digits 0 to 9 may constitute a character subset.
(2) See alphabetic character subset, alphanumeric character subset, numeric character subset.

check
(1) A process for determining accuracy.
(2) See automatic check, character check, duplication check, echo check, marginal check, mathematical check, parity check, programmed check, residue check, selection check, sight check, summation check, transfer check.

check bit
(1) A binary check digit, e.g., a parity bit.
(2) See redundancy check bit.

check card
(1) A punched card suitable for use as a bank check.
(2) A punch card used for checking.

check character
A character used for the purpose of performing a check.

check digit
A digit used for the purpose of performing a check.

checking program
(ISO) A computer program that examines other computer programs or sets of data for mistakes of syntax.

checkout
Synonym for debug.

checkpoint
(ISO) A place in a computer program at which a check is made or at which a recording of data is made for restart purposes.

Chinese binary
Synonym for column binary.

chip
(1) A minute piece of semiconductive material used in the manufacture of electronic components.
(2) An integrated circuit on a piece of semiconductive material.
(3) In micrographics, a piece of microfilm smaller than a microfiche containing microimages and coded identification.
(4) (ISO) Synonym for chad.

cine-oriented image
(1) In micrographics, an image appearing on a roll of microfilm in such a manner that the top edge of the image is perpendicular to the long edge of the film.
(2) Contrast with comic-strip oriented image.

circuit
(1) In data communication, a means of two-way communication between two data terminal installations.
(2) Contrast with channel.
(3) See bistable circuit, combinational circuit, monostable circuit, sequential circuit, trigger circuit.

circular shift
Synonym for end-around shift.
circulating register
A shift register in which data moved out of one end of the register are reentered into the other end as in a closed loop.

circulating storage
Dynamic storage involving a closed loop. Synonymous with cyclic storage.

clear
(1) (ISO) To put one or more storage locations or registers into a prescribed state, usually that denoting zero.
(2) (ISO) To cause one or more storage locations to be in a prescribed state, usually that corresponding to zero or that corresponding to the space character.

clear area
In character recognition, a specified area that is to be kept free of printing or any other markings not related to machine reading.

clock
(1) (ISO) A device that generates periodic signals from which synchronism may be maintained.
(2) A device that measures and indicates time.
(3) A register whose content changes at regular intervals in such a way as to measure time.
(4) (ISO) Deprecated term for timer.

clock pulse
(1) A synchronization signal provided by a clock.
(2) (ISO) Synonym for clock signal.

clock register
(IS) Synonym for timer.

clock signal
(IS) The output of a device that generates periodic signals used for synchronization. Synonymous with clock pulse.

clock track
(ISO) A track on which a pattern of signals is recorded to provide a timing reference.

closed loop
(ISO) A loop that has no exit and whose execution can be interrupted only by intervention from outside the computer program in which the loop is included.

closed shop
(1) Pertaining to the operation of a computer facility in which most productive problem programming is performed by a group of programming specialists rather than the problem originators. The use of the computer itself may also be described as closed shop if full time trained operators, rather than user/programmers serve as the operators.
(2) Contrast with open shop.

closed subroutine
(1) (ISO) A subroutine of which one replica suffices for the subroutine to be linked by calling sequences for use at more than one place in a computer program.
(2) Contrast with open subroutine.

coalesce
(1) (ISO) To combine two or more sets of items into one set of any form.
(2) To combine two or more files into one file.

coated card
See edge-coated card.

COBOL (common business oriented language)
A programming language designed for business data processing.

code

(1) (ISO) A set of unambiguous rules specifying the manner in which data may be represented in a discrete form. Synonymous with coding scheme.

(2) A set of items, such as abbreviations, representing the members of another set.

(3) (ISO) To represent data or a computer program in a symbolic form that can be accepted by a data processor.

(4) To write a routine.

(5) (ISO) Deprecated term for coded representation, code set.

(6) (ISO) Synonym for coded representation.

(7) Synonym for coded character set.

(8) See alphabetic code, alphanumeric code, binary code, biquinary code, chain code, computer instruction code, data code, error correcting code, error detecting code, excess-three code, gray code, hamming code, interpretive code, minimum distance code, numeric code, object code, operation code, perforated tape code, pseudo code, retrieval code, return code, skeletal code, two-out-of-five code.

code area

In micrographics, a part of the film frame reserved for retrieval code.

code converter

(ISO) A data converter that changes the representation of data, using one code in the place of another or one coded character set in the place of another.

coded character set

(1) (ISO) A set of unambiguous rules that establish a character set and the one-to-one relationships between the characters of the set and their coded representations. Synonymous with code.

(2) See alphabetic coded character set, alphanumeric coded character set, numeric coded character set.

coded decimal notation

Synonym for binary-coded decimal notation.

coded representation

(ISO) The representation of an item of data established by a code or the representation of a character established by a coded character set, e.g., "ORY" as the representation of Paris (Orly) in the code for 3-letter identification for airports; the seven binary elements representing the delete character in the ISO 7-bit coded character set. Synonymous with code, code element, code value.

code element

Synonym for coded representation.

code extension character

(ISO) Any control character used to indicate that one or more of the succeeding coded representations are to be interpreted according to a different code or according to a different coded character set.

code line index

In micrographics, a visual index consisting of an optical pattern of clear and opaque bars parallel to the long edge of the roll microfilm and located between images.

code position

(ISO) Synonym for punch position.

coder

A person who writes but does not usually design computer programs.
code set
(ISO) The complete set of representations defined by a code, or by a coded character set, e.g., all of the three-letter international identifications for airports.

code value
(ISO) Synonym for coded representation.

coding
See absolute coding, relative coding, straight line coding, symbolic coding.

coding scheme
Synonym for code (1).

collate
(1) (ISO) To alter the arrangement of a set of items from two or more ordered subsets to one or more other subsets each containing a number of items, commonly one, from each of the original subsets in a specified order that is not necessarily the order of any of the original subsets.
(2) See also merge.

collating sequence
(1) (ISO) A specified arrangement used in sequencing. Synonymous with sequence.
(2) An ordering assigned to a set of items such that any two sets in that assigned order can be collated.
(3) (ISO) Deprecated term for order (1).

collator
A device that collates, merges, or matches sets of punched cards or other documents.

color
In optical character recognition, the spectral appearance of the image dependent upon the spectral reflectance of the image, the spectral response of the observer, and the spectral composition of incident light.

column
(1) A vertical arrangement of characters or other expressions.
(2) Contrast with row.
(3) See card column, mark-sensing column, punch column.

column binary
(1) Pertaining to the binary representation of data on cards in which the weights of punch positions are assigned along card columns. For example, each column in a 12-row card may be used to represent 12 consecutive bits. Synonymous with Chinese binary.
(2) Contrast with row binary.

column split
The capability of a punch card device to read or punch two parts of a card column independently.

COM
(1) Computer output microfilm.
(2) Computer output microfilmer.

combination
(1) (ISO) A given number of different elements selected from a set without regard to the order in which the selected elements are arranged.
(2) Contrast with permutation.
(3) See forbidden combination.

combinational circuit
(ISO) A logic device whose output values, at any given instant, depend only upon the input values at that time. A combinational circuit is a special case of a sequential circuit that does not have a storage capability. Synonymous with combinatorial circuit.

combinational logic element
(1) A device having at least one output channel and zero or more input chan-
nels, all characterized by discrete states, such that at any instant the state of each output channel is completely determined by the states of the input channels at the same instant.

2) Contrast with **sequential logic element**.

**combinatorial circuit**

Synonym for **combinational circuit**.

**combined head**

(ISO) Synonym for **read/write head**.

**comic-strip oriented image**

1) In *micrographics*, an image appearing on roll *microfilm* in such a manner that the top edge of the image is parallel to the long edge of the film.

2) Contrast with **cine-oriented image**.

**command**

1) A control *signal*.
2) Loosely, an *instruction*.
3) Loosely, a mathematical or logic *operator*.
4) Deprecated term for *instruction*.

**command language**

A *source language* consisting primarily of procedural *operators*, each capable of invoking a *function* to be executed.

**comment**

(ISO) A description, reference, or explanation, added to or interspersed among the *statements* of the *source language*, that has no effect in the *target language*. Synonymous with computer program annotation.

**common field**

A *field* that can be accessed by two or more independent *routines*.

**communication**

See *data communication*.

**communication control character**

(ISO) Synonym for *transmission control character*.

**communication theory**

1) (ISO) The mathematical discipline dealing with the probabilistic features of the transmission of *data* in the presence of *noise*.

2) (ISO) Deprecated term for *information theory*.

**comparator**

1) (ISO) A device that *compares* two *items* of *data* and indicates the *result* of that comparison.

2) A device for determining the dissimilarity of two *items* such as two *pulse* patterns or *words*.

**compare**

(ISO) To examine two *items* to discover their relative magnitudes, their relative positions in an *order* or in a *sequence*, or whether they are identical in given characteristics.

**comparison**

1) The process of examining two or more *items* for identity, similarity, equality, relative magnitude, or for *order* in a *sequence*.

2) See *logical comparison*.

**compile**

1) (ISO) To *translate* a *computer program* expressed in a *problem-oriented language* into a *computer-oriented language*.

2) To prepare a *machine language program* from a *computer program* written in another *programming language* by making use of the overall logic structure of the program, or generating more than one *computer instruction* for each *symbolic statement*, or
both, as well as performing the *function* of an assembler.

**compile-and-go**
An operating technique in which there are no stops between the compiling, loading, and execution of a computer program.

**compile duration**
(ISO) Synonym for *compiling time*.

**compile phase**
(ISO) Of a run, the logical subdivision that includes the execution of the compiler. Synonymous with *compiling phase*.

**compiler**
(ISO) A *computer program* used to *compile*. Synonymous with *compiling program*.

**compiler generator**
(ISO) A *translator* or an *interpreter* that is used to construct *compilers*.

**compiling phase**
(ISO) Synonym for *compile phase*.

**compiling program**
(ISO) Synonym for *compiler*.

**compiling time**
(ISO) The elapsed time taken for the execution of a compiler. Synonymous with *compile duration*.

**complement**
(1) (ISO) In a *fixed-radix numeration system*, a *numeral* that can be derived from a given numeral by *operations* that include subtracting each *digit* of the digital representation of the given *number* from the corresponding digit of the digital representation of a specified number.
(2) A *number* that can be derived from a specified number by subtracting it from a second specified number. For example, in *radix notation*, the second specified number may be a given power of the radix or one less than a given power of the radix. The negative of a number is often represented by its complement.

(3) See *diminished radix complement*, *nines complement*, *ones complement*, *radix complement*, *tens complement*, *twos complement*.

**complementary operation**
(ISO) Of a *boolean operation*, another boolean operation whose result, when it is performed on the same operands as the first boolean operation, is the negation of the result of the first boolean operation.

**complementary operator**
The logic operator whose result is the *NOT* of a given logic operator.

**complement base**
(ISO) In a *fixed-radix numeration system*, the specified *number* whose *digital representation* contains the *digits* from which the corresponding digits of the given number are subtracted in obtaining a *complement* of the given number.

**complementer**
(ISO) A device whose *output data* are a representation of the *complement* of the number represented by its *input data*.

**complement-on-nine**
(ISO) Synonym for *nines complement*.

**complement-on-one**
(ISO) Synonym for *ones complement*.

**complement-on-ten**
(ISO) Synonym for *tens complement*. 
complement-on-two
(ISO) Synonym for twos complement.

complete carry
(1) (ISO) In parallel addition, a procedure in which each of the carries is immediately transferred.
(2) Contrast with partial carry.

complex number
(ISO) A number consisting of an ordered pair of real numbers, expressible in the form \( a + bi \), where \( a \) and \( b \) are real numbers and \( i \) squared equals minus one.

component
See solid state component.

computational stability
The degree to which a computational process remains valid when subjected to effects such as errors, mistakes, or malfunctions.

computer
(1) (ISO) A data processor that can perform substantial computation, including numerous arithmetic operations or logic operations, without intervention by a human operator during a run.
(2) See analog computer, arbitrary sequence computer, asynchronous computer, consecutive sequence computer, digital computer, general purpose computer, hybrid computer, incremental computer, parallel computer, self-adapting computer, self-organizing computer, sequential computer, serial computer, simultaneous computer, special purpose computer, stored program computer, synchronous computer.

computer assisted management
(ISO) Management performed with the aid of automatic data processing.

computer-dependent language
Synonym for assembly language.

computer graphics
(ISO) That branch of science and technology concerned with methods and techniques for converting any form of information to or from graphic display via computers.

computer instruction
(ISO) An instruction that can be recognized by the central processing unit of the computer for which it is designed. Synonymous with machine instruction.

computer instruction code
(ISO) A code used to represent the instructions in an instruction set. Synonymous with machine code.

computer instruction set
A complete set of the operators of the instructions of a computer together with a description of the types of meanings that can be attributed to their operands. Synonymous with machine instruction set.

computer language
(1) (ISO) A computer-oriented language whose instructions consist only of computer instructions. Synonymous with machine language.
(2) (ISO) Deprecated term for computer-oriented language.

computer network
A complex consisting of two or more interconnected computers.
computer operation
One of the elementary operations which a computer is designed to perform. Synonymous with machine operation.

computer-oriented language
(1) (ISO) A programming language that reflects the structure of a given computer or that of a given class of computers.
(2) A programming language whose words and syntax are designed for use on a specific class of computers. Synonymous with machine-oriented language.
(3) See also computer language.

computer output microfilm (COM)
(1) (ISO) Microfilm that contains data that is received directly from computer-generated signals.
(2) To place computer-generated data on microfilm.

computer output microfilmer (COM)
A recording device that produces computer output microfilm.

computer program
(ISO) A program expressed in a form suitable for execution by a computer.

computer program annotation
(ISO) Synonym for comment.

computer program origin
The address assigned to the initial storage location of a computer program in main storage.

computer simulator
(ISO) A computer program that translates computer programs prepared for a computer of one model for execution on a computer of a different model.

computer time
In simulation, the time required to process the data that represents a process or that represents a part of a process.

computer word
(1) (ISO) A word stored in one computer location and capable of being treated as a unit. Synonymous with fullword, machine word.
(2) See also halfword.

concurrent
(1) (ISO) Pertaining to the occurrence of two or more activities within a given interval of time.
(2) Contrast with simultaneous.
(3) See also consecutive, sequential.

color operation
A mode of operation that includes the performance of two or more operations within a given interval of time.

condition
See restart condition.

conditional branch instruction
(ISO) Deprecated term for conditional jump instruction.

conditional control transfer instruction
(ISO) Deprecated term for conditional jump instruction.

conditional entropy
(ISO) In information theory, the mean of the measure of information conveyed by the occurrence of any one of a finite set of mutually exclusive and jointly exhaustive events of definite conditional probabilities, given the occurrence of events of another set of mutually exclusive events; in mathematical notation, this means H(x | y) for a set of events x₁,...,xₙ which are dependent on the occurrence of events
from another set \( y_1, \ldots, y_m \) with joint probabilities \( p(x_i, y_j) \) of the occurrence of both events \( x_i, y_j \) equals the mathematical expectation of the conditional information content \( I(x_i \mid y_j) \) of all pairs of events:

\[
H(x \mid y) = \sum_{i=1}^{n} \sum_{j=1}^{m} p(x_i, y_j) I(x_i \mid y_j) = \sum_{i=1}^{n} \sum_{j=1}^{m} p(x_i, y_j) \log \frac{1}{p(x_i \mid y_j)}
\]

Synonymous with average conditional information content, mean conditional information content.

**conditional jump instruction**

(ISO) An instruction that specifies a conditional jump and the conditions that have to be satisfied for the conditional jump to occur.

**conditional statement**

A statement used to express an assignment or branch, based on specified criteria, e.g., an IF-THEN statement.

**conditional transfer instruction**

(ISO) Deprecated term for conditional jump instruction, jump instruction.

**conditions**

See entry conditions.

**conjunction**

(1) (ISO) The boolean operation whose result has the boolean value 1 if and only if each operand has the boolean value 1. Synonymous with AND operation, intersection.

(2) Contrast with nonconjunction.

**connector**

(1) (ISO) A flowchart symbol that represents a break in a flowline, the same flowline being continued elsewhere.

(2) See inconnector, outconnector.

**consecutive**

(1) (ISO) Pertaining to the occurrence of two sequential events without the intervention of any other such event.

(2) Contrast with sequential.

(3) See also concurrent, simultaneous.

**consecutive operation**

Synonym for sequential operation.

**consecutive sequence computer**

(ISO) A computer in which instructions are executed in an implicitly defined sequence unless a jump instruction specifies
the storage location of the next instruction to be executed.

**console**
(1) A part of a computer used for communication between the operator or maintenance engineer and the computer.
(2) See operator console.

**constant**
See figurative constant.

**content**
See character mean transinformation content, conditional information content, decision content, information content, joint information content, mean transinformation content, transinformation content.

**content-addressed storage**
Synonym for associative storage.

**continuous-form cards**
Special cards attached together in continuous strips to facilitate printing. They can be separated into individual punched cards.

**contrast**
(1) In optical character recognition, the differences between color or shading of the printed material on a document and the background on which it is printed.
(2) See print contrast ratio.

**control**
See loop control, numerical control, process control, real-time control, sequential control.

**control character**
(1) (ISO) A character whose occurrence in a particular context initiates, modifies, or stops a control operation. A control character may be recorded for use in a subsequent action. A control character is not a graphic character, but may have a graphic representation in some circumstances.
(2) See accuracy control character, device control character, print control character, transmission control character.

**control counter**
(ISO) Synonym for instruction address register.

**control engineering**
See automatic control engineering.

**control function**
(ISO) Synonym for control operation.

**control hole**
(ISO) Synonym for designation hole.

**control instruction register**
(ISO) Deprecated term for instruction address register.

**control language**
See job control language.

**controller**
See input-output controller.

**control operation**
(1) (ISO) An action that affects the recording, processing, transmission or interpretation of data, e.g., starting or stopping a process, carriage return, font change, rewind and end of transmission.
(2) (ISO) Synonymous with control function.

**control panel**
(1) A part of a computer console that contains manual controls.
(2) Synonym for plugboard.
control program
A computer program designed to schedule and supervise the execution of all the programs, routines, and subroutines of a computing system.

core
(1) (ISO) Deprecated term for tape spool.

convert
(1) (ISO) To change the representation of data from one form to another, without changing the information they convey, e.g., radix conversion; code conversion; conversion from punched cards to magnetic tape; analog to digital conversion.
(2) Synonymous with transform.
(3) See also copy, duplicate.

copier
See code converter, data converter.

convex programming
(1) (ISO) In operations research, a particular case of nonlinear programming in which the function to be maximized or minimized and the constraints are appropriately convex or concave functions of the controllable variables.
(2) Contrast with dynamic programming, integer programming, linear programming, mathematical programming, nonlinear programming, quadratic programming.

copy
(ISO) To read data from a source, leaving the source data unchanged, and to write the same data elsewhere in a physical form that may differ from that of the source, e.g., to copy a deck of punched cards onto magnetic tape. The degree of editing that may be carried out at the same time depends upon the circumstances in which the copying is performed. Certain synonyms for “to copy” are used in certain contexts depending on the source and the destination of the data, as shown in the following table:

<table>
<thead>
<tr>
<th>Source</th>
<th>External Storage or Input</th>
<th>Internal Storage</th>
<th>A Register</th>
</tr>
</thead>
<tbody>
<tr>
<td>To read</td>
<td>To load</td>
<td>To load</td>
<td>A Register</td>
</tr>
<tr>
<td>To read</td>
<td>To move</td>
<td>To store</td>
<td>Internal Storage</td>
</tr>
<tr>
<td>To transmit or to read or to write</td>
<td>To write</td>
<td>To write</td>
<td>External Storage or Output</td>
</tr>
</tbody>
</table>

control punch
(ISO) Synonym for designation hole.

core register
(ISO) Deprecated term for instruction address register.

control register
See instruction control unit, main control unit, peripheral control unit.

carriage control tape
See control tape.

control tape
See carriage control tape.

carriage control unit
See instruction control unit, main control unit, peripheral control unit.

control variable
See loop control variable.

conversational mode
A mode of operation of a data processing system in which a sequence of alternating entries between a user and the system takes place in a manner similar to a conversation between two persons.

crush
(ISO) To change the representation of data from one form to another, without changing the information they convey, e.g., radix conversion; code conversion; conversion from punched cards to magnetic tape; analog to digital conversion.
(2) Synonymous with transform.
(3) See also copy, duplicate.
(2) See magnetic core, multi-aperture core, switch core.

core storage
(1) A magnetic storage in which the data medium consists of magnetic cores.
(2) See magnetic core storage.

corrective maintenance
(1) Maintenance specifically intended to eliminate an existing fault.
(2) Contrast with preventive maintenance.

corrective maintenance time
Time, either scheduled or unscheduled, used to perform corrective maintenance.

counter
(1) (ISO) A device whose state represents a number and that, on receipt of an appropriate signal, causes the number represented to be increased by unity or by an arbitrary constant; the device is usually capable of bringing the number represented to a specified value, e.g., zero.
(2) See instruction counter, modulo-n counter, reversible counter.

CPU
Central processing unit.

CR
(1) An abbreviation denoting a credit symbol in the amount field.
(2) The carriage return character.

CRC
The cyclic redundancy check character.

crosstalk
The unwanted energy transferred from one circuit, called the disturbing circuit, to another circuit, called the disturbed circuit.

CRT display
Cathode ray tube display.

cryogenics
The study and use of devices utilizing properties of materials near absolute zero in temperature.

cryogenic storage
(ISO) A storage device that uses the superconductive and magnetic properties of certain materials at very low temperatures.

cryotron
A device that makes use of the effects of low temperatures on conductive materials such that small magnetic field changes can control large current changes.

cue
Synonym for call.

curtate
(1) A group of adjacent card rows.
(2) See lower curtate, upper curtate.

curve follower
(ISO) An input unit that reads data represented by a curve.

cybernetics
(ISO) The branch of learning that brings together theories and studies on communication and control in living organisms and in machines.

cycle
(1) An interval of space or time in which one set of events or phenomena is completed.
(2) Any set of operations that is repeated regularly in the same sequence. The operations may be subject to variations on each repetition.
(3) See search cycle.
cycle time

(1) (ISO) The minimum time interval between the starts of successive read/write cycles of a magnetic core storage.

(2) See read cycle time, write cycle time.

cyclic redundancy check character (CRC)

A character used in a modified cyclic code for error detection and correction.

cyclic shift

Synonym for end-around shift.

cyclic storage

Synonym for circulating storage.
data
(1) (ISO) A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means.
(2) Any representations such as characters or analog quantities to which meaning is or might be assigned.
(3) See alphanumeric data, analog data, digital data, discrete data, input data, numeric data, output data.

data attribute
A characteristic of a unit of data such as length, value, or method of representation.

data bank
(1) (ISO) A set of libraries of data.
(2) A comprehensive collection of libraries of data. For example, one line of an invoice may form an item, a complete invoice may form a record, a complete set of such records may form a file, the collection of inventory control files may form a library, and the libraries used by an organization are known as its data bank.

data base
(1) (ISO) A set of data, part or the whole of another set of data, and consisting of at least one file, that is sufficient for a given purpose or for a given data processing system.
(2) A collection of data fundamental to a system.
(3) A collection of data fundamental to an enterprise.

data card
See source data card.

data code
(1) A structured set of characters used to represent data items, e.g., the codes 01, 02, ..., 12 may be used to represent the months January, February, ..., December of the data element months of the year.
(2) (ISO) In data communication, a set of rules and conventions according to which the signals representing data should be formed, transmitted, received and processed.
(3) (ISO) Deprecated term for code set.

data collection station
(ISO) Synonym for data input station.

data communication
(1) The transmission and reception of data.
(2) The transmission, reception, and validation of data.

data converter
(ISO) A device whose purpose is to convert data.

data definition
A program statement that describes the features of, specifies relationships of, or establishes context of data.

data flowchart
(ISO) A flowchart that represents the path of data in the solving of a problem, and that defines the major phases of the processing as well as the various data media used. Synonymous with data flow diagram.

data flow diagram
(ISO) Synonym for data flowchart.

data hierarchy
A data structure consisting of sets and
subsets such that every subset of a set is of lower rank than the data of the set.

**data input station**
(ISO) A user terminal primarily for the insertion of data into a data processing system. Synonymous with data collection station.

**data library**
(ISO) A collection of related files, e.g., in stock control, a collection of inventory control files.

**data link**
The physical means of connecting one location to another for the purpose of transmitting and receiving data.

**data link escape character (DLE)**
(ISO) A transmission control character that changes the meaning of a limited number of contiguously following characters or coded representations and that is used exclusively to provide supplementary transmission control characters.

**data logging**
The recording of data about events that occur in time sequence.

**data management**
(1) The function of controlling the acquisition, analysis, storage, retrieval, and distribution of data.
(2) In an operating system, the computer programs that provide access to data, perform or monitor storage of data, and control input-output devices.

**data medium**
(1) (ISO) The material in or on which a specific physical variable may represent data.
(2) (ISO) The physical quantity which may be varied to represent data.

**data name**
(ISO) A character or group of characters used to identify an item of data.

**data processing**
(1) (ISO) The execution of a systematic sequence of operations performed upon data, e.g., handling, merging, sorting, computing. Synonymous with information processing.
(2) See administrative data processing, automatic data processing, business data processing, electronic data processing, integrated data processing.

**data processing system**
(ISO) A collection of methods, procedures, or techniques united by regulated interaction to form an organized whole.

**data processor**
(ISO) A device capable of performing data processing, such as a desk calculator, a punched card machine, or a computer. Synonymous with processor(1).

**data reduction**
The transformation of raw data into a more useful form, e.g., smoothing to reduce noise.

**data signalling rate**
In data communication, the data transmission capacity of a set of parallel channels. The data signalling rate is expressed in bits per second.

**data sink**
(1) In data communication, a device capable of accepting data signals from a transmission device. It may also check these signals and originate error control signals.
(2) Contrast with data source.
data source
(1) In data communication, a device capable of originating data signals for a transmission device. It may also accept error control signals.
(2) Contrast with data sink.

data terminal equipment
A data source, a data sink, or both.

data transmission
Synonym for transmission.

datum line
See X-datum line, Y-datum line.

DC1, DC2, DC3, DC4
Device control characters.

DDA
Digital differential analyzer.

deblock
To separate the parts of blocks, e.g., to select records from a block.

debug
(ISO) To detect, to trace, and to eliminate mistakes in computer programs or in other software. Synonymous with checkout.

decimal
(1) (ISO) Pertaining to a selection, choice, or condition that has ten possible different values or states.
(2) (ISO) Pertaining to a fixed-radix numeration system having a radix of ten. Synonymous with denary.
(3) See binary-coded decimal notation.

decimal digit
(ISO) In decimal notation, or in the decimal numeration system, one of the digits 0 to 9.

decimal notation
(1) (ISO) A notation that uses ten different characters, usually the decimal digits, e.g., the character string 196912312359, construed to represent the date and time one minute before the start of the year 1970; the representation used in the Universal Decimal Classification (UDC). These examples use decimal notation but neither satisfies the definition of the decimal numeration system.
(2) Contrast with decimal numeration system.

decimal numeral
A numeral in the decimal numeration system.

decimal numeration system
(1) (ISO) The fixed radix numeration system that uses the decimal digits and the radix ten and in which the lowest integral weight is 1, e.g., in this numeration system, the numeral 576.2 represents the number: $5 \times 10^2 + 7 \times 10^1 + 6 \times 10^0 + 2 \times 10^{-1}$.
(2) Contrast with decimal notation.

decimal point
(ISO) The radix point in the decimal numeration system. The decimal point may be represented, according to various conventions, by a comma, by a period, or by a point at the mid-height of the digits.

decision
See leading decision, trailing decision.

decision content
(ISO) In information theory, a logarithmic measure of the number of decisions needed to select a given event among a finite number of mutually exclusive events; in mathematical notation, this measure is:
\[ H_o = \log_n \]

where \( n \) is the number of events. In information theory, the term event is to be understood as used in the theory of probability. For instance, an event may be the presence of a given element of a set, the occurrence of a specified character or of a specified word in a given position of a message.

decision instruction
(1) (ISO) Deprecated term for discrimination instruction.
(2) (ISO) Synonym for branch instruction.

decision table
(1) (ISO) A table of all contingencies that are to be considered in the description of a problem together with the actions to be taken.
(2) A presentation in either matrix or tabular form of a set of conditions and their corresponding actions.

decode
(1) (ISO) To convert data by reversing the effect of some previous encoding.
(2) To interpret a code.
(3) Contrast with encode.

decoder
(1) (ISO) A device that decodes data.
(2) (ISO) A device that has a number of input lines of which any number may carry signals and a number of output lines of which not more than one may carry a signal, there being a one-to-one correspondence between the outputs and the combinations of the input signals.
(3) Contrast with encoder.
(4) See operation decoder.

decollate
To separate the plies of a multipart form or paper stock. Synonymous with deleave.

default option
An implicit option that is assumed when no option is explicitly stated.

deferred addressing
(ISO) A method of addressing in which one indirect address is replaced by another to which it refers a predetermined number of times or until the process is terminated by an indicator.

deferred maintenance
Maintenance specifically intended to eliminate an existing fault, which did not prevent continued successful operation of the device or computer program.

deferred maintenance time
Time, usually scheduled, used to perform deferred maintenance.

definition
See data definition, macro definition.

DEL
The delete character.
delay
The amount of time by which an event is retarded.

delay line
(1) (ISO) A line or network designed to introduce a desired delay in the transmission of a signal, usually without appreciable distortion.

(2) A sequential logic element with one input channel and in which an output channel state at any one instant, T, is the same as the input channel state at the instant T-N, where N is a constant interval of time for a given output channel, i.e., an element in which the input sequence undergoes a delay of N time units.

(3) See acoustic delay line, electromagnetic delay line, magnetic delay line.

delay line storage
(ISO) A storage device that uses delay lines.

delay unit
(ISO) A device that yields, after a given time interval, an output signal essentially similar to a previously introduced input signal.

delease
Synonym for decollate.

delete character (DEL)
(ISO) A control character used primarily to obliterate an erroneous or unwanted character; on perforated tape this character consists of a code hole in each punch position.

delimiter
A flag that separates and organizes items of data. Synonymous with punctuation symbol, separator.

denary
(ISO) Synonym for decimal(2).

density
See packing density, recording density.

descriptor
In information retrieval, a word used to categorize or index information. Synonymous with keyword.

designation hole
(ISO) A hole punched in a punch card to indicate the nature of the data on the card or the functions that a machine is to perform. Synonymous with control hole, function hole.

destructive read
(ISO) A reading that also erases the data in the source location.

detail file
(ISO) Synonym for transaction file.

development time
(1) That part of operating time used for debugging new routines or hardware.

(2) Contrast with makeup time.

(3) See program development time.

device control character
(ISO) A control character used for the control of ancillary devices associated with a data processing system or a data communication system, e.g., for switching such devices on or off.

diagnostic
Pertaining to the detection and isolation of a malfunction or mistake.

diagnostic program
(ISO) A computer program that recognizes, locates, and explains either a fault
in equipment or a mistake in a computer program.

**diagram**
See block diagram, functional diagram, logic diagram, setup diagram, Veitch diagram, Venn diagram.

**dichotomizing search**
(ISO) A search in which an ordered set of items is partitioned into two parts, one of which is rejected, the process being repeated on the accepted part until the search is completed.

**dictionary**
(1) Synonym for table.
(2) See relocation dictionary.

**difference**
(ISO) In a subtraction operation, the number or quantity that is the result of subtracting the subtrahend from the minuend.

**differential analyzer**
(1) (ISO) An analog computer using interconnected integrators to solve differential equations.
(2) See digital differential analyzer.

**differential gear**
In analog computers, a mechanism that relates the angles of rotation of three shafts, usually designed so that the algebraic sum of the rotation of two shafts is equal to twice the rotation of the third. A differential gear can be used for addition or subtraction.

**differentiator**
A device whose output function is proportional to the derivative of the input function with respect to one or more variables, e.g., a resistance-capacitance net-work used to select the leading and trailing edges of a pulse signal.

**digit**
(1) (ISO) A graphic character that represents an integer, e.g., one of the characters 0 to 9.
(2) A symbol that represents one of the nonnegative integers smaller than the radix. For example, in decimal notation, a digit is one of the characters from 0 to 9.
(3) (ISO) Synonymous with numeric character.
(4) See binary digit, borrow digit, carry digit, check digit, decimal digit, equivalent binary-digit factor, sign digit, significant digit.

**digital**
(1) (ISO) Pertaining to digits or to the representation of data or physical quantities by digits.
(2) Contrast with analog.

**digital computer**
(1) (ISO) A computer in which discrete representations of data are mainly used.
(2) A computer that operates on discrete data by performing arithmetic and logic processes on these data.
(3) Contrast with analog computer.

**digital data**
(ISO) Data represented by digits, perhaps with special characters and the space character.

**digital differential analyzer (DDA)**
(1) (ISO) An incremental computer in which the principal type of computing unit is a digital integrator whose operation is similar to the operation of an integrating mechanism.
(2) A differential analyzer that uses digital
representations for the analog quantities.

digital representation
(ISO) A discrete representation of a quantized value of a variable, i.e., the representation of a number by digits, perhaps with special characters and the space character.

digitize
(ISO) To express or represent in a digital form data that are not discrete data, e.g., to obtain a digital representation of the magnitude of a physical quantity from an analog representation of that magnitude.

digit place
(ISO) In a positional representation system, each site that may be occupied by a character and that may be identified by an ordinal number or by an equivalent identifier. Synonymous with digit position, symbol rank.

digit position
(ISO) Synonym for digit place.

digit punch
(1) A punch in rows 1, 2, ..., 9 of a punched card.
(2) Contrast with zone punch.
(3) See also eleven punch, twelve punch.

diminished radix complement
(ISO) A complement obtained by subtracting each digit of the given number from the number that is one less than the radix of that digit place. Synonymous with radix-minus-one complement.

dipole modulation
Synonym for non-polarized return-to-zero recording.

direct access
(1) (ISO) The facility to obtain data from storage devices or to enter data into a storage device in such a way that the process depends only on the location of that data and not on a reference to data previously accessed.
(2) Contrast with serial access.

direct access storage
(ISO) A storage device in which the access time is in effect independent of the location of the data. Synonymous with immediate access storage.

direct address
(1) (ISO) An address that designates the storage location of an item of data to be treated as an operand. Synonymous with one-level address.
(2) Contrast with indirect address.

direct addressing
(1) (ISO) A method of addressing in which the address part of an instruction contains a direct address.
(2) Contrast with indirect addressing.

direct insert subroutine
(ISO) Synonym for open subroutine.

direct instruction
(ISO) An instruction that contains the direct address of an operand for the operation specified.

directive
(ISO) Synonym for declaration.

directory
(ISO) A table of identifiers and references to the corresponding items of data.

disaster dump
A dump made when a nonrecoverable computer program error occurs.
disc
Alternate spelling for disk.

discrete
(1) (ISO) Pertaining to distinct elements or to representation of data by distinct elements such as characters, or to physical quantities only having distinct values.
(2) Contrast with analog.

discrete data
(ISO) Data represented by characters.

discrete programming
(ISO) Synonym for integer programming.

discrete representation
(ISO) A representation of data by characters, each character or a group of characters designating one of a number of alternatives.

discrimination instruction
(ISO) An instruction of the class of instructions that comprises branch instructions and conditional jump instructions.

disjunction
(1) (ISO) The boolean operation whose result has the boolean value 0 if and only if each operand has the boolean value 0. Synonymous with inclusive-OR operation, logical add, OR operation.
(2) Contrast with nondisjunction.

disk
(ISO) Synonym for magnetic disk.

disk pack
(1) (ISO) A removable assembly of magnetic disks.
(2) A portable set of flat, circular recording surfaces used in a disk storage device.

display
(1) (ISO) A visual presentation of data.
(2) (ISO) Loosely, a display device.
(3) See cathode ray tube display.

display device
(1) (ISO) An output unit that gives a visual representation of data. Usually the data are displayed temporarily, however, arrangements may be made for making a permanent record.
(2) See character display device.

display tube
A tube, usually a cathode ray tube, used to display data.

dividend
(ISO) In a division operation, the number or quantity to be divided.

divisor
(ISO) In a division operation, the number or quantity by which the dividend is divided.

DLE
The data link escape character.

document
(ISO) A data medium and the data recorded on it, that generally has permanence and that can be read by man or machine.

documentation
(1) (ISO) The management of documents which may include the actions of identifying, acquiring, processing, storing, and disseminating them.
(2) (ISO) A collection of documents on a given subject.

document mark
(ISO) In micrographics, an optical mark, within the recording area and outside the
image on a roll of microfilm, used for counting images or film frames automatically. Synonymous with blip.

document reference edge
In character recognition, a specified document edge with respect to which the alignment of characters is defined.

do-nothing operation
(ISO) Synonym for no-operation instruction.

dot matrix
(ISO) In micrographics, a method of generating characters using a matrix of dots so that the combination of energized dots produces a human-readable character.

dot printer
(ISO) Synonym for matrix printer.

double card
A special card that is approximately twice the length of a general purpose paper card. A double card usually consists of two separable general purpose paper cards.

double-ended queue
A list of variable length, whose content may be changed by adding or removing items at either end.

double-length register
(ISO) Two registers that function as a single register. Each register may be individually accessed. For example, a double-length register may be used in exact multiplication, for storing the result; in exact division, for storing the partial quotient and remainder; in character manipulation, for shifting character strings and accessing the left or right portion. Synonymous with double register.

double precision
(ISO) Pertaining to the use of two computer words to represent a number in accordance with the required precision.

double pulse recording
(ISO) Phase modulation recording magnetized in opposite polarity with unmagnetized regions on each end. A zero may be represented by a cell composed of a negative region followed by a positive region, and a one by a positive region followed by a negative region, or vice versa.

double rail logic
Pertaining to self-timing asynchronous circuits in which each logic variable is represented by two electrical lines which together can take on three meaningful states: zero, one, and undecided.

double register
(ISO) Synonym for double-length register.

doublet
(ISO) A byte composed of two binary elements. Synonymous with two-bit byte.

doubleword
A contiguous sequence of bits or characters which comprises two computer words and is capable of being addressed as a unit.

downtime
The time during which a functional unit is inoperable due to a fault.

drive
See tape drive.

drop in
(1) (ISO) The reading of an additional false binary character from magnetic storage because of a defect in, or the
presence of particles on the magnetic surface layer.

(2) The reading of a spurious signal whose amplitude is greater than a predetermined percentage of the nominal signal.

drop out
(1) (ISO) A failure to read a binary character from magnetic storage because of defects in, or the presence of particles on the magnetic surface layer.
(2) In magnetic tape, a recorded signal whose amplitude is less than a predetermined percentage of a reference signal.
(3) In data communication, a momentary loss in signal, usually due to the effect of noise or system malfunction.
(4) A failure to read a bit from magnetic storage.

drum
See magnetic drum.

drum printer
A line printer in which the type are mounted on a rotating drum that contains a full character set for each printing position.

drum storage
See magnetic drum storage.

DTE
Data terminal equipment.

dual operation
(ISO) Of a boolean operation, another boolean operation whose result, when it is performed on operands that are the negation of the operands of the first boolean operation, is the negation of the result of the first boolean operation. For example, disjunction is the dual operation of conjunction.

dummy
Pertaining to the characteristic of having the appearance of a specified thing but not having the capacity to function as such. For example, a dummy character, dummy plug, or a dummy statement.

dummy instruction
(ISO) An item of data in the form of an instruction that is inserted in a set of instructions, but is not intended to be executed.

dump
(1) (ISO) Data that have been dumped.
(2) (ISO) To write the contents of a storage, or of part of a storage, usually from an internal storage to an external medium, for a specific purpose such as to allow other use of the storage, as a safeguard against faults or errors, or in connection with debugging.
(3) See change dump, disaster dump, dynamic dump, postmortem dump, selective dump, snapshot dump, static dump.

dump routine
(ISO) A utility routine that dumps.

duodecimal
(1) (ISO) Characterized by a selection, choice, or condition that has twelve possible different values or states.
(2) (ISO) Of a fixed-radix numeration system, having a radix of twelve.

duplex
(1) In data communication, pertaining to a simultaneous two-way independent transmission in both directions. Synonymous with full duplex.
(2) Contrast with half duplex.
duplicate
(ISO) To copy from a source to a destination that has the same physical form as the source, e.g., to punch new punched cards with the same pattern of holes as an original punched card. Synonymous with reproduce.

duplication check
A check based on the consistency of two independent performances of the same task.

dyadic boolean operation
(ISO) A boolean operation on two and only two operands.

dyadic operation
(ISO) An operation on two and only two operands.

dyadic operator
(ISO) An operator that represents an operation on two and only two operands. Synonymous with binary operator.

dynamic dump
(ISO) Dumping performed during the execution of a computer program, usually under the control of that computer program.

dynamicizer
(ISO) Synonym for serializer.

dynamic parameter
(ISO) Synonym for program-generated parameter.

dynamic programming
(1) (ISO) In operations research, a procedure for optimization of a multistage problem solution wherein a number of decisions are available at each stage of the process.
(2) Contrast with convex programming, integer programming, linear programming, mathematical programming, nonlinear programming, quadratic programming.

dynamic relocation
A process that assigns new absolute addresses to a program during execution so that it may be executed from a different area of main storage.

dynamic stop
(ISO) Synonym for breakpoint halt.

dynamic storage
A device storing data in a manner that permits the data to move or vary with time such that the specified data are not always available for recovery. Magnetic drum and disk storage are dynamic non-volatile storage. An acoustic delay line is dynamic volatile storage.

dynamic storage allocation
(ISO) A storage allocation technique in which the storage areas assigned to computer programs and to data are determined by criteria applied at the moment of need.

dynamic subroutine
A subroutine in skeletal form with regard to certain features, such as the number of repetitions, decimal point position, or item size, that are selected or adjusted in accordance with the data processing requirements.
EAM
Electrical accounting machine.

EBCDIC (Extended binary-coded decimal interchange code)
A coded character set consisting of 8-bit coded characters.

EBR
Electron beam recording.

echo check
A method of checking the accuracy of transmission of data in which the received data are returned to the sending end for comparison with the original data.

data
See document reference edge, reference edge, stroke edge.

data-coated card
A card that has been strengthened by treating one or more edges.

data-notched card
A card in which notches representing data are punched around the edges. Usually long needles are used to select a specified set.

data-punched card
A card that is punched with hole patterns in tracks along the edges. Usually the hole patterns are in punch tape code. Synonymous with verge-punched card.

data
(ISO) To prepare data for a later operation. Editing may include the rearrangement or the addition of data, the deletion of unwanted data, format control, code conversion, and the application of standard processes such as zero suppression.

data symbols
In micrographics, symbols on microfilm that are readable without magnification and that provide cutting, loading, and other preparation instructions.

data
editor
See linkage editor.

data program
(1) A computer program designed to perform such functions as the rearrangement, modification, and deletion of data in accordance with prescribed rules.
(2) Contrast with linkage editor.

data processing
Electronic data processing.

effective address
(1) (ISO) The contents of the address part of an effective instruction.
(2) The address that is derived by applying any specified indexing or indirect addressing rules to the specified address and that is actually used to identify the current operand.

effective instruction
(ISO) An instruction that may be executed without modification.

eight-bit byte
Synonym for octet.

either-or operation
(ISO) Deprecated term for disjunction.

electrical accounting machine (EAM)
Pertaining to data processing equipment that is predominantly electromechanical such as keypunches, mechanical sorters, collators, and tabulators.
electromagnetic delay line
A delay line whose operation is based on the time of propagation of electromagnetic waves through distributed or lumped capacitance and inductance.

electron beam recording (EBR)
In micrographics, a specific method of computer output microfilming in which a beam of electrons is directed onto an energy-sensitive microfilm.

electronic data processing (EDP)
(ISO) Data processing largely performed by electronic devices.

electrostatic storage
(ISO) A storage device that uses electrically charged areas on a dielectric surface.

element
(1) (ISO) In a set, an object, entity, or concept having the properties that define a set. Synonymous with member.

element string
See binary element string.

eleven-punch
A punch in the second row from the top, on a Hollerith card. Synonymous with x-punch.

emission
(1) A distortion of the surface of a document.
(2) In character recognition, the distance between the undistorted surface of a document and a specified part of a printed character.

emergency maintenance
Maintenance specifically intended to eliminate an existing fault, that makes continued production work unachievable.

emergency maintenance time
Time, usually unscheduled, used to perform emergency maintenance.

empty medium
(ISO) A data medium that does not contain data other than a frame of reference, e.g., a preprinted form, tape punched only with feed holes.

empty set
(ISO) A set that has no elements. Synonymous with null set.

emulate
(1) To imitate one system with another, primarily by hardware, so that the imitating system accepts the same data, executes the same computer programs, and achieves the same results as the imitated system.
(2) Contrast with simulate (2).

enabling signal
A signal that permits the occurrence of an event.

encode
(1) (ISO) To convert data by the use of a code or a coded character set in such a manner that reconversion to the original form is possible. Encode
is sometimes loosely used when complete reconversion is not possible.
(2) Synonymous with code.
(3) Contrast with decode.

encoder
(1) (ISO) A device that encodes data.
(2) (ISO) A device that has a number of input lines of which not more than one may carry a signal and a number of output lines of which any number may carry signals, there being a one-to-one correspondence between the combinations of output signals and the input signals.
(3) Contrast with decoder.

end-around borrow
(ISO) The action of transferring a borrow digit from the most significant digit place to the least significant digit place.

end-around carry
(ISO) The action of transferring a carry digit from the most significant digit place to the least significant digit place. An end-around carry may be necessary when adding two negative numbers that are represented by their diminished radix complements.

end-around shift
A shift in which the data moved out of one end of the storing register are reentered into the other end. Synonymous with circular shift.

end-of-medium character (EM)
(ISO) A control character that may be used to identify the physical end of the data medium, the end of the used portion of the medium, or the end of the wanted portion of the data recorded on the medium.

end-of-tape marker (EOT)
A marker on a magnetic tape used to indicate the end of the permissible recording area, e.g., a photo reflective strip, a transparent section of tape, a particular bit pattern.

end-of-text character (ETX)
(ISO) A transmission control character used to terminate a text.

end-of-transmission-block character (ETB)
(ISO) A transmission control character used to indicate the end of a transmission block of data when data are divided into such blocks for transmission purposes.

end-of-transmission character (EOT)
(ISO) A transmission control character used to indicate the conclusion of a transmission which may have included one or more texts and any associated message headings.

ENQ
The enquiry character.

enquiry character (ENQ)
(ISO) A transmission control character used as a request for a response from the station with which the connection has been set up, which response may include station identification, the type of equipment in service, and the status of the remote station.

entrance
(ISO) Synonym for entry point.

entropy
(1) (ISO) In information theory, the mean value of the measure of information conveyed by the occurrence of any one of a finite number of mutually exclusive and jointly exhaustive events of definite probabilities: in mathemati-
cal notation, this mean \( H(x) \) for a set of events \( x_1...x_n \) with the probabilities \( p(x_j)...p(x_n) \) equals the mathematical expectation, or mean value, of the information content \( I(x_i) \) of the individual events, i.e.,

\[
H(x) = \sum_{i=1}^{n} p(x_i)I(x_i) = \sum_{i=1}^{n} p(x_i) \log \frac{1}{p(x_i)}
\]

Synonymous with average information content, mean information content,
(2) See character mean entropy, conditional entropy.

entry
(ISO) Synonym for entry point.

entry conditions
(1) (ISO) The conditions to be specified on entering a computer program, a routine, or a subroutine. For example, the address of those locations from which the program, routine, or subroutine will take its operands and of those locations with which its entry points and exits will be linked.
(2) The initial data and control conditions to be satisfied for successful execution of a given routine.

entry point
(1) (ISO) The address or the label of the first instruction executed upon entering a computer program, a routine, or a subroutine. A computer program, a routine, or a subroutine may have a number of different entry points, each perhaps corresponding to a different function or purpose. Synonymous with entrance, entry.
(2) In a routine, any place to which control can be passed.

EOT
(1) The end-of-transmission character.
(2) End-of-tape marker.

equipment
See data terminal equipment, peripheral equipment.

equivalence
A logic operator having the property that if \( P \) is a statement, \( Q \) is a statement, \( R \) is a statement, then the equivalence of \( P, Q, R,... \) is true if and only if all statements are true or all statements are false.

equivalence operation
(1) (ISO) The dyadic boolean operation whose result has the boolean value 1 if and only if the operands have the same boolean value. Synonymous with IF-AND-ONLY-IF operation.
(2) Contrast with nonequivalence operation.

equivalent-binary-digit factor
The average number of binary digits required to express one radix digit in a non-binary numeration system. For example, approximately \( 3 \frac{1}{2} \) times the number of decimal digits is required to express a decimal numeral as a binary numeral.

equivocation
(ISO) In information theory, the conditional entropy of the occurrence of specific messages at the message source given the occurrence of specific messages at a message sink connected to the message source by a specified channel. If \( x_i \) is the input message at the message source and \( y_j \) the output message at the message sink, the
equivocation is noted as the conditional entropy $H(x | y)$. The equivocation is the mean additional information content that must be supplied per message at the message sink to correct the received messages affected by a noisy channel.

erasable storage
(1) (ISO) A storage device whose contents can be modified.
(2) Contrast with fixed storage, permanent storage.

erase
(ISO) To remove all previous data from magnetic storage by changing it to a specified condition; that may be an unmagnetized state or a predetermined magnetized state.

erase character
(ISO) Deprecated term for delete character.

error
(1) (ISO) A discrepancy between a computed, observed, or measured value or condition and the true, specified, or theoretically correct value or condition.
(2) (ISO) Deprecated term for mistake.
(3) Contrast with failure, fault, malfunction, mistake.
(4) See absolute error, balanced error, bias error, inherited error, relative error, rounding error, truncation error.

error burst
In data communication, a sequence of signals containing one or more errors but counted only as one unit in accordance with some specific criterion or measure. An example of a criterion is that if three consecutive correct bits follow an erroneous bit, then an error burst is terminated.

error control character
Synonym for accuracy control character.

error correcting code
A code in which each acceptable expression conforms to specific rules of construction that also define one or more equivalent nonacceptable expressions, so that if certain errors occur in an acceptable expression the result will be one of its equivalents and thus the error can be corrected.

error detecting code
A code in which each expression conforms to specific rules of construction, so that if certain errors occur in an expression the resulting expression will not conform to the rules of construction and thus the presence of the errors is detected. Synonymous with self-checking code.

error message
An indication that an error has been detected.

error range
(1) (ISO) The set of values that an error may take.
(2) (ISO) Deprecated term for error span.

error ratio
The ratio of the number of data units in error to the total number of data units.

error span
(ISO) The difference between the highest and the lowest error values.

ESC
The escape character.

escape character (ESC)
(1) (ISO) A code extension character used, in some cases with one or more succeeding characters, to indicate by
some convention or agreement that the coded representations following the character or the group of characters are to be interpreted according to a different code or according to a different coded character set.
(2) See data link escape character.

ETB
The end-of-transmission-block character.

ETX
The end-of-text character.

event posting
The saving of the computer program and the data context of a task and establishing the program and data of another task to which control is to be passed, based on an event such as completion of loading of data into main storage.

except operation
(ISO) Deprecated term for exclusion.

excess-three code
(ISO) The binary-coded decimal notation in which a decimal digit \( n \) is represented by the binary numeral that represents \( (n+3) \).

exchange sort
A sort in which succeeding pairs of items in a set are examined; if the items in a pair are out of sequence according to the specified criteria, the positions of the items are exchanged; e.g., a bubble sort. This process is repeated until all items are sorted.

exclusion
(1) (ISO) The dyadic boolean operation whose result has the boolean value 1 if and only if the first operand has the boolean value 1 and the second has the boolean value 0.
(2) A logic operator having the property that if \( P \) is a statement and \( Q \) is a statement, then \( P \) exclusion \( Q \) is true if \( P \) is true and \( Q \) is false, false if \( P \) is false, and false if both statements are true. \( P \) exclusion \( Q \) is often represented by a combination of “AND” and “NOT” symbols such as \( P \sim \land Q \).
(3) (ISO) Synonymous with NOT-IF THEN operation.

exclusive-OR
(1) A logic operator having the property that if \( P \) is a statement and \( Q \) is a statement, then \( P \) exclusive-OR \( Q \) is true if either but not both statements are true, false if both are true or both are false. \( P \) exclusive-OR \( Q \) is often represented by \( P \oplus Q \), \( P \neq Q \).
(2) Contrast with OR.

exclusive-OR element
(ISO) A logic element that performs the boolean nonequivalence operation. Synonymous with exclusive-OR gate.

exclusive-OR gate
(ISO) Synonym for exclusive-OR element.

exclusive-OR operation
(ISO) Synonym for nonequivalence operation.

execute
(1) (ISO) In programming, to change the state of a computer in accordance with the rules of the operations it recognizes.
(2) (ISO) To perform the execution of an instruction or of a computer program.

execute phase
(ISO) Of a run, the logical subdivision that includes the execution of the target
program. Synonymous with executing phase.

executing phase
(ISO) Synonym for execute phase.

execution
(1) (ISO) In programming, the process by which a computer program or subroutine changes the state of a computer in accordance with the rules of the operations that a computer recognizes.
(2) (ISO) The process of carrying out an instruction by a computer.
(3) (ISO) The process of carrying out the instructions of a computer program by a computer.

executive program
(ISO) Synonym for supervisory program.

executive routine
(ISO) Synonym for supervisory routine.

exit
(ISO) Any instruction in a computer program, in a routine, or in a subroutine after the execution of which control is no longer exercised by that computer program, that routine, or that subroutine.

explicit address
(ISO) Synonym for absolute address.

exponent
(ISO) In a floating-point representation, the numeral that denotes the power to which the implicit floating point base is raised before being multiplied by the fixed-point part to determine the real number represented, e.g., a floating point representation of the number 0.0001234 is 0.1234-3, where 0.1234 is the fixed-point part and -3 is the exponent.

expression
A configuration of signs.

extended time scale
(1) The time scale used in data processing when the time scale factor is greater than one. Synonymous with slow time scale.
(2) Contrast with fast time scale.

extension character
See code extension character.

external delays
Time lost due to circumstances beyond the control of the operator or maintenance engineer, e.g., failure of external power source.

external program parameter
(ISO) In a computer program, a parameter that must be bound during the calling of the computer program.

external sort
(1) A sort that requires the use of auxiliary storage because the set of items to be sorted cannot be held in the available internal storage at one time.
(2) A sort program, or a sort phase of a multipass sort, that merges strings of items, using auxiliary storage, until one string is formed.

external storage
(ISO) In a hierarchy of storage devices of a data processing system, any storage device that is not internal storage. External storage and internal storage are terms which take on precise meanings only with reference to a particular configuration.

extract
(ISO) To select and remove from a set of items those items that meet some criteria, e.g., to obtain certain specified digits from
a computer word as controlled by an instruction or a mask.

extract instruction
An instruction that requests the formation of a new expression from selected parts of given expressions.
F

face change character
(ISO) Synonym for font change character.

factor
(1) (ISO) In a multiplication operation, any of the numbers or quantities that are the operands.
(2) See equivalent-binary-digit factor, multiplier factor, relocation factor, scale factor, time scale factor.

factorial
(ISO) The product of the positive integers 1, 2, 3, up to and including a given integer.

failure
(2) Contrast with error, fault, mistake.

false add
To form a partial sum, i.e., to add without carries.

fast time scale
(1) The time scale used in data processing when the time scale factor is less than one.
(2) Contrast with extended time scale.

fault
(1) (ISO) An accidental condition that causes a functional unit to fail to perform in a required manner.
(2) Contrast with error, failure, mistake.
(3) See pattern sensitive fault, program sensitive fault.

FC
The font change character.

FE
The format effector character.

feedback loop
The components and processes involved in correcting or controlling a system by using part of the output as input.

feedback system
See information feedback system.

feed hole
(ISO) A hole punched in a data medium to enable it to be moved or synchronized. Synonymous with sprocket hole.

feed pitch
(ISO) The distance between corresponding points of adjacent feed holes along the feed track.

feed punch
See automatic-feed punch.

feed track
The track of a tape that contains the feed holes.

ferrite
An iron compound frequently used in the construction of magnetic cores.

fetch
To locate and load a quantity of data from storage.

FF
The form feed character.

Fibonacci number
An integer in the Fibonacci series.
Fibonacci search
(ISO) A dichotomizing search in which the number of items in the set is equal to a Fibonacci number or is assumed to be equal to the next higher Fibonacci number and then at each step in the search the set of items is partitioned in accordance with the Fibonacci series. The Fibonacci series is the series 0, 1, 1, 2, 3, 5, 8, ..., each term being the sum of the two preceding terms. It is usually expressed in mathematics as: \( X_0 = 0 \) and \( X_1 = 1 \).

Fibonacci series
A series of integers in which each integer is equal to the sum of the two preceding integers in the series. The series is formulated mathematically by \( X_i = X_{i-1} + X_{i-2} \), where \( X_0 = 0 \) and \( X_1 = 1 \), i.e., 0, 1, 1, 2, 3, 5, 8, 13, 21....

fiche
See microfiche.

field
(1) (ISO) In a record, a specified area used for a particular category of data, e.g., a group of card columns in which a wage rate is recorded.
(2) A group of adjacent card columns on a punch card.
(3) See card field, common field.

FIFO (first-in-first-out)
A queuing technique in which the next item to be retrieved is the item that has been in the queue for the longest time.

figurative constant
(1) (ISO) A data name that is reserved for a specified constant in a specified programming language.
(2) (ISO) Deprecated term for literal.

file
(1) (ISO) A set of related records treated as a unit, e.g., in stock control, a file could consist of a set of invoices.
(2) See inverted file, master file, transaction file.

file gap
An area on a data medium intended to be used to indicate the end of a file, and possibly, the start of another. A file gap is frequently used for other purposes, in particular, as a flag to indicate the end or beginning of some other group of data.

file layout
(ISO) The arrangement and structure of data or words in a file including the order and size of the components of the file.

file maintenance
(ISO) The activity of keeping a file up to date by adding, changing, or deleting data.

file separator character (FS)
(ISO) The information separator intended to identify a logical boundary between items called files.

filler
(ISO) One or more characters adjacent to an item of data that serve to bring its representation up to a specified size.

film frame
(1) (ISO) In micrographics, that area of microfilm exposed during each exposure, whether or not this area is filled by an image.
(2) Synonymous with recording area.

film storage
See magnetic thin film storage.
filter
A device or program that separates data, signals, or material in accordance with specified criteria.

five-bit byte
(ISO) Synonym for quintet.

fixed-cycle operation
An operation that is completed in a specified number of regularly timed execution cycles.

fixed-point part
(ISO) In a floating-point representation, the numeral that is multiplied by the exponentiated implicit floating-point base to determine the real number represented, e.g., a floating-point representation of the number 0.0001234 is 0.1234^-3, where .1234 is the fixed-point part and -3 is the exponent. Synonymous with mantissa.

fixed-point representation system
(ISO) A radix numeration system in which the radix point is implicitly fixed in the series of digit places by some convention upon which agreement has been reached.

fixed-radix numeration system
(ISO) A radix numeration system in which all the digit places, except perhaps the one with the highest weight, have the same radix. The weights of successive digit places are successive integral powers of a single radix, each multiplied by the same factor. Negative integral powers of the radix are used in the representation of fractions. A fixed-radix numeration system is a particular case of a mixed-radix numeration system.

fixed storage
(1) A storage device whose contents are inherently nonerasable, nonerasable by a particular user, or nonerasable when operating under particular conditions, e.g., a storage when controlled by a lockout feature, a photographic disk. Synonymous with nonerasable storage, permanent storage, read-only memory, read-only storage.
(2) Contrast with erasable storage.

flag
(1) Any of various types of indicators used for identification, e.g., a word mark.
(2) A character that signals the occurrence of some condition, such as the end of a word.
(3) (ISO) Deprecated term for mark.
(4) (ISO) Synonym for switch indicator.
(5) Synonymous with sentinel.

flash
See form flash.

flash card
(ISO) In micrographics, a target printed with distinctive markings that is photographed to facilitate the indexing of microfilm.

flip-flop
A circuit or device containing active elements, capable of assuming either one of two stable states at a given time. Synonymous with bistable circuit, toggle (1).

floating-point base
(ISO) In a floating-point representation system, the implicit fixed positive integer base, greater than unity, that is raised to the power explicitly denoted by the exponent in the floating-point representation or represented by the characteristic in the floating-point representation and then multiplied by the fixed-point part to determine the real number represented, e.g., in the floating-point representation of the
number 0.0001234, namely 0.1234-3, the implicit floating-point base is 10. Synonymous with floating-point radix.

floating-point radix
Synonym for floating-point base.

floating-point register
(ISO) A register used to manipulate data in floating-point representation.

floating-point representation
(1) (ISO) A representation of a real number in a floating-point representation system, e.g., a floating-point representation of the number 0.0001234 is 0.1234-3, where 0.1234 is the fixed-point part and -3 is the exponent. The numerals are expressed in the variable-point decimal numeration system.
(2) Contrast with variable-point representation.

flow
See bidirectional flow, normal direction flow, reverse direction flow.

flow analysis
(1) In compilers, a technique used to determine the specific interdependencies of elements of a computer program.
(2) The detection and recording of the sequencing of instructions in computer programs, for example as used in monitors and debugging routines.

flowchart
(1) (ISO) A graphical representation of the definition, analysis, or method of solution of a problem, in which symbols are used to represent operations, data, flow, equipment, etc.
(2) Contrast with block diagram.
(3) See data flowchart, programming flowchart.

flowchart symbol
(ISO) A symbol used to represent operations, data, flow, or equipment on a flowchart.

flowchart text
The descriptive information that is associated with flowchart symbols.

flow diagram
(ISO) Deprecated term for flowchart.

flow direction
(ISO) On a flowchart, the antecedent to-successor relation between the symbols.

flowline
(ISO) On a flowchart, a line representing a connecting path between flowchart symbols, e.g., a line to indicate a transfer of data or control.

flueries
The area within the field of fluidics in which components and systems perform functions such as sensing, logic, amplification, and control without the use of mechanical parts.

fluidic
Pertaining to the sensing, control, information processing, and actuation functions performed through the use of fluid dynamic phenomena.

fluidics
That branch of science and technology concerned with sensing, control, information processing, and actuation functions performed through the use of fluid dynamic phenomena.

flying spot scanner
In optical character recognition, a device employing a moving spot of light to scan a sample space, the intensity of the trans-
mitted or reflected light being sensed by a photoelectric transducer.

fold
To compact data by combining parts of the data, e.g., to transform a two-word alphabetic key into a one-word numeric key by adding the numeric equivalents of the letters.

font
(1) A family or assortment of characters of a given size and style, e.g., 9 point Bodoni Modern.
(2) See type font.

font change character (FC)
(ISO) A control character that selects and makes effective a change in the specific shape, or size, or shape and size of the graphics for a set of graphemes, the character set remaining unchanged. Synonymous with face change character.

forbidden combination
(1) A combination of bits or other representations that is not valid according to some criteria.
(2) Contrast with illegal character.

foreground processing
(1) (ISO) The execution of a computer program that preempts the use of computer facilities.
(2) Contrast with background processing.

formal logic
(ISO) The study of the structure and form of valid argument without regard to the meaning of the terms in the argument.

format
(1) (ISO) The arrangement or layout of data in or on a data medium.
(2) See address format, instruction format.

format effector (FE)
(ISO) Any control character used to control the positioning of printed, displayed, or recorded data. Synonymous with layout character.

form feed character (FF)
(ISO) A format effector that causes the print or display position to move to the next predetermined first line on the next form, the next page, or the equivalent.

form flash
(ISO) To project a constant pattern such as a report form, grid, or map as background for a display. Synonymous with form overlay.

form overlay
(ISO) Synonym for form flash.

formula manipulation
Algebraic manipulation of mathematical formulae.

FORTRAN (formula translation)
A programming language primarily used to express computer programs by arithmetic formulas.

four-address
Pertaining to an instruction format containing four address parts.

four-bit byte
(ISO) Synonym for quartet.

four-plus-one address
Pertaining to an instruction that contains four operand addresses and the address of the next instruction to be executed.

frame
(1) (ISO) That portion of a tape, on a line perpendicular to the reference
edge, on which binary characters may be written or read simultaneously.

(2) See film frame.

FS
The file separator character.

full adder
(ISO) A combinational circuit that has three inputs that are an augend, D, an addend, E, and a carry digit transferred from another digit place, F; and two outputs that are a sum without carry, T, and a new carry digit, R, and in which the outputs are related to the inputs according to the following table:

| Input D augend | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Input E addend | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Input F carry digit | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Output T sum without carry | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Output R carry digit | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |

Synonymous with three-input adder.

full subtracter
(ISO) A combinational circuit that has three inputs that are a minuend, I, a subtrahend, J, and a borrow digit, K, transferred from another digit place, and two outputs that are a difference, W, and a new borrow digit, X; and in which the outputs are related to the inputs according to the following table:

| Input I minuend | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Input J subtrahend | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Input K borrow digit | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| Output W difference | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Output X borrow digit | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |

fullword
(ISO) Synonym for computer word.

function
(1) (ISO) A mathematical entity whose value, i.e., the value of the dependent variable, depends in a specified manner on the values of one or more independent variables, not more than one value of the dependent variable corresponding to each permissible combination of values from the re-
spective ranges of the independent variables.
(2) A specific purpose of an entity, or its characteristic action.
(3) In data communication, a machine action such as carriage return or line feed.
(4) In computer programming, synonym for procedure.
(5) See boolean function, generating function, mathematical function, recursive function, threshold function.

functional design
(ISO) The specification of the working relationships among the parts of a data processing system.

functional diagram
A diagram that represents the working relationships among the parts of a system.

functional unit
(ISO) An entity of hardware, software, or both capable of accomplishing a specified purpose.

function hole
(ISO) Synonym for designation hole.

function part
(ISO) Synonym for operation part.

function table
(1) Two or more sets of data so arranged that an entry in one set selects one or more entries in the remaining sets, e.g., a tabulation of the values of a function for a set of values of the variable, a dictionary.
(2) A device constructed of hardware, or a subroutine, which can either decode multiple inputs into a single output or encode a single input into multiple outputs.
gang punch
To punch identical data into a card deck.

gap character
(ISO) A character that is included in a computer word for technical reasons but does not represent data.

gate
(1) (ISO) A combinational circuit with only one output channel.
(2) (ISO) A device having one output channel and one or more input channels, such that the output channel state is completely determined by the input channel states, except during switching transients.
(3) A combinational logic element having at least one input channel.
(4) See AND gate, OR gate.

general purpose computer
(ISO) A computer that is designed to operate upon a wide variety of problems.

general-purpose paper card
A card that meets the specifications in applicable ISO standards, except for the printed card form.

general-purpose register
(ISO) A register, usually explicitly addressable within a set of registers, that can be used for different purposes, such as an accumulator, as an index register, as a special handler of data or code formats.

generate
To produce a computer program by a selection of subsets from skeletal code under the control of parameters.

generated address
(ISO) An address that has been formed as a result during the execution of a computer program. Synonymous with synthetic address.

generating function
(ISO) Of a given series of functions or constants, a mathematical function that, when represented by an infinite series, has those functions or constants as coefficients in the series.

generation
(ISO) In micrographics, a measure of the remoteness of the copy from the original material, the first microfilm representation being the first generation microfilm.

generator
(1) A controlling routine that performs a generating function, e.g., report generator, I/O generator.
(2) See compiler generator, macrogenerator.

global
(1) Pertaining to that which is defined in one subdivision of a computer program and used in at least one other subdivision of that computer program.
(2) Contrast with local.

graphic
(ISO) A symbol produced by a process such as handwriting, drawing, or printing. Synonymous with graphic symbol.

graphic character
(ISO) A character, other than a control character, that is normally represented by a graphic.

graphic symbol
(ISO) Synonym for graphic.
gray code
A binary code in which sequential numbers are represented by binary expressions, each of which differs from the preceding expression in one place only. Synonymous with reflected binary code.

grid
In optical character recognition, two mutually orthogonal sets of parallel lines used for specifying or measuring character images.

group mark
(ISO) A mark that identifies the beginning or the end of a set of data which may include blocks, words, or other items.

group separator character (GS)
(ISO) The information separator intended to identify a logical boundary between items called groups.

GS
The group separator character.

guide edge
(ISO) Synonym for reference edge.
half adder
(ISO) A combinational circuit that has two inputs A and B and two outputs, one being a sum without carry, S, and the other being a carry, C, and in which the outputs are related to the inputs according to the following table:

| Input A | 0 | 0 | 1 | 1 |
| Input B | 0 | 1 | 0 | 1 |
| Output S sum without carry | 0 | 1 | 1 | 0 |
| Output C carry | 0 | 0 | 0 | 1 |

Synonymous with two-input adder.

half-duplex
(1) In data communication, pertaining to an alternating, one way at a time, independent transmission.
(2) Contrast with duplex.

half subtracter
(ISO) A combinational circuit that has two inputs that are a minuend, G, and a subtrahend, H; and two outputs that are a difference, U, and a borrow digit, V, and in which the outputs are related to the inputs according to the following table:

| Input G minuend | 0 | 0 | 1 | 1 |
| Input H subtrahend | 0 | 1 | 0 | 1 |
| Output U difference | 0 | 1 | 1 | 0 |
| Output D borrow digit | 0 | 1 | 0 | 0 |

A contiguous sequence of bits or characters which comprises half a computer word and is capable of being addressed as a unit.

halt
See breakpoint halt.

halt instruction
(ISO) Synonym for pause instruction.

hamming code
A data code which is capable of being corrected automatically.

hamming distance
Synonym for signal distance.

hand-feed punch
(ISO) A keypunch into which punch cards or punched cards are manually entered and removed one at a time.

hardware
(1) (ISO) Physical equipment used in data processing, as opposed to computer programs, procedures, rules, and associated documentation.
(2) Contrast with software.

hardware check
Synonym for automatic check.

Hartley
(ISO) In information theory, a unit of logarithmic measures of information equal to the decision content of a set of ten mutually exclusive events expressed by the logarithm with the base ten, e.g., the decision content of a character set of eight characters equals 0.903 Hartley. Synonymous with information content decimal unit.

hash total
The result obtained by applying an al-
algorithm to a set of data for checking purposes, e.g., a summation obtained by treating data items as numbers.

head
(1) A device that reads, writes, or erases data on a storage medium, e.g., a small electromagnet used to read, write, or erase data on a magnetic drum or magnetic tape, or the set of perforating, reading, or marking devices used for punching, reading, or printing on perforated tape. (2) See pre-read head, read head, read/write head, write head.

header card
A card that contains information related to the data in cards that follow.

heading
(1) In ASCII and data communication, a sequence of characters preceded by the start-of-heading character used as machine sensible address or routing information. (2) Contrast with text.

heading character
See start-of-heading character.

heuristic method
(ISO) Any exploratory method of solving problems in which an evaluation is made of the progress toward an acceptable final result using a series of approximate results.

hexadecimal
(ISO) Synonym for sexadecimal.

high-level language
(ISO) A programming language that does not reflect the structure of any one given computer or that of any given class of computers.

high-speed carry
(1) (ISO) In parallel addition, any procedure for speeding up the processing of carries, e.g., standing-on-nines carry. (2) Contrast with cascaded carry.

hit
(1) A comparison of two items of data that satisfies specified conditions. Contrast with match. (2) A transient disturbance to a communication medium.

hit-on-the-fly printer
(ISO) Synonym for on-the-fly printer.

hole pattern
(1) (ISO) An array of holes that represents data, e.g., a punching configuration that represents a single character. (2) A punching configuration within a card column that represents a single character of a character set.

Hollerith
Pertaining to a particular type of code or punched card utilizing 12 rows per column and usually 80 columns per card.

Hollerith card
A punch card characterized by 80 columns and 12 rows of punch positions.

horizontal feed
Pertaining to the entry of a punch card into a card feed with a long edge first.

horizontal positions
See addressable horizontal positions.

horizontal tabulation character (HT)
(ISO) A format effector character that causes the print or display position to move forward to the next of a series of predetermined positions along the same line.
housekeeping operation
(ISO) An operation that facilitates the execution of a computer program without making a direct contribution. For example, initialization of storage areas; the execution of a calling sequence. Synonymous with overhead operation.

HT
The horizontal tabulation character.

hybrid computer
(ISO) A computer using both analog and discrete representation of data.

hysteresis loop
See magnetic hysteresis loop.
identifier
(ISO) A character or group of characters used to identify or name an item of data and possibly to indicate certain properties of that data.

identity element
(ISO) A logic element that performs an identity operation. Synonymous with identity gate.

identity gate
(ISO) Synonym for identity element.

identity operation
(1) (ISO) The boolean operation the result of which has the boolean value 1 if and only if all the operands have the same boolean value. An identity operation on two operands is an equivalence operation.
(2) Contrast with nonidentity operation.

identity unit
An n-input unit that yields a specified output signal only when all n-input signals are alike.

idle character
See synchronous idle character.

idle time
(1) (ISO) Operable time during which a functional unit is not operated.
(2) Contrast with operating time.

IDP
Integrated data processing.

IF-AND-ONLY-IF element
(ISO) A logic element that performs the boolean operation of equivalence. Synonymous with IF-AND-ONLY-IF gate.

IF-AND-ONLY-IF gate
(ISO) Synonym for IF-AND-ONLY-IF element.

IF-AND-ONLY-IF operation
(ISO) Synonym for equivalence operation.

IF-THEN element
(ISO) A logic element that performs the boolean operation of implication. Synonymous with IF-THEN gate.

IF-THEN gate
(ISO) Synonym for IF-THEN element.

IF-THEN operation
(ISO) Synonym for implication.

ignore character
(ISO) Synonym for cancel character.

illegal character
(1) A character or combination of bits that is not valid according to some criteria, e.g., with respect to a specified alphabet a character that is not a member.
(2) Contrast with forbidden combination.

image
See card image, cine-oriented image, comic-strip-oriented image.

image area
In micrographics, that part of the film frame reserved for an image.

image dissector
In optical character recognition, a mechanical or electronic transducer that sequentially detects the level of light intensity in different areas of a completely illuminated sample space.

immediate access storage
A storage device whose access time is
negligible in comparison with other operating times.

**Immediate address**
(ISO) The contents of an *address part* that contains the value of an *operand* rather than an *address*. Synonymous with zero-level address.

**Immediate addressing**
(ISO) A method of *addressing* in which the *address part* of an *instruction* contains an *immediate address*.

**Immediate instruction**
(ISO) An *instruction* that contains within itself an *operand* for the *operation* specified, rather than an *address* of the operand.

**Impact printer**
(ISO) A printer in which printing is the result of mechanical impacts.

**Imperative statement**
(ISO) Synonym for *instruction*.

**Implication**
(ISO) The *dyadic boolean operation* the result of which has the boolean value 0 if and only if the first *operand* has the boolean value 0 and the second has the boolean value 1. Synonymous with conditional implication operation, IF-THEN operation.

**Implied addressing**
(ISO) A method of *addressing* in which the *operation part* of an *instruction* implicitly addresses *operands*.

**Imprinter**
Any device used to produce or impress marks or patterns on a surface, e.g., printing presses, typewriters, pens, cash registers, bookkeeping machines, and pressure devices such as those used with credit cards and address plates.

**Imprinting**
(1) The act of using an *imprinter*.
(2) The *output* of any *imprinter*.

**Impulse**
Synonym for *pulse*.

**Incidental time**
(ISO) Synonym for *miscellaneous time*.

**Inclusion**
(ISO) Deprecated term for *implication*.

**Inclusive-OR element**
(ISO) A *logic element* that performs the boolean operation of *disjunction*. Synonymous with inclusive-OR gate.

**Inclusive-OR gate**
(ISO) Synonym for *inclusive-OR element*.

**Inclusive-OR operation**
(ISO) Synonym for *disjunction*.

**Inconnector**
(1) In *flowcharting*, a connector that indicates a continuation of a broken *flowline*.
(2) Contrast with *outconnector*.

**Incremental computer**
(1) (ISO) A *computer* in which *incremental representation of data* is mainly used.
(2) A *special purpose computer* that is specifically designed to process changes in the variables as well as the absolute value of the variables.

**Incremental integrator**
A *digital integrator* modified so that the *output signal* is maximum negative, zero,
or maximum positive when the value of the input is negative, zero, or positive.

**incremental representation**

1. (ISO) A method of representing variables in which changes in the values of the variables are represented, rather than the values themselves.
2. See *ternary incremental representation*.

**index**

1. (ISO) In programming, a subscript, of integer value, that identifies the position of an item of data with respect to some other item of data.
2. (ISO) A list of the contents of a file or of a document, together with keys or references for locating the contents.
3. A symbol or a numeral used to identify a particular quantity in an array of similar quantities. For example, the terms of an array represented by X1, X2, ..., X100 have the indexes 1, 2, ..., 100 respectively.
4. In micrographics, a guide for locating information on a roll of microfilm using targets, flash cards, lines, bars, or other optical codes.
5. To prepare a list as in (2).
6. To move a machine part to a predetermined position, or by a predetermined amount, on a quantized scale.
7. See *code line index*.

**indexed address**

An address which is modified by the content of an index register prior to or during the execution of a computer instruction.

**index register**

(ISO) A register whose contents may be used to modify an operand address during the execution of computer instructions, so as to operate as a clock or counter. An index register may be used to control the execution of a loop, to control the use of an array, as a switch, for table lookup, as a pointer, etc. Synonymous with modifier register.

**index word**

(ISO) An index modifier applied to the address part of a computer instruction.

**indicator**

1. (ISO) A device that may be set into a prescribed state, usually according to the result of a previous process or on the occurrence of a specified condition in the equipment, and that usually gives a visual or other indication of the existence of the prescribed state, and that may in some cases be used to determine the selection among alternative next processes, e.g., an overflow indicator.
2. An item of data that may be interrogated to determine whether a particular condition has been satisfied in the execution of a computer program, e.g., a switch indicator, an overflow indicator.
3. See *switch indicator*.

**indirect address**

1. (ISO) An address that designates the storage location of an item of data to be treated as the address of an operand, but not necessarily as its direct address. Synonymous with multilevel address.
2. Contrast with *direct address*.

**indirect addressing**

1. A method of addressing in which the address part of an instruction contains an indirect address.
2. Contrast with *direct addressing*.

**indirect instruction**

(ISO) An instruction that contains the in-
direct address of an operand for the operation specified.

induction
See mathematical induction.

infinite pad method
In optical character recognition, a method of measuring reflectance of a paper stock such that doubling the number of backing sheets of the same stock will not change the measured reflectance.

infix notation
(1) (ISO) A method of forming mathematical expressions, governed by rules of operator precedence and using parentheses, in which the operators are dispersed among the operands, each operator indicating the operation to be performed on the operands or the intermediate results adjacent to it. If it is desired to distinguish the case in which there are more than two operands for an operation, the term distributed infix notation may be used.
(2) Contrast with parentheses-free notation, prefix notation, postfix notation.

information
(ISO) The meaning that a human assigns to data by means of the known conventions used in their representation.

information bits
In telecommunications, those bits which are generated by the data source and which are not used for error control by the data transmission system.

information content
(1) (ISO) In information theory, a measure of information conveyed by the occurrence of an event of definite probability; in mathematical notation, the measure \( I(x_i) \) for the event \( x_i \) is expressed as the logarithm of the reciprocal of the probability \( p(x_i) \) that the particular event will occur: i.e.,

\[
I(x_i) = \log \frac{1}{p(x_i)} = -\log p(x_i)
\]

(2) See conditional information content, joint information content.

information content binary unit
(ISO) Synonym for Shannon.

information content decimal unit
(ISO) Synonym for Hartley.

information content natural unit (NAT)
(ISO) In information theory, a unit of logarithmic measures of information expressed by the naperian logarithm, e.g., the decision content of a character set of eight characters equals 2.079 natural units of information.

information feedback system
A data transmission system that uses an echo check to verify the accuracy of the transmission.

information interchange
The process of sending and receiving data in such a manner that the information content or meaning assigned to the data is not altered during the transmission.

information measure
(ISO) In information theory, a suitable function of the frequency of occurrence of a specified event from a set of possible events conventionally taken as a measure of the relative value of the intelligence conveyed by this occurrence. In information theory, the term event is to be understood as used in the theory of proba-
bility. For instance, the presence of a given element of a set, the occurrence of a specified character or of a specified word in a message.

information processing
(ISO) Synonym for data processing.

information rate
See average information rate.

information retrieval
(1) (ISO) The action of recovering specific information from stored data.
(2) (ISO) Methods and procedures for recovering specific information from stored data.

information separator (IS)
(ISO) Any control character used to delimit like units of data in a hierarchic arrangement of data. The name of the separator does not necessarily indicate the units of data that it separates. Synonymous with separating character.

information source
(ISO) Synonym for message source.

information theory
(ISO) The branch of learning concerned with the study of measures of information and their properties.

inherited error
An error carried forward from a previous step in a sequential process.

inhibiting signal
A signal that prevents the occurrence of an event.

initialize
(1) To set counters, switches, addresses, or contents of storage to zero or other starting values at the beginning of, or at prescribed points in, the operation of a computer routine.
(2) Contrast with prestore.

initial program loader (IPL)
(1) (ISO) The utility routine that loads the initial part of a computer program, such as an operating system or other computer program, so that the computer program can then proceed under its own control.
(2) Contrast with bootstrap, bootstrap loader.

inline procedures
In COBOL, the set of statements that constitutes the main or controlling flow of the computer program and which excludes statements executed under control of the asynchronous control system.

inoperable time
(ISO) The time during which a functional unit would not yield correct results if it were operated. It is assumed that all environmental conditions for proper operation are met.

input
(1) One, or a sequence of, input states.
(2) (ISO) Pertaining to a device, process, or channel involved in an input process, or to the data or states involved in an input process. In the English language, the adjective input may be used in place of input data, input signal, input terminal, etc., when such usage is clear in a given context.
(3) (ISO) Synonym for input data, input process.
(4) Synonym for input channel.
(5) See manual input, real time input.
input area
An area of storage reserved for input. Synonymous with input block.

input block
Synonym for input area.

input channel
A channel for impressing a state on a device or logic element. Synonymous with input.

input data
(1) (ISO) Data being received or to be received into a device or into a computer program. Synonymous with input (2).
(2) Data to be processed. Synonymous with input (1).

input device
(ISO) Synonym for input unit.

input-output (I/O)
(1) (ISO) Pertaining to a device or to a channel that may be involved in an input process and, at a different time, in an output process. In the English language, input-output may be used in place of input-output data, input-output signal, input-output terminals, etc., when such usage is clear in a given context.
(2) (ISO) Pertaining to a device whose parts can be performing an input process and an output process at the same time.
(3) Pertaining to either input or output, or both.
(4) (ISO) Synonym for radial transfer.

input-output channel
(ISO) In an automatic data processing system, a functional unit, controlled by the central processing unit, that handles the transfer of data between main storage and peripheral equipment.

input-output controller (IOC)
(ISO) A functional unit in an automatic data processing system that controls one or more units of peripheral equipment. Synonymous with I/O controller, peripheral control unit.

input-output device
(ISO) Synonym for input-output unit.

input-output unit
(ISO) A device in a data processing system by which data may be entered into the system, received from the system, or both. Synonymous with input-output device.

input process
(1) (ISO) The process that consists of the reception of data into a data processing system, into a subsystem, or into a device. Synonymous with input.
(2) The process of transmitting data from peripheral equipment, or external storage, to internal storage.
(3) The process of receiving data by a device.

input program
(ISO) A utility program that organizes the input process of a computer.

input routine
(ISO) A utility routine that organizes the input process of a computer.

input state
The state occurring on a specified input channel.

input station
See data input station.
input unit
(ISO) A device in a data processing system by which data may be entered into the system. Synonymous with input device.

inquiry station
(ISO) A user terminal primarily for the interrogation of an automatic data processing system.

insertion sort
A sort in which each item in a set is inserted into its proper position in the sorted set according to the specified criteria.

installation time
Time spent in installing and testing hardware or software.

instruction
(1) (ISO) In a programming language, a meaningful expression that specifies one operation and identifies its operands, if any.
(2) See absolute instruction, arithmetic instruction, branch instruction, computer instruction, conditional jump instruction, direct instruction, discrimination instruction, dummy instruction, effective instruction, extract instruction, immediate instruction, indirect instruction, jump instruction, logic instruction, macroinstruction, multiaddress instruction, n-address instruction, no-operation instruction, n-plus-one address instruction, one-address instruction, one-plus-one address instruction, optional pause instruction, pause instruction, presumptive instruction, privileged instruction, repetition instruction, restart instruction, stop instruction, three-address instruction, three-plus-one address instruction, two-address instruction, two-plus-one address instruction, unconditional-jump instruction, zero-address instruction.

instruction address
(1) (ISO) The address of an instruction word.
(2) The address that must be used to fetch an instruction.
(3) Contrast with address part.

instruction address register
(ISO) A register from whose contents the address of the next instruction is derived. An instruction address register may also be a portion of a storage device specifically designated for the derivation of the address of the next instruction by a translator, compiler, interpreter, language processor, operating system, etc. Synonymous with control counter, sequence control register.

instruction control unit
(ISO) In a central processing unit, the part that receives instructions in proper sequence, interprets each instruction, and applies the proper signals to the arithmetic and logic unit and other parts in accordance with this interpretation.

instruction counter
A counter that indicates the location of the next computer instruction to be interpreted.

instruction format
(ISO) The layout of an instruction showing its constituent parts.

instruction modifier
(ISO) A word or a part of a word that is used to alter an instruction.

instruction register
(ISO) A register that is used to hold an instruction for interpretation.
instruction repertoire
(1) A complete set of the operators of the statements of a computer programming language, together with a description of the types and meanings that can be attributed to their operands.
(2) Loosely, an instruction set.

instruction set
(ISO) The set of the instructions of a computer, of a programming language, or of the programming languages in a programming system.

instruction word
(ISO) A word that represents an instruction.

integer
(ISO) One of the numbers zero, +1, -1, +2, -2... Synonymous with integral number.

integer programming
(1) (ISO) In operations research, a class of procedures for locating the maximum or minimum of a function subject to constraints, where some or all variables must have integer values. Synonymous with discrete programming.
(2) Contrast with convex programming, dynamic programming, linear programming, mathematical programming, nonlinear programming, quadratic programming.

integrator
(1) A device whose output function is proportional to the integral of the input function with respect to a specified variable, e.g., a watt-hour meter.
(2) See incremental integrator.

interblock gap
(1) (ISO) A space between blocks on magnetic tape.
(2) An area on a data medium used to indicate the end of a block or physical record.
(3) Synonymous with block gap.

interface
A shared boundary. An interface might be a hardware component to link two devices or it might be a portion of storage or registers accessed by two or more computer programs.

interleave
To arrange parts of one sequence of things or events so that they alternate with parts of one or more other sequences of things or events and so that each sequence retains its identity.

internal sort
(1) A sort performed within internal storage.
(2) A sort program or a sort phase that sorts two or more items within main storage.

internal storage
(ISO) A storage device directly controlled
by the central processing unit of a digital computer.

**interpret**
(ISO) To translate and to execute each source language statement of a computer program before translating and executing the next statement.

**interpreter**
(1) (ISO) A computer program used to interpret. Synonymous with interpretive program.
(2) (ISO) In punched card operations, a device that prints on a punched card the characters equivalent to the hole patterns punched in the card.

**interpretive code**
The instruction repertoire for the source language input to an interpreter.

**interpretive program**
(ISO) Synonym for interpreter (1).

**interrecord gap**
(ISO) Deprecated term for interblock gap.

**interrupt**
To stop a process in such a way that it can be resumed.

**interruption**
A suspension of a process, such as the execution of a computer program, normally caused by an event external to that process, and performed in such a way that it can be resumed.

**intersection**
(ISO) Synonym for conjunction.

**interstage punching**
A mode of card punching such that the odd or even numbered card columns are used.

**inversion**
(ISO) Deprecated term for negation.

**invert**
To change a physical or logical state to its opposite.

**inverted file**
(1) A file whose sequence has been reversed.
(2) In information retrieval, a method of organizing a cross-index file in which a keyword identifies a record; the items, numbers, or documents pertinent to that keyword are indicated.

**I/O**
Input-output.

**IOC**
Input-output controller.

**I/O controller**
(ISO) Synonym for input-output controller.

**IPL**
Initial program loader.

**irrational number**
(ISO) A real number that is not a rational number.

**irrelevance**
(ISO) In information theory, the conditional entropy of the occurrence of specific messages at a message sink given the occurrences of specific messages at the message source connected to the message sink by a specified channel. If \( x_i \) is the input message at the message source and \( y_j \) the output message at the message sink, the irrelevance \( H(y_j|x_i) \) is expressed by the formula:
\[ H(y \mid x) = \sum_{j=1}^{i=n} \sum_{j=1}^{j=m} p(y_j \mid x_j) \log \frac{1}{p(y_i \mid x_i)} \]

Synonymous with prevarication, spread.

IS

The *information separator character*.

ISO

International Organization for Standardization.

**item**

(1) (ISO) One member of a group. A *file* may consist of a number of items such as *records* which in turn may consist of other items.

(2) A collection of related *characters* treated as a *unit*. 
J

JCL
Job control language.

job
A set of data that completely defines a unit of work for a computer. A job usually includes all necessary computer programs, linkages, files, and instructions to the operating system.

job control language (JCL)
A problem-oriented language designed to express statements in a job that are used to identify the job or describe its requirements to an operating system.

job control statement
A statement in a job that is used to identifying the job or describing its requirements to the operating system.

job step
The execution of a computer program explicitly identified by a job control statement. A job may specify that several job steps be executed.

joint information content
(ISO) In information theory, a measure of information conveyed by the occurrence of two events of definite joint probability; in mathematical notation, this measure \( I(x_i,y_j) \) for two particular events \( x_i,y_j \) from the sets \( x_1...x_n \) and \( y_1...y_m \) equals the logarithm of the reciprocal of the joint probability \( p(x_i,y_j) \) of the occurrence of both events:

\[
I(x_i,y_j) = \log \frac{1}{p(x_i,y_j)}
\]

jump
(1) (ISO) In the execution of a computer program, a departure from the implicit or declared order in which instructions are being executed.
(2) See conditional jump, unconditional jump.

jump instruction
(1) (ISO) An instruction that specifies a jump.
(2) See conditional jump instruction, unconditional jump instruction.

justify
(1) (ISO) To control the printing positions of characters on a page so that both the left-hand and right-hand margins of the printing are regular.
(2) (ISO) To shift the contents of a register, if necessary, so that the character at a specified end of the data that has been read or loaded into the register is at a specified position in the register.
(3) To align characters horizontally or vertically to fit the positioning constraints of a required format.
(4) See left-justify, right-justify.
K

k

An abbreviation for the prefix kilo, i.e., 1000 in decimal notation.

K

When referring to storage capacity, two to the tenth power, 1024 in decimal notation.

Karnaugh map

(ISO) A rectangular diagram of a logic function of variables drawn with overlapping rectangles representing a unique combination of the logic variables and such that an intersection is shown for all combinations.

key

(1) (ISO) One or more characters, within a set of data, that contains information about the set, including its identification.

(2) See actual key, search key, sort key.

keyboard punch

(ISO) Synonym for keypunch.

keypunch

(ISO) A keyboard-actuated device that punches holes in a punch card or punched card. Synonymous with keyboard punch.

key transformation

A function that maps a set of keys into a set of integers, which can be handled arithmetically to determine the location of the corresponding data elements.

keyword

(1) One of the predefined words of an artificial language.

(2) (ISO) Deprecated term for reserved word.

(3) Synonym for descriptor.
**label**

(1) (ISO) One or more characters, within or attached to a set of data, that contains information about the set, including its identification.

(2) (ISO) In computer programming, an identifier of an instruction.

**laced card**

A card punched accidentally or intentionally with holes in excess of the hole patterns of the character set used.

**lag**

The delay between two events.

**language**

(1) (ISO) A set of characters, conventions, and rules, that is used for conveying information. The three aspects of language are pragmatics, semantics, and syntax.

(2) See algebraic language, algorithmic language, application-oriented language, artificial language, assembly language, command language, computer language, computer-oriented language, high-level language, job control language, linear language, machine language, multidimensional language, natural language, object language, one-dimensional language, problem-oriented language, procedure-oriented language, programming language, source language, stratified language, syntax language, target language, unstratified language.

**language processor**

(ISO) A computer program that performs such functions as translating and interpreting and other tasks required for processing a specified programming language.

**latency**

(ISO) The time interval between the instant at which an instruction control unit initiates a call for data and the instant at which the actual transfer of the data is started. Synonymous with waiting time.

**layout character**

(ISO) Synonym for format effector.

**leader**

The blank section of tape at the beginning of a reel of tape.

**leading decision**

(1) A loop control that is executed before the loop body.

(2) Contrast with trailing decision.

**leading end**

The end of a perforated tape that first enters a perforated-tape reader.

**leading zero**

In positional notation, a zero in a more significant digit place than the digit place of the most significant nonzero digit of a numeral.

**leapfrog test**

A check routine that copies itself through storage.

**left-justify**

(1) (ISO) To shift the contents of a register, if necessary, so that the character at the left-hand end of the data that has been read or loaded into the register is at a specified position in the register.

(2) (ISO) To control the printing positions of characters on a page so that the left-hand margin of the printing is regular.
letter
(ISO) A graphic character that, when used alone or combined with others, represents, in a written language, one or more sound elements of a spoken language, but excluding diacritical marks used alone and punctuation marks.

level
(ISO) The degree of subordination of an item in an hierarchic arrangement.

level number
(ISO) A reference number that indicates the position of an item in a hierarchic arrangement. Synonymous with rank.

LF
The line feed character.

library
(1) A collection of related files. For example, one line of an invoice may form an item, a complete invoice may form a file, the collection of inventory control files may form a library, and the libraries used by an organization are known as its data bank.
(2) A repository for dismountable recorded media, such as magnetic disk packs and magnetic tapes.
(3) See data library, program library.

library program
(ISO) A computer program in or from a program library.

library routine
A proven routine that is maintained in a program library.

LIFO (last-in-first-out)
A queuing technique in which the next item to be retrieved is the item most recently placed in the queue.

light stability
In optical character recognition, the resistance to change of the color of the image when exposed to radiant energy.

line
See acoustic delay line, character spacing reference line, delay line, electromagnetic delay line, flowline, magnetic delay line, offline, online, X-datum line, Y-datum line.

linear language
A language that is customarily expressed as a linear representation. For example, FORTRAN is a linear language; a flowchart is not.

linear optimization
(ISO) Synonym for linear programming.

linear programming (LP)
(1) (ISO) In operations research, a procedure for locating the maximum or minimum of a linear function of variables that are subject to linear constraints. Synonymous with linear optimization.
(2) Contrast with convex programming, dynamic programming, integer programming, mathematical programming, nonlinear programming, quadratic programming.

linear representation
An arrangement of graphics in a one-dimensional space.

line-at-a-time printer
(ISO) Synonym for line printer.

line character
See new-line character.

line feed character (LF)
(ISO) A format effector that causes the
print or display position to move to the corresponding position on the next line.

line index
See code line index.

line printer
(1) (ISO) A device that prints a line of characters as a unit. Synonymous with line-at-a-time printer.
(2) Contrast with character printer, page printer.

link
(1) (ISO) In computer programming, the part of a computer program, in some cases a single instruction or an address, that passes control and parameters between separate portions of the computer program.
(2) (ISO) In computer programming, to provide a link.
(3) (ISO) Synonymous with linkage.
(4) See data link.

linkage
(ISO) Synonym for link (1).

linkage editor
(1) A utility routine that creates a loadable computer program by combining independently translated computer program modules and by resolving cross references among the modules.
(2) Contrast with editor program.

list
(1) (ISO) An ordered set of items of data.
(2) To print or otherwise display items of data that meet specified criteria.
(3) (ISO) Deprecated term for chained list.
(4) See chained list, pushdown list, push-up list.

list processing
(ISO) A method of processing data in the form of lists. Usually, chained lists are used so that the logical order of items can be changed without altering their physical locations.

literal
(ISO) In a source program, an explicit representation of the value of an item, which value must be unaltered during any translation of the source program, e.g., the word FAIL in the instruction: “IF X = 0 PRINT FAIL.”

load
(ISO) In computer programming, to enter data into storage or working registers.

load-and-go
An operating technique in which there are no stops between the loading and execution phases of a computer program, and which may include assembling or compiling.

loaded origin
The address of the initial storage location of a computer program in main storage at the time the computer program is loaded.

loader
(1) A routine, commonly a computer program, that reads data into main storage.
(2) See absolute loader, bootstrap loader, initial program loader, relocating loader.

load mode
(1) In some variable-word-length computers, data transmission such that certain delimiters are moved with the data.
(2) Contrast with move mode.
local
(1) Pertaining to that which is defined and used only in one subdivision of a computer program.
(2) Contrast with global.

location
(1) Any place in which data may be stored.
(2) See protected location, storage location.

locking
(1) (ISO) Of code extension characters, having the characteristic that change in interpretation applies to all coded representations following, or to all coded representations of a given class, until the next appropriate code extension character occurs.
(2) Contrast with nonlocking.

logger
(1) (ISO) A functional unit that records events and physical conditions, usually with respect to time.
(2) A device that enables a user entity to log in, e.g., to identify itself, its purpose and the time of entry; and to log out with the corresponding data so that the appropriate accounting procedures may be carried out in accordance with the operating system.

logging
See data logging.

logic
See double rail logic, formal logic, symbolic logic.

logical add
(ISO) Synonym for disjunction.

logical comparison
(ISO) A logic operation to determine whether two strings are identical.

logical multiply
(ISO) Synonym for AND.

logical operation
(ISO) Synonym for logic operation.

logical product
(ISO) Deprecated term for conjunction.

logical record
A record independent of its physical environment. Portions of the same logical record may be located in different physical records, or several logical records or parts of logical records may be located in one physical record.

logical shift
(ISO) A shift that equally affects all of the characters of a computer word. Synonymous with logic shift.

logical sum
(ISO) Deprecated term for disjunction.

logic design
A functional design that uses formal methods of description, such as symbolic logic.

logic device
A device that performs logic operations.

logic diagram
A graphic representation of a logic design.

logic element
(1) A device that performs an elementary logic function.
(2) See combinational logic element, sequential logic element.
logic function
(ISO) Deprecated term for switching function.

logic instruction
(ISO) An instruction in which the operation part specifies a logic operation.

logic operation
(1) (ISO) An operation that follows the rules of symbolic logic.
(2) (ISO) An operation in which each character of the result depends on not more than one character of each operand.
(3) Synonymous with logical operation.

logic shift
(ISO) Synonym for logical shift.

logic symbol
A symbol that represents an operator, a function or a functional relationship.

logic unit
(1) (ISO) A part of a computer that performs logic operations, and related operations.
(2) See arithmetic and logic unit.

logic variable
(ISO) Deprecated term for switching variable.

longitudinal redundancy check character
(LRC)
On a magnetic tape where each character is represented in a lateral row of bits, a character used for checking the parity of each track in the longitudinal direction. Such a character is usually the last character recorded in each block and is used in some magnetic recording systems to reestablish the initial recording status.

loop
(1) (ISO) A set of instructions that may be executed repeatedly while a certain condition prevails. In some implementations, no test is made to discover whether the condition prevails until the loop has been executed once.
(2) See closed loop, feedback loop, magnetic hysteresis loop.

loop body
(1) The part of a loop that accomplishes its primary purpose.
(2) In a counter, a part of the loop control.
(3) Contrast with loop control.

loop control
(1) The parts of a loop that modify the loop control variables and determine whether to execute the loop body or exit from the loop.
(2) Contrast with loop body.

loop-control variable
A variable that affects the execution of instructions in the loop body and is modified by a loop control.

loop initialization
The parts of a loop that set its starting values.

lower currate
The adjacent card rows at the bottom of a punch card.

LP
Linear programming.

LRC
The longitudinal redundancy check character.

Lukasiewicz notation
(ISO) Synonym for prefix notation.
machine
See accounting machine, electrical accounting machine, turing machine, universal turing machine.

machine address
(ISO) Synonym for absolute address (1).

machine code
(ISO) Synonym for computer instruction code.

machine instruction
(ISO) Synonym for computer instruction.

machine instruction set
Synonym for computer instruction set.

machine language
(1) A language that is used directly by a machine.
(2) (ISO) Deprecated term for computer instruction code.
(3) (ISO) Synonym for computer language.

machine learning
(ISO) The ability of a device to improve its performance based on its past performance.

machine operation
Synonym for computer operation.

machine-oriented language
Synonym for computer-oriented language.

machine-readable medium
A medium that can convey data to a given sensing device. Synonymous with automated data medium.

machine word
(ISO) Synonym for computer word.

macro declaration
(ISO) Synonym for macro definition.

macro definition
(ISO) A declaration that provides the skeletal code which a macrogenerator uses in replacing a macroinstruction. Synonymous with macro declaration.

macro generating program
(ISO) Synonym for macrogenerator.

macrogenerator
(ISO) A computer program that replaces macroinstructions in the source language with the defined sequence of instructions in the source language. Synonymous with macro generating program.

macroinstruction
(ISO) An instruction in a source language that is to be replaced by a defined sequence of instructions in the same source language. The macroinstruction may also specify values for parameters in the instructions that are to replace it.

macroprogramming
Computer programming with macroinstructions.

magnetic card
A card with a magnetic surface on which data can be stored by magnetic recording.

magnetic card storage
(ISO) A magnetic storage in which data are stored by selective polarization of portions of the magnetic material on the surface of thin flexible cards.

magnetic cell
(ISO) A storage cell in which different
patterns of magnetization are used to represent characters. Synonymous with static magnetic cell.

**magnetic core**
(1) (ISO) A piece of magnetic material, usually toroidal in shape, used for storage.
(2) A configuration of magnetic material that is, or is intended to be, placed in a spatial relationship to current-carrying conductors and whose magnetic properties are essential to its use. It may be used to concentrate an induced magnetic field as in a transformer induction coil, or armature, to retain a magnetic polarization for the purpose of storing data, or for its nonlinear properties as in a logic element. It may be made of such material as iron, iron oxide, or ferrite and in such shapes as wires, tapes, toroids, rods, or thin film.

**magnetic core storage**
(ISO) A magnetic storage in which data are stored by the selective polarization of magnetic cores.

**magnetic delay line**
A delay line whose operation is based on the time of propagation of magnetic waves.

**magnetic disk**
(ISO) A flat circular plate with a magnetic surface layer. Synonymous with disk.

**magnetic disk storage**
(ISO) A magnetic storage in which data are stored by the selective polarization of portions of magnetic material on the flat surface of one or more disks that rotate in use.

**magnetic drum**
(ISO) A right circular cylinder with a magnetic surface layer.

**magnetic drum storage**
(ISO) A magnetic storage in which data are stored by the selective polarization of portions of magnetic material of the curved surface of a cylinder that rotates in use.

**magnetic head**
(ISO) An electromagnet that can read, read or write, write, or erase data on a magnetic data medium.

**magnetic hysteresis loop**
A closed curve showing the relation between the magnetization force and the induction of magnetization in a magnetic substance when the magnetized field (force) is carried through a complete cycle.

**magnetic ink**
An ink that contains particles of a magnetic substance whose presence can be detected by magnetic sensors.

**magnetic ink character recognition (MICR)**
(1) Character recognition of characters printed with ink that contains particles of a magnetic material.
(2) Contrast with optical character recognition.

**magnetic recording**
(ISO) A technique of storing data by selectively magnetizing portions of a magnetizable material.

**magnetic storage**
A storage device that utilizes the magnetic properties of certain materials.
magnetic tape
(1) (ISO) A tape with a magnetic surface layer.
(2) A tape of magnetic material used as the constituent in some forms of magnetic cores.

magnetic tape storage
A magnetic storage in which data are stored by the selective polarization of portions of magnetic material on the surface of a tape that moves longitudinally in use.

magnetic tape unit
(ISO) A device containing a tape drive, together with read heads, write heads and associated controls.

magnetic thin film
A layer of magnetic material, usually less than one micron thick, often used for logic elements or storage elements.

magnetic thin film storage
(ISO) A magnetic storage in which the data are stored by the selective polarization of portions of a magnetic film of molecular thickness, coated on a substrate.

magnetic track
(ISO) A track on the surface layer of a magnetic storage.

magnetic wire storage
(ISO) A magnetic storage in which data are stored by selective magnetization of portions of a wire.

main control unit
(ISO) In a computer with more than one instruction control unit, that instruction control unit to which, for a given interval of time, the other instruction control units are subordinated. An instruction control unit may be designated as the main control unit by hardware or by hardware and software. A main control unit at one time may be a subordinate unit at another time.

main file
(ISO) Synonym for master file.

main frame
Synonym for central processing unit.

main storage
(ISO) A storage device whose storage cells can be addressed by a computer program and from which instructions and data can be loaded directly into registers from which the instructions can be executed or from which the data can be operated upon.

maintainability
(ISO) The ease with which maintenance of a functional unit can be performed in accordance with prescribed requirements.

maintenance
(1) (ISO) Any activity, such as tests, measurements, replacements, adjustments, and repairs, intended to eliminate faults or to keep a functional unit in a specified state.
(2) See corrective maintenance, deferred maintenance, emergency maintenance, file maintenance, preventive maintenance, scheduled maintenance.

maintenance panel
A part of a unit of equipment that is used for interaction between the unit of equipment and a maintenance engineer.

maintenance time
(1) Time used for hardware maintenance. It includes preventive maintenance time and corrective maintenance time.
(2) Contrast with available time.
(3) See corrective maintenance time, de-
ferred maintenance time, emergency maintenance time, preventive maintenance time.

majority
A logic operator having the property that if P is a statement, Q is a statement, R is a statement,..., then the majority of P, Q, R,..., is true if more than half the statements are true, false if half or less are true.

majority element
A logic element that performs a majority operation. Synonymous with majority gate.

majority gate
Synonym for majority element.

majority operation
(ISO) A threshold operation in which each of the operands may take only the values zero and one, and that takes the value one if and only if the number of operands having the value one is greater than half the total number of operands.

makeup time
(1) (ISO) That part of available time used for reruns due to faults or mistakes in operating.
(2) Contrast with development time.

malfunction
(ISO) Synonym for failure.

management information system (MIS)
(1) (ISO) Management performed with the aid of automatic data processing.
(2) An information system designed to aid in the performance of management functions.

manipulation
See algebraic manipulation, formula manipulation, symbol manipulation.

mantissa
(1) (ISO) The positive fractional part of the representation of a logarithm. In the expression, \( \log 643 = 2.808 \), the .808 is the mantissa and the 2 is the characteristic.
(2) (ISO) Synonym for fixed-point part.
(3) Contrast with characteristic.

manipulative
(1) The entry of data by hand into a device.
(2) The data entered as in (1).

map
(1) (ISO) To establish a set of values having a defined correspondence with the quantities or values of another set. Synonymous with map over.
(2) See Karnaugh map.

map over
(ISO) Synonym for map.

marginal check
Synonym for marginal test.

marginal test
Maintenance in which certain operating conditions, such as voltage or frequency supplied, are varied about their nominal values in order to detect and locate components with incipient faults. Synonymous with marginal check.

mark
(1) (ISO) A symbol or symbols that indicate the beginning or the end of a field, of a word, of an item of data or of a set of data such as a file, a record, or a block.
(2) See document mark, group mark,
marker
   See end-of-tape marker.

Markov chain
   A probabilistic model of events in which the probability of an event is dependent only on the event that precedes it.

mark sensing
   (1) The electrical sensing of manually recorded conductive marks on a non-conductive surface.
   (2) The automatic sensing of manually recorded marks on a data medium.

mark-sensing card
   A card on which mark-sensible fields have been printed.

mark-sensing column
   A line of mark-sensible positions, parallel to the Y-datum line of a card.

mark-sensing row
   A line of mark-sensible positions parallel to the X-datum line of a card.

mask
   (1) (ISO) A pattern of characters that is used to control the retention or elimination of portions of another pattern of characters.
   (2) (ISO) To use a pattern of characters to control the retention or elimination of portions of another pattern of characters.

mass storage
   (ISO) An auxiliary storage of very large storage capacity used for storage of data to which infrequent reference need be made. Synonymous with bulk storage.

mass storage device
   A device having a large storage capacity, e.g., magnetic disk, magnetic drum.

master file
   (ISO) A file that is used as an authority in a given job and that is relatively permanent, even though its contents may change. Synonymous with main file.

match
   (1) A comparison to determine identity of items.
   (2) Contrast with hit.

mathematical check
   A programmed check that uses mathematical relationships. Synonymous with arithmetic check.

mathematical induction
   (ISO) A method of proving a statement concerning terms based on natural numbers not less than N by showing that the statement is valid for the term based on N and that, if it is valid for an arbitrary value of n that is greater than N, it is also valid for the term based on \((n + 1)\).

mathematical logic
   (ISO) Synonym for symbolic logic.

mathematical model
   A mathematical representation of a process, device, or concept.

mathematical programming
   (1) (ISO) In operations research, a procedure for locating the maximum or minimum of a function subject to constraints.
   (2) Contrast with convex programming, dynamic programming, integer programming, linear programming, nonlinear programming, quadratic programming.

matrix
   (1) (ISO) A rectangular array of elements, arranged in rows and columns, that
may be manipulated according to the rules of matrix algebra.

2. In computers, a logic network in the form of an array of input leads and output leads with logic elements connected at some of their intersections.

3. By extension, an array of any number of dimensions.

4. See dot matrix.

**matrix printer**

(ISO) A printer in which each character is represented by a pattern of dots. Synonymous with dot printer, stylus printer, wire printer.

**matrix storage**

Storage, the elements of which are arranged such that access to any location requires the use of two or more coordinates, e.g., cathode ray storage, magnetic core storage.

**mean conditional information content**

(ISO) Synonym for conditional entropy.

**mean entropy**

See character mean entropy.

**mean information content**

(ISO) Synonym for entropy.

**mean repair time**

(ISO) Deprecated term for mean-time-to-repair.

**mean-time-between-failures (MTBF)**

(ISO) For a stated period in the life of a functional unit, the mean value of the lengths of time between consecutive failures under stated conditions.

**mean-time-to-repair (MTTR)**

(ISO) The average time required for corrective maintenance.

**mean transinformation content**

1. (ISO) In information theory, the mean of the transformation content conveyed by the occurrence of any one of a finite number of mutually exclusive and jointly exhaustive events, given the occurrence of another set of mutually exclusive events; in mathematical notation, the mean transinformation content, \( T \), for a set of events \( x_1 \ldots x_n \) which are dependent on the occurrence of events from another set \( y_1 \ldots y_m \) with joint probabilities \( p(x_i, y_j) \) of the occurrence of both events \( x_i, y_j \), equals the mathematical expectation of the transinformation content \( T(x_i | y_j) \) of all pairs of events:

\[
T = \sum_{i=1}^{n} \sum_{j=1}^{m} p(x_i, y_j) T(x_i | y_j)
\]

The mean transinformation content also is equal to the difference between the entropy of one of the two sets of events and the conditional entropy of this set relative to the other. For instance, in transmitting one message, the difference between the entropy at the message source and the equivocation, and the difference between the entropy at the message sink and the irrelevance are equal, i.e.:

\[
T = H(x) - H(x | y) = H(y) - H(y | n)
\]

Synonymous with average transinformation content.

2. See character mean transinformation content.
measure of information
See information measure.

medium
See data medium, empty medium, machine readable medium, virgin medium.

member
(ISO) Synonym for element.

memory
(ISO) Deprecated term for main storage.

memory protection
Deprecated term for storage protection.

mercury storage
A storage device that utilizes the acoustic properties of mercury to store data.

merge
(1) (ISO) To combine the items of two or more sets that are each in the same given order into one set in that order.
(2) See balanced merge.
(3) See also collate.

merge sort
(1) A sort program in which the items in a set are divided into subsets, the items in each subset are sorted, and the resulting sorted subsets are merged.
(2) See balanced merge sort, unbalanced merge sort.

merging
See order-by-merging, sequence-by-merging.

message
(1) An arbitrary amount of information whose beginning and end are defined or implied.
(2) (ISO) In information theory, an ordered series of characters intended to convey information.
(3) See error message.

message sink
(ISO) That part of a communication system in which messages are considered to be received.

message source
(ISO) That part of a communication system from which messages are considered to originate. Synonymous with information source.

metalanguage
A language used to specify itself, or other languages.

MICR
Magnetic ink character recognition.

microfiche
A sheet of microfilm capable of containing microimages in a grid pattern, usually containing a title that can be read without magnification.

microfilm
(1) A high resolution film for recording microimages.
(2) To record microimages on film.
(3) See computer output microfilm.

microfilmer
See computer output microfilmer.

microform
Any medium that contains microimages.

micrographics
That branch of science and technology concerned with methods and techniques for converting any form of information to or from microform.
microimage
An image too small to read without magnification.

microprogram
(ISO) A sequence of elementary instructions that correspond to a computer operation, that is maintained in special storage, and whose execution is initiated by the introduction of a computer instruction into an instruction register of a computer.

microprogramming
(ISO) The preparation or use of microprograms.

minimum delay programming
(ISO) A method of programming in which storage locations for instructions and data are chosen so that access time is reduced and minimized.

minimum distance code
A binary code in which the signal distance does not fall below a specified minimum value.

minuend
(ISO) In subtraction, the number or quantity from which another number or quantity is subtracted.

MIS
Management information system.

miscellaneous time
(ISO) The time during which a computer is used for demonstrations, training, or other such purposes. Synonymous with incidental time.

mistake
(1) A human action that produces an unintended result.
(2) Contrast with error, failure, fault, malfunction.

mixed-base notation
(ISO) Synonym for mixed-base numeration system.

mixed-base numeration system
(1) (ISO) A numeration system in which a number is represented as the sum of a series of terms each of which consists of a mantissa and a base, the base of a given term being constant for a given application but the bases being such that there are not necessarily integral ratios between the bases of all the terms, e.g., with bases $b_3$, $b_2$, and $b_1$ and mantissae 6, 5, and 4, the number represented is given by $6b_3 + 5b_2 + 4b_1$. A mixed-radix numeration system is the particular case of a mixed-base numeration system in which, when the terms are ordered so that their bases are in descending magnitudes, there is an integral ratio between the bases of adjacent terms, but not the same ratio in each case; thus if the smallest base is $b$ and if $x$ and $y$ represent integers, the numeral 654 in such a numeration system represents the number given by $6xyb + 5xb + 4b$. A fixed-radix numeration system is the particular case of a mixed-base numeration system in which, when the terms are ordered so that their bases are in descending magnitudes, there is the same integral ratio between bases of all pairs of adjacent terms; thus if $b$ is the smallest base and if $x$ represents an integer, the numeral 654 in such a numeration system represents the number given by $6x^2b + 5xb + 4b$. Synonymous with mixed-base notation.
(2) Contrast with mixed-radix numeration system.

mixed-radix notation
mixed-radix numeration system

1. (ISO) A radix numeration system in which the digit places do not all necessarily have the same radix, e.g., the numeration system in which three successive digits represent hours, tens of minutes, and minutes; taking one minute as the unit, the weights of the three digit places are 60, 10 and 1 respectively; the radices of the second and third digit places are 6 and 10 respectively. A comparable numeration system that used one or more digits to represent days and two digits to represent hours would not satisfy the definition of any radix numeration system, since the ratio of the weights of the “days” and the “tens of hours” digit places would not be an integer. Synonymous with mixed-radix notation.

2. Contrast with mixed-base numeration system.

mnemonic symbol

1. (ISO) A symbol chosen to assist the human memory, e.g., an abbreviation such as “mpy” for “multiply.”

mode

See access mode, conversational mode, load mode, move mode.

model

See mathematical model.

modem (Modulator-demodulator)

A device that modulates and demodulates signals transmitted over data communication facilities.

modifier register

1. (ISO) Synonym for index register.

modularity

The extent to which a system is composed of modules.

modulator-demodulator

See modem.

module

1. A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading, e.g., the input to, or output from, an assembler, compiler, linkage editor, or executive routine.

2. A packaged functional hardware unit designed for use with other components.

3. See object module, programming module.

modulo-n check

Synonym for residue check.

modulo-n counter

1. (ISO) A counter in which the number represented reverts to zero in the sequence of counting after reaching a maximum value of n - 1.

modulo-two sum

1. (ISO) Deprecated term for nonequivalence operation.

monadic boolean operator

A boolean operator having only one operand, e.g., NOT.

monadic operation

1. (ISO) An operation with one and only one operand. Synonymous with unary operation.

monadic operator

1. (ISO) An operator that represents an operation on one and only one operand. Synonymous with unary operator.
monitor
(1) (ISO) A device that observes and verifies the operations of a data processing system and indicates any significant departure from the norm.
(2) Software or hardware that observes, supervises, controls, or verifies the operations of a system.

monitoring program
(ISO) Synonym for monitor program.

monitor program
(ISO) A computer program that observes, regulates, controls, or verifies the operations of a data processing system. Synonymous with monitoring program.

monostable
Pertaining to a device that has one stable state.

monostable circuit
A trigger circuit that has one stable state and one unstable state. Synonymous with monostable trigger circuit.

monostable trigger circuit
Synonym for monostable circuit.

Monte Carlo method
ISO) A method of obtaining an approximate solution to a numerical problem by the use of random numbers, e.g., the random walk method, or a procedure using a random number sequence to calculate an integral.

move
(1) (ISO) In computer programming, to copy from locations in internal storage into locations in the same internal storage.
(2) (ISO) Synonym for transfer.

move mode
(1) In some variable-word-length computers, data transmission such that certain delimiters are not moved with the data.
(2) Contrast with load mode.

MTBF
Mean-time-between-failures.

MTTR
Mean-time-to-repair.

multiaddress
Pertaining to an instruction format containing more than one address part.

multiaddress instruction
(ISO) An instruction that contains more than one address part. Synonymous with multiple address instruction.

multi-aperture core
(ISO) A magnetic core, usually used for nondestructive reading, with two or more holes through which wires may be passed in order to create more than one magnetic path. Synonymous with multiple aperture core.

multidimensional language
(1) A language whose expressions are assembled in more than one dimension, e.g., flowcharts, logic diagrams, block diagrams, and decision tables.
(2) Contrast with one-dimensional language.

multilevel address
(ISO) Synonym for indirect address.

multipass sort
A sort program that is designed to sort more items than can be in main storage at one time.
multiple address instruction
(ISO) Synonym for multiaddress instruction.

multiple aperture core
(ISO) Synonym for multi-aperture core.

multiple precision
(ISO) Pertaining to the use of two or more computer words to represent a number in order to enhance precision.

multiple punching
The punching of more than one hole in the same card column by means of more than one keystroke, usually in order to extend the character set of the punch.

multiplex
To interleave or simultaneously transmit two or more messages on a single channel.

multiplexer
A device capable of interleaving the events of two or more activities or capable of distributing the events of an interleaved sequence to the respective activities.

multiplex operation
A mode of operation in which the events of two or more activities are interleaved and when required the events in the interleaved sequence are distributed to the respective activities.

multiplicand
(ISO) In a multiplication operation, the factor that is multiplied by another number or quantity.

multiplier
(1) (ISO) In multiplication, the number or quantity by which the multiplicand is multiplied.
(2) (ISO) Synonym for multiplier factor.
(3) See quarter squares multiplier.

multiplier factor
(ISO) In a multiplication operation, the factor by which the multiplicand is multiplied. Synonymous with multiplier.

multiply
See logical multiply.

multiplying punch
(ISO) Synonym for calculating punch.

multiprocessing
(1) A mode of operating a multiprocessor that provides for the parallel processing of two or more computer programs.
(2) Pertaining to the simultaneous execution of two or more computer programs or sequences of instructions by a computer or computer network.
(3) Loosely, parallel processing.

multiprocessor
A computer employing two or more central processing units under integrated control.

multiprogramming
(1) A mode of operation that provides for the interleaved execution of two or more computer programs by a single central processing unit.
(2) Pertaining to the concurrent execution of two or more computer programs by a computer.

multitasking
Pertaining to the concurrent execution of two or more tasks by a computer.

mutual information
(ISO) Synonym for transinformation content.
n-address instruction
(ISO) An instruction that contains n address parts.

n-adic boolean operation
(ISO) A boolean operation on n and only n operands.

n-adic operation
(ISO) An operation on n and only n operands. Synonymous with n-ary operation.

NAK
The negative acknowledge character.

name
See data name, qualified name.

NAND
A logic operator having the property that if P is a statement, Q is a statement, R is a statement,..., then the NAND of P, Q, R,... is true if at least one statement is false, false if all statements are true. Synonymous with nonconjunction, NOT-AND, Sheffer stroke.

NAND element
A logic element that performs the boolean operation of nonconjunction. Synonymous with NAND gate.

NAND gate
Synonym for NAND element.

NAND operation
(ISO) Synonym for nonconjunction.

n-ary
(1) (ISO) Pertaining to a selection, choice, or condition that has n possible different values or states.
(2) (ISO) Pertaining to a fixed-radix numeration system having a radix of n.

n-ary boolean operation
(ISO) Deprecated term for n-adic boolean operation.

n-ary operation
(ISO) Synonym for n-adic operation.

NAT
(ISO) Information content natural unit.

natural language
(1) (ISO) A language whose rules are based on current usage without being explicitly prescribed.
(2) Contrast with artificial language.

natural number
(ISO) One of the numbers zero, 1, 2, ...
Synonymous with nonnegative number.

n-bit byte
(ISO) A byte composed of n binary elements.

n-core-per-bit storage
(ISO) A storage device in which each storage cell uses n magnetic cores per binary character.

NDR
(ISO) Nondestructive read.

NDRO
(ISO) Nondestructive readout.

needle
A probe in a manual information retrieval operation that may be passed through holes or notches to assist in sorting or selecting cards.

negate
(1) (ISO) To perform the operation of negation.
(2) To perform the logic operation NOT.

negation
(ISO) The monadic boolean operation the result of which has the boolean value opposite to that of the operand. Synonymous with NOT operation.

negative acknowledge character (NAK)
(ISO) A transmission control character transmitted by a station as a negative response to the station with which the connection has been set up.

negentropy
(ISO) Deprecated term for entropy.

neither-nor operation
(ISO) Synonym for nondisjunction.

nest
(1) (ISO) To incorporate a structure or structures of some kind into a structure of the same kind. For example, to nest one loop (the nested loop) within another loop (the nesting loop); to nest one subroutine (the nested subroutine) within another subroutine (the nesting subroutine).
(2) To embed subroutines or data in other subroutines or data at a different hierarchical level such that the different levels of routines or data can be executed or accessed recursively.

network
See computer network.

network analog
The expression and solution of mathematical relationships between variables using a circuit or circuits to represent these variables.

network analyzer
A device that simulates a network such as an electrical supply network.

new-line character (NL)
(1) (ISO) A format effector that causes the print or display position to move to the first position on the next line.
(2) Contrast with carriage return character.

nines complement
(ISO) The diminished radix complement in the decimal numeration system. Synonymous with complement-on-nine.

NL
The new line character.

n-level address
An indirect address that specifies n levels of addressing.

node
(1) The representation of a state or an event by means of a point on a diagram.
(2) In a tree structure, a point at which subordinate items of data originate.

noise
(1) Random variations of one or more characteristics of any entity such as voltage, current, or data.
(2) A random signal of known statistical properties of amplitude, distribution, and spectral density.
(3) Loosely, any disturbance tending to interfere with the normal operation of a device or system.

nonconjunction
(1) (ISO) The dyadic boolean operation the result of which has the boolean value 0 if and only if each operand has the boolean value 1. Synonymous with NAND, NAND operation, NOT BOTH operation.
Contrast with conjunction.

**nondestructive read (NDR)**
(ISO) A read process that does not erase the data in the source. Synonymous with nondestructive readout.

**nondestructive readout (NDRO)**
(ISO) Synonym for nondestructive read.

**nondisjunction**
(1) (ISO) The dyadic boolean operation the result of which has the boolean value 1 if and only if each operand has the boolean value 0. Synonymous with neither-nor operation, nor operation.
(2) Contrast with disjunction.

**nonequivalence operation**
(1) (ISO) The dyadic boolean operation the result of which has the boolean value 1 if and only if the operands have different boolean values. Synonymous with exclusive-OR operation.
(2) Contrast with equivalence operation.

**nonerasable storage**
(ISO) Synonym for fixed storage.

**nonidentity operation**
(1) (ISO) The boolean operation the result of which has the boolean value 1 if and only if all the operands do not have the same boolean value. A nonidentity operation on two operands is a nonequivalence operation.
(2) Contrast with identity operation.

**nonlinear optimization**
(ISO) Synonym for nonlinear programming.

**nonlinear programming**
(1) (ISO) In operations research, a procedure for locating the maximum or minimum of a function of variables that are subject to constraints, when either the function or the constraints, or both, are nonlinear. Synonymous with nonlinear optimization.
(2) Contrast with convex programming, dynamic programming, integer programming, linear programming, mathematical programming, quadratic programming.

**nonlocking**
(1) (ISO) Of code extension characters, having the characteristic that the change in interpretation applies only to a specified number of the coded representations following, commonly only one.
(2) Contrast with locking.

**nonnegative number**
(ISO) Synonym for natural number.

**non-polarized return-to-zero recording**
(RZ(NP)) Return-to-reference recording in which zeros are represented by the absence of magnetization, ones are represented by a specified condition of magnetization, and the reference condition is zero magnetization. The specified condition is usually saturation. Conversely, the absence of magnetization can be used to represent ones, and the magnetized condition to represent zeros. Synonymous with dipole modulation.

**non-return-to-change recording**
A method of recording in which ones are represented by a specified condition of magnetization and zeros are represented by a different condition.

**non-return-to-reference recording**
The magnetic recording of bits in which
the patterns of magnetization used to represent zeros and ones occupy the whole storage cell, with no part of the cell magnetized to a reference condition.

**non-return-to-zero change-on-ones recording (NRZI)**

*Non-return-to-reference recording* in which ones are represented by a change in the condition of magnetization, and zeros are represented by the absence of a change. This method is called NRZ (mark) recording because only the one or mark signals are explicitly recorded. Synonymous with non-return-to-zero (mark) recording, NRZ(M).

**non-return-to-zero (change) recording (NRZ(C))**

*Non-return-to-reference recording* in which zeros are represented by magnetization to a specified condition, and ones are represented by magnetization to a specified alternative condition. The two conditions may be saturation and zero magnetization but are more commonly saturation in opposite senses. This method is called NRZ (change) recording because the recorded magnetic condition is changed when, and only when, the recorded bit changes from zero to one or from one to zero.

**non-return-to-zero (mark) recording (NRZ(M))**

Synonym for *non-return-to-zero change-on-ones recording*.

**non-return-to-zero recording (NRZ)**

*Non-return-to-reference recording* in which the reference condition is zero magnetization.

**non-volatile storage**

(ISO) A storage whose content is not lost when the power is removed.

**no-op**

(ISO) *No-operation instruction*.

**no-operation instruction**

(ISO) An instruction whose execution causes a computer to do nothing other than to proceed to the next instruction to be executed. Synonymous with do-nothing operation.

**NOR**

A logic 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 all statements are false, false if at least one statement is true. P NOR Q is often represented by a combination of OR and NOT symbols, such as ~(PAQ). P NOR Q is also called neither P nor Q. Synonymous with NOT-OR.

**NOR element**

A logic element that performs the boolean operation of nondisjunction. Synonymous with NOR gate.

**NOR gate**

Synonym for NOR element.

**normal direction flow**

(ISO) A flow direction from left to right or top to bottom on a flowchart.

**normalize**

(1) (ISO) to make an adjustment to the fixed-point part and the corresponding adjustment to the exponent in a floating-point representation to ensure that the fixed-point part lies within some prescribed range, the real number represented remaining unchanged. Synonymous with standardize.

(2) Loosely, to scale.

(3) (ISO) Deprecated term for scale.
normalized form
(ISO) The form taken by a floating-point representation when the fixed-point part lies within some prescribed standard range, so chosen that any given real number is represented by a unique pair of numerals. Synonymous with standard form.

NOR operation
(ISO) Synonym for nondisjunction.

NOT
A logic operator having the property that if P is a statement, then the NOT of P is true if P is false, false if P is true. The NOT of P is often represented by \( \bar{P} \), \( \sim P \), \( P' \).

NOT-AND
Synonym for NAND.

NOT AND operation
(ISO) Deprecated term for nonconjunction.

notation
(1) (ISO) A set of symbols, and the rules for their use, for the representation of data.
(2) See binary notation, decimal notation, infix notation, parentheses-free notation, postfix notation, prefix notation.

NOT BOTH operation
(ISO) Synonym for nonconjunction.

NOT element
A logic element that performs the boolean operation of negation. Synonymous with NOT gate.

NOT gate
Synonym for NOT element.

NOT-IF-THEN element
A logic element that performs the boolean operation of exclusion. Synonymous with NOT-IF-THEN gate.

NOT-IF-THEN gate
Synonym for NOT-IF-THEN element.

NOT-IF-THEN operation
(ISO) Synonym for exclusion.

NOT operation
(ISO) Synonym for negation.

NOT-OR
Synonym for NOR.

NOT-OR operation
(ISO) Deprecated term for nondisjunction.

noughts complement
(ISO) Synonym for radix complement.

n-plus-one address instruction
(ISO) An instruction that contains \( n + 1 \) address parts, the plus-one address being that of the instruction that is to be executed next unless otherwise specified.

NRZ
Non-return-to-zero recording.

NRZ(C)
Non-return-to-zero (change) recording.

NRZI
Non-return-to-zero change-on-ones recording.

NRZ(M)
Non-return-to-zero (mark) recording.

n-tuple length register
(ISO) \( N \) registers logically or physically connected to function as a single register.
Each register may be individually accessed. Synonymous with n-tuple register.

n-tuple register
(ISO) Synonym for n-tuple length register.

NUL
The null character.

null character (NUL)
(1) (ISO) A control character that is used to accomplish media-fill or time-fill and that may be inserted into or removed from a sequence of characters without affecting the meaning of the sequence; however, the control of equipment or the format may be affected by this character.
(2) See also space character.

null set
(ISO) Synonym for empty set.

null string
(1) (ISO) A string containing no entity.
(2) The notion of a string depleted of its entities, or the notion of a string prior to establishing its entities.

number
(1) A mathematical entity that may indicate quantity or amount of units.
(2) Loosely, a numeral.
(3) See binary number, complex number, Fibonacci number, irrational number, level number, natural number, random number, rational number, serial number.

number representation
(ISO) A representation of a number in a numeration system. Synonymous with numeration.

number representation system
(ISO) Synonym for numeration system.

number sequence
See pseudo-random number sequence, random number sequence.

number system
(ISO) Deprecated term for numeration system.

numeral
(1) (ISO) A discrete representation of a number. The following are four different numerals that represent the same number, i.e., a dozen, in the methods shown: twelve, by a word in the English language; 12, in the decimal numeration system; XII by Roman numerals; 1100 in the pure binary numeration system.
(2) See binary numeral, decimal numeral.

numeration
(ISO) Synonym for number representation.

numeration system
(1) (ISO) Any notation for the representation of numbers. Synonymous with number representation system.
(2) See decimal numeration system, fixed-radix numeration system, mixed-base numeration system, mixed-radix numeration system, pure binary numeration system, radix numeration system.

numeric
(ISO) Pertaining to data or to physical quantities represented by numerals. Synonymous with numerical.

numerical
(ISO) Synonym for numeric.

numerical analysis
The study of methods of obtaining useful quantitative solutions to problems that have been expressed mathematically, including the study of the errors and
bounds on errors in obtaining such solutions.

**numerical control (NC, NCMT)**

(ISO) Automatic control of a process performed by a device that makes use of numerical data usually introduced as the operation is in progress.

**numeric character**

(ISO) Synonym for digit (1).

**numeric character set**

(ISO) A character set that contains digits and may contain control characters, special characters, and the space character, but not letters.

**numeric character subset**

(ISO) A character subset that contains digits and may contain control characters, special characters, and the space character, but not letters.

**numeric code**

(ISO) A code according to which data is represented by a numeric character set.

**numeric coded character set**

(ISO) A coded character set whose character set is a numeric character set.

**numeric data**

(1) (ISO) Data represented by numerals.

(2) Data represented by numerals and some special characters.

**numeric punch**

A hole punched in one of the punch rows designated as zero through nine. A zero-punch, and sometimes an eight- or nine-punch, in combination with another numeric punch, is considered a zone punch.

**numeric representation**

(ISO) A discrete representation of data by numerals.

**numeric word**

(ISO) A word consisting of digits and possibly space characters and special characters. For example, in the Universal Decimal Classification system, the numeric word 61(03)=20 is used as an identifier for any medical encyclopedia in English.
object code
Output from a compiler or assembler which is itself executable machine code or is suitable for processing to produce executable machine code.

object language
(1) (ISO) A language that is specified by a metalanguage.
(2) (ISO) Synonym for target language.

object module
A module that is the output of an assembler or compiler and is input to a linkage editor.

object program
(1) (ISO) A fully compiled or assembled program that is ready to be loaded into the computer.
(2) Synonym for target program.
(3) Contrast with source program.

OCR
Optical character recognition.

octal
(ISO) Pertaining to a fixed-radix numeration system having a radix of eight.

octet
(ISO) A byte composed of eight binary elements.

odd-even check
Synonym for parity check.

offline
Pertaining to equipment or devices not under control of a central processing unit.

offline storage
Storage not under control of the central processing unit.

one-address instruction
(ISO) An instruction that contains one address part.

one-ahead addressing
A method of implied addressing in which the operation part of an instruction implicitly addresses the operands in the location following the location of the operands of the last instruction executed.

one-core-per-bit storage
(ISO) A storage device in which each storage cell uses one magnetic core per binary character.

one-dimensional language
(1) A language whose expressions are customarily represented as strings of characters, e.g., FORTRAN.
(2) Contrast with multi-dimensional language.

one-level address
(ISO) Synonym for direct address.

one-plus-one address instruction
(ISO) An instruction that contains two address parts, the plus one address being that of the instruction that is to be executed next unless otherwise specified.

ones complement
(ISO) The diminished radix complement in the pure binary numeration system. Synonymous with complement-on-one.

online
(1) Pertaining to equipment or devices under the direct control of a central processing unit.
(2) Pertaining to a user's ability to interact with a computer.
(3) Pertaining to the user's access to a computer via a terminal.
online storage
Storage under control of the central processing unit.

on-the-fly printer
(ISO) An impact printer in which the type slugs do not stop moving during the impression time. Synonymous with hit-on-the-fly printer.

open-ended
Pertaining to a process or system that can be augmented.

open shop
(1) Pertaining to the operation of a computer facility in which most productive problem programming is performed by the problem originator rather than by a group of programming specialists. The use of the computer itself may also be described as open shop if the user/programmer also serves as the operator.
(2) Contrast with closed shop.

open subroutine
(1) (ISO) A subroutine of which a replica must be inserted at each place in a computer program at which the subroutine is used. Synonymous with direct insert subroutine.
(2) Contrast with closed subroutine.

operand
(1) (ISO) An entity to which an operation is applied.
(2) That which is operated upon. An operand is usually identified by an address part of an instruction.

operating system
(ISO) Software that controls the execution of computer programs and that may provide scheduling, debugging, input-output control, accounting, compilation, storage assignment, data management, and related services.

operating time
(1) That part of available time during which the hardware is operating and is assumed to be yielding correct results. It includes program development time, production time, makeup time, and miscellaneous time.
(2) Contrast with idle time.

operation
(1) (ISO) A well-defined action that, when applied to any permissible combination of known entities, produces a new entity.
(2) A defined action, namely, the act of obtaining a result from one or more operands in accordance with a rule that completely specifies the result for any permissible combination of operands.
(3) A program step undertaken or executed by a computer, e.g., addition, multiplication, extraction, comparison, shift, transfer. The operation is usually specified by the operator part of an instruction.
(4) The event or specific action performed by a logic element.
(5) See arithmetic operation, asynchronous operation, auxiliary operation, binary arithmetic operation, boolean operation, complementary operation, computer operation, concurrent operation, control operation, dual operation, dyadic boolean operation, dyadic operation, equivalence operation, fixed-cycle operation, identity operation, logic operation, majority operation, monadic operation, multiplex operation, n-adic boolean operation, n-adic operation, non-equivalence operation, non-identity operation, parallel operation, sequential operation, serial operation, simultane-
ous operation, single-step operation, threshold operation.

operation code
(ISO) A code used to represent the operations of a computer.

operation decoder
A device that selects one or more control channels according to the operation part of a machine instruction.

operation part
(ISO) A part of an instruction that usually contains only an explicit specification of the operation to be performed. For an exception to "usually," see implied addressing. Synonymous with function part, operator part.

operations analysis
(ISO) Synonym for operations research.

operations research (OR)
(ISO) The application of scientific methods to the solution of complex problems concerning the optimal allocation of available resources. Synonymous with operations analysis.

operation table
(1) (ISO) A table that defines an operation by listing all permissible combinations of values of the operands and indicating the result for each of these combinations.
(2) See boolean operation table.

operator
(1) (ISO) A symbol that represents the action to be performed in a mathematical operation.
(2) In the description of a process, that which indicates the action to be performed on operands.
(3) A person who operates a machine.

(4) See boolean operator, complementary operator, dyadic operator, monadic boolean operator, monadic operator, quaternary operator, unary operator.

operator console
(ISO) A functional unit containing devices that are used for communication between a computer operator and an automatic data processing system.

operator control panel
(ISO) A part of an operator console, of a computer, or of an automatic data processing system that contains switches used to control the system or part of the system and that may contain indicators giving information on the functioning of the system or of part of the system.

operator part
(ISO) Synonym for operation part.

optical character recognition (OCR)
(1) The machine identification of printed characters through use of light sensitive devices.
(2) Contrast with magnetic ink character recognition.

optical scanner
(1) (ISO) A scanner that uses light for examining patterns.
(2) A device that scans optically and usually generates an analog or digital signal.

optional pause instruction
(ISO) An instruction that allows manual suspension of the execution of a computer program. Synonymous with optional stop instruction.

optional-stop instruction
(ISO) Synonym for optional pause instruction.
OR
(1) A logic operator having the property that if \( P \) is a statement, \( Q \) is a statement, \( R \) is a statement, ... then the OR of \( P, Q, R, ... \), is true if at least one statement is true, false if all statements are false. \( P \) OR \( Q \) is often represented by \( P + Q \). Synonymous with boolean add.

(2) Contrast with exclusive OR.

(3) Operations research.

order
(1) (ISO) A specified arrangement used in ordering. An order need not be linear.

(2) An arrangement of items according to any specified set of rules.

(3) (ISO) To place items in an arrangement in accordance with specified rules.

(4) To arrange items according to any specified set of rules. Synonymous with sort.

(5) (ISO) Deprecated term for instruction, sequence (1).

order-by-merging
(ISO) To order by repeated splitting and merging.

order code
(ISO) Deprecated term for operation code.

ordering bias
(ISO) The manner and degree by which the order of a set of items departs from random distribution. An ordering bias will make the effort necessary to order a set of items more than or less than the effort that would be required for a similar set with random distribution.

OR gate
A gate that implements the logic OR operator.

OR operation
Synonym for disjunction.

oscillating sort
A merge sort in which the sorts and merges are performed alternately to form one sorted set.

outconnector
(1) In flowcharting, a connector that indicates a point at which a flowline is broken for continuation at another point.

(2) Contrast with inconnector.

output
(1) (ISO) Pertaining to a device, process, or channel involved in an output process, or to the data or states involved in an output process.

(2) See input-output, real-time output.

output area
An area of storage reserved for output.

output channel
A channel for conveying data from a device or logic element.

output data
(ISO) Data being delivered or to be delivered from a device or from a computer program.

output device
(ISO) Synonym for output unit.

output process
(ISO) The process that consists of the delivery of data from a data processing system, from a subsystem, or from a device.

output program
(ISO) A utility program that organizes the output process of a computer.
output routine
(ISO) A utility routine that organizes the output process of a computer.

output unit
(ISO) A device in a data processing system by which data may be received from the system. Synonymous with output device.

overflow
See arithmetic overflow.

overhead operation
(ISO) Synonym for housekeeping operation.

overlay
(1) (ISO) In a computer program, a segment that is not permanently maintained in internal storage.
(2) The technique of repeatedly using the same areas of internal storage during different stages of a program.
(3) (ISO) In the execution of a computer program, to load a segment of the computer program in a storage area hitherto occupied by parts of the computer program that are not currently needed.

overlay supervisor
A routine that controls the proper sequencing and positioning of segments of computer programs in limited storage during their execution.

overpunch
(1) To add holes in a card column that already contains holes. Overpunches are often used to represent special characters.
(2) To add holes to perforated tape to change a character, especially to produce a delete character.
(3) Synonym for zone punch.
pack
(1) (ISO) To store data in a compact form in a storage medium by taking advantage of known characteristics of the data and the storage medium, in such a way that the original form of the data can be recovered, e.g., to make use of bit or byte locations that would otherwise go unused.
(2) See disk pack.

packing density
The number of useful storage cells per unit of dimension, e.g., the number of bits per inch stored on a magnetic tape track or magnetic drum track.

padding
(1) (ISO) A technique that incorporates fillers in data.
(2) (ISO) Deprecated term for filler.

page
A block of instructions, or data, or both, that can be located in main storage or in auxiliary storage. Segmentation and loading of these blocks is automatically controlled by a computer.

page-at-a-time printer
Synonym for page printer.

page printer
(1) A device that prints one page at a time, e.g., xerographic printer, cathode ray tube printer, film printer. Synonymous with page-at-a-time printer.
(2) Contrast with character printer, line printer.

page swapping
Exchanging pages between main storage and auxiliary storage.

page turning
Synonym for paging.

paging
A time sharing technique in which pages are transferred between main storage and auxiliary storage. Synonymous with page turning.

panel
See control panel, maintenance panel, operator control panel.

paper skip
Synonym for paper throw.

paper tape code
Synonym for perforated tape code.

paper throw
The movement of paper through a printer at a speed greater than a single line spacing speed. Synonymous with paper skip.

parallel
(1) Pertaining to the concurrent operation or simultaneous operation of two or more devices or to the concurrent performance of two or more activities in a single device.
(2) Pertaining to the concurrent or simultaneous occurrence of two or more related activities in multiple devices or channels.
(3) Pertaining to the simultaneity of two or more processes.
(4) Pertaining to the simultaneous processing of the individual parts of a whole, such as the bits of a character and the characters of a word, using separate facilities for the various parts.
(5) Contrast with serial.

parallel adder
(ISO) A digital adder in which addition is
performed concurrently on digits in all the digit places of the operands.

**parallel addition**  
(ISO) Addition that is performed concurrently on digits in all the digit places of the operands.

**parallel computer**  
(1) A computer having multiple arithmetic or logic units that are used to accomplish parallel operations or parallel processing.  
(2) Contrast with serial computer.

**parallel operation**  
(1) The concurrent or simultaneous execution of two or more operations in devices such as multiple arithmetic or logic units.  
(2) Contrast with serial operation.

**parallel processing**  
(1) The concurrent or simultaneous execution of two or more processes in a single unit.  
(2) Contrast with serial processing.

**parallel search storage**  
(1) A storage device in which one or more parts of all storage locations are queried simultaneously.  
(2) Contrast with associative storage.

**parallel storage**  
A storage device in which digits, characters, or words, are accessed simultaneously or concurrently.

**parallel transmission**  
(1) In data communication, the simultaneous transmission of a certain number of signal elements constituting the same telegraph or data signal. For example, use of a code according to which each signal is characterized by a combination of three out of twelve frequencies simultaneously transmitted over the channel.  
(2) Contrast with serial transmission.

**parameter**  
(1) (ISO) A variable that is given a constant value for a specified application and that may denote the application.  
(2) See external program parameter, preset parameter, program-generated parameter.

**parameter word**  
(ISO) A word that directly or indirectly provides or designates one or more parameters.

**parenthesis-free notation**  
(1) Any method of forming mathematical expressions in which expressions are delimited by means other than parentheses, e.g., prefix notation, postfix notation.  
(2) Contrast with infix notation.

**parity bit**  
A check bit appended to an array of binary digits to make the sum of all the binary digits, including the check bit, always odd or always even.

**parity check**  
A check that tests whether the number of ones (or zeros) in an array of binary digits is odd or even. Synonymous with odd-even check.

**partial carry**  
(1) (ISO) In parallel addition, a procedure in which some or all of the carries are temporarily stored instead of being immediately transferred.  
(2) Contrast with complete carry.
partition
(ISO) Deprecated term for segment.

pass
(1) One cycle of processing a body of data.
(2) See sort pass.

patch
(1) A temporary electrical connection.
(2) (ISO) To make an improvised modification. To modify a routine in a rough or expedient way.

pattern recognition
(ISO) The identification of shapes, forms, or configurations by automatic means.

pattern sensitive fault
(1) A fault that appears in response to some particular pattern of data.
(2) Contrast with program sensitive fault.

pause instruction
(1) (ISO) An instruction that specifies the suspension of the execution of a computer program. A pause instruction is usually not an exit. Synonymous with halt instruction.
(2) See optional pause instruction.

PCM
(1) Punched card machine.
(2) Pulse code modulation.

PCS
Print contrast signal.

perforated tape
A tape on which a pattern of holes or cuts is used to represent data.

perforated-tape reader
A device that converts holes or cuts in perforated tape into coded electrical pulse patterns.

perforator
See receiving perforator.

peripheral control unit
Synonym for input-output controller.

peripheral equipment
(ISO) In a data processing system, any equipment, distinct from the central processing unit, that may provide the system with outside communication or additional facilities.

peripheral transfer
(ISO) The process of transmitting data between two peripheral units.

permanent storage
(1) (ISO) A storage device whose content cannot be modified.
(2) Synonymous with fixed storage.
(3) Contrast with erasable storage.

permutation
(1) (ISO) An ordered arrangement of a given number of different elements selected from a set.
(2) Contrast with combination.

phase
See assembly phase, compile phase, execute phase, translate phase.

picture
(ISO) In a programming language, a description of a character string in which each position has associated with it a symbol representing the properties of the character that may occupy it, e.g., in COBOL, 9999 is used as a picture of any 4-digit numeric word.
pinboard
(1) A perforated board into which pins are manually inserted to control the operation of equipment.
(2) Synonym for plugboard.

pitch
See feed pitch, row pitch, track pitch.

PL/I
A programming language designed for use in a wide range of commercial and scientific computer applications.

plotter
(ISO) An output unit that presents data in the form of a two-dimensional graphical representation.

plugboard
(ISO) A perforated board into which plugs or pins may be placed to control the operation of equipment. Synonymous with control panel, pinboard.

plugboard chart
A chart that shows, for a given job, where plugs or wires must be inserted into a plugboard. Synonymous with plugging chart.

plugging chart
Synonym for plugboard chart.

pocket
A card stacker in a sorter.

point
See branchpoint, breakpoint, checkpoint, decimal point, entry point, radix point, reentry point, rerun point, restart point.

pointer
An identifier that indicates the location of an item of data.

polarized dipole magnetization
Synonym for polarized return-to-zero recording.

polarized return-to-zero recording (RZ(P))
A method of return-to-reference recording in which zeros are represented by magnetization in one sense, ones are represented by magnetization in the opposite sense, and the reference condition is the absence of magnetization. Synonymous with polarized dipole magnetization.

Polish notation
(ISO) Synonym for prefix notation.

polling
Interrogation of devices for purposes such as to avoid contention, to determine operational status, or to determine readiness to send or receive data.

polyphase sort
An unbalanced merge sort in which the distribution of sorted subsets is based on a Fibonacci series.

position
(1) (ISO) In a string, each location that may be occupied by a character or binary element and that may be identified by a serial number.
(2) See bit position, punch position, sign position.

positional notation
(ISO) Synonym for positional representation system.

positional representation
(ISO) A representation of a real number in a positional representation system.

positional representation system
(ISO) Any numeration system in which a real number is represented by an ordered
set of characters in such a way that the value contributed by a character depends upon its position as well as upon its value. Synonymous with positional notation.

**positioning time**

(ISO) The time to mechanically position a transducer relative to the location of the required data on a storage medium, e.g., the time required to position a read-write head on a magnetic disk plus the time required for the data to arrive at the read-write head.

**postfix notation**

(1) (ISO) A method of forming mathematical expressions in which each operator is preceded by its operands and indicates the operation to be performed on the operands or the intermediate results that precede it. Synonymous with reverse Polish notation, suffix notation.

(2) Contrast with infix notation, prefix notation.

(3) See also parentheses-free notation.

**posting**

See event posting.

**postmortem dump**

(ISO) Dumping that is performed at the end of a run, usually for purposes of debugging, auditing, or documentation.

**postprocessor**

(ISO) A computer program that effects some final computation or organization.

**pragmatics**

(ISO) The relationship of characters or groups of characters to their interpretation and use.

**precision**

(1) (ISO) A measure of the ability to distinguish between nearly equal values.

(2) The degree of discrimination with which a quantity is stated. For example, a three-digit numeral discriminates among 1000 possibilities.

(3) Contrast with accuracy.


**predefined process**

In flowcharting, a process that is identified only by name and that is defined elsewhere.

**prefix notation**

(1) (ISO) A method of forming mathematical expressions in which each operator precedes its operands and indicates the operation to be performed on the operands or the intermediate results that follow it. Synonymous with Lukasiewicz notation, Polish notation.

(2) Contrast with infix notation, postfix notation.

(3) See also parentheses-free notation.

**preprocessor**

(ISO) A computer program that effects some preliminary computation or organization.

**pre-read head**

A read head placed relative to a second read head so that it may be used to read the data on a magnetic track before the data are read by the second read head.

**preset**

(ISO) To establish an initial condition, such as the control values of a loop, or the value to which a parameter is to be bound.
preset parameter
(ISO) A parameter that is bound when the computer program is constructed, when it is flowcharted, coded, or compiled.

prestore
(1) (ISO) To store, before a computer program, routine, or subroutine is entered, data that are required by the computer program, the routine, or the subroutine.
(2) Contrast with initialize.

presumptive instruction
(ISO) An instruction that is not an effective instruction until it has been modified in a prescribed manner.

prevarication
(ISO) Synonym for irrelevance.

preventive maintenance
(1) Maintenance specifically intended to prevent faults from occurring. Corrective maintenance and preventive maintenance are both performed during maintenance time.
(2) Contrast with corrective maintenance.

preventive maintenance time
Time, usually scheduled, used to perform preventive maintenance.

print contrast ratio
(1) In optical character recognition, the ratio obtained by subtracting the reflectance at an inspection area from the maximum reflectance found within a specified distance from that area, and dividing the result by that maximum reflectance.
(2) Contrast with print contrast signal.

print contrast signal (PCS)
(1) In optical character recognition, a measure of the contrast between a printed character and the paper on which the character is printed.

print control character
A control character for print operations such as line spacing, page ejection, or carriage return.

printed card form
The layout or format of the printed matter on a card. The printed matter usually describes the purpose of the card and designates the precise location of card fields.

printer
See bar printer, chain printer, character printer, drum printer, matrix printer, on-the-fly printer, page printer.

print wheel
A disk in a printing mechanism that provides all characters of a font at a single printing position. Synonymous with type wheel.

priority processing
A method of operating a computer in which computer programs are processed in such a way that the order of operations to be performed is fully determined by a system of priorities.

privileged instruction
(ISO) An instruction that may be used only by a supervisory program.

problem description
(ISO) A statement of a problem, perhaps including a description of the method of solving it, the procedures and algorithms, etc.
**problem-oriented language**
(ISO) A programming language that is especially suitable for a given class of problems. Procedure-oriented languages such as FORTRAN, ALGOL; simulation languages such as GPSS, SIMSCRIPT; list processing languages such as LISP, IPL-V; information retrieval languages.

**problem time**
In simulation, the duration of a process, or the length of time between two specified events of a process.

**procedural language**
(ISO) Synonym for procedure-oriented language.

**procedure**
(1) (ISO) The course of action taken for the solution of a problem.
(2) The description of the course of action taken for the solution of a problem.
(3) See inline procedures.

**procedure-oriented language**
(ISO) A problem-oriented language that facilitates the expression of a procedure as an explicit algorithm, e.g., FORTRAN, ALGOL, COBOL, PL/I. Synonymous with procedural language.

**process**
(1) A course of events occurring according to an intended purpose or effect.
(2) A systematic sequence of operations to produce a specified result.
(3) To perform operations on data.
(4) See input process, output process, predefined process.

**processable scored card**
A scored card including at least one separable part that can be processed after separation.

**process control**
Automatic control of a process, in which a computer is used for the regulation of usually continuous operations or processes.

**processing**
See administrative data processing, automatic data processing, background processing, batch processing, business data processing, data processing, electronic data processing, foreground processing, integrated data processing, list processing, multiprocessing, parallel processing, priority processing, real-time processing, remote batch processing, sequential batch processing, serial processing.

**processing system**
See data processing system.

**processing unit**
See central processing unit.

**processor**
(1) In hardware, a data processor.
(2) In software, a computer program that performs functions such as compiling, assembling, and translating for a specific programming language.
(3) See central processor, data processor, language processor, multiprocessor.

**product**
(ISO) The number or quantity that results from a multiplication.

**production time**
That part of operating time that is neither development time nor makeup time.

**program**
(1) (ISO) A schedule or plan that specifies actions that may or may not be taken.
(2) Loosely, a routine.
(3) (ISO) To design, write, and test computer programs.
(4) Loosely, to write a routine.
(5) See assembly program, checking program, compiling program, computer program, control program, diagnostic program, editor program, executive program, input program, library program, macrogenerating program, monitor program, object program, output program, reenterable program, relocatable program, reusable program, self-adapting program, self-organizing program, snapshot program, sort program, source program, supervisory program, target program, trace program, translating program, utility program.

program block
In problem-oriented languages, a computer program subdivision that serves to group related statements, delimit routines, specify storage allocation, delineate the applicability of labels, or segment parts of the computer program for other purposes.

program development time
That part of operating time that is used for debugging.

program execution time
The interval during which the instructions of an object program are executed.

program-generated parameter
(ISO) A parameter that is bound during the execution of a computer program. Synonymous with dynamic parameter.

program library
(1) (ISO) An organized collection of computer programs that are sufficiently documented to allow them to be used by persons other than their authors.
(2) A collection of available computer programs and routines.

program loader
See initial program loader.

programmed check
(1) A check procedure that is a part of a computer program.
(2) Contrast with automatic check.

programmed computer
(ISO) Synonym for stored-program computer.

programmer
A person who designs, writes, and tests computer programs.

programming
(1) (ISO) The designing, writing, and testing of programs.
(2) See automatic programming, convex programming, dynamic programming, integer programming, linear programming, macroprogramming, mathematical programming, minimum delay programming, multiprogramming, nonlinear programming, quadratic programming.

programming flowchart
(ISO) A flowchart representing the sequence of operations in a computer program. Synonymous with programming flow diagram.

programming flow diagram
(ISO) Synonym for programming flowchart.

programming language
(ISO) An artificial language established for expressing computer programs.

programming module
A discrete identifiable set of instructions, usually handled as a unit, by an assembler, a compiler, or a linkage editor, a
loading routine, or other type of routine or subroutine.

programming system
(ISO) One or more programming languages and the necessary software for using these languages with particular automatic data processing equipment.

program origin
See computer program origin.

program parameter
See external program parameter.

program-sensitive fault
(1) A fault that occurs as a result of some particular sequence of program steps.
(2) Contrast with pattern-sensitive fault.

proper subset
(ISO) Of a set, a subset that does not include all the elements of the set.

protected location
A storage location whose content is protected against accidental alteration, improper alteration, or unauthorized access.

protection
(1) An arrangement for restricting access to or use of a system or part of a system.
(2) See storage protection.

pseudo code
A code that requires translation prior to execution.

pseudo-instruction
(ISO) Deprecated term for declaration.

pseudo-random number sequence
(ISO) An ordered set of numbers that has been determined by some defined arithmetic process but is effectively a random number sequence for the purpose for which it is required.

pulse
(1) A variation in the value of a quantity, short in relation to the time schedule of interest, the final value being the same as the initial value. Synonymous with impulse.
(2) See clock pulse, synchronization pulse.

pulse repetition rate
The number of pulses per unit time.

pulse string
Synonym for pulse train.

pulse train
A series of pulses having similar characteristics. Synonymous with pulse string.

punch
(1) A device for making holes in a data medium.
(2) A perforation, as in a punched card or paper tape.
(3) See automatic-feed punch, card punch, calculating punch, digit punch, eleven punch, gang punch, hand-feed punch, keyboard punch, keypunch, numeric punch, reproducing punch, spot punch, summary punch, twelve punch, zone punch.

punch card
(1) A card into which hole patterns can be punched.
(2) See Hollerith card.

punch column
(1) A line of punch positions parallel to the Y-datum line of a card.
(2) A line of punch positions along a card column.
punched card
   (1) A card punched with hole patterns.
   (2) See Hollerith card.

punched card reader
   Synonym for card reader.

punched tape
   Synonym for perforated tape.

punching
   See interstage punching, multiple punching.

punching position
   (ISO) Synonym for punch position.

punching station
   The place in a card track where a punch card is punched.

punch position
   (ISO) A defined location on a card or tape where a hole may be punched to record data. Synonymous with code position, punching position.

punch row
   A line of punch positions along a card row.

punctuation symbol
   Synonym for delimiter.

pure binary numeration system
   (ISO) The fixed-radix numeration system that uses the binary digits and the radix 2, e.g., in this numeration system, the numeral 110.01 represents the number six and a quarter, i.e., $1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$. Synonymous with binary numeration system.

pushdown list
   (ISO) A list that is constructed and maintained so that the next item to be retrieved is the most recently stored item in the list, i.e., last-in-first-out (LIFO). Synonymous with stack.

pushdown storage
   (ISO) A storage device that handles data in such a way that the next item to be retrieved is the most recently stored item still in the storage device, i.e., last-in-first-out (LIFO). Synonymous with pushdown store.

pushdown store
   (ISO) Synonym for pushdown storage.

pushup list
   (ISO) A list that is constructed and maintained so that the next item to be retrieved is the earliest stored item still in the list, i.e., first-in-first-out (FIFO).

pushup storage
   (ISO) A storage device that handles data in such a way that the next item to be retrieved is the earliest stored item still in the storage device, i.e., first-in-first-out (FIFO). Synonymous with pushup store.

pushup store
   (ISO) Synonym for pushup storage.
quadratic programming
(1) (ISO) In operations research, a particular case of nonlinear programming in which the function to be maximized or minimized is a quadratic function and the constraints are linear functions.
(2) Contrast with convex programming, dynamic programming, integer programming, linear programming, mathematical programming, nonlinear programming.

quadruple-length register
(ISO) Four registers that function as a single register. Each register may be individually accessed. Synonymous with quadruple register.

quadruple register
(ISO) Synonym for quadruple-length register.

qualified name
(ISO) A data name explicitly accompanied by a specification of the class to which it belongs in a specified classification system.

quantization
The subdivision of the range of values of a variable into a finite number of nonoverlapping, but not necessarily equal, subranges or intervals each of which is represented by an assigned value within the subrange. For example, a person's age is quantized for most purposes with a quantum of one year.

quantize
(ISO) To divide the range of a variable into a finite number of non-overlapping intervals, that are not necessarily equal, and to designate each interval by an assigned value within that interval.

quantum
A subrange in quantization.

quarternary operator
(ISO) An operator that requires exactly four operands.

quarter squares multiplier
An analog multiplier unit that uses the identity $xy = \frac{x+y}{4}(x+y)^2 - (x-y)^2$.

quartet
(ISO) A byte composed of four binary elements. Synonymous with four-bit byte.

queue
See double-ended queue.

queued access method
Any access method that synchronizes the transfer of data between the computer program using the access method and input-output devices, thereby minimizing delays for input-output operations.

quiescing
The process of bringing a device or a system to a halt by rejection of new requests for work.

quinary
See biquinary code.

quintet
(ISO) A byte composed of five binary elements. Synonymous with five-bit byte.

quotient
(1) (ISO) The number or quantity that is the value of the dividend divided by the value of the divisor and that is one of the results of a division operation.
(2) Contrast with remainder.
radial transfer
(1) (ISO) The process of transmitting data between a peripheral unit and a unit of equipment that is more central than that peripheral unit. Synonymous with input-output (1).
(2) Synonymous with input process (2), output process.

radix
(1) (ISO) Of a digit place in a radix numeration system, the positive integer by which the weight of the digit place is multiplied to obtain the weight of the digit place with the next higher weight, e.g., in the decimal numeration system the radix of each digit place is 10, in a biquinary code the radix of each fives position is 2.
(2) (ISO) Deprecated term for base.
(3) See mixed-radix numeration system.

radix complement
(1) (ISO) A complement obtained by subtracting each digit of the given number from the number that is one less than the radix of that digit place, then adding one to the least significant digit of the result and executing any carries required, e.g., 830 is the tens complement, i.e., the radix complement of 170 in the decimal numeration system using three digits. Synonymous with noughts complement.
(2) See diminished radix complement.

radix-minus-one complement
(ISO) Synonym for diminished radix complement.

radix notation
(ISO) Synonym for radix numeration system.

radix numeration system
(ISO) A positional representation system in which the ratio of the weight of any one digit place to the weight of the digit place with the next lower weight is a positive integer. The permissible values of the character in any digit place range from zero to one less than the radix of that digit place. Synonymous with radix notation.

radix point
(ISO) In a representation of a number expressed in a radix numeration system, the location of the separation of the characters associated with the integral part from those associated with the fractional part.

random access
(1) In COBOL, an access mode in which specific logical records are obtained from or placed into a mass storage file in a nonsequential manner.
(2) (ISO) Synonym for direct access.

random access storage
(ISO) Synonym for direct access storage.

random number
(1) (ISO) A number selected from a known set of numbers in such a manner that the probability of occurrence of each number in the set is predetermined.
(2) A number obtained by chance.
(3) One of a sequence of numbers considered appropriate for satisfying certain statistical tests or believed to be free from conditions which might bias the result of a calculation.

random number sequence
(1) (ISO) An ordered set of numbers each of which may not be predicted only from a knowledge of its predecessors.
(2) See also pseudo-random number sequence.

**random-walk method**
In *operations research*, a variance-reducing method of problem analysis in which experimentation with probabilistic variables is traced to determine results of a significant nature.

**range**
(1) (ISO) The set of values that a quantity or function may take.
(2) The difference between the highest and lowest value that a quantity or function may assume.
(3) (ISO) Deprecated term for span.
(4) See error range.

**rank**
(ISO) Synonym for level number.

**rate**
See average information rate, average transinformation rate, data signalling rate, pulse repetition rate.

**ratio**
See error ratio, print contrast ratio, read-around ratio.

**rational number**
(ISO) A real number that is the quotient of an integer divided by an integer other than zero.

**read**
(1) (ISO) To acquire or to interpret data from a storage device, from a data medium, or from another source.
(2) See destructive read, nondestructive read.

**read-around ratio**
The number of times a specific spot, digit, or location in electrostatic storage may be consulted before spillover of electrons causes a loss of data stored in surrounding spots. The surrounding data must be restored before the deterioration results in any loss of data.

**read cycle time**
(ISO) The minimum time interval between the starts of successive read cycles of a device that has separate reading and writing cycles.

**reader**
(1) In *micrographics*, a device that enlarges microimages for viewing.
(2) See card reader, character reader, perforated-tape reader.

**reader-printer**
In *micrographics*, a device that performs the functions of a reader and a printer to produce hard copy enlargements of selected microimages.

**read head**
A magnetic head that only reads.

**reading**
(ISO) The acquisition or interpretation of data from a storage device, from a data medium, or from another source.

**reading station**
Synonym for read station.

**read-only memory (ROM)**
(ISO) Synonym for fixed storage.

**read-only storage**
(ISO) Synonym for fixed storage, permanent storage.

**read-out device**
(ISO) Synonym for character display device.
read station
(ISO) The place in a card path where the data on a punched card are read. Synonymous with reading station, sensing station.

read/write head
(ISO) Synonym for magnetic head.

real address
The address of an actual storage location in real storage.

real number
(ISO) A number that may be represented by a finite or infinite numeral in a fixed-radix numeration system.

real storage
The execution space in a virtual storage system that is directly controlled by a central processing unit.

real time
(1) Pertaining to the actual time during which a physical process transpires.
(2) Pertaining to the performance of a computation during the actual time that the related physical process transpires, in order that results of the computation can be used in guiding the physical process.

real-time control
(ISO) The control of a process by real-time processing.

real-time input
(ISO) Input data received into a data processing system within time limits that are determined by the requirements of some other system or at instants that are so determined.

real-time operation
(ISO) Synonym for real-time processing (1).

real-time output
(ISO) Output data delivered from a data processing system within time limits that are determined by the requirements of some other system or at instants that are so determined.

real-time processing
(1) (ISO) A mode of operation of a data processing system when performing real-time jobs. Synonymous with real-time operation.
(2) (ISO) The manipulation of data that are required or generated by some process while the process is in operation; usually the results are used to influence the process, and perhaps related processes, while it is occurring.

real-time simulation
The operation of a simulator such that the time scale factor is equal to one for a physical time specified by the system being simulated and by the corresponding computer time of the simulator.

real-time working
(ISO) Deprecated term for real-time processing.

receiving perforator
A punch that converts coded electrical pulse patterns into hole patterns or cuts in perforated tape. Synonymous with tape punch.

recognition
See character recognition, magnetic ink character recognition, optical character recognition, pattern recognition.

record
(1) (ISO) A collection of related data or
words treated as a unit, e.g., in stock control, each invoice could constitute one record.

(2) See logical record, variable-length record.

record gap
(ISO) Deprecated term for interblock gap.

recording
See double-pulse recording, electron-beam recording, magnetic recording, non-polarized return-to-zero recording, non-return-to-change recording, non-return-to-reference recording, non-return-to-zero change-ones recording, non-return-to-zero (change) recording, non-return-to-zero recording, polarized return-to-zero recording, return-to-reference recording.

recording area
(ISO) Synonym for film frame.

recording density
The number of bits in a single linear track measured per unit of length of the recording medium.

record layout
(ISO) The arrangement and structure of data or words in a record including the order and size of the components of the record.

record length
(ISO) The number of words or characters forming a record.

record separator character (RS)
(ISO) The information separator intended to identify a logical boundary between records.

recursive function
(ISO) A function whose values are natural numbers that are derived from natural numbers by substitution formulae in which the function is an operand.

recursively defined sequence
(ISO) A series of terms in which each term after the first is determined by an operation in which the operands are some or all of the preceding terms.

recursive routine
(ISO) A routine that may be used as a routine of itself, calling itself directly or being called by another routine, one that it itself has called. The use of a recursive routine or computer program usually requires the keeping of records of the status of its unfinished uses in, for example, a pushdown list.

recursive subroutine
(ISO) A subroutine that may be used as a subroutine of itself, calling itself directly or being called by another subroutine, one that it itself has called. The use of a recursive subroutine or computer program usually requires the keeping of records of the status of its unfinished uses in, for example, a pushdown list.

reduction
(1) (ISO) In micrographics, a measure of the number of times the linear dimensions of an object are reduced when photographed, expressed as 16x, 24x, etc.

(2) See data reduction.

redundancy
(1) (ISO) In information theory, the amount R by which the decision content $H_o$ exceeds the entropy $H$; in mathematical notation:
Usually, messages can be represented with fewer characters by using suitable codes; the redundancy may be considered as a measure of the decrease of length of the messages thus achieved.

(2) See relative redundancy.

redundancy check bit
A check bit that is derived from a character and appended to the character.

redundancy check character
(1) A check character that is derived from a record and appended to the record.
(2) See cyclic redundancy check character.

reel
(ISO) A cylinder with flanges on which tape or film may be wound.

reenterable program
(ISO) Synonym for reentrant program.

reenterable routine
(ISO) Synonym for reentrant routine.

reenterable subroutine
(ISO) Synonym for reentrant subroutine.

reentrant program
(ISO) A computer program that may be entered repeatedly and may be entered before prior executions of the same computer program have been completed, subject to the requirement that neither its external program parameters nor any instructions are modified during its execution. A reentrant program may be used by more than one computer program simultaneously. Synonymous with reenterable program.

reentrant routine
(ISO) A routine that may be entered repeatedly and may be entered before prior executions of the same routine have been completed, subject to the requirement that neither its external program parameters nor any instructions are modified during its execution. A reentrant routine may be used by more than one computer program simultaneously. Synonymous with reenterable routine.

reentrant subroutine
(ISO) A subroutine that may be entered repeatedly and may be entered before prior executions of the same subroutine have been completed, subject to the requirement that neither its external program parameters nor any instructions are modified during its execution. A reentrant subroutine may be used by more than one computer program simultaneously. Synonymous with reenterable subroutine.

reentry point
(ISO) The address or the label of the instruction at which the computer program that called a subroutine is reentered from the subroutine.

reference edge
(1) (ISO) That edge of a data medium used to establish specifications or measurements in or on the data medium. Synonymous with guide edge.
(2) See document reference edge.

reflected binary code
Synonym for gray code.

regeneration
See signal regeneration.
regenerative track
Part of a track on a magnetic drum or magnetic disk used in conjunction with a read head and a write head that are connected to function as a circulating storage. Synonymous with revolver track.

register
(1) (ISO) In a computer, a storage device, usually intended for some special purpose, capable of storing a specified amount of data such as a bit or a word.

(2) See address register, base address register, base register, circulating register, clock register, double-length register, floating-point register, general-purpose register, index register, instruction address register, instruction register, n-tuple-length register, quadruple-length register, return code register, sequence control register, shift register, time register, triple-length register.

registration
The accurate positioning of an entity relative to a reference.

relative address
(ISO) An address expressed as a difference with respect to a base address.

relative addressing
(ISO) A method of addressing in which the address part of an instruction contains a relative address.

relative coding
Coding that uses machine instructions with relative addresses.

relative error
(ISO) The ratio of an absolute error to the true, specified, or theoretically correct value of the quantity that is in error.

relative redundancy
(ISO) In information theory, the ratio $r$ of the redundancy $R$ to the decision content $H_o$: in mathematical notation:

$$r = \frac{R}{H_o} = \frac{H_o - H}{H_o}$$

reliability
(ISO) The ability of a functional device to perform its intended function under stated conditions for a stated period of time.

relocatable address
(ISO) An address that is adjusted when the computer program containing it is relocated.

relocatable program
(ISO) A computer program that is in such a form that it may be relocated.

relocate
(ISO) To move a computer program or part of a computer program, and to adjust the necessary address references so that the computer program can be executed after being moved.

relocating loader
A loader that adjusts addresses, relative to the assembled origin, by the relocation factor.

relocation
See dynamic relocation.

relocation dictionary
The part of an object module or load module that identifies all addresses that must be adjusted when a relocation occurs.
relocation factor
The algebraic difference between the assembled origin and the loaded origin of a computer program.

remainder
(1) (ISO) In a division operation, the number or quantity that is the undivided part of the dividend, having an absolute value less than the absolute value of the divisor, and that is one of the results of a division operation.
(2) Contrast with quotient.

remote access
Pertaining to communication with a data processing facility through a data link.

remote batch entry
(ISO) Submission of batches of jobs through an input-output unit that has access to a computer through a data link.

remote batch processing
(ISO) Batch processing in which input-output units have access to a computer through a data link.

remote job entry (RJE)
(ISO) Submission of jobs through an input unit that has access to a computer through a data link.

remote station
Data terminal equipment for communicating with a data processing system through a data link.

re-order
(ISO) Deprecated term for order (1).

repeated selection sort
(1) A selection sort in which the set of items is divided into subsets and one item, that fits specified criteria, from each subset is selected to form a second level subset. A selection sort is applied to this second level subset, the selected item in this second level subset is appended to the sorted set and is replaced by the next eligible item in the original subset, and the process repeated until all items are in the sorted set.
(2) See also tournament sort.

reperforator
Receiving perforator.

repertoire
See instruction repertoire.

repetition instruction
An instruction that causes one or more instructions to be executed an indicated number of times.

repetitive addressing
(ISO) A method of implied addressing, applicable only to zero-address instructions, in which the operation part of an instruction implicitly addresses the operands of the last instruction executed.

representation
See analog representation, coded representation, digital representation, discrete representation, floating-point representation, incremental representation, linear representation, number representation, numeric representation, variable-point representation.

representation system
See fixed-point representation system, floating-point representation system, number representation system, positional representation system, variable-point representation system.

reproduce
Synonym for duplicate.
reproducer
(ISO) Synonym for reproducing punch.

reproducing punch
(ISO) A punched card device that prepares one punched card from another punched card copying all or part of the data from the punched card that is read. Synonymous with reproducer.

rerun
(1) (ISO) A repeat of a machine run from its beginning, usually made desirable or necessary by a false start, by an interruption, or by a change.
(2) (ISO) To perform a rerun.

rerun point
That location, in the sequence of instructions in a computer program, at which all information pertinent to the rerunning of the program is available.

rescue point
(ISO) Synonym for restart point.

reserved word
(ISO) A word of a source language whose meaning is fixed by the particular rules of that language and cannot be altered for the convenience of any one computer program expressed in the source language; computer programs expressed in the source language may also be prohibited from using such words in other contexts in the computer program. For example, SINE may be a reserved word to call a subroutine for computing the sine function; in COBOL, the COBOL words.

reset
(1) (ISO) To cause a counter to take the state corresponding to a specified initial number.
(2) (ISO) To restore a storage device to a prescribed initial state, not necessarily that denoting zero.
(3) Contrast with set.

residual error ratio
The error ratio remaining after attempts at correction.

residue check
A validation check in which an operand is divided by a number n to generate a remainder that is then used for checking. Synonymous with modulo-n check.

resolver
A device whose input is a vector quantity and whose outputs are components of the vector.

response
See spectral response.

response duration
(ISO) The time duration between the start of a pulse which influences a storage cell and the end of the resulting response of that storage cell.

response time
(ISO) The elapsed time between the end of an enquiry or demand on a data processing system and the beginning of the response, e.g., the length of time between the end of an enquiry and the display of the first character of the response at a user terminal.

restart
(1) (ISO) The resumption of the execution of a computer program using the data recorded at a checkpoint.
(2) (ISO) To perform a restart.

restart condition
(ISO) In the execution of a computer program, a condition that can be re-estab-
lished and that permits a restart of the computer program.

**restart instruction**

(ISO) An instruction in a computer program at which the computer program may be restarted.

**restart point**

(1) (ISO) A place in a computer program at which its execution may be restarted; in particular, the address of a restart instruction. Synonymous with rescue point.

(2) (ISO) Deprecated term for restart condition.

**result**

(ISO) An entity produced by the performance of an operation.

**retrieval**

See information retrieval.

**retrieval code**

In micrographics, a code used for manual or automatic retrieval of microimages.

**return**

(1) (ISO) Within a subroutine, to bind a variable in the computer program that called the subroutine.

(2) (ISO) Within a subroutine, to effect a link to the computer program that called the subroutine.

(3) See carriage return.

**return character**

See carriage return character.

**return code**

A code used to influence the execution of succeeding instructions.

**return code register**

A register used to store a return code.

**return-to-reference recording**

(ISO) The magnetic recording of binary characters in which the pattern of magnetization used to represent zeros and ones occupies only part of the storage cell, the remainder of the cell being magnetized to a reference condition.

**reusable program**

(ISO) A computer program that may be loaded once and executed repeatedly, subject to the requirements that any instructions that are modified during its execution are returned to their initial states and that its external program parameters are preserved unchanged.

**reusable routine**

(ISO) A routine that may be loaded once and executed repeatedly, subject to the requirements that any instructions that are modified during its execution are returned to their initial states and that its external program parameters are preserved unchanged.

**reverse direction flow**

In flowcharting, a flow in a direction other than left to right or top to bottom.

**reverse Polish notation**

(ISO) Synonym for postfix notation.

**reversible counter**

(ISO) A device whose state represents a number and that, on receipt of an appropriate signal, causes the number represented to be increased or decreased by unity or by an arbitrary constant; the device is usually capable of bringing the number represented to a specific value, such as zero.

**revolver track**

Synonym for regenerative track.
**right-justify**

(1) (ISO) To shift the contents of a register, if necessary, so that the character at the right-hand end of the data that have been read or loaded into the register is at a specified position in the register.

(2) (ISO) To control the positions of characters on a page so that the right-hand margin of the printing is regular.

(3) To align characters horizontally so that the right-most character of a string is in a specified position.

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**RJE**

(ISO) Remote job entry

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**rollback**

A programmed return to a prior checkpoint.

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**roll-in**

To restore in main storage, data or one or more computer programs that were previously rolled out.

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**roll-out**

To transfer data or one or more computer programs from main storage to auxiliary storage for the purpose of freeing main storage for another use.

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**ROM**

(ISO) Read-only memory.

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**round**

(1) (ISO) To delete or omit one or more of the least significant digits in a positional representation and to adjust the part retained in accordance with some specified rule. The purpose of rounding is usually to limit the precision of the numeral or to reduce the number of characters in the numeral, or to do both. The most common forms of rounding are rounding down, rounding up, and rounding off.

(2) Contrast with truncation.

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**round down**

(ISO) To round, making no adjustment to the part of the numeral that is retained. If a numeral is rounded down, its absolute value is not increased. Rounding down is a form of truncation.

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**rounding error**

(ISO) An error due to rounding.

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**round off**

(1) (ISO) To round, adjusting the part of the numeral that is retained by adding 1 to the least significant of its digits, and executing any necessary carries if and only if the most significant of the digits deleted was equal to or greater than half the radix of its digit place.

(2) (ISO) To round, adjusting the part of the numeral retained by adding 1 to the least significant of its digits, and executing any necessary carries, if (a) the most significant of the digits deleted was greater than half the radix of that digit place, or (b) the most significant of the digits deleted was equal to half the radix and one or more of the following digits were greater than zero, or (c) the most significant of the digits deleted was equal to half the radix, all the following digits were equal to zero, and the least significant of the digits retained was odd. In (c), even may be substituted for odd.

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**round up**

(ISO) To round, adjusting the part of the numeral that is retained by adding 1 to the least significant of its digits, and executing any necessary carries if and only if one or more non-zero digits have been
deleted. If a numeral is rounded up, its absolute value is not decreased.

routine

(1) (ISO) An ordered set of instructions that may have some general or frequent use.

(2) See dump routine, input routine, library routine, output routine, recursive routine, reentrant routine, reusable routine, subroutine, supervisory routine, tracing routine, utility routine.

row

(1) A horizontal arrangement of characters or other expressions.

(2) Contrast with column.

(3) See card row, mark-sense row, punch row.

row binary

(1) Pertaining to the binary representation of data on cards in which the significances of punch positions are assigned along card rows. For example, each row in an 80-column card may be used to represent 80 consecutive binary digits.

(2) Contrast with column binary.

row pitch

The distance between corresponding points of adjacent rows measured along a track. Synonymous with array pitch.

RPG

Report program generator.

RS

The record separator character.

run

(1) (ISO) A single performance of one or more jobs.

(2) A single, continuous performance of a computer program or routine.

run duration

(ISO) Synonym for running time.

running time

(ISO) The elapsed time taken for the execution of a computer program. Synonymous with run duration.

RZ(NP)

(ISO) Non-polarized return-to-zero recording.

RZ(P)

(ISO) Polarized return-to-zero recording.
S

sample
(ISO) To obtain the values of a function for regularly or irregularly spaced distinct values of an independent variable.

sampling
(1) Obtaining the values of a function for regularly or irregularly spaced distinct values of an independent variable.
(2) In statistics, obtaining a sample from a population.

save area
An area of main storage in which the contents of registers are saved.

scalar
(1) (ISO) A quantity characterized by a single number.
(2) Contrast with vector.

scale
(1) (ISO) To change the representation of a quantity, expressing it in other units, so that its range is brought within a specified range.
(2) To adjust the representation of a quantity by a factor in order to bring its range within prescribed limits.

scale factor
(1) (ISO) A number used as a multiplier in scaling.
(2) See time scale factor.

scan
To examine sequentially, part by part.

scanner
(1) (ISO) A device that examines a spatial pattern one part after another, and generates analog or digital signals corresponding to the pattern. Scanners are often used in mark sensing, pattern recognition, or character recognition.
(2) See flying spot scanner, optical scanner.

scheduled maintenance
(ISO) Maintenance carried out in accordance with an established schedule.

scheduler
A computer program designed to perform functions such as scheduling, initiation, and termination of jobs.

scored card
(1) A special card that contains one or more scored lines to facilitate precise folding or separation of certain parts of the card.
(2) See processable scored card.

search
(1) (ISO) The examination of a set of items for one or more having a given property.
(2) (ISO) To examine a set of items for one or more having a given property.
(3) See binary search, chaining search, dichotomizing search, Fibonacci search.

search cycle
(ISO) The part of a search that is repeated for each item, normally consisting of locating the item and carrying out a comparison.

search key
(ISO) In the conduct of a search, the data to be compared to specified parts of each item.

section
(ISO) Deprecated term for segment.

sector
(ISO) A part of a track or band on a
magnetic drum, a magnetic disk, or a disk pack.

seek
1) To selectively position the access mechanism of a direct access device.
2) (ISO) Deprecated term for search, search cycle.

segment
1) (ISO) A self-contained portion of a computer program that may be executed without the entire computer program necessarily being maintained in internal storage at any one time.
2) (ISO) To divide a computer program into segments.

selection check
A check that verifies the choice of devices, such as registers, in the execution of an instruction.

selection sort
1) A sort in which the items in a set are examined to find an item that fits specified criteria; this item is appended to the sorted set and removed from further consideration, and the process repeated until all items are in the sorted set.
2) See repeated selection sort.

selective dump
(ISO) The dumping of the contents of one or more specified storage areas.

self-adapting computer
(ISO) A computer that has the ability to change its performance characteristics in response to its environment.

self-adapting program
(ISO) A computer program that has the ability to change its performance characteristics in response to its environment.

self-checking code
Synonym for error detecting code.

self-organizing computer
(ISO) A computer that has the ability to make rearrangements in its internal structure.

self-organizing program
(ISO) A computer program that has the ability to make rearrangements in its internal structure.

self-relative address
(ISO) A relative address that uses as base address the address of the instruction in which it appears.

self-relative addressing
(ISO) A method of addressing in which the address part of an instruction contains a self-relative address.

semantics
1) (ISO) The relationships of characters or groups of characters to their meanings, independent of the manner of their interpretation and use.
2) The relationships between symbols and their meanings.

sensing
See mark sensing.

sensing station
(ISO) Synonym for read station.

sentinel
Synonym for flag.

separating character
(ISO) Synonym for information separator.

separator
1) Synonym for delimiter.
2) See information separator.
(3) See also file separator character, group separator character, record separator character, unit separator character.

septet
(ISO) A byte composed of seven binary elements. Synonymous with seven-bit byte.

sequence
(1) (ISO) A series of items that have been sequenced.
(2) An arrangement of items according to a specified set of rules, e.g., items arranged alphabetically, numerically, or chronologically.
(3) (ISO) Deprecated term for order.
(4) (ISO) Synonym for collating sequence.
(5) See calling sequence, collating sequence, pseudo-random number sequence, random number sequence, recursively defined sequence.
(6) Contrast with order.

sequence-by-merging
(ISO) To sequence by repeated splitting and merging.

sequence control register
(ISO) Synonym for instruction address register.

sequencing key
Synonym for sort key.

sequential
(1) Pertaining to the occurrence of events in time sequence, with no simultaneity or overlap of events.
(2) Contrast with consecutive.
(3) See also concurrent, simultaneous.

sequential batch processing
A mode of operating a computer in which a run must be completed before another run can be started.

sequential circuit
A logic device whose output values, at a given instant, depend upon its input values and internal state at that instant, and whose internal state depends upon the immediately preceding input values and the preceding internal state. A sequential circuit can assume a finite number of internal states and may therefore be regarded as a finite automaton.

sequential computer
A computer in which events occur in time sequence, with little or no simultaneity or overlap of events.

sequential control
(ISO) A mode of computer operation in which instructions are executed in an implicitly defined sequence until a different sequence is explicitly initiated by a jump instruction.

sequential logic element
(1) A device having at least one output channel and one or more input channels, all characterized by discrete states, such that the state of each output channel is determined by the previous states of the input channels.
(2) Contrast with combinational logic element.

sequential operation
(ISO) A mode of operation in which two or more operations are performed one after another. Synonymous with consecutive operation.

serial
(1) (ISO) Pertaining to the sequential performance of two or more activities in a single device. In English, the modifiers serial and parallel usually refer to devices, as opposed to se-
sequential and consecutive, which refer to processes.
(2) Pertaining to the sequential or consecutive occurrence of two or more related activities in a single device or channel.
(3) Pertaining to the sequential processing of the individual parts of a whole, such as the bits of a character or the characters of a word, using the same facilities for successive parts.
(4) Contrast with parallel.

serial access
(1) (ISO) The facility to obtain data from a storage device or to enter data into a storage device in such a way that the process depends on the location of that data and on a reference to data previously accessed.
(2) Pertaining to the sequential or consecutive transmission of data to or from storage.
(3) Contrast with direct access.

serial access storage
(ISO) A storage in which the access time is dependent upon the location of the data.

serial adder
(ISO) A digital adder in which addition is performed by adding, digit place after digit place, the corresponding digits of the operands.

serial addition
(ISO) Addition that is performed by adding, digit place after digit place, the corresponding digits of the operands.

serial computer
(1) A computer having a single arithmetic and logic unit.
(2) A computer some specified characteristic of which is serial, e.g., a computer that manipulates all bits of a word serially.
(3) Contrast with parallel computer.

serializer
(ISO) A device that converts a space distribution of simultaneous states representing data into a corresponding time sequence of states. Synonymous with dynamicizer.

serial number
(ISO) An integer denoting the position of an item in a series.

serial operation
(1) Pertaining to the sequential or consecutive execution of two or more operations in a single device such as an arithmetic or logic unit.
(2) (ISO) Deprecated term for sequential operations.
(3) Contrast with parallel operation.

serial processing
(1) Pertaining to the sequential or consecutive execution of two or more processes in a single device such as a channel or processing unit.
(2) Contrast with parallel processing.

serial sort
A sort that requires only sequential access to the items in a set. A serial sort can be performed using only serial access storage devices.

serial transmission
(1) In data communication, transmission at successive intervals of signal elements constituting the same telegraph or data signal. The sequential elements may be transmitted with or without interruption, provided that they are not transmitted simultaneous-
ly. For example, telegraph transmission by a time divided channel.
(2) Contrast with parallel transmission.

service program
(ISO) Synonym for utility program.

service routine
(ISO) Synonym for utility routine.

servomechanism
(1) An automatic device that uses feedback to govern the physical position of an element.
(2) A feedback control system in which at least one of the system signals represents mechanical motion.

set
(1) (ISO) A finite or infinite number of objects of any kind, of entities, or of concepts, that have a given property or properties in common.
(2) (ISO) To cause a counter to take the state corresponding to a specified number. Contrast with reset (1).
(3) (ISO) To place a storage device into a specified state, usually other than that denoting zero. Contrast with reset (2).

setup
(1) (ISO) In a computer which consists of an assembly of individual computing units, the arrangement of interconnections between the units, and the adjustments needed for the computer to operate upon a given problem.
(2) An arrangement of data or devices to solve a particular problem.

setup diagram
(ISO) A diagram specifying a given computer setup.

seven-bit byte
(ISO) Synonym for septet.

sexadecimal
(1) (ISO) Pertaining to a selection, choice, or condition that has sixteen possible different values or states.
(2) (ISO) Pertaining to a fixed-radix numeration system having a radix of sixteen. Synonymous with hexadecimal.

sextet

Shannon
(ISO) In information theory, a unit of logarithmic measures of information equal to the decision content of a set of two mutually exclusive events expressed by the logarithm to base two, e.g., the decision content of a character set of eight characters equals three Shannons. Synonymous with information content binary unit.

Sheffer stroke
Synonym for NAND.

shift
(1) (ISO) The concerted movement of some or all of the characters of a word each by the same number of character places in the direction of a specified end of the word.
(2) See arithmetic shift, end-around shift, logical shift.

shift-in character (SI)
(ISO) A code extension character, used to
terminate a sequence that has been introduced by the shift-out character, that makes effective the graphic characters of the standard character set.

shift-out character (SO)
(ISO) A code extension character that substitutes for the graphic characters of the standard character set an alternative set of graphic characters upon which agreement has been reached or that has been designated using code extension procedures.

shift register
(ISO) A register in which shifts are performed.

short card
A special-purpose paper card that is shorter in length than a general purpose paper card; e.g., a 51-column card.

SI
The shift-in character.

sifting sort
Synonym for bubble sort.

sight check
A check performed by sighting through the holes of two or more aligned punched cards toward a source of light to verify the punching, e.g., to determine if a hole has been punched in a corresponding punch position on all cards in a card deck.

signal
(1) (ISO) A time-dependent value attached to a physical phenomenon and conveying data.
(2) See inhibiting signal, start signal, stop signal.

signal distance.
The number of digit positions in which the corresponding digits of two binary words of the same length are different. Synonymous with hamming distance.

signal regeneration
(ISO) Signal transformation that restores a signal so that it conforms to its original specification.

signal shaping
(ISO) Synonym for signal transformation.

signal transformation
(ISO) The action of modifying one or more characteristics of a signal, such as its maximum shape or timing. Synonymous with signal shaping.

sign bit
(ISO) A bit or a binary element that occupies a sign position and indicates the algebraic sign of the number represented by the numeral with which it is associated.

sign character
(ISO) A character that occupies a sign position and indicates the algebraic sign of the number represented by the numeral with which it is associated.

sign digit
(ISO) A digit that occupies a sign position and indicates the algebraic sign of the number represented by the numeral with which it is associated.

significance
(ISO) Synonym for weight.

significant digit
(ISO) In a numeral, a digit that is needed for a given purpose; in particular, a
digit that must be kept to preserve a given accuracy or a given precision.

significant digit arithmetic
(ISO) A method of making calculations using a modified form of a floating-point representation system in which the number of significant digits in the result is determined with reference to the number of significant digits in the operands, the operation performed, and the degree of precision available.

significant figure
(ISO) Deprecated term for significant digit.

sign position
(ISO) A position, normally located at one end of a numeral, that contains an indicator denoting the algebraic sign of the number represented by the numeral.

simulate
(1) (ISO) To represent certain features of the behavior of a physical or abstract system by the behavior of another system, e.g., to represent a physical phenomenon by means of operations performed by a computer or the representation of operations of a computer by those of another computer.
(2) See real-time simulation.

simulator
(1) (ISO) A device, data processing system, or computer program that represents certain features of the behavior of a physical or abstract system.
(2) See computer simulator.

simultaneous
(1) (ISO) Pertaining to the occurrence of two or more events at the same instant of time.
(2) Contrast with concurrent.
(3) See also consecutive, sequential.

simultaneous computer
(ISO) A computer that contains a separate unit to perform each portion of the entire computation concurrently, the units being interconnected in a way determined by the computation; at different times in a run, a given interconnection carries signals representing different values of the same variable, e.g., a differential analyzer.

simultaneous operation
(ISO) A mode of operation in which two or more events occur at the same instant of time.

single-address
Pertaining to an instruction format containing one address part. Synonymous with one-address.

single precision
(ISO) Pertaining to the use of one computer word to represent a number in accordance with the required precision.
single step
Pertaining to a method of operating a computer in which each step is performed in response to a single manual operation.

single-step operation
(ISO) A mode of operating a computer in which a single computer instruction or part of a computer instruction is executed in response to an external signal. Synonymous with step-by-step operation.

sink
See data sink, message sink.

six-bit byte
(ISO) Synonym for sextet.

skeletal code
(ISO) A set of instructions in which some parts such as addresses must be completed or specified in detail each time the set is used.

skew
The angular displacement of a symbol or data medium from the intended or ideal placement.

skip
(1) To ignore one or more instructions in a sequence of instructions.
(2) To pass over one or more positions on a data medium, e.g., to perform one or more line feed operations.
(3) See also paper throw.

slow time scale
Synonym for extended time scale.

smooth
To apply procedures that decrease or eliminate rapid fluctuations in data.

snapshot dump
(1) (ISO) A dynamic dump of the contents of one or more specified storage areas.
(2) A selective dump performed at various points in a machine run.

snapshot program
(ISO) A trace program that produces output data only for selected instructions or for selected conditions.

SO
The shift-out character.

software
(1) (ISO) Computer programs, procedures, rules, and possibly associated documentation concerned with the operation of a data processing system.
(2) Contrast with hardware.

SOH
(ISO) The start-of-heading character.

solid state component
A component whose operation depends on the control of electric or magnetic phenomena in solids, e.g., a transistor, crystal diode, ferrite core.

sonic delay line
Synonym for acoustic delay line.

sort
(1) The operation of sorting.
(2) (ISO) To segregate items into groups according to specified criteria. Sorting involves ordering, but need not involve sequencing for the groups may be arranged in an arbitrary order.
(3) To arrange a set of items according to keys which are used as a basis for determining the sequence of the items, e.g., to arrange the records of a personnel file into alphabetical sequence by using the employee names as sort keys.
(4) Synonym for order.

(5) See balanced merge sort, bubble sort, exchange sort, external sort, insertion sort, internal sort, merge sort, multipass sort, oscillating sort, polyphase sort, repeated selection sort, selection sort, serial sort, sifting sort, tournament sort, unbalanced merge sort.

to a site intended for the storage of data, e.g., a site on a printed page or a location in a storage medium.

(2) A basic unit of area, usually the size of a single character.

(3) One or more space characters.

(4) To advance the reading or display position according to a prescribed format, e.g., to advance the printing or display position horizontally to the right or vertically down.

Contrast with backspace.

See working space.

space character (SP)

(1) (ISO) A character that is usually represented by a blank site in a series of graphics. The space character, though not a control character, has a function equivalent to that of a format effector that causes the print or display position to move one position forward without producing the printing or display of any graphic. Similarly, the space character may have a function equivalent to that of an information separator.

(2) See also null character.
span
(1) (ISO) The difference between the highest and the lowest values that a quantity or function may take.
(2) See error span.

special character
(ISO) A graphic character in a character set that is not a letter, not a digit, and not a space character.

special purpose computer
(ISO) A computer that is designed to operate upon a restricted class of problems.

specific address
Synonym for absolute address (1).

specific coding
Synonym for absolute coding.

spectral response
The variation in sensitivity of a device to light of different wavelengths.

spool
See tape spool.

spooling
(ISO) the reading of output from and the writing of input onto auxiliary storage concurrently with job execution in a form suitable for later processing or output operations.

spot punch
A device for punching one hole at a time in a data medium.

spread
(ISO) Synonym for irrelevance.

sprocket holes
Synonym for feed holes.

stability
See computational stability, light stability.

stable state
(ISO) In a trigger circuit, a state in which the circuit remains until the application of a suitable pulse.

stack
(ISO) Synonym for pushdown list.

stacker
See card stacker.

standard form
(ISO) Synonym for normalized form.

standardize
(ISO) Synonym for normalize.

standing-on-nines carry
(ISO) In parallel addition of numbers represented by decimal numerals, a procedure in which a carry input to a given digit place is bypassed to the next digit place. If the current sum in the given digit place is nine, the nine is changed to zero.

start-of-heading character (SOH)
(ISO) A transmission control character used as the first character of a message heading.

start-of-text character (STX)
(ISO) A transmission control character that precedes a text and may be used to terminate the message heading.

start signal
A signal to a receiving mechanism to get ready to receive data or perform a function.

statement
(1) (ISO) In a programming language, a
meaningful expression that may describe or specify operations and is complete in the context of this programming language.

(2) In computer programming, a symbol string or other arrangement of symbols.

(3) (ISO) Deprecated term for instruction.

(4) See assignment statement, conditional statement, job control statement.

static dump

(ISO) A dump that is performed at a particular point in time with respect to a machine run, frequently at the end of a run, and usually under the control of the computer operator or supervisory program.

staticize

(1) To convert serial or time-dependent parallel data into static form.

(2) Loosely, to retrieve an instruction and its operands from storage prior to its execution.

static magnetic cell

(ISO) Synonym for magnetic cell.

static storage

Storage other than dynamic storage.

station

See inquiry station, read station, remote station, tape station.

stationary information source

(ISO) Synonymous with stationary message source.

stationary message source

(ISO) A message source each message of which has a probability of occurrence independent of the time of its occurrence. Synonymous with stationary information source.

step

(1) One operation in a computer routine.

(2) To cause a computer to execute one operation.

(3) See job step, single step.

step-by-step operation

(ISO) Synonym for single-step operation.

stop instruction

(ISO) An exit that specifies the termination of the execution of a computer program.

stop signal

A signal to a receiving mechanism to wait for the next signal.

storage

(1) (ISO) The action of placing data into a storage device and retaining them for subsequent use.

(2) The retention of data in a storage device.

(3) A storage device.

(4) See acoustic storage, associative storage, auxiliary storage, buffer storage, capacitor storage, cathode ray storage, circulating storage, core storage, cryogenic storage, delay line storage, direct access storage, dynamic storage, electrostatic storage, erasable storage, external storage, fixed storage, immediate access storage, internal storage, magnetic card storage, magnetic core storage, magnetic disk storage, magnetic drum storage, magnetic storage, magnetic thin-film storage, magnetic wire storage, main storage, mass storage, matrix storage, mercury storage, n-core-per-bit storage, nonvolatile storage, one-core-per-bit storage, parallel search storage, parallel storage, permanent storage, pushdown storage, push-up storage, real storage, serial access storage, static storage, temporary stor-
age, virtual storage, volatile storage, word-organized storage.

storage allocation
(1) (ISO) The assignment of storage areas to specified data.
(2) See dynamic storage allocation.

storage capacity
(ISO) The number of bits, characters, bytes, words, or other units of data that a particular storage device can contain.

storage cell
(ISO) An elementary unit of a storage device, e.g., a binary cell.

storage device
(ISO) A functional unit into which data can be entered, in which they can be retained, and from which they can be retrieved.

storage location
(ISO) An area in a storage device, usually one that can be explicitly and uniquely specified by means of an address.

storage protection
An arrangement for preventing access to storage for either reading, or writing, or both.

store
(1) (ISO) To enter data into a storage device or to retain data in a storage device.
(2) (ISO) In computer programming, to copy data from registers into internal storage.

stored program computer
(ISO) A computer controlled by internally stored instructions, that can synthesize and store instructions, and that can subsequent-

ly execute these instructions. Synonymous with programmed computer.

straight line coding
(1) (ISO) A set of instructions in which there are no loops.
(2) (ISO) A programming technique in which loops are avoided by unwinding.

stratified language
(1) (ISO) A language that cannot be used as its own metalanguage, e.g., FORTRAN.
(2) Contrast with unstratified language.

string
(1) (ISO) A linear sequence of entities such as characters or physical elements.
(2) See alphabetic string, binary element string, bit string, character string, null string, symbol string, unit string.

striping
In flowcharting, the use of a line across the upper part of a flowchart symbol to signify that a detailed representation of a function is located elsewhere in the same set of flowcharts.

stroke
In character recognition, a straight line or arc used as a segment of a graphic character.

stroke centerline
In character recognition, a line midway between the two stroke edges.

stroke edge
In character recognition, the line of discontinuity between a side of a stroke and the background, obtained by averaging, over the length of the stroke, the ir-
regularities resulting from the printing and detecting processes.

stroke width
In character recognition, the distance measured perpendicularly to the stroke center-line between the two stroke edges.

stub card
A special purpose paper card that has a separable stub attached to a general purpose paper card. A stub card may be a scored card.

STX
(ISO) The start-of-text character.

stylus printer
(ISO) Synonym for matrix printer.

SUB
(ISO) The substitute character.

subroutine
(1) (ISO) A sequenced set of statements that may be used in one or more computer programs and at one or more points in a computer program.
(2) A routine that can be part of another routine.
(3) See closed subroutine, dynamic subroutine, open subroutine, recursive subroutine, reentrant subroutine.

subroutine call
The subroutine, in object coding, that performs the call function.

subscript
(ISO) A symbol that is associated with the name of a set to identify a particular subset or element.

subset
(1) (ISO) A set each element of which is an element of a specified other set.

(2) See alphabetic character subset, alphanumeric character subset, character subset, numeric character subset, proper subset.

substitute character (SUB)
(ISO) A control character used in the place of a character that is recognized to be invalid or in error, or that cannot be represented on a given device.

subtractor
(1) (ISO) A device whose output data are a representation of the difference between the numbers represented by its input data.
(2) See adder subtracter, full subtracter, half subtracter.

subtrahend
(ISO) In a subtraction operation, the number or quantity subtracted from the minuend.

suffix notation
(ISO) Synonym for postfix notation.

sum
(ISO) The number or quantity that is the result of the addition of two or more numbers or quantities.

summary punch
(ISO) A card punch that may be connected to another device, such as a tabulator, to enter data that was calculated or summarized by the other device.

summation check
A check based on the formation of the sum of the digits of a numeral. The sum of the individual digits is usually compared with a previously computed value.

supervisor
supervisory program

(ISO) A computer program, usually part of an operating system, that controls the execution of other computer programs and regulates the flow of work in a data processing system. Synonymous with executive program, supervisor.

supervisory routine

(ISO) A routine, usually part of an operating system, that controls the execution of other routines and regulates the flow of work in a data processing system. Synonymous with executive routine, supervisor.

swapping

See page swapping.

switch

(1) (ISO) In a computer program, a parameter that controls branching and is bound prior to the branchpoint being reached. Synonymous with switchpoint.

(2) A device or programming technique for making a selection, e.g., a toggle, a conditional jump.

switch core

(ISO) A core in which the magnetic material generally has a high residual flux density and a high ratio of residual to saturated flux density with a threshold value of magnetizing force below which switching does not occur.

switch indicator

(ISO) In computer programming, an indicator that determines or shows the setting of a switch. Synonymous with flag.

switching element

(ISO) Deprecated term for logic element.

switching function

(ISO) A function that has only a finite number of possible values and the independent variables of which have only a finite number of possible values.

switching variable

(ISO) A variable that may take only a finite number of possible values or states.

switchpoint

(ISO) Synonym for switch (1).

syllable

(ISO) A character string or a binary element string in a word.

symbol

(1) (ISO) A conventional representation of a concept or a representation of a concept upon which agreement has been reached.

(2) A representation of something by reason of relationship, association, or convention.

(3) See abstract symbol, flowchart symbol, logic symbol, mnemonic symbol.

symbolic address

(ISO) An address expressed in a form convenient for computer programming.

symbolic addressing

(ISO) A method of addressing in which the address part of an instruction contains a symbolic address.

symbolic coding

The preparation of routines and computer programs in a symbolic language.

symbolic language

A programming language that expresses
addresses and operation codes of instructions in symbols convenient to humans rather than in machine language.

symbolic logic
(ISO) The discipline in which valid arguments and operations are dealt with using an artificial language designed to avoid the ambiguities and logical inadequacies of natural languages. Synonymous with mathematical logic.

symbol manipulation
The processing of symbols that have no explicit numerical values.

symbol rank
(ISO) Synonym for digit place.

symbol string
(ISO) A string consisting solely of symbols.

symmetric channel
See binary symmetric channel.

SYN
The synchronous idle character.

synchronization pulses
Pulses introduced by transmission equipment into the receiving equipment to keep the two equipments operating in step.

synchronous computer
(1) (ISO) A computer in which each event, or the performance of any basic operation, is constrained to start on signals from a clock and usually to keep in step with them.
(2) Contrast with asynchronous computer.

synchronous idle character (SYN)
(ISO) A transmission control character used by synchronous data transmission systems to provide a signal from which synchronism or synchronous correction may be achieved between data terminal equipment, particularly when no other character is being transmitted.

synchronous operation
(1) (ISO) An operation that occurs regularly or predictably with respect to the occurrence of a specified event in another process, e.g., the calling of an input-output routine that receives control at a pre-coded location in a computer program.
(2) A mode of operation in which each action is started by a clock.

syntax
(1) (ISO) The relationship among characters or groups of characters, independent of their meanings or the manner of their interpretation and use.
(2) The structure of expressions in a language.
(3) The rules governing the structure of a language.
(4) The relationships among symbols.

syntax language
A metalanguage used to specify or describe the syntax of another language.

synthetic address
(ISO) Synonym for generated address.

system
(1) (ISO) In data processing, a collection of men, machines, and methods organized to accomplish a set of specific functions.
(2) See data processing system, decimal numeration system, fixed-point representation system, fixed-radix numeration system, information feedback system, management information system, mixed-base numeration system, mixed-radix numeration, numeration
system, operating system, positional representation system, programming system, pure binary numeration system, radix numeration system, variable-point representation system.
table
(1) (ISO) An array of data each item of which may be unambiguously identified by means of one or more arguments.
(2) A collection of data in which each item is uniquely identified by a label, by its position relative to the other items, or by some other means. Synonymous with dictionary.
(3) See boolean operation table, decision table, function table, operation table, truth table.

table lookup
(ISO) A procedure for obtaining the value corresponding to an argument from a table of values.

table lookup instruction
(ISO) An instruction that initiates a table lookup.

tabulate
(1) To format data into a table.
(2) To print totals.

tabulation character
See horizontal tabulation character, vertical tabulation character.

tag
(ISO) One or more characters, attached to a set of data, that contains information about the set, including its identification.

tape
See carriage control tape, chadless tape, magnetic tape, perforated tape.

tape code
See perforated tape code.

tape deck
(1) (ISO) Deprecated term for tape unit.
(2) (ISO) Synonym for tape drive.

tape drive
(1) (ISO) A mechanism for controlling the movement of magnetic tape. This mechanism is commonly used to move magnetic tape past a read head or write head, or to allow automatic rewinding. Synonymous with tape deck, tape transport.
(2) (ISO) Deprecated term for tape unit.

tape punch
Synonym for receiving perforator.

tape spool
(1) (ISO) A cylinder without flanges on which punch tape may be wound.
(2) A coiled length of perforated tape.

tape station
(ISO) Deprecated term for tape unit.

tape transport
(1) (ISO) Deprecated term for tape unit.
(2) (ISO) Synonym for tape drive.

tape unit
(1) (ISO) A device containing a tape drive, together with read heads and write heads and associated controls.
(2) See magnetic tape unit.

target language
(ISO) A language into which statements are translated. Synonymous with object language.

target program
(ISO) A computer program in a target language that has been translated from a source language. Synonymous with object program.
task
(1) The basic unit of work from the standpoint of a control program.
(2) In a multiprogramming or multiprocesssing environment, a computer program, or portion thereof, capable of being specified to the control program as a unit of work. Tasks compete for system resources.

tasking
See multitasking.

telecommunication
(ISO) The transmission of signals over long distances, such as by telegraph, radio, or television.

temporary storage
In computer programming, storage locations reserved for intermediate results. Synonymous with working storage.

tens complement
(ISO) The radix complement in the decimal numeration system. Synonymous with complement-on-ten.

terminal
(1) A point in a system or communication network at which data can either enter or leave.
(2) See data terminal equipment, user terminal.

ternary
(1) (ISO) Pertaining to a selection, choice, or condition that has three possible different values or states.
(2) (ISO) Pertaining to a fixed radix numeration system having a radix of three.

ternary incremental representation
(ISO) Incremental representation in which the value of an increment is rounded to one of three values, plus or minus one quantum or zero.

text
(1) In ASCII and data communication, a sequence of characters treated as an entity if preceded and terminated by one STX and one ETX communication control character respectively.
(2) Contrast with heading.

thin film
Loosely, magnetic thin film.

thin film storage
Loosely, magnetic thin film storage.

three-address instruction
(ISO) An instruction that contains three address parts.

three-bit byte
(ISO) Synonym for triplet.

three-input adder
Synonym for full adder.

three-plus-one address instruction
(ISO) An instruction that contains three address parts, the plus one address being that of the instruction that is to be executed next unless otherwise specified.

threshold
(1) A logic operator having the property that if P is a statement, Q is a statement, R is a statement, ..., then the threshold of P, Q, R, ... is true if at least N statements are true, false if less than N statements are true, where N is a specified nonnegative integer called the threshold condition.
(2) The threshold condition as in (1).

threshold element
(1) (ISO) A logic element that performs a
threshold operation. Synonymous with threshold gate.
(2) A device that performs the logic threshold operation but in which the truth of each input statement contributes, to the output determination, a weight associated with that statement.

threshold function
(ISO) A two-valued switching function of one or more not necessarily boolean arguments that take the value one if a specified mathematical function of the arguments exceeds a given threshold value, and zero otherwise.

threshold gate
(ISO) Synonym for threshold element.

threshold operation
(ISO) An operation performed on operands to obtain a value of a threshold function.

throughput
A measure of the amount of work performed by a computing system over a given period of time, e.g., jobs per day.

time
See access time, available time, compiling time, computer time, corrective maintenance time, cycle time, deferred maintenance time, development time, downtime, emergency maintenance time, idle time, installation time, maintenance time, make-up time, operating time, preventive maintenance time, problem time, production time, program development time, program execution time, real time, translating time, word time.

time register
(ISO) Synonym for timer.

time scale
See extended time scale, fast time scale, variable time scale.

time scale factor
In simulation, the ratio of computer time to the corresponding problem time.

time share
To use a device for two or more interleaved purposes.

time sharing
(1) (ISO) A mode of operation that provides for the interleaving of two or more independent processes on one functional unit.
(2) Pertaining to the interleaved use of time on a computing system that enables two or more users to execute computer programs concurrently.
(3) (ISO) Deprecated term for conversational mode.

toggle
(1) Pertaining to any device having two stable states.
(2) Synonym for flip-flop.

tournament sort
A repeated selection sort in which each subset consists of no more than two items.

trace
A record of the execution of a computer program; it exhibits the sequences in which the instructions were executed.

trace program
(ISO) A computer program that performs
a check on another computer program by exhibiting the sequence in which the instructions are executed and usually the results of executing the instructions.

tracing routine
A routine that provides an historical record of specified events in the execution of a computer program.

track
(1) The portion of a moving data medium, such as a drum, tape, or disk, that is accessible to a given reading head position.
(2) See address track, card track, clock track, feed track, regenerative track.

track pitch
(ISO) The distance between corresponding points of adjacent tracks.

trailer card
A card that contains information related to the data on the preceding cards.

trailing decision
(1) A loop control that is executed after the loop body.
(2) Contrast with leading decision.

trailing end
The end of a perforated tape that last enters a perforated-tape reader.

trailing zero
In positional notation, a zero in a less significant digit place than the digit place of the least significant nonzero digit of a numeral.

transaction file
(ISO) A file containing relatively transient data, that, for a given application, is processed together with the appropriate master file. Synonymous with detail file.

transcribe
(ISO) To transmit data from one data medium to another, converting them as necessary for acceptance by the receiving medium.

transducer
A device for converting energy from one form to another.

transfer
(1) (ISO) To send data from one place and to receive the data at another place. Synonymous with move.
(2) (ISO) Deprecated term for jump.
(3) See block transfer, peripheral transfer, radial transfer.

transfer check
A check on the accuracy of a data transfer.

transfer instruction
(ISO) Deprecated term for jump instruction.

transfer interpreter
(ISO) A device that prints on a punched card characters equivalent to hole patterns in another card.

transferred information
(ISO) Synonym for transinformation content.

transfer time
(ISO) The time interval between the instant the transfer of data starts and the instant the transfer is completed.

transform
(1) (ISO) To change the form of data according to specified rules, without significantly changing the meaning of the data.
(2) Synonymous with convert.
transformation
See key transformation, signal transformation.

transinformation content
(1) (ISO) In information theory, the difference between the information content conveyed by the occurrence of an event and the conditional information content conveyed by the occurrence of the same event, given the occurrence of another event; in mathematical notation, let:

\[ \log \frac{1}{p(x_j)} = \log \frac{p(x_j | y_i)}{p(x_j)} \]

\[ \log \frac{1}{p(y_j)} = \log \frac{p(y_j | x_i)}{p(y_j)} \]

Then this difference \( T(x_i | y_j) \) for the pair of events \( x_i, y_j \) is expressed as:

\[ T(x_i | y_j) = \log \frac{p(x_i | y_j)}{p(x_i)} - \log \frac{1}{p(x_i | y_j)} = \log \frac{p(y_j | x_i)}{p(y_j | x_i)} = T(y_j | x_i) \]

Synonymous with mutual information, transferred information, transmitted information.

(2) See character mean transinformation content, mean transinformation content.

transinformation rate
See average transinformation rate.

translate
(ISO) To transform data from one language to another.

translate duration
(ISO) Synonym for translating time.

translate phase
(ISO) Of a run, the logical subdivision that includes the execution of the translator. Synonymous with translating phase.

translating phase
(ISO) Synonym for translate phase.

translating program
(ISO) Synonym for translator.

translating time
(ISO) The elapsed time taken for the execution of a translator. Synonymous with translate duration.

translator
(ISO) A computer program that translates from one language into another language and in particular from one programming language into another programming language. Synonymous with translating program.

transliterate
(1) (ISO) To convert data character by character.

(2) To convert the characters of one alphabet to the corresponding characters of another alphabet.
transmission

(1) The sending of data to one or more locations or recipients.
(2) The sending of data from one place for reception elsewhere.
(3) In ASCII and data communication, a series of characters including headings and texts.
(4) Synonymous with data transmission.
(5) See parallel transmission, serial transmission.

transmission-block character

See end-of-transmission-block character.

transmission control character

(ISO) Any control character used to control or facilitate transmission of data between data terminal equipments. Synonymous with communication control character.

transmit

To send data from one place for reception elsewhere.

transmitted information

(ISO) Synonym for transinformation content.

transport

See tape device.

trap

(ISO) An unprogrammed conditional jump to a specified address that is automatically activated by hardware, a recording being made of the location from which the jump occurred.

trigger

(ISO) To cause the immediate execution of a computer program, often by intervention from the external environment, for example by means of a manually controlled jump to an entry point.

trigger circuit

A circuit that has a number of stable states or unstable states, at least one being stable, and designed so that a desired transition can be initiated by the application of a suitable pulse.

triple-length register

(ISO) Three registers that function as a single register. Each register may be individually accessed. Synonymous with triple register.

triple-precision

(ISO) Pertaining to the use of three computer words to represent a number in accordance with the required precision.

triple register

(ISO) Synonym for triple-length register.

triplet

(ISO) A byte composed of three binary elements. Synonymous with three-bit byte.

true complement

(ISO) Deprecated term for radix complement.

truncate

To terminate a computational process in accordance with some rule, e.g., to end the evaluation of a power series at a specified term.

truncation

(1) (ISO) The deletion or omission of a leading or of a trailing portion of a string in accordance with specified criteria.
(2) (ISO) The termination of a computation process, before its final conclusion or natural termination, if any, in accordance with specified rules. Contrast with round.
truncation error
(ISO) An error due to truncation.

truth table
(1) (ISO) An operation table for a logic operation.
(2) A table that describes a logic function by listing all possible combinations of input values and indicating, for each combination, the true output values.

turing machine
(1) A mathematical model of a device that changes its internal state and reads from, writes on, and moves a potentially infinite tape, all in accordance with its present state, thereby constituting a model for computer-like behavior.
(2) See universal turing machine.

turnaround time
(ISO) The elapsed time between submission of a job and the return of complete results.

twelve-punch
A punch in the top row of a Hollerith card. Synonymous with y-punch.

two-address instruction
(ISO) An instruction that contains two address parts.

two-bit byte
(ISO) Synonym for doublet.

two-input adder
(ISO) Synonym for half adder.

two-level address
An indirect address that specifies two levels of addressing.

two-out-of-five code
(1) (ISO) A binary-coded decimal notation in which each decimal digit is represented by a binary numeral consisting of five bits of which two are of one kind, conventionally ones, and three are of the other kind, conventionally zeros. The usual weights are 0-1-2-3-6 except for the representation of zero which is then 01100.
(2) A positional notation in which each decimal digit is represented by five binary digits of which two are one kind (e.g., ones) and three are the other kind (e.g., zeros).

two-plus-one address instruction
(ISO) An instruction that contains three address parts, the plus-one address being that of the instruction that is to be executed next unless otherwise specified.

twos complement
(ISO) The radix complement in the pure binary numeration system. Synonymous with complement-on-two.

type bar
(ISO) A bar, usually mounted on an impact printer that holds type slugs.

type font
Type of a given size and style, e.g., 10-point Bodoni Modern.

type wheel
(ISO) Synonym for print wheel.
ultrafiche
(ISO) In micrographics, microfiche with images reduced more than ninety times.

unary operation
(ISO) Synonym for monadic operation.

unary operator
(ISO) Synonym for monadic operator.

unbalanced merge sort
(1) A merge sort, which is an external sort, such that the sorted subsets created by the internal sorts are unequally distributed among some of the available auxiliary storage devices. The subsets are merged onto the remaining auxiliary storage devices and the process repeated until all items are in one sorted set.
(2) Contrast with balanced merge sort.

unconditional branch instruction
(ISO) Deprecated term for unconditional jump instruction.

unconditional control transfer instruction
(ISO) Deprecated term for unconditional jump instruction.

unconditional jump
(ISO) A jump that takes place whenever the instruction that specified it is executed.

unconditional jump instruction
(ISO) An instruction that specifies an unconditional jump.

unconditional transfer instruction
(ISO) Deprecated term for unconditional jump instruction.

underflow
See arithmetic underflow.

unit
(1) A device having a special function.
(2) A basic element.
(3) See arithmetic and logic unit, arithmetic unit, central processing unit, functional unit, information content natural unit, input-output unit, input unit, logic unit, magnetic tape unit, main control unit, output unit, peripheral control unit, tape unit.

unit separator character (US)
(ISO) The information separator intended to identify a logical boundary between units.

unit string
(ISO) A string consisting of only one entity.

universal set
(ISO) The set that includes all of the elements of concern in a given study.

universal turing machine
A turing machine that can simulate any other turing machine.

unmodified instruction
(ISO) Deprecated term for presumptive instruction.

unpack
(ISO) To recover the original form of the data from packed data.

unstable state
In a trigger circuit, a state in which the circuit remains for a finite period of time at the end of which it returns to a stable state without the application of a pulse.
unstratified language
(1) (ISO) A language that can be used as its own metalanguage, e.g., most natural languages.
(2) Contrast with stratified language.

unwind
(ISO) To state explicitly and in full, without the use of modifiers, all the instructions that are involved in the execution of a loop.

upper curtate
The adjacent card rows at the top of a punch card.

uptime
(1) (ISO) Deprecated term for available time.
(2) (ISO) Synonym for operating time.

US
The unit separator character.

USASCII
Deprecated term for ASCII.

user terminal
(ISO) An input-output unit by which a user communicates with an automatic data processing system.

utility program
(ISO) A computer program in general support of the processes of a computer; for instance, a diagnostic program, a trace program, a sort program. Synonymous with service program.

utility routine
(ISO) A routine in general support of the processes of a computer; for instance, an input routine. Synonymous with service routine.
validation
The checking of data for correctness, or compliance with applicable standards, rules, and conventions.

variable
(1) (ISO) In computer programming, a character or group of characters that refers to a value and, in the execution of a computer program, corresponds to an address.
(2) A quantity that can assume any of a given set of values.
(3) See loop-control variable, switching variable.

variable-length record
Pertaining to a file in which the records need not be uniform in length.

variable-point representation
(1) A positional representation in which the position of the radix point is explicitly indicated by a special character at that position.
(2) Contrast with floating-point representation.

variable-point representation system
(ISO) A radix numeration system in which the radix point is explicitly indicated by a special character at that position.

variable time scale
In simulation, the time scale used in data processing when the time scale factor is not constant during a run.

vector
(1) (ISO) A quantity usually represented by an ordered set of numbers.
(2) Contrast with scalar.

Veitch diagram
(1) (ISO) A means of representing Boolean functions in which the number of variables determines the number of squares in the diagram; the number of squares needed is the number of possible states, i.e., two, raised to a power determined by the number of variables.
(2) See also Venn diagram.

Venn diagram
(1) (ISO) A diagram in which sets are represented by regions drawn on a surface.
(2) See also Veitch diagram.

verge-punched card
Synonym for edge-punched card.

verifier
(ISO) A device that checks the correctness of transcribed data, usually by comparing with a second transcription of the same data or by comparing a retranscription with the original data.

verify
(1) To determine whether a transcription of data or other operation has been accomplished accurately.
(2) To check the results of keypunching.

vertical feed
Pertaining to the entry of a punch card into a card feed with a short edge first.

vertical positions
See addressable vertical positions.

vertical tabulation character (VT)
(ISO) A format effector that causes the print or display position to move to the corresponding position on the next of a series of predetermined lines.
virgin medium
(ISO) A data medium in or on which data is not or has not been recorded.

virtual address
(ISO) The address of a notional storage location in virtual storage.

virtual memory
(ISO) Deprecated term for virtual storage.

virtual storage
The notion of space on storage devices that may be regarded as main storage by the user of a computing system, in which virtual addresses are mapped into real addresses. The size of the virtual storage is limited only by the addressing scheme of the computing system and by the amount of auxiliary storage available, rather than by the actual number of main storage locations.

void
In character recognition, the inadvertent absence of ink within a character outline.

volatile storage
(ISO) A storage whose content is lost when the power is removed.

VT
The vertical tabulation character.
waiting time
(ISO) Synonym for latency.

weight
(ISO) In a positional representation, the factor by which the value represented by a character in the digit place is multiplied to obtain its additive contribution in the representation of a real number. Synonymous with significance.

who-are-you (WRU)
See inquiry character.

wire printer
(ISO) Synonym for matrix printer.

wire storage
See magnetic wire storage.

word
(1) (ISO) A character string or a binary element string that it is convenient for some purpose to consider as an entity.
(2) A character string or a bit string considered as an entity.
(3) See alphabetic word, computer word, doubleword, halfword, index word, instruction word, machine word, numeric word, parameter word, reserved word.

word length
(ISO) The number of characters or of binary elements in a word.

word-organized storage
(ISO) A storage in which only complete words may be accessed at a time.

word time
In a storage device that provides serial access to storage locations, the time interval between the appearance of corresponding parts of successive words.

working area
(ISO) Synonym for working space.

working space
(ISO) That portion of main storage that is used by a computer program for temporary storage of data. Synonymous with working area, working storage.

working storage
(ISO) Synonym for temporary storage, working space.

write
(ISO) To make a permanent or transient recording of data in a storage device or on a data medium.

write cycle time
(ISO) The minimum time interval between the starts of successive write cycles of a storage device with separate reading and writing cycles.

write head
A magnetic head that only writes.

writing
(ISO) The action of making a permanent or transient recording of data in a storage device or on a data medium.
X

X-datum line
An imaginary line, used as a reference edge, along the top edge of a punch card, i.e., a line along the edge nearest the twelve-punch row of a Hollerith card.

x-punch
Synonym for eleven-punch.

Y

Y-datum line
An imaginary line, used as a reference edge, passing along the right edge of a punch card at right angles to the X-datum line.

y-punch
Synonym for twelve-punch.

Z

zero
(1) (ISO) In data processing, the number that, when added to or subtracted from another number, does not alter the value of that other number.
(2) See leading zero, trailing zero.

zero-address instruction
(ISO) An instruction that contains no address part, and is used when the address is implicit or when no address is required.

zerofill
(ISO) To character fill with the representation of the character zero. Synonymous with zeroize.

zeroize
(ISO) Synonym for zerofill.

zero address
(ISO) Synonym for immediate address.

zero punch
A punch in the third row from the top on a Hollerith card.

zero suppression
(ISO) The elimination from a numeral of zeros that have no significance in the numeral. Zeros that have no significance include those to the left of the nonzero digits in the integral part of a numeral and those to the right of the nonzero digits in the fractional part.

zone punch
(1) (ISO) A hole punched in one of the upper three card rows of a twelve-row punch card. Synonymous with overpunch.
(2) A hole punched in one of the punch rows designated as twelve, eleven, or zero, and sometimes eight or nine. A zero punch, and sometimes a nine-punch, by itself, is considered a numeric punch.
(3) A zero punch in combination with a numeric punch.
(4) Contrast with digit punch.