Computer Dictionary & HANDBOOK

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rier locates the equipment which interconnects subscribers and circuits.

central processing element (bit slices) — Each central processing element (CPE) represents a 2-bit or 4-bit slice through the data-processing section of a computer. In some systems, several CPEs may be arrayed in parallel to form a processor of any desired word length. The microprocessor, which together with the microprogram memory controls the step-by-step operation of the processor, is itself a powerful microprogrammed state sequencer.

central processing unit — Abbreviated CPU. The unit of a computing system that contains the circuits that control and perform the execution of instructions.

central processing, unit loop — The main routine or a control program and that which is associated with the control of the internal status of the processing unit, in contrast to those control programs of routines developed with terminals and file storage input-output.

central processing unit, microcomputer — The CPU is the primary functioning unit of any computer system. Its basic architecture consists of storage elements called registers, computational circuits designated as the arithmetic-logic unit (ALU), the control block, and input-output ports. A microprocessor built with LSI technology often contains a CPU on a single chip. Because such a chip has limited storage space, memory implementation is added in modular fashion on associated chips. Most microcomputers consist of a CPU chip and others for memory and i/o.

central processor — *See* central processing unit.

central processor organization — The computer can be divided into three main sections: arithmetic and control, input/output, and memory. The arithmetic and control section carries out the directives of the program. The calculations, routing of information, and control of the other sections occurs in this part of the central processor. All information going in and coming out of the central processor is handled by the input/output section. It also controls the operation of all peripheral equipment. The memory section is the heart of the central processor; it provides temporary storage for data and instructions. Because of its importance, the total cycle time of the memory is the main determining factor in the overall speed of the processor.

central scanning loop — A loop of instructions which determines which task is to be performed next. After each item of work is completed, control is transferred to the central scanning loop which searches for processing requests in order to determine the next item to be processed. The computer may cycle idly in the central scanning loop if no item requires its attention, or it may go into a wait state which is interrupted if the need arises. The central scanning loop is the nucleus of a set of supervisory programs.

central terminal unit — Abbreviated CTU. This unit supervises communication between the teller consoles and the processing center. It receives incoming messages at random intervals, stores them until the central processor is ready to process them, and returns the processed replies to the teller consoles which originated the transactions (bank application).

cerdip — Abbreviation for Ceramic Dual In-line Package.

certified tape — Computer tape that is machine checked on all tracks throughout each roll and is certified by the supplier to have less than a specific total number of errors or to have zero errors.

certifier, tape — A peripheral device or unit designed to locate defects in magnetic tape before use, such as oxide emissions, unevenness, bubbles, etc.

CF — *See* control footing.

CH — *See* control heading.

chain — 1. Any series of items linked together. 2. Pertaining to a routine consisting of segments which are run through the computer in tandem, only one segment being within the computer at any one time and each segment using the output from the previous program as its input.

chain additions program — An instruction set that will permit new records to be added to a file.

chain, binary — A series of flip-flops (binary circuits) which exist in either one of two states, but each circuit can affect or change the following circuit.

chain code — An arrangement in a cyclic sequence of some or all of the possible

concurrent operation — This term is used to refer to various methods in electronic data processing in which multiple instructions or operations of different instructions are executed simultaneously. Concurrent operation refers to computers working as contrasted to computer programming. This concept is one of the basic tenets of time-sharing, priority processing, etc.

concurrent processing — The operation of a computer which has some or all of the program for more than one run stored simultaneously in its memory, and which executes these programs concurrently by time-shared control. *See* multiprogramming.

concurrent processing, peripheral — *See* peripheral processing, concurrent.

concurrent real-time processing — To close the gap in time between the actual transaction and its recognition by the processing system, a new concept has been devised, real-time processing. A real-time system is a combined data-processing and communications system which involves the direct communication of transaction data between remote locations and a central computer, via communication lines, and allows the data to be processed while the business transaction is actually taking place. A real-time system may be thought of as a communications-oriented data-processing system which is capable of performing batch-processing functions while concurrently processing inquiries or messages, and generating responses in a time interval directly related to the operational requirements of the system.

concurrent working — This term is used to refer to various methods in electronic data processing in which multiple instructions or operations of different instructions are executed simultaneously. Concurrent working refers to computer operation as contrasted to computer programming. This concept is one of the basic tenets of time-sharing, priority processing, etc.

condition — In the COBOL system one of a set of specified values that a data item can assume; the status of a switch as specified in the special-names paragraph of the environment division; a simple conditional expression. *See* conditional expression.

conditional — Subject to various constraints, i.e., the result of a comparison made during the program or subject to human intervention.

conditional branch — *See* branch, conditional.

conditional breakpoint — A breakpoint at which the routine may be continued as coded if desired conditions are satisfied.

conditional-breakpoint instruction — A conditional-jump instruction which, if some specified switch is set or situation exists, will cause the computer to stop, after which either the routine may be continued as coded, or a jump may be forced.

conditional dump — *See* branch, conditional.

conditional expression — In the COBOL language, an expression which has the particular characteristic that, taken as a whole, it may be either true or false, in accordance with the rules.

conditional instructions — A group of instructions that can take more than one course of action (go to different memory locations) based on the condition of a status flag at the time a particular type of conditional instruction is executed.

conditional jump — An instruction to a computer that will cause the proper one of two (or more) addresses to be used in obtaining the next instruction, depending on some property of one or more numerical expressions of other conditions. Also referred to as conditional transfer of control.

conditional macroexpansion — *See* macroexpansion, conditional.

conditional transfer — *See* branch, conditional.

conditional transfer instruction — *See* branch, conditional.

conditional transfer of control — *Same as* branch.

condition, compound — A number of simple logic conditions such as AND, NOT, or logic gates that can be combined to form compound logic operations.

condition, entry — A necessary and specified requirement, in computer programming, that must be met before a subroutine can be entered; for example, the use of a counter.

conditioning, signal — To process the form or mode of a signal so as to make it intelligible to, or compatible with, a given device, including such manipula-

however, the terminals share the same data link. The data link comes from the computer, goes to the first terminal, comes out of the first terminal and on to the second terminal, etc. All terminals share the same data link and the same computer port.

DAS — Abbreviation for digital-analog simulator.

DASD (direct access storage devices) — *See* storage, direct access.

data — 1. A general term used to denote any or all facts, numbers, letters and symbols that refer to or describe an object, idea, condition, situation, or other factors. It connotes basic elements of information which can be processed or produced by a computer. Sometimes data are considered to be expressible only in numerical form, but information is not so limited. (Related to information.) 2. Plural of the term datum. Collectively used to designate alphabetic or numeric material serving as a basis of discussion.

data above voice (DAV) — A transmission system which carries digital data on a portion of the microwave radio spectrum above the frequency used for voice transmission.

data acquisition — Process data are acquired by the data acquisition (DA) system, converted into digital information, and printed to provide: (a) operating records for accounting and supervisory purposes, or (b) a record of experimental data.

data acquisition and control system (DAC) — The system is designed to handle a wide variety of real-time applications, process control, and high-speed data acquisition. Each system is individually tailored with modular building blocks that are easily integrated to meet specific system requirements. A large family of real-time process input/output (i/o) devices is included, such as analog input, analog output, contact sense, and contact operate, as well as data processing i/o units, such as magnetic tape, disk storage, line printer, graph plotter, card, and paper tape input and output. Data are received and transmitted on either a high-speed cycle-steal basis or under program control, depending on the intrinsic data rate of the i/o device.

data acquisition, cycle-stealing — The display receives data and control words from the memory unit via the data-break channel. The data-break channel is a high-speed, direct-access channel that passes words to the program in execution.

data-acquisition system — A system designed to gather data from multiple remote locations at a certain computing facility.

data-adapter unit (communications) — The data-adapter unit greatly expands the input/output capabilities of the system. It provides direct connection of a variety of remote and local external devices to a system. These devices include the data-collection system, the data-communication system, process-communication system, telegraph terminals, telemetry terminals, and control and data-acquisition equipment.

data administrator — A high ranking member of management responsible for future information needs. The data administrator is not responsible for the design or maintenance of any particular data base, but is more concerned with the purity and quality as well as the value of the information as a corporate resource.

data, analog — The physical representation of information so that the representation bears an exact relationship to the original information. The electrical signals on a telephone channel are an analog-data representation of the original voice.

data array — A representation of data in the form of signs and symbols as recorded on tape, cards, etc.

data bank — A collection of data pertaining to a given subject or application. Many data banks are organized by and manipulated through data base management systems, but this is not necessarily the true use.

data base — A typical data base is a vast and continuously updated file of information, abstracts, or references on a particular subject or subjects. On-line data bases are designed so that by using subject headings, key words, key phrases, or authors, users can quickly and economically search for, sort, analyze and print out data on their terminal.

data base administrator — An individual who is in charge of controlling the content, design, and use of one or more data bases to avoid uncontrolled redundancies and to enhance development.

admissible. An exact solution or other termination to this problem is furnished by the simplex method or one of its variants.

inequality — A proposition (or relation) which relates the magnitudes of two mathematical expressions or functions A and B. Inequalities are four types; A is greater than B ($A > B$); A is less than B ($A < B$); A is greater than or equal to B ($A \geq B$); A is less than or equal to B ($A \leq B$). The first two types are called strict, and the last two are relaxed or weak. The process of identifying a functional argument or range of arguments which makes the proposition true is called solving the inequality, or obtaining a feasible solution to the inequality.

infinite-pad method — A procedure or method of measuring reflectiveness of paper stock used in optical character recognition. A doubling of the number of backing sheets of the same paper, however, does not appreciably change the measured reflectiveness.

infinity — Any number larger than the maximum number that a given computer is able to store in any register.

infix notation — A method of forming one-dimensional expressions (e.g., arithmetic, logical, etc.) by alternating single operands and operators. Any operator performs its indicated function upon its adjacent terms which are defined, subject to the rules of operator precedence and grouping brackets which eliminates ambiguity.

information — 1. Knowledge that was not previously known to its receiver. Information can be derived from data only to the extent that the data are accurate, timely, unexpected, and relevant to the subject under consideration. 2. Aggregation of data that are presented in various forms. Sets of symbols that specifically indicate one out of a number of alternatives. 3. The meaning assigned to data by the known conventions used in its representation.

information, administrative — Information of a textual nature, originated and prepared by one person for scrutiny by another.

information bearer channel — A channel provided for data transmission which is capable of carrying all the necessary information to permit communication including users' data synchronizing sequences, control signals, etc. It may, therefore, operate at a greater signaling rate than that required solely for the users' data.

information bits — Those bits which are generated by the data source and that are not used for error-control by the data transmission system.

information channel — The transmission and intervening equipment involved in the transfer of information in a given direction between two terminals. An information channel includes the modulator and demodulator, and any error-control equipment irrespective of its location, as well as the backward channel when provided.

information, communication — The physical means of connecting one location to another for the purpose of transmitting information.

information efficiency — A ratio of the actual negative entropy to the maximum possible entropy, using the same set of signs.

information-feedback system — An error-control system using message feedback with reception of the erroneous group from the sending station.

information flow analysis — The development of organizing and analyzing techniques to obtain facts and information about the organization, initialization, and flow to the final users of reports throughout the enterprise or organization.

information, machine-sensible — Information in a form that can be read by a specific machine.

information marker, beginning of — A reflective spot on the back of a magnetic tape, 10 feet from the physical beginning of the tape, which is sensed photoelectrically to indicate the point on the tape at which recording may begin.

information processing — The processing of data representing information and the determination of the meaning of the processed data.

information processing system — A system that receives and delivers information, changing the information in the process.

information rate — The product of the average information content per symbol and the average number of symbols per second.