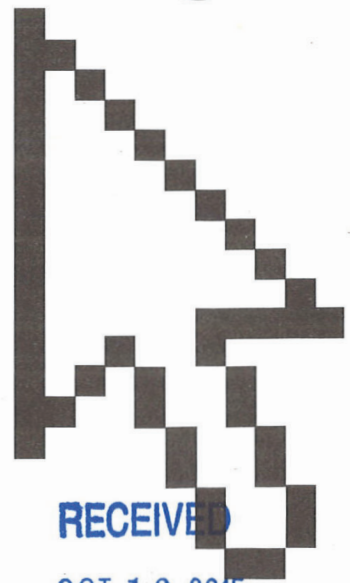


Microsoft®

Microsoft®

Computer Dictionary

Fifth Edition



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systems integrate computer-aided design and engineering (CAD/CAE), material requirements planning (MRP), and robotic assembly control to provide "paperless" management of the entire manufacturing process. **3.** Acronym for computer-input microfilm. A process in which information stored on microfilm is scanned and the data (both text and graphics) converted into codes that can be used and manipulated by a computer. Computer-input microfilm is similar to processes such as optical character recognition, in which images on paper are scanned and converted to text or graphics. *Compare* COM (definition 4).

CIP *n.* **1.** Short for **Commerce Interchange Pipeline**. A Microsoft technology that provides for secure routing of business data between applications over a public network such as the Internet. CIP is independent of data format and supports encryption and digital signatures, as well as various transport protocols including SMTP, HTTP, DCOM, and EDI value-added networks. Typically, data such as invoices and purchase orders travel over a network through a transmit pipeline and are read from the network by a receive pipeline that decodes and prepares the data for the receiving application. **2.** Short for **Common Indexing Protocol**. A protocol defined by the Internet Engineering Task Force (IETF) for enabling servers to share indexing information. CIP was developed to provide servers with a standard means of sharing information about the contents of their databases. With such sharing, a server unable to resolve a particular query would be able to route the query to other servers that might contain the desired information—for example, to find the e-mail address of a particular user on the Web.

cipher *n.* **1.** A code. **2.** An encoded character. **3.** A zero.

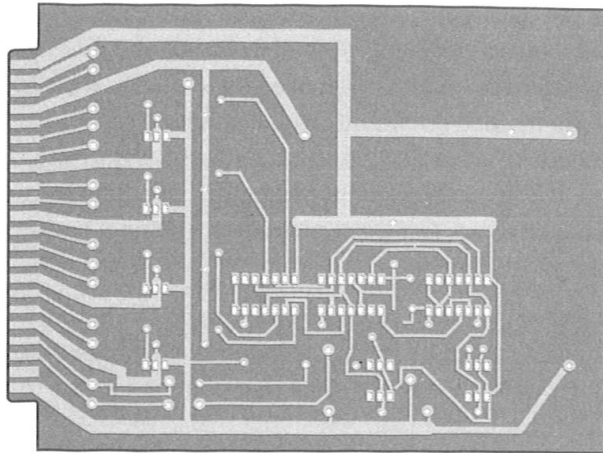
ciphertext *n.* The scrambled or otherwise encoded text of an encrypted message. *See also* encryption.

circuit *n.* **1.** Any path that can carry electrical current. **2.** A combination of electrical components interconnected to perform a particular task. At one level, a computer consists of a single circuit; at another, it consists of hundreds of interconnected circuits.

circuit analyzer *n.* Any device for measuring one or more characteristics of an electrical circuit. Voltage, current, and resistance are the characteristics most commonly measured. Oscilloscopes are circuit analyzers.

circuit board *n.* A flat piece of insulating material, such as epoxy or phenolic resin, on which electrical components are mounted and interconnected to form a circuit.

Most modern circuit boards use patterns of copper foil to interconnect the components. The foil layers may be on one or both sides of the board and, in more advanced designs, in several layers within the board. A printed circuit board is one in which the pattern of copper foil is laid down by a printing process such as photolithography. *See the illustration. See also* board, printed circuit board.



Circuit board.

circuit breaker *n.* A switch that opens and cuts off the flow of current when the current exceeds a certain level. Circuit breakers are placed at critical points in circuits to protect against damage that could result from excessive current flow, which is typically caused by component failure. Circuit breakers are often used in place of fuses because they need only to be reset rather than replaced. *Compare* surge protector.

circuit card *n.* *See* circuit board.

Circuit Data Services *n.* A GTE service that uses circuit switching technology to provide fast data transfer using a laptop computer and cellular telephone. *Acronym:* CDS. *See also* circuit switching.

circuit-switched data *n.* An ISDN option that can be specified for B (bearer) channels that enables an ISDN user to transmit digital data over the channel at 64 Kbps along a point-to-point, dedicated connection for the duration of a call. *Acronym:* CSD. *See also* alternate circuit-switched voice/circuit-switched data, B channel, ISDN. *Compare* circuit-switched voice.

circuit-switched voice *n.* An ISDN option that can be specified for B (bearer) channels that uses the channel to set up a point-to-point, dedicated connection for the digital transmission of voice communications for the duration of a call. *Acronym:* CSV. *See also* alternate circuit-switched

programming, to keep the implementation details of a class a separate file whose contents do not need to be known by a programmer using that class. *See also* object-oriented programming, TCP/IP.

Encapsulated PostScript *n.* *See* EPS.

E

encapsulated type *n.* *See* abstract data type.

encapsulation *n.* **1.** In object-oriented programming, the packaging of attributes (properties) and functionality (methods or behaviors) to create an object that is essentially a “black box”—one whose internal structure remains private and whose services can be accessed by other objects only through messages passed via a clearly defined interface (the programming equivalent of a mailbox or telephone line). Encapsulation ensures that the object providing service can prevent other objects from manipulating its data or procedures directly, and it enables the object requesting service to ignore the details of how that service is provided. *See also* information hiding. **2.** In terms of the Year 2000 problem, a method of dealing with dates that entails shifting either program logic (data encapsulation) or input (program encapsulation) backward into the past, to a parallel year that allows the system to avoid Year 2000 complications. Encapsulation thus allows processing to take place in a “time warp” created by shifting to an earlier time before processing and—for accuracy—shifting output forward by the same number of years to reflect the actual date. *See* data encapsulation, program encapsulation.

encipher *vb.* *See* encrypt.

encode *vb.* **1.** *See* encrypt. **2.** In programming, to put something into code, which frequently involves changing the form—for example, changing a decimal number to binary-coded form. *See also* binary-coded decimal, EBCDIC.

encoder *n.* **1.** In general, any hardware or software that encodes information—that is, converts the information to a particular form or format. For example, the Windows Media Encoder converts audio and video to a form that can be streamed to clients over a network. **2.** In reference to MP3 digital audio in particular, technology that converts a WAV audio file into an MP3 file. An MP3 encoder compresses a sound file to a much smaller size, about one-twelfth as large as the original, without a perceptible drop in quality. *Also called:* MP3 encoder. *See also* MP3, WAV. *Compare* rip, ripper.

encoding *n.* **1.** *See* Huffman coding. **2.** A method of dealing with computers with Year 2000 problems that entails storing a four-digit year in date fields designed to hold only two digits in a program or system. This can be accomplished by using the bits associated with the date field more efficiently—for example, by converting the date field from ASCII to binary or from decimal to hexadecimal, both of which allow storage of larger values.

encrypt *vb.* To encode (scramble) information in such a way that it is unreadable to all but those individuals possessing the key to the code. Encrypted information is known as cipher text. *Also called:* encipher, encode.

encryption *n.* The process of encoding data to prevent unauthorized access, especially during transmission. Encryption is usually based on one or more keys, or codes, that are essential for decoding, or returning the data to readable form. The U.S. National Bureau of Standards created a complex encryption standard, Data Encryption Standard (DES), which is based on a 56-bit variable that provides for more than 70 quadrillion unique keys to encrypt documents. *See also* DES.

encryption key *n.* A sequence of data that is used to encrypt other data and that, consequently, must be used for the data’s decryption. *See also* decryption, encryption.

end-around carry *n.* A special type of end-around shift operation on a binary value that treats the carry bit as an extra bit; that is, the carry bit is moved from one end of the value to the other. *See also* carry, end-around shift, shift.

end-around shift *n.* An operation performed on a binary value in which a bit is shifted out of one end and into the other end. For example, a right-end shift on the value 00101001 yields 10010100. *See also* shift.

en dash *n.* A punctuation mark (–) used to show ranges of dates and numbers, as in 1990–92, and in compound adjectives where one part is hyphenated or consists of two words, as in pre–Civil War. The en dash is named after a typographical unit of measure, the en space, which is half the width of an em space. *See also* em space. *Compare* em dash, hyphen.

End key *n.* A cursor-control key that moves the cursor to a certain position, usually to the end of a line, the end of a screen, or the end of a file, depending on the program. *See* the illustration.

Net surfing *n.* The practice of exploring the Internet without a specific goal in mind. The concept of Net surfing is similar to (and probably derived from) “channel surfing” in reference to watching television.

Net TV *n.* *See* Internet television.

NetWare *n.* A family of LAN (local area network) operating system products developed by Novell, Inc. Designed to run on PCs and Macintoshes, Novell NetWare allows users to share files and system resources such as hard disks and printers. *See also* network operating system.

network *n.* A group of computers and associated devices that are connected by communications facilities. A network can involve permanent connections, such as cables, or temporary connections made through telephone or other communication links. A network can be as small as a LAN (local area network) consisting of a few computers, printers, and other devices, or it can consist of many small and large computers distributed over a vast geographic area (WAN, or wide area network). *See also* ALOHAnet, Ethernet (definition 1), LAN, WAN.

Network Access Point *n.* One of the interchange points for Internet traffic, where various Internet network carriers and major ISPs exchange data. When Internet traffic originates on one network and goes to another network, it almost always passes through at least one Network Access Point, or NAP. In the United States, major NAPs include MAE East, in Vienna, Virginia, and MAE West, in San Jose, California (both operated by MCI WorldCom); the Chicago NAP (operated by Ameritech); the Pacific Bell NAP (with multiple locations in California); the Digital Internet Exchange in Palo Alto, California (operated by Digital/Compaq); and the Sprint NAP in Pennsauken, New Jersey. Additional local and regional exchange points are located in many other locations around the world. *Acronym:* NAP. *Also called:* National Attachment Point.

network adapter *n.* *See* network interface card.

Network Address Translation *n.* *See* NAT.

network administrator *n.* The person in charge of operations on a computer network. The duties of a network administrator can be broad and might include such tasks as installing new workstations and other devices, adding and removing individuals from the list of authorized users, archiving files, overseeing password protection and other security measures, monitoring usage of shared resources, and handling malfunctioning equipment. *See also* system administrator.

network architecture *n.* The underlying structure of a computer network, including hardware, functional layers, interfaces, and protocols, used to establish communication and ensure the reliable transfer of information. Network architectures are designed to provide both philosophical and physical standards for the complexities of establishing communications links and transferring information without conflict. Various network architectures exist, including the internationally accepted seven-layer ISO Open Systems Interconnection (OSI) model and IBM's Systems Network Architecture (SNA). *See also* ISO/OSI reference model, SNA.

Network-Attached Storage *n.* *See* NAS.

network boot *n.* *See* PXE boot.

network card *n.* *See* network interface card.

network-centric computing *n.* A computing environment in which a network server or servers represent the hub of activity. Considered the “third wave” in large-system computing after mainframe and desktop developments, network-centric computing establishes servers as the main source of computing power, to give users direct access to network-based applications and information. In network-centric computing systems, applications are not preinstalled or uninstalled locally, that is, on the desktop; they are accessed on an as-needed, “on-the-fly” basis. Thus, individual desktop computers do not have to maintain large amounts of disk storage or load and manage application programs. *See also* server.

network computer *n.* A computer designed for use on a network in which programs and storage are provided by servers. Network computers, unlike dumb terminals, have their own processing power, but their design does not include local storage and they depend on network servers for applications. *Acronym:* NC.

network congestion *n.* *See* congestion.

network connection *n.* *See* Ethernet.

network control program *n.* In a communications network that includes a mainframe computer, a program that usually resides in a communications controller and takes over communications tasks such as routing, error control, line control, and polling (checking terminals for transmissions), leaving the main computer free for other functions. *See also* communications controller.

Network Control Protocol *n.* *See* Point-to-Point Protocol.

pixel map *n.* A data structure that describes the pixel image of a graphic, including such features as color, image, resolution, dimensions, storage format, and number of bits used to describe each pixel. *See also* pixel, pixel image.

PJL *n.* *See* Printer Job Language.

PJ/NF *n.* Acronym for **projection-join normal form**. *See* normal form (definition 1).

PKUNZIP *n.* A shareware utility program that uncompresses files compressed by the PKZIP shareware utility program. PKUNZIP is generally made available with PKZIP; distribution of PKUNZIP for commercial purposes is not permitted without obtaining permission from its publisher, PKware, Inc. *See also* PKZIP.

PKZIP *n.* A widely used shareware utility program for compressing files. Developed by PKware, Inc., in 1989 and available from a wide variety of sources, PKZIP can combine one or more files into a compressed output file having the extension .zip. A companion utility program, PKUNZIP, is required to uncompress the compressed files. *See also* PKUNZIP, shareware, utility program.

PLA *n.* Acronym for **programmable logic array**. *See* field-programmable logic array.

placeholder *n.* **1.** A character that masks or hides another character for security reasons. For example, when a user types a password, an asterisk is displayed on the screen to take the place of each character typed. **2.** Text or some other element used in an application as an indicator that the user should enter in his or her own text.

Plain Old Telephone Service *n.* *See* POTS.

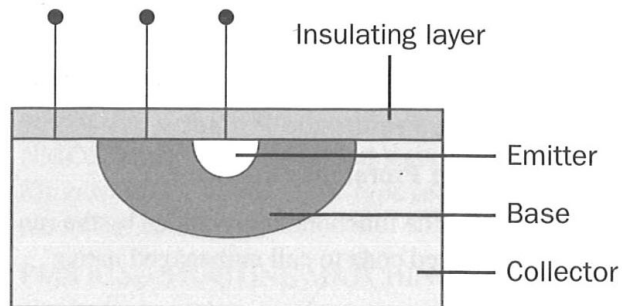
plaintext *n.* **1.** Nonencrypted or decrypted text. *See also* decryption, encryption. **2.** A file that is stored as plain ASCII data. *Compare* ciphertext.

plain vanilla *adj.* Ordinary; the standard version of hardware or software without any enhancements. For example, a plain vanilla modem might have data transfer capability but no fax or voice features.

.plan *n.* A file in a UNIX user's home directory that is displayed when other users finger that account. Users can enter information into .plan files at their discretion to provide information in addition to that normally displayed by the finger command. *See also* finger.

planar *adj.* **1.** In computer graphics, lying within a plane. **2.** In the fabrication of semiconductor materials, maintaining the original flat surface of the silicon wafer throughout processing, while the chemicals that make up the elements that control the flow of current are diffused into (and beneath) the surface.

planar transistor *n.* A special form of transistor that is fabricated with all three elements (collector, emitter, and base) on a single layer of semiconductor material. The structure of a planar transistor permits it to dissipate relatively large amounts of heat, making this design suitable for power transistors. *See* the illustration.



Planar transistor.

plasma display *n.* *See* gas-discharge display.

plastic leadless chip carrier *n.* *See* PLCC.

plastic transistor *n.* A transistor produced entirely from plastic rather than the traditional silicon. A plastic transistor is flexible enough to be embedded in curved surfaces or folded. Production of plastic transistors begins with a thin piece of clear plastic, onto which layers of plastic are printed or sprayed through a mesh. The result is a lightweight, flexible and transparent transistor that can be manufactured in high volumes for a fraction of the cost of silicon transistors. The flexibility and low-cost of plastic transistors make them useful in applications from transparent foldable displays to one-use product containers. *See also* electronic paper.

platen *n.* The cylinder in most impact printers and typewriters, around which the paper wraps and against which the print mechanism strikes the paper. The paper bail, a spring-loaded bar with small rollers, holds the paper smoothly against the platen just above the print mechanism.

platform *n.* **1.** The foundation technology of a computer system. Because computers are layered devices composed