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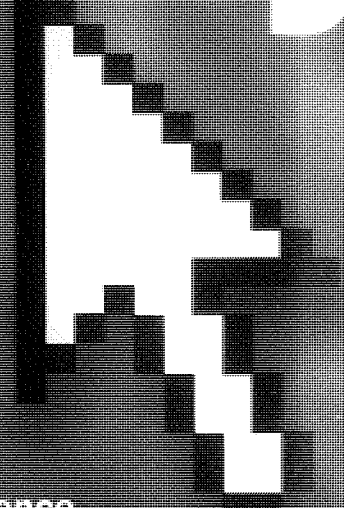
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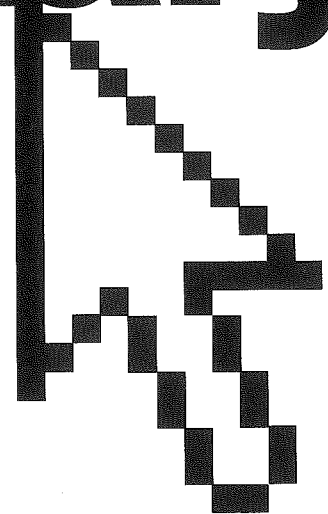
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# **Computer Dictionary**

**Fourth  
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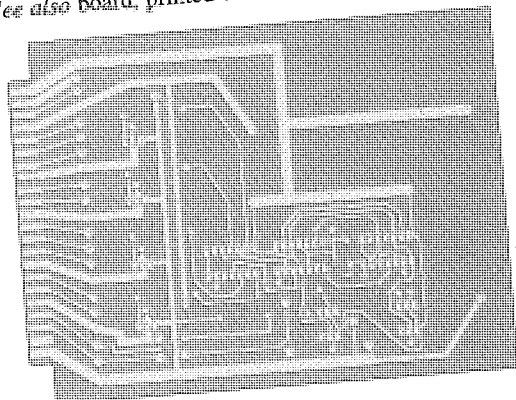
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## circuit breaker

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* CDV. *See also*

alternate circuit-switched voice/circuit-switched data, B channel, ISDN. *Compare* circuit-switched data.

**circuit switching** *n.* A method of opening communications lines, as through the telephone system, by creating a physical link between the initiating and receiving parties. In circuit switching, the connection is made at a switching center, which physically connects the two parties and maintains an open line between them for as long as needed. Circuit switching is typically used on the dial-up telephone network, and it is also used on a smaller scale in privately maintained communications networks. Unlike other methods of transmission, such as packet switching, it requires the link to be established before any communication can take place. *Compare* message switching, packet switching.

**circular list** *n.* A linked or chained list in which processing continues through all items, as in a ring, and returns to the starting point, no matter where that point is located in the list. *See also* linked list.

**CISC** \sisk\ *n.* Acronym for complex instruction set computing. The implementation of complex instructions in a microprocessor design so that they can be invoked at the assembly language level. The instructions can be very powerful, allowing for complicated and flexible ways of calculating such elements as memory addresses. All this complexity, however, usually requires many clock cycles to execute each instruction. *Compare* RISC.

**CIX** \six\ *n.* *See* Commercial Internet Exchange.

**ClariNet** *n.* A commercial service that distributes news articles from United Press International (UPI) and other news agencies in newsgroups that are part of the clari. hierarchy. Unlike most other newsgroups, access to the clari. newsgroups is restricted to Internet service providers who pay a subscription fee to ClariNet.

**clari. newsgroups** *n.* Internet newsgroups maintained by ClariNet Communications, Inc. ClariNet newsgroups contain news articles obtained from the Reuters and United Press International wire services, SportsTicker, Commerce Business Daily, and other sources. Unlike most other newsgroups, ClariNet groups are only accessible through Internet service providers who purchase the service. *See also* ClariNet, ISP, newsgroup.

**class** *n.* In object-oriented programming, a generalized category that describes a group of more specific

uit-switched data,  
switched data.

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a physically con-  
an open line be-  
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vice. *See also*

ramming, a general-  
group of more specific

items, called *objects*, that can exist within it. A class is a descriptive tool used in a program to define a set of attributes or a set of services (actions available to other parts of the program) that characterize any member (object) of the class. Program classes are comparable in concept to the categories that people use to organize information about their world, such as *animal*, *vegetable*, and *mineral*, that define the types of entities they include and the ways those entities behave. The definition of classes in object-oriented programming is comparable to the definition of types in languages such as C and Pascal. *See also* object-oriented programming.

**Class A network** *n.* An Internet network that can define a maximum of 16,777,215 hosts. Class A networks use the first byte of an IP address to designate the network, with the first (high-order) bit set to 0. The host is designated by the last 3 bytes. Class A addressing currently allows for a maximum of 128 networks. Class A networks are best suited for sites with few networks but numerous hosts and are usually designated for use by large government or educational institutions. *See also* host, IP address.

**classless interdomain routing** *n.* An address scheme that uses aggregation strategies to minimize the size of top-level Internet routing tables. Routes are grouped with the objective of minimizing the quantity of information carried by core routers. The main requirement for this scheme is the use of routing protocols that support it, such as Border Gateway Protocol (BGP) Version 4 and RIP Version 2. *Acronym:* CIDR. *See also* Border Gateway Protocol, communications protocol, RIP, router.

**class library** *n.* A collection of standard routines and sub-programs that a programmer can use in object-oriented programs. A typical class library for a graphical user interface might include routines for buttons and scroll bars; or a class library for a communications program might include a routine for dialing a telephone line through a modem. *See also* class, object-oriented programming.

**clean boot** *n.* Booting or starting a computer using the minimum system files in the operating system. The clean boot is used as a troubleshooting method for isolating problems associated with software that may be calling on the same system resources at the same time, causing conflicts that lower the performance of the system, make some programs inoperable, or crash

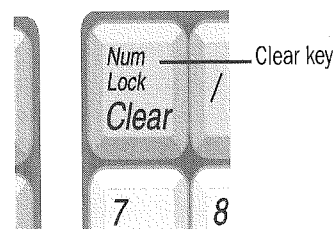
the computer. *See also* boot<sup>1</sup>, crash<sup>2</sup> (definition 1), operating system.

**clean install** *n.* Reinstallation of software in a manner that ensures that no application or system files from a previous installation will remain. The procedure prevents "smart" installer programs from skipping file installations where a file already exists, which could potentially keep a problem from being removed.

**clean interface** *n.* A user interface with simple features and intuitive commands. *See also* user interface.

**clean room** *n.* A room in which dust and other small particles are filtered from the air and in which protective clothing is worn to avoid contaminating electronic components and other delicate, sensitive equipment.

**Clear key** *n.* A key in the upper left corner of the numeric keypad on some keyboards. In many applications, it clears the currently selected menu choice or deletes the current selection. *See the illustration.*



*Clear key.*

**Clear To Send** *n.* *See* CTS.

**ClearType** *n.* A Microsoft font technology that improves the resolution of text on LCD displays, such as those used on laptop computers. ClearType technology uses proprietary signal processing and the properties of LCD displays to produce clearer, more detailed characters and spacing, and thus significantly increase readability.

**CLEC** *n.* Acronym for Competitive Local Exchange Carrier. A company that sells access to the public switched telephone network, or other last mile network connections, in competition with a traditional telephone company. *See also* ILEC, last mile.

**click** *vb.* To press and release a mouse button once without moving the mouse. Clicking is usually per-

**emitter** *n.* In transistors, the region that serves as a source of charge carriers. *Compare* base (definition 3), collector.

**emitter-coupled logic** *n.* A circuit design in which the emitters of two transistors are connected to a resistor so that only one of the transistors switches at a time. The advantage of this design is very high switching speed. Its drawbacks are the high number of components required and susceptibility to noise. *Acronym:* ECL.

**EMM** *n.* *See* Expanded Memory Manager.

**e-money or emoney** *\ē'mən`ē\ n.* Short for electronic money. A generic name for the exchange of money through the Internet. *Also called* cybercash, digicash, digital cash, e-cash, e-currency.

**emotag** *\ē'mō-tag`n.* In an e-mail message or newsgroup article, a letter, word, or phrase that is enclosed in angle brackets and that, like an emoticon, indicates the attitude the writer takes toward what he or she has written. Often emotags have opening and closing tags, similar to HTML tags, that enclose a phrase or one or more sentences. For example: <joke>You didn't think there would really be a joke here, did you?</joke>. Some emotags consist of a single tag, such as <grin>. *See also* emoticon, HTML.

**emoticon** *\ē-mō'ti-kon`n.* A string of text characters that, when viewed sideways, form a face expressing a particular emotion. An emoticon is often used in an e-mail message or newsgroup post as a comment on the text that precedes it. Common emoticons include :- ) or :) (meaning "I'm smiling at the joke here"), ;-( ("I'm winking and grinning at the joke here"), :-( ("I'm sad about this"), :-7 ("I'm speaking with tongue in cheek"), :D or :-D (big smile; "I'm overjoyed"), and :-O (either a yawn of boredom or a mouth open in amazement). *Compare* emotag.

**EMS** *n.* Acronym for Expanded Memory Specification. A technique for adding memory to PCs that allows for increasing memory beyond the Intel 80x86 microprocessor real-mode limit of 1 megabyte. In earlier versions of microprocessors, EMS bypassed this memory board limit with a number of 16-kilobyte banks of RAM that could be accessed by software. In later versions of Intel microprocessors, including the 80386 and 80486 models, EMS is converted from extended memory by software memory managers, such as EMM386 in MS-DOS 5. Now EMS is used mainly for older MS-DOS applications because Windows and other applications running in

protected mode on 80386 and higher microprocessors are free of the 1-MB limit. *Also called* LIM EMS. *See also* expanded memory, protected mode. *Compare* conventional memory, extended memory.

**em space** *n.* A typographical unit of measure that is equal in width to the point size of a particular font. For many fonts, this is equal to the width of a capital M, from which the em space takes its name. *Compare* en space, fixed space, thin space.

**emulate** *vb.* For a hardware or software system to behave in the same manner as another hardware or software system. In a network, for example, microcomputers might emulate terminals in order to communicate with mainframes.

**emulation** *n.* The process of a computer, device, or program imitating the function of another computer, device, or program.

**emulator** *n.* Hardware or software designed to make one type of computer or component act as if it were another. By means of an emulator, a computer can run software written for another machine. In a network, microcomputers might emulate terminals in order to communicate with mainframes.

**emulsion laser storage** *n.* A method for recording data in film by selective heating with a laser beam.

**enable** *vb.* To activate or turn on. *Compare* disable.

**encapsulate** *vb.* 1. To treat a collection of structured information as a whole without affecting or taking notice of its internal structure. In communications, a message or packet constructed according to one protocol, such as a TCP/IP packet, may be taken with its formatting data as an undifferentiated stream of bits that is then broken up and packaged according to a lower-level protocol (for example, as ATM packets) to be sent over a particular network; at the destination, the lower-level packets are assembled, re-creating the message as formatted for the encapsulated protocol. *See also* ATM (definition 1). 2. In object-oriented 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.

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

**encapsulation** *n.* In object-oriented programming, the packaging of attributes (properties) and functionality (methods or behaviors) to create an object that is es-