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**EEPROM** Pronounced "ee-ee-prom"; acronym for electrically erasable programmable read-only memory, a variation of EPROM that can be erased by applying an electrical signal to one or more pins.

This type of chip is convenient in applications requiring storage that is stable for long periods of time without power but that also might need to be reprogrammed. An EEPROM chip can be reprogrammed while still on the circuit board. EEPROMs require much more time to reprogram than RAM, and they typically contain less memory than RAM. Also, they can be reprogrammed only a limited number of times before wearing out. An EEPROM is often used in the same way that a CMOS RAM with an attached battery is used, but the data stored in an EEPROM remains intact even if no power is applied. *See also* EPROM, ROM.

**EGA** Acronym for Enhanced Graphics Adapter, a video display adapter introduced by IBM in 1984. The EGA is capable of emulating the CGA (Color/Graphics Adapter) and the MDA (Monochrome Display Adapter) as well as providing several additional video modes, including a 43-line character mode and a graphics mode with 640 horizontal pixels by 350 vertical pixels and 16 colors chosen from a palette of 64 colors.

**EIA** Acronym for Electronics Industries Association, a group based in Washington, D.C., with members from various organizations involved in the manufacture of electronics products; notable for developing the RS-232-C standard for connecting serial devices. *See also* RS-232-C standard.

**Effitel** An object-oriented programming language developed by Bertrand Meyer in 1988. Software reusability—the ability to use a particular module in more than one program—and extensibility are its major design features.

**EIS** *See* executive information system.

**EISA** Acronym for Extended Industry Standard Architecture, a bus standard introduced in 1988 by a consortium of nine computer-industry companies. The companies—AST Research, Compaq, Epson, Hewlett-Packard, NEC, Olivetti, Tandy, Wyse, and Zenith—are referred to collectively as "the Gang of Nine." EISA maintains compatibility with the earlier Industry Standard Architecture (ISA) but

provides for additional features introduced by IBM in its Micro Channel Architecture bus standard. EISA has a 32-bit data path, and it uses connectors that can accept ISA cards. *See also* ISA, Micro Channel Architecture.

**electroluminescence** The property of giving off light when an electric current is applied. Electroluminescent panels are commonly used to backlight the liquid crystal displays (LCDs) of laptop computers. These panels typically consist of a suitable phosphor sandwiched between two thin electrodes, one of which is nearly transparent.

**electroluminescent display** A type of flat-panel display in which phosphor is encased between sets of horizontal and vertical electrodes. Any intersection of the horizontal and vertical electrodes is a pixel that can be illuminated by passing a current through the corresponding electrodes. *See also* flat-panel display.

**electrolysis** A process in which a chemical compound is separated into two or more constituents by passing an electric current through it. Electrolysis can occur in a solid, a liquid, or a gas. For example, if a current is passed through water, the process of electrolysis separates the water molecules into oxygen and hydrogen.

**electromagnet** A device that uses electric current to produce a magnetic field. A typical electromagnet consists of wire wrapped around an iron or steel core. When current is passed through the wire, a magnetic field is generated. Disk drives use electromagnets to record information on the disk surface.

**electromagnetic radiation** The propagation of an electromagnetic field through space. Radio waves, light, and X rays are all forms of electromagnetic radiation. All electromagnetic radiation travels at the speed of light, which is 186,282 miles per second in a vacuum. Any electromagnetic radiation has a frequency and wavelength that are related by the formula

$$\text{wavelength} = \frac{c}{\text{frequency}}$$

where  $c$  is the speed of light. A more convenient form of this equation is the following:



eliminate the redundant paperwork and delays in response time inherent in mail and other delivery services. For EDI to be effective, users must agree on certain standards for formatting and exchanging information. One such standard is the X.400 protocol designed to operate on the application-layer level of the Open Systems Interconnection network model developed by the International Organization for Standardization.

**electronic data processing** *See* data processing. **Electronic Industries Association** *See* EIA.

**Electronic Journal** *See* journal.

**electronic mail** The transmission of messages over a communications network. Electronic mail, or e-mail, is a computer-to-computer (or terminal-to-terminal) version of interoffice mail or the postal service. Used on both local area networks and larger communications networks, electronic mail enables users to send and receive messages and—in some instances—graphics or voice messages, either to individual recipients or in broadcast form to larger groups. Delivered messages are stored in electronic mailboxes assigned to users on the network and can be viewed, saved, or deleted by the recipient. Depending on the capabilities of the electronic mail program, users can also forward mail, include "carbon" copies, request return receipts, attach files, and edit messages with a text editor. With systems on which the mail program can remain active in the background while the user works on other tasks, recipients can also be informed when new mail arrives and can choose to view the message immediately or save it for later viewing.

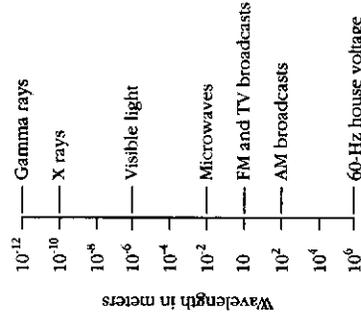
**electronic music** Music created with the help of computers and electronic devices. *See also* MIDI, synthesizer.

**electronic office** A term characteristic of the late 1970s and early to mid-1980s used in reference to the so-called computer revolution and the vision of a paperless work environment based on the use of computers, communications equipment, and other electronic devices.

**electronic publishing** A term generally used for the distribution of information through electronic media, such as disks and CD-ROM, or via telecomm-

$$\text{wavelength in meters} = \frac{300}{\text{frequency in megahertz}}$$

**electromagnetic spectrum** The entire range of frequencies of electromagnetic radiation. In theory, there is no upper or lower limit to the electromagnetic spectrum. The spectrum is usually represented on a logarithmic scale, as shown in the illustration.



**Electromagnetic spectrum.**

**electromotive force** Commonly abbreviated EMF.

Also called voltage or potential. The force that causes the movement of charge carriers in a conductor.

**electron beam** A stream of electrons moving in the same direction, typically in a vacuum. An electron beam in a cathode-ray tube (CRT) creates an image as it is caused to move across the phosphor coating inside the front surface of the tube. *See also* CRT.

**electron gun** A device that produces an electron beam, as in a television monitor or an ordinary computer monitor. *See also* CRT.

**electronic bulletin board** *See* BBS.

**electronic circuit** *See* circuit.

**electronic data interchange** Abbreviated EDI. The ability to transfer information such as orders and invoices from one computer to another over a communications network. The goal of EDI is to