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THE COMPREHENSIVE
STANDARD FOR
BUSINESS, SCHOOL,
LIBRARY, AND HOME

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from a series of X rays taken as cross sections along the same axis.

catalog Generally, a list of available resources. In a computer, a catalog (or directory) is usually considered to be a list containing information such as name, length, type, and location of files or of storage space. In a database, a catalog is the data dictionary. *See also* data dictionary.

catena A series of items in a chained list—that is, a list in which one item points to the next in sequence. *See also* linker list.

cathode The terminal or electrode that is negatively charged and from which electrons flow. The term generally refers to the electron-emitting electrode in a vacuum tube; it is also used to refer to the negative terminal of a battery. *Compare* anode.

cathode-ray oscilloscope *See* oscilloscope.

cathode-ray tube *See* CRT.

CBEMA Pronounced “see-beam-ah.” Acronym for Computer and Business Equipment Manufacturers Association, an organization of hardware vendors and manufacturers in the United States involved in standardizing information processing and related equipment.

CBL Acronym for computer-based learning, a general term applicable either to computer-aided instruction (CAI), which focuses primarily on education, or to computer-based training (CBT), which is application-specific or job-oriented teaching. *See also* CAI, CBT.

CBT Acronym for computer-based training, which refers to the use of computers and specially developed tutorial programs for teaching. CBT uses color, graphics, and other attention-getting aids to help maintain interest, and it has both simple and sophisticated applications. A software developer, for example, might include a series of CBT lessons with an application to give new users a hands-on feel for the program; a consultant might use a longer and more detailed CBT program as a tool in a management-training seminar.

CCD *See* charge-coupled device.

CCITT Acronym for Comité Consultatif Internationale de Télégraphie et Téléphonie, an organization based in Geneva, Switzerland, and

established as part of the United Nations International Telecommunications Union (ITU). The CCITT recommends use of communications standards that are recognized throughout the world. Protocols established by the CCITT are applied to modems, networks, and facsimile transmission. *See also* CCITT Groups 1–4, CCITT V series, CCITT X series.

CCITT Groups 1–4 A set of four standards recommended by the Comité Consultatif Internationale de Télégraphie et Téléphonie for the encoding and transmission of images over facsimile machines. Groups 1 and 2 relate to analog devices and are generally out of use. Groups 3 and 4, which deal with digital devices, are outlined below.

Group 3: A widespread standard; supports standard images of 203 horizontal dots per inch (dpi) by 98 vertical dpi and fine images of 203 horizontal dpi by 198 vertical dpi; supports two methods of data compression, one (based on the Huffman code) reducing an image to 10 to 20 percent of the original, the second (READ, for relative element address designate) compressing images to 6 to 12 percent of the original; provides for password protection and for polling so that a receiving machine can request transmission as appropriate.

Group 4: A newer standard; supports images of up to 400 dpi; data compression based on a beginning row of white pixels (dots), with each succeeding line encoded as a series of changes from the line before, compressing images to 3 to 10 percent of the original; does not include error-correction information in the transmission; requires an ISDN (Integrated Services Digital Network) phone line rather than a dial-up line.

CCITT V series A set of recommendations developed by the Comité Consultatif Internationale de Télégraphie et Téléphonie for standardizing modem design and operations. The complete series includes a number of recommendations covering signaling, coding, and circuit characteristics, as well as modems. Those most relevant to computer users are briefly described below in terms of the modems they standardize.



up to 1 megabyte (MB) for code. *See also* memory model.

medium-scale integration Abbreviated MSI. A term describing the concentration of between 10 and 100 circuit elements on a single chip. *See also* integrated circuit.

meg Abbreviation for megabyte or megabytes, as in "a 30-meg hard disk."

mega- Abbreviated M. A prefix meaning 1 million (10^6). In computing, which is based on the binary (base-2) numbering system, *mega-* has a literal value of 1,048,576, which is the power of 2 (2^{20}) closest to one million.

megabit Abbreviated Mb or Mbit. Usually 1,048,576 bits; sometimes interpreted as 1 million bits.

megabyte Abbreviated MB. Either 1 million bytes or 1,048,576 bytes (2^{20}).

megacycle Abbreviated mc. A term for 1 million cycles—usually used to mean 1 million cycles per second. *See also* megahertz.

megaflops *See* MFLOPS.

megahertz Abbreviated MHz. A measure of frequency equivalent to 1 million cycles per second.

megapel display *See* megapixel display.

megapixel display A video display capable of displaying at least one million pixels. For example, a video display with a screen size of 1024 horizontal pixels and 1024 vertical pixels is a megapixel display.

member In object-oriented programming, a variable or routine that is part of a class; also, a value that is part of a set data structure. *See also* C++, class, set.

membrane keyboard A keyboard in which an unbroken plastic or rubber shell (a membrane) covers keys that have little or no travel (movement). Rather than using normal, full-travel keys, membrane keyboards use pressure-sensitive areas that are sometimes, but not always, defined by small bumps under the membrane. Today such keyboards are used primarily on printers or in devices targeted for use in areas where environmental hazards such as dirt or liquid might damage a normal keyboard.

memo field A field in a database file that can contain unstructured text.

memory Circuitry that allows information to be stored and retrieved. In the most general sense, *memory* can refer to external systems such as disk drives or tape drives; in common usage, it refers only to the fast semiconductor storage (RAM) directly connected to the processor. *Compare* bubble memory, core.

memory cartridge A plug-in module containing RAM (random access memory) chips that can be used to store data or programs. Memory cartridges are used primarily in portable computers as smaller, lighter—and more expensive—substitutes for disk drives. Memory cartridges typically use either a nonvolatile form of RAM, which does not lose its contents when power is turned off, or battery-backed RAM, which maintains its contents by drawing current from a rechargeable battery within the cartridge.

memory management unit Abbreviated MMU. The hardware that supports the mapping of virtual memory addresses to physical memory addresses. In some systems, such as those based on the 68020, the MMU is separate from the processor. In most modern microcomputers, however, the MMU is built into the CPU chip. In some systems, the MMU provides interfacing between the microprocessor and memory. This type of MMU is typically responsible for address multiplexing and, in the case of DRAMs, refreshing. *See also* physical address, virtual address.

memory model The approach used to address the code and the data that are used in a computer program. The memory model dictates how much memory can be used in a program for code and how much for data. Most computers with a flat address space support only a single memory model. Computers with a segmented address space usually support multiple memory models. *See also* compact model, flat address space, huge model, large model, medium model, segmented address space, small model, tiny model.

memory typewriter An electric typewriter with internal memory and, typically, a one-line liquid crystal display for viewing the contents of that memory. Memory typewriters can usually hold one page of text at a time, and they allow small