

Computer Desktop Encyclopedia

Ninth Edition

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MIC (Memory In Cassette) A storage chip inside a magnetic tape cassette used to enhance read/write operations. See *AIT*.

MIC connector (Medium Interface Connector) A fiber-optic cable connector that handles a pair of cables. The design of the plug and socket ensures that the polarity is maintained (transmit and receive cables are in correct order). It is used in FDDI and a variety of LANs and wiring hubs. See *fiber-optic connectors*.

mickey A unit of mouse movement typically set at 1/200th of an inch.

MICR (Magnetic Ink Character Recognition) The machine recognition of numeric data printed with magnetically-charged ink. It is used on bank checks and deposit slips. MICR readers detect the characters and convert them into digital data. Although optical methods (OCR) became as sophisticated as the early MICR technology, magnetic ink is still used. It serves as a deterrent to fraud, because a photocopied check will not be printed with magnetic ink.

micro (1) A microcomputer or personal computer.
(2) Millionth (10 to the -6th power). See *space/time*.
(3) Microscopic or tiny.

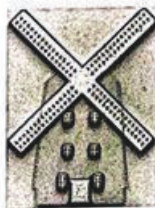
Micro ATX See *ATX motherboard*.

microbrowser A Web browser designed for small display screens on smart phones and other handheld wireless devices. See *smart phone* and *WAP*.

MicroChannel Also known as MCA (MicroChannel Architecture), it was a proprietary 32-bit bus from IBM used in PS/2, RS/6000 and certain ES/9370 models. It supported 15 levels of bus mastering and transferred data from 20 to 80MBytes/sec. The boards had a unique, built-in ID that allowed for easier installation than ISA devices. In late 1996, IBM discontinued its use in favor of PCI. See *PC data buses* and *PCI*.

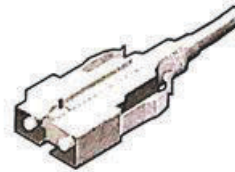
microchip Same as *chip*.

microchip art Graphic images that are drawn into the chip by the chip designer. These images are rarely discovered unless somebody happens to be looking at the chip under a microscope.



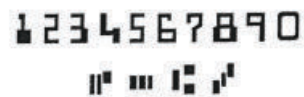
Microchip Art Examples

The duck was embedded in a Siemens 8-bit microprocessor, while the windmill comes from a Music Semiconductors content addressable memory (CAM) chip. (Images courtesy of Chipworks Inc.)



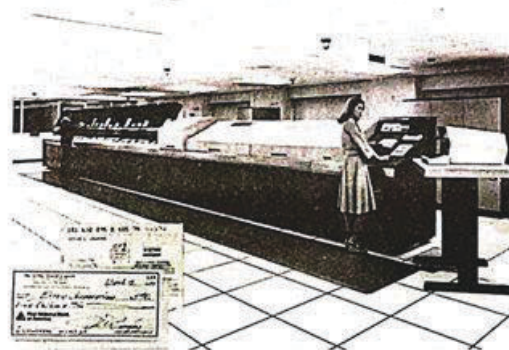
MIC Connector

MIC is a dual-fiber connector that is the standard for FDDI connections.



MICR Font

The E13B standard font is used for MICR digits and symbols on bank checks and deposit slips. There are only 14 characters in the font.



Early MICR Machine

The "football field-long" machine from Recognition Equipment was used in the 1970s to process checks and credit card slips. (Image courtesy of BancTec, Inc.)

microchip module See *MCM*.

microcircuit A miniaturized, electronic circuit, such as is found on an integrated circuit. See *chip* and *MCM*.

microcode A permanent memory that holds the elementary circuit operations a computer must perform for each instruction in its instruction set. It acts as a translation layer between the instruction and the electronic level of the computer and enables the computer architect to more easily add new types of machine instructions without having to design electronic circuits. Microcode is used in CISC architecture. See *microprogramming*.

When the problem has been fixed, the restart program copies the last checkpoint into memory, resets all the hardware registers and starts the computer from that point. Any transactions in memory after the last checkpoint was taken until the failure occurred will be lost.

checksum A value used to ensure data is stored or transmitted without error. It is created by calculating the binary values in a block of data using some algorithm and storing the results with the data. When the data is retrieved from memory or received at the other end of a network, a new checksum is computed and matched against the existing checksum. A non-match indicates an error.

Just as a check digit tests the accuracy of a single number, a checksum tests a block of data. Checksums detect single bit errors and some multiple bit errors, but are not as effective as the CRC method. Checksums are also used by the Sophos antivirus software to determine if a file has changed since the last time it was scanned for a virus. See *ECC memory* and *Sophos*.

chiclet keyboard A keyboard with flat, squared-off keys that resemble chiclets (gum). Used on low-cost devices, it is unsuitable for continuous typing.

chief technical officer See *CTO*.

child (1) In database management, the data that is dependent on its parent. See *parent-child*.

(2) A component that is subordinate to a higher-level component. See *child menu*, *child program* and *child window*.

child menu A secondary or submenu that is displayed on screen when a certain option in the "parent" menu is selected.

child program A secondary or subprogram called for and loaded into memory by the main program. See *parent program*.

child window A secondary window on screen that is displayed within the main overall window of the application.

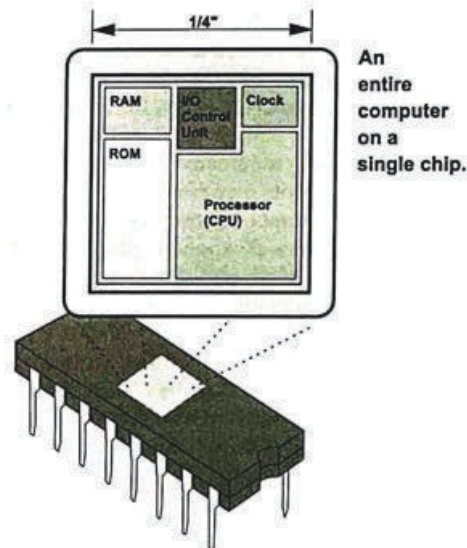
chip (2) A bit in a spreading signal. See *chip rate*.

(1) A set of microminiaturized, electronic circuits that are designed for use as processors and memory in computers and countless consumer and industrial products. Chips are the driving force in this industry. Small chips can hold from a handful to tens of thousands of transistors. They look like tiny chips of aluminum, no more than 1/16" square by 1/30" thick, which is where the term "chip" came from. Large chips, which can be more than a half inch square, hold millions of transistors. It is actually only the top one thousandth of an inch of a chip's surface that holds the circuits. The rest of it is just a base. The terms *chip*, *integrated circuit* and *microchip* are synonymous.

Types of Chips by Function

Logic Chip A single chip can perform some or all of the functions of a processor. A microprocessor is an entire processor on a single chip. Desktop and portable computers use one microprocessor for their CPU while larger computers may employ several types of microprocessors as well as hundreds or thousands of specialized logic chips.

Memory Chip Random access memory (RAM) chips contain from a couple of hundred thousand to several million storage cells (bits). They are the computer's working storage and require constant power to keep their bits charged. Firmware chips, such as ROMs, PROMs, EPROMs, and EEPROMs are permanent memory chips that hold their content without power.



MCM (MultiChip Module or MicroChip Module) A chip package that contains two or more raw chips closely connected with high-density lines. This method saves space and speeds processing due to short leads between chips. A ceramic base has been widely used with chips wire bonded together (MCM-C) or with thin film interconnects deposited on the ceramic substrate (MCM-D). MCMs have been mounted onto silicon substrates (MCM-S) and resin-based, laminated printed circuit boards (MCM-L), the latter, less-costly version evolving into the multichip module (MCP).

MCMs were originally called "microcircuits" or "hybrid microcircuits," since this technique was suited for mixing analog and digital components together. See *MCP, chip package* and *Trilogy*.

m-commerce (Mobile-COMMERCE) Using smart phones and handheld computers with wireless connections to place orders over the Web. See *e-commerce*.

MCP (1) See *Microsoft certification*.

(2) (MultiChip Package) A chip package that contains two or more chips. It is essentially a multichip module (MCM) that uses a laminated, printed-circuit-board-like substrate (MCM-L) rather than ceramic (MCM-C). MCPs are also tested after packaging, whereas the bare die of ceramic-based MCMs were tested before packaging so as not to waste the more costly ceramic substrate if the chips were no good. See *MCM*.

MCS (1) See *Microsoft Cluster Server*.

(2) (Microsoft Consulting Services) The consulting arm of Microsoft which offers support for installation and maintenance of Microsoft applications and operating systems.

(3) (Multivendor Customer Service) The consulting arm of Digital Equipment that was founded in 1993. It provides hardware, software and network services for a variety of platforms.

(4) (Multimedia Conference Server) A family of videoconferencing servers from VideoServer, Inc., Lexington, MA. The MCS was the first multipoint control unit to comply with H.320.

(5) A family of microcontroller units (MCUs) from Intel. In 1995, Intel introduced its 8-bit MCS 251 chips which are binary compatible with its older MCS 51 series.

MCSD See *Microsoft certification*.

MCSE See *Microsoft certification*.

MCT See *Microsoft certification*.

MCU (1) (MicroController Unit) A computer on a single chip. See *computer on a chip*.

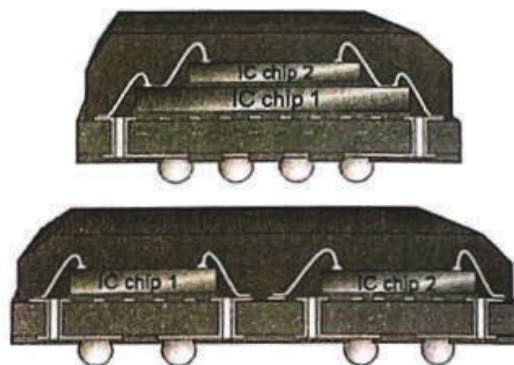
(2) (Multipoint Control Unit) A device that connects multiple sites and stations for videoconferencing. The MCU joins the lines and switches the video either automatically depending on who is speaking or manually under the direction of a moderator.

MD See *MiniDisc*.

MD2 See *MD5*.

MD4 See *MD5*.

MD5 (Message Digest 5) A popular one-way hash function developed by Ronald Rivest (the "R" in RSA) which is used to create a message digest for digital signatures. MD5 is faster than SHA-1, but is considered less secure. MD5 is similar to the previous MD4 method as both were designed for 32-bit computers, but MD5 adds more security since MD4 has been broken. The earlier MD2 function was designed for 8-bit computers. See *one-way hash function*.



Multichip Packages

These are examples of multichip packages with stacked chips (top) and side-by-side chips (bottom). The chips are wire bonded to the resin-based substrate which is attached to the printed circuit board using a ball grid array (BGA). (Illustration courtesy of Joseph Fjelstad.)