

MICROSOFT PRESS®

COMPUTER DICTIONARY

SECOND EDITION



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



PUBLISHED BY
Microsoft Press
A Division of Microsoft Corporation
One Microsoft Way
Redmond, Washington 98052-6399

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Library of Congress Cataloging-in-Publication Data

Microsoft Press computer dictionary : the comprehensive standard for
business, school, library, and home / Microsoft Press. -- 2nd ed.

p. cm.

ISBN 1-55615-597-2

1. Computers--Dictionaries. 2. Microcomputers--Dictionaries.

I. Microsoft Press. II. Title: Computer dictionary.

QA76.15.M54 1993

004'.03--dc20

93-29868

CIP

Printed and bound in the United States of America.

2 3 4 5 6 7 8 9 MLML 9 8 7 6 5 4

Distributed to the book trade in Canada by Macmillan of Canada, a division of Canada
Publishing Corporation.

Distributed to the book trade outside the United States and Canada by
Penguin Books Ltd.

Penguin Books Ltd., Harmondsworth, Middlesex, England
Penguin Books Australia Ltd., Ringwood, Victoria, Australia
Penguin Books N.Z. Ltd., 182-190 Wairau Road, Auckland 10, New Zealand

British Cataloging-in-Publication Data available.

Project Editor: Casey D. Doyle

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cell In spreadsheet terminology, the intersection of a row and a column. Each row and column in a spreadsheet is unique, so each cell can be uniquely identified—for example, cell B17, at the intersection of column B and row 17. Each cell is displayed as a rectangular space that can hold text, a value, or a formula. See the illustration. Similarly, although less familiarly, a cell is an addressable (named or numbered) storage unit for information. A binary cell, for example, is a storage unit that can hold 1 bit of information—that is, it can be either on or off.

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Cell

Cell.

cellular automata In computer science, theoretical models of parallel computers. They enable the investigation of parallel computers without the need to actually build them. The cellular automaton is composed of a network of multiple cells, each representing a processor in the parallel computer. The cells must be identical, and they must have a finite amount of available memory. Each cell outputs a value calculated from the input values it receives from its neighboring cells, and all cells output their values simultaneously.

center To align characters around a point located in the middle of a line, page, or other defined area; in effect, to place text an equal distance from each margin or border. *See also* align.

centi- Prefix meaning "one hundred" or, more usually, "one hundredth," as in *centimeter*—one hundredth of a meter.

centralized processing The location of computer processing facilities and operations in a single (centralized) place. *Compare* decentralized processing, distributed processing.

central office In communications, the switching center where interconnections between customers' communications lines are made.

central processing unit Abbreviated CPU. The computational and control unit of a computer; the device that interprets and executes instructions. Mainframes and early minicomputers contained circuit boards full of integrated circuits that implemented the central processing unit. Single-chip central processing units, called microprocessors, made possible personal computers and workstations. Examples of single-chip CPUs are the Motorola 68000, 68020, and 68030 chips and the Intel 8080, 8086, 80286, 80386, and i486 chips. The CPU—or microprocessor, in the case of a microcomputer—has the ability to fetch, decode, and execute instructions and to transfer information to and from other resources over the computer's main data-transfer path, the bus. By definition, the CPU is the chip that functions as the "brain" of a computer. In some instances, however, the term encompasses both the processor and the computer's memory or, even more broadly, the main computer console (as opposed to peripheral equipment). *See also* microprocessor.

Centronics parallel interface A de facto standard for parallel data exchange paths between computers and peripherals, originally developed by the printer manufacturer Centronics, Inc. The Centronics parallel interface provides eight parallel data lines plus additional lines for control and status information.

CGA Acronym for Color/Graphics Adapter, a video adapter board introduced by IBM in 1981. The CGA is capable of several character and graphics modes, including character modes of 40 or 80 horizontal characters (columns) by 25 vertical lines with 16 colors, and graphics modes of 640 horizontal pixels by 200 vertical pixels with 2 colors, or 320 horizontal pixels by 200 vertical pixels with 4 colors. *See also* graphics adapter, video adapter.

CGI *See* Computer Graphics Interface.

CGM *See* Computer Graphics Metafile.

chad The paper removed when a hole is punched



state. Compressed files are commonly used by software publishers to distribute their software on floppy disks; the primary advantage is that the compressed files take up less space and therefore require fewer disks to hold the entire product. Software publishers then include a utility program to uncompress the files and copy them to the end user's computer storage device, usually a hard disk. Such a utility program is often embedded within a setup or installation program so that the end user is unaware that compressed files are involved. Some programs, especially those that work with graphics files (which can be extremely large), compress each file while saving it to disk and decompress the file while loading it from disk; this process, too, is generally invisible to the user. *See also* installation program, LHARC, PKUNZIP, PKZIP, utility program.

compression *See* data compression.

compressor A device that limits some aspect, such as volume, of a transmitted signal in order to increase efficiency.

computation-bound Also called CPU-bound. An adjective describing a situation in which the performance of a computer is limited by the number of arithmetic operations the microprocessor must perform. When a system is computation-bound, the microprocessor is overloaded with calculations.

compute Strictly, to perform calculations; more loosely, in terms of microcomputers, to use a computer or cause it to do work.

computer Any machine that does three things: accepts structured input, processes it according to prescribed rules, and produces the results as output. Computers exist in a remarkable range of sizes, shapes, abilities, and applications. They can be categorized in different ways—among them class, generation, and mode of processing.

Class: Computers can be classified as supercomputers, mainframes, superminicomputers, minicomputers, workstations, or microcomputers. All other things (such as the age of the machine) being equal, such a categorization provides some indication of the computer's speed, size, cost, and abilities. It is important to keep in mind that all statistics regarding the performance

and abilities of computers are volatile: The high-end microcomputers of today, for example, are as powerful as the minicomputers of only a few years ago.

Generation: First-generation computers of historic significance, such as UNIVAC, introduced in the early 1950s, were based on vacuum tubes. Second-generation computers, appearing in the early 1960s, were those in which transistors replaced vacuum tubes. Third-generation computers, dating from the 1960s, were those in which integrated circuits replaced transistors. Fourth-generation computers, appearing in the mid-1970s, are those such as microcomputers, in which large-scale integration (LSI) enabled thousands of circuits to be incorporated on one chip. Fifth-generation computers are expected to combine very-large-scale integration (VLSI) with sophisticated approaches to computing, including artificial intelligence and true distributed processing.

Mode of processing: Computers are either analog or digital. Analog computers, generally used in scientific pursuits, represent values by continuously variable signals that can have any of an infinite number of values within a limited range at any particular time. Digital computers, the type most people think of as computers, represent values by discrete signals—the bits representing the binary digits 0 and 1. *See also* analog, digital, integrated circuit, large-scale integration, very-large-scale integration.

computer-aided design *See* CAD.

computer-aided design/computer-aided manufacturing *See* CAD/CAM.

computer-aided engineering *See* CAE.

computer-aided instruction *See* CAI.

computer-aided manufacturing *See* CAM.

computer-aided testing *See* CAT.

Computer and Business Equipment Manufacturers Association *See* CBEMA.

computer art A broad term that can refer either to art created on a computer or to art generated by a computer, the difference being whether the artist is human or electronic. When created by human beings, computer art is done with painting programs that offer a range of line-drawing

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