

MICROSOFT PRESS®

COMPUTER DICTIONARY

SECOND EDITION



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

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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.

1 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.

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INTRODUCTION

The *Microsoft Press Computer Dictionary* is designed to be a comprehensive and authoritative source of definitions for computer-related terms and abbreviations. Written and reviewed by a distinguished team of experts from the computer industry and the business and academic communities, the dictionary includes terms drawn from a wide variety of topics:

Applications	History
Communications	Information Processing
Data and Data Storage	General Computing
Databases	Input/Output
Desktop Publishing	Memory and Memory Management
Electronics	Networks
Hardware	Output
Chips, Cards, and Boards	Print
Computers	Screen
Disks, Drives, and Other Media	Programming
Keyboards	Systems and Environments
Printers and Plotters	
Video	
Other Devices	

Although the book covers nearly every aspect of computing, it does not include entries on specific companies or on most makes and models of computers, nor does it contain entries on most application software products, although some key products of universal importance are covered.

Order of Presentation

Entries are alphabetized letter by letter. Spaces are ignored, as are characters such as hyphens and slashes; for example, *Baudot code* falls between *baud* and *baud rate*, and *machine-independent* falls between *machine identification* and *machine instruction*. Numbers and symbols are located at the beginning of the book and are listed in ascending ASCII order. If an entry begins with a letter or letters but contains a number, it is listed alphabetically, according to the initial letter(s), and then according to ASCII order. Thus, *V20* precedes *V.2x*, and both precede *VAB*.

Format

Information in each entry is presented in a consistent format: entry name, abbreviation, pronunciation (if supplied), alternative name or names, definition, and cross-references (if any).

Phonetic pronunciations are given where appropriate or in cases where pronunciation might not be apparent. If an abbreviation is pronounced simply by saying the successive letters it contains, no pronunciation is given.

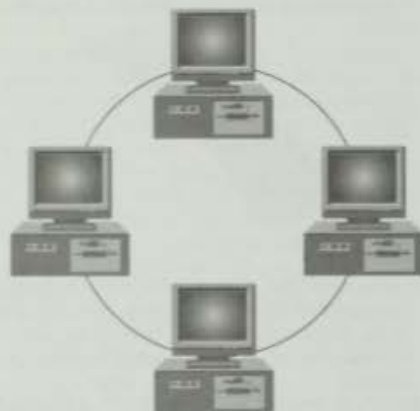
Cross-references are of three kinds: A *See* reference simply points to another entry that contains the information sought; a *See also* reference points to one or more entries that contain additional or supplemental information about the topic; and a *Compare* reference points to an entry or entries that offer contrast.

Illustrations are called out in the text. In most cases, illustrations appear on the same page as the entries to which they apply. In some instances, however, page-layout requirements have forced them to a subsequent page. In any event, the caption of each illustration identifies the entry to which it belongs.

Future Printings and Editions

Every effort has been made to ensure the accuracy and completeness of this book. If you find an error, think that an entry does not contain enough information, or seek an entry that does not appear in this edition, please let us know. Address your letter to: Dictionary Editor, Microsoft Press, Dept. 302, One Microsoft Way, Redmond, WA 98052-8302.

node. Because of the closed loop, however, adding new nodes can be difficult. A ring network is diagrammed below. *Compare* bus network, star network; *see also* token passing, token ring network.



Ring network.

RIP *See* raster image processor.

RISC Pronounced "risk"; acronym for reduced instruction set computing. A type of microprocessor design that focuses on rapid and efficient processing of a relatively small set of instructions. RISC design is based on the premise that most of the instructions a computer decodes and executes are simple. As a result, RISC architecture limits the number of instructions that are built into the microprocessor but optimizes each so it can be carried out very rapidly—usually within a single clock cycle. RISC chips thus execute simple instructions faster than microprocessors designed to handle a much wider array of instructions. They are, however, slower than general-purpose CISC (complex instruction set computing) chips when executing complex instructions, which must be broken down into many machine instructions before they can be carried out by RISC microprocessors. Families of RISC chips include Sun Microsystems' SPARC, Motorola's 88000, and Intel's 860. *Compare* CISC; *see also* architecture, scalar.

RJ-11 connector *See* phone connector.

RLL encoding *See* run-length limited encoding.

robot Generally, a machine that can sense and react to input and cause changes in its surroundings with some degree of intelligence, ideally without human supervision. Robots are seldom humanlike in appearance, although they are often designed to mimic human movements in carrying out their work. Robots are commonly used in manufacturing, as in the construction of automobiles and most computers. *See also* robotics.

robotics The branch of engineering devoted to the creation and training of robots. Roboticists work within a wide range of fields, such as mechanical and electronic engineering, cybernetics, bionics, and artificial intelligence, all toward the end of endowing their creations with as much sensitivity, independence, and flexibility as possible. *See also* artificial intelligence, bionics, cybernetics.

robustness Soundness; the ability of a program to function, or to continue functioning well, in unexpected situations.

rollback A return to a previous stable condition, as when the contents of a hard disk are restored from a backup after a destructive hard disk error.

ROM Rhymes with "bomb"; acronym for read-only memory. Semiconductor-based memory that contains instructions or data that can be read but not modified. To create a ROM chip, the designer supplies a semiconductor manufacturer with the instructions or data to be stored; the manufacturer then produces one or more chips containing those instructions or data. Because creating ROM chips involves a manufacturing process, it is economically viable only if the ROM chips are produced in large quantities; experimental designs or small volumes are best handled using PROM or EPROM. In general usage, the term ROM often means any read-only device, including PROM and EPROM. *See also* EEPROM, EPROM, PROM.

roman An adjective describing a typeface or type style in which the characters are upright. *Compare* italic; *see also* font family.

ROM BASIC A version of interpreted BASIC stored in ROM (read-only memory). Many early home

computers from companies such as Apple, Atari, Commodore, and Texas Instruments contained versions of BASIC in ROM so that the user could start programming by simply turning on the machine (vs. having to load BASIC from a disk or cassette tape first).

ROM BIOS Acronym for read-only memory basic input/output system. A set of software routines shipped with IBM and compatible computers, providing low-level routines for performing simple input/output operations. In the IBM PC, the BIOS takes up 64 kilobytes (KB) of address space, beginning at location 0F0000H. In the PS/2 series, the BIOS is expanded to 128 KB, beginning at location 0E0000H. For both the IBM PC and PS/2, the ROM BIOS also includes that portion of the BASIC interpreter—commonly called cassette BASIC—that does not provide disk support or support for advanced graphics. *Compare* Toolbox; *see also* BIOS.

ROM card A plug-in module that contains one or more printer fonts, programs, or games or other information stored in ROM (read-only memory). A typical ROM card is about the size of a credit card and several times thicker. It stores information directly on integrated circuit boards. *See also* ROM, ROM cartridge.

ROM cartridge A plug-in module that contains one or more printer fonts, programs, games, or other information stored in ROM (read-only memory). The ROM is in the form of one or more computer chips mounted on a printed circuit board. The board is enclosed in a plastic case with a connector exposed at one end so that it can easily plug into a printer, computer, game system, or other device. For example, a cartridge that plugs into a Nintendo or similar game system is a ROM cartridge. *See also* ROM, ROM card.

ROM emulator Also called ROM simulator. A special circuit containing RAM memory that is connected to a target computer where the target computer's ROM chips would normally be installed. The contents of the RAM memory are supplied by a separate computer; after the RAM chips are programmed, they are used as ROM in the target computer. Before the advent of

EPROMs, using a ROM emulator was the only economical way to debug ROM-resident software owing to the high cost of creating ROM chips. Today, an EPROM can be used in the prototype circuit and replaced with a ROM when the software is completed. Because a ROM emulator's memory contents can be changed much more quickly than those of an EPROM, developers often prefer using a ROM emulator even though doing this is more expensive than programming an EPROM. *See also* EEPROM, EPROM, ROM.

root The main or uppermost level in a hierarchically organized set of information. The root is the point from which subsets branch in a logical sequence that moves from a broad focus to narrower perspectives. *See also* leaf, tree.

root directory In a disk-based hierarchical directory structure, the point of entry into the directory "tree." Branching from this root are various directories and subdirectories, each of which can contain one or more files and subdirectories of its own. The illustration shows a directory structure in the MS-DOS operating system. The root directory is identified by the backslash character (\), and it is the main directory on drive C. Beneath the root is a directory named MYDATA, which contains two additional directories, LETTERS and REPORTS.



Root directory.

The structure of a hierarchical directory; the root is identified by the backslash.

rotate In computer graphics, to turn a model or other graphical image so that it is viewed at a different angle.

In programming, to move bits in a register (small area of memory) to the left or to the right. The bit that moves out of the end position rotates