

MICROSOFT PRESS®

COMPUTER DICTIONARY



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

Microsoft
P R E S S

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Acquisitions Editor: Marjorie Schlaikjer

Project Editor: Mary Ann Jones

Technical Editors: David Rygmyr, Jeff Hinsch, Mary DeJong, Dail Magee, Jr.

Manuscript Editor: Pamela Beason

Copy Editor: Alice Copp Smith

INTRODUCTION

The *Microsoft Press Computer Dictionary* is designed to be a comprehensive and authoritative source of definitions for computer-related terms and acronyms. 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 disciplines:

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 specific 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 acronym 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: Microsoft Press, One Microsoft Way, Redmond, WA 98052, *Attention: Dictionary Editor*.



equipment, programs, activities, and procedures to determine how efficiently the entire system is performing, especially in terms of ensuring the integrity and security of data.

audit trail In relation to computers, a means of tracing all activities affecting a piece of information such as a data record from the time it enters the system to the time it leaves. An audit trail documents the path from input to output and should provide enough information to reconstruct or verify the entire sequence, either manually or through automated tracking procedures. For example, when several people are working on a document in a networked environment, an audit trail makes it possible to know who made a particular change and when, or even to see the document before and after that person's changes.

authoring language A computer language or application development system designed primarily for creating programs, databases, and materials for computer-aided instruction (CAI). The best-known example in the microcomputer world is PILOT, developed originally at the University of California, San Francisco, which is a language used to create lessons.

authoring system A combination of hardware and software designed to ease the tasks involved in producing interactive programs. *See also* authoring language, interactive program.

authorization In relation to computers, especially to remote computers on a network open to more than one person, the right granted to an individual to use the system and the data stored on it. Authorization is typically set up by a system administrator and checked and cleared by the computer, which requires that the user provide some type of identification, such as a code number or a password, that the machine can verify against its internal records. The terms *permission* and *privilege* are synonymous with *authorization*. *See also* network, system administrator.

authorization code *See* password.

auto answer The ability of a modem to answer incoming telephone calls automatically. *See also* answer mode.

auto dial The ability of a modem to open a tele-

phone line and initiate a call by transmitting a stored telephone number as a series of pulses or tones.

AUTOEXEC.BAT A special-purpose batch file (set of commands) that is automatically carried out by the MS-DOS operating system whenever the computer is started or restarted. AUTOEXEC.BAT is created by the user or, in later versions of MS-DOS, by the operating system when the system is installed. The file contains basic startup commands that help configure (tailor) the system to installed devices and to the preferences of the user.

auto-key *See* typematic.

automata theory The study of computing processes, their capabilities, and their limitations—the manner in which systems receive input, process it, and produce output; also, the study of the relationship between behavioral theories and the operation and use of automated devices. *See also* cellular automata.

automated office A rather vague term used to refer to an office in which work is performed with the aid of computers, telecommunications facilities, and other electronic devices.

automatic answering *See* auto answer.

automatic data processing *See* data processing.

automatic dialing *See* auto dial.

automatic error correction A process that, upon detection of an internal processing error or a data-transmission error, invokes and provides information to an appropriate routine designed to correct the error or retry the operation.

Automatic Sequence Controlled Calculator *See* Mark I.

automonitor A process or system feature capable of continually assessing the status of its own internal environment.

autopolling Also called polling. The process of periodically determining the status of each device in a set so that the active program can process events generated through each device. The process is used to determine the status of a range of events, such as whether a key or a mouse button was pressed or whether new data is available at a serial port. Autopolling can be compared with event-driven processing, in which a low-level routine in



the operating system alerts a program or routine to an event occurring in a device with an interrupt or a message, rather than requiring the program to check each device in turn.

auto-repeat *See* typematic.

autorestart A process or system feature that can automatically restart the system after certain types of errors or power supply failures.

autosave A program feature that automatically saves an open file to disk or to another medium at preset intervals or after a certain number of key-strokes. Autosave is a means of ensuring that changes to a document are periodically saved.

autostart routine A process by which a system or device is automatically prepared for operation upon the occurrence of some predetermined event such as power-up. *See also* AUTOEXEC.BAT, autorestart, bootstrap.

autotrace A feature of many drawing programs that draws lines along the edges of a bitmapped image in order to convert the image into an object-oriented one. *See also* bit-mapped graphics, object-oriented graphics.

A/UX A version of the multiuser, multitasking UNIX operating system, provided by Apple Computer for the Macintosh II and based on the AT&T System V, release 2 of UNIX. A/UX incorporates a number of Apple features; among them is support for the Macintosh Toolbox so that applications running under

A/UX can provide users with the graphics-based interface characteristic of that computer. *See also* System V.

AUX Logical device name for auxiliary device; a name reserved by the MS-DOS operating system for the standard auxiliary device. AUX usually refers to a system's first serial port, which is also known as COM1.

auxiliary equipment *See* accessory.

auxiliary storage Any storage medium, such as disk or tape, that is not directly accessed by a computer's microprocessor, as is random access memory. More modern usage tends to refer to such media simply as *storage* or *permanent storage* and to the RAM chips that the microprocessor uses directly for temporary storage as *memory*.

availability In processing, the accessibility of a computer system or a resource in terms of usage (as in "availability of a network printer") or as a percentage of the total amount of time the device is needed.

available time *See* uptime.

axis In a chart or other two-dimensional system using coordinates, either the horizontal line (*x*-axis) or the vertical line (*y*-axis) that serves as a reference against which values are plotted. A third line (the *z*-axis) is used in a three-dimensional coordinate system to represent depth. *See also* Cartesian coordinates.



tive, but by convention current is considered to flow from positive to negative. The term *polarity* is also used to refer to the orientation of north and south magnetic poles.

polarized component A circuit component that must be installed with its leads in a particular orientation with respect to the polarity of the circuit. Diodes, rectifiers, and some capacitors are examples of polarized components. Examples of nonpolarized components are resistors, most capacitors, and inductors.

polarizing filter A transparent piece of glass or plastic, usually dark gray or brown, that polarizes the light passing through it—that is, it allows only waves vibrating in a certain direction to pass through. Polarizing filters are often used to reduce glare on monitor screens. *See also* glare filter.

Polish notation *See* prefix notation.

polling *See* autpolling.

polling cycle The time and sequence required for a program to poll each of its devices or network nodes. *See also* autpolling.

polygon Any two-dimensional closed shape with multiple sides, such as a hexagon, an octagon, or a triangle. Computer users encounter polygons—or tools for creating polygons—in graphics programs such as MacPaint and Windows Paint. Graphical interfaces can include polygons as geometric primitives—objects that programs can create and manipulate as discrete entities.

polyline In computer graphics, a line consisting of multiple connected segments. The lines connecting the stars in a representation of the handle of the Big Dipper, for example, would be a polyline. Polygons are used in CAD and other graphics programs. Graphical interfaces can include polylines as geometric primitives—objects that programs can create and manipulate as discrete entities.

polymorphism In an object-oriented programming language, the ability to redefine a routine in a derived class (a class that inherited its data structures and routines from another class). Polymorphism allows the programmer to define a base class that includes routines that perform standard operations on groups of related objects, without regard to the exact type of each object. The pro-

grammer can redefine the routines, taking into account the type of the object, in the derived classes for each of the types. *See also* class, derived class, object.

pop To fetch the top (most recently added) element of a stack, removing that element from the stack in the process. A stack is a data structure generally used to temporarily hold pieces of data being transferred or the partial result of an arithmetic operation. *Compare* push; *see also* stack.

populate To fill the sockets of a circuit board. *See also* fully populated board.

port In computer hardware, a location for passing data in and out of a computing device. Microprocessors have ports for sending and receiving data bits; these ports are usually dedicated locations in memory. Full computer systems have ports for connecting peripheral devices such as printers and modems. *See also* input/output port.

In programming, to change a program in order to run it on a different computer; more loosely, to move documents, graphics, and other files from one computer to another.

portability With reference to computer programs, the ability of a program to run on or be changed to run on more than one computer system or under more than one operating system. Highly portable software can be moved to other systems with little effort; moderately portable software can be moved only with substantial effort; and nonportable software can be moved only with effort similar to or greater than the effort of writing the original program. *See also* port, portable.

portable An adjective describing a program that is capable of being moved to various systems. With reference to computers, *portable* commonly refers to a computer that can be moved or carried with ease. *See also* portable computer.

portable computer Any computer designed to be moved easily. Portable computers can be characterized by size and weight, as shown in the table on the following page.

portable language A language that runs on various systems and that can be used for developing software for various systems. C, FORTRAN, and Ada are portable languages because their implementa-