DICTIONARY

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

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ing and painting programs and with photograph-scanning equipment and digitizers. The finished product is then transferred to a page-makeup program, which is the software most people think of as the actual desktop-publishing software. This type of program enables the user to lay out text and graphics on the screen and see what the results will be; for refining parts of the document, these programs often include word-processing and graphics features in addition to layout capabilities. As a final step, the finished document is printed either on a laser printer or, for the best quality, by typesetting equipment.

destructive read Sometimes abbreviated DRO (destructive readout). An attribute of certain memory systems, notably core systems. In a destructive read of a memory location, the data is passed on to the processor, but the copy in memory is destroyed by the process of reading. Destructive memory systems require special logic to rewrite data back to a memory location after it is read.

detail file *See* transaction file.

detection Discovery of a certain condition that affects a computer system or the data with which it works. Some detection methods are based on routine functions; for example, a microprocessor detects signals (interrupts) that indicate that a program or device requires attention. Other detection methods are designed to uncover flaws or errors in operation; for example, error detection in communications uses sampling, calculation, and comparison to determine whether information is received in the same form in which it was transmitted.

determinant In database design theory, any attribute or combination of attributes on which any other attribute or combination of attributes is functionally dependent. For example, if a database contains address information, the combination of the attributes ADDRESS + CITY + STATE determines the value for ZIPCODE. That is, any given address (as fully defined by ADDRESS, CITY, and STATE) can have one and only one ZIPCODE. ZIPCODE is functionally dependent on ADDRESS + CITY + STATE. Likewise, in a collection of information about employees, the attribute SOCIAL-SECURITY-NUMBER is most likely a determinant of LASTMNAME. LASTNAME is functionally dependent on SOCIAL-SECURITY-NUMBER.

determinism In computing, the ability to predict an outcome or to know in advance how data will be manipulated by a processing system. A deterministic simulation, for example, is one in which a certain input always produces the same output; a deterministic algorithm is one whose functionality is always the same.

developer's toolkit A set of routines (usually in one or more libraries) designed to allow developers to more easily write programs for a given computer, operating system, or user interface. *See also* library, toolbox.

device A generic term for a computer subsystem. Printers, serial ports, and disk drives are often referred to as devices; such subsystems frequently require their own controlling software, called device drivers. *See also* device driver.

device address A location within the address space of a computer's random access memory (RAM) that can be altered either by the microprocessor or by an external device. Device addresses are different from other locations in RAM, which can be altered only by the microprocessor. To the microprocessor, the incoming information appears as data stored at a location in RAM. To the device, the location appears simply as a register to which it can send data or from which it can read data put there by the microprocessor. *See also* device, input/output, RAM.

device control character *See* control character.

device dependence The requirement that a particular device be present or available for the use of a program, interface, or protocol. Device dependence in a program is often considered unfortunate because the program either is limited to one system or requires adjustments for every other type of system on which it is to run. *Compare* device independence.

device driver A software component that permits a computer system to communicate with a device. A printer driver is a device driver that translates computer data into a form understood by the intended printer. In most cases, the driver also manipulates the hardware in order to transmit the

data to the device. However, device drivers associated with application packages typically perform only the data translation; these higher-level drivers then rely on lower-level drivers to actually send the data to the device.

device independence A characteristic of a program, interface, or protocol that supports software operations that produce similar results on a wide variety of hardware. A device-independent program could, for example, issue the same command to draw a rectangle regardless of whether the output device was a printer, a plotter, or a screen display. The PostScript language is an example of a device-independent page-description language: Programs issuing PostScript drawing and text commands need not be customized for each potential printing device, and a manufacturer of a PostScript-compatible printing device knows that a wide range of applications will be able to use its printer provided it follows the PostScript standard. *Compare* device dependence.

device name The label by which a computer system component is identified by the operating system. MS-DOS, for example, uses the device name *COM1* to identify the first serial communications port.

device resolution *See* resolution.

DGIS Pronounced "dee-jis"; acronym for Direct Graphics Interface Specification, an interface developed by Graphics Software Systems. DGIS is firmware (generally implemented in ROM on a video adapter) that allows a program to display graphics on a video display through an extension to the IBM BIOS Interrupt 10H interface.

Dhrystone A general-performance benchmarking test, originally developed by Rheinhold Weicker in 1984 in the attempt to measure and compare the performance of computers. The test reports general system performance in dhrystones per second. It is intended to replace the older and less reliable Whetstone benchmark. The Dhrystone benchmark, like most benchmarks, consists of standard code and is revised periodically to minimize unfair advantages given to certain combinations of hardware, compiler, and environment.

Dhrystone concentrates on string handling and uses no floating-point operations. Like most benchmarking tests, it is heavily influenced by hardware and software design, such as compiler and linker options, code optimizing, cache memory, wait states, and integer data types. *Compare* sieve of Eratosthenes, Whetstone; *see also* benchmark.

DIA Abbreviation for Document Interchange Architecture, a document-exchange guideline used in IBM's Systems Network Architecture (SNA). DIA specifies methods of organizing and addressing documents for transmission between computers of different sizes and models, including microcomputers. DIA is supported by IBM's APPC (Advanced Program-to-Program Communication) and by LU (Logical Unit) 6.2, which establish the capabilities and types of interactions possible in an SNA environment. *See also* DCA, SNA.

diacritical mark An accent mark above, below, or through a written character—for example, the acute (′) and grave (`) accents..

dialect A variant of a particular language or protocol. For example, Transact-SQL is a dialect of SQL (structured query language).

dialog In computing, the exchange of human input and immediate machine responses that forms a "conversation" between an interactive computer and the person using it; also, the exchange of signals by computers communicating on a network.

dialog box In a graphical user interface, a special window displayed by the system or application to solicit a response from the user. For example, when the user wants to print a document, the system typically displays a dialog box containing controls that represent various options: draft printing vs. high resolution, landscape vs. portrait mode, and so on. *See also* windowing environment.

dial-up service Telephone service that relies on phones for station-to-station calls through a switched telephone network.

dibit Pronounced "dye-bit." A set of two bits representing one of four possible combinations: 00, 01, 10, and 11. In communications, a dibit is a kind of transmission unit made possible by the modulation technique known as differential phase-shift keying, which encodes data by using four different states

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