The Facts On File

DICTIONARY
of
COMPUTER SCIENCE

The Facts On File Dictionary of Computer Science

Fourth Edition

...ponent in a system is waiting ...component. For example, in ...a on a disk, latency is the time ...osition the sector under the ...ad. *See* access time.

...king, the amount of time it ...t to travel from source to des- ...ether latency and BANDWIDTH ...e speed and capacity of the

...typesetting system based on ...gramming language for type- ...ovides for higher level macros ...king it easier to format docu- ...doing so loses some flexibil-

...start a program.

...el in a program or system that ...articular function or functions ...fined interface for passing re- ...the layers next to it. OSI is an ...layered system.

...word processing and desktop ...fers to the arrangement of the ...hics on a page.

...crystal display) A device ...digital watches, calculators, ...rs, etc., to display numbers, ...sometimes other characters. ...s are formed from groups of ...dots. The segments or dots ...id that is usually transparent. ...gments or dots can be dark- ...r (by applying an electric ...n the shape of a particular ...ote that LCDs do not emit ...only be seen because light re- ...ehind the display makes the

dark characters stand out. LCD screens can now display all the characters available on VDUs. A simple SEVEN-SEGMENT DISPLAY can produce the numbers 0–9 and some letters. LCDs require less electrical power than LED DISPLAYS.

LDAP (lightweight directory access protocol) A significantly simpler version of the X.500 standard for a set of protocols for accessing information directories. Unlike X.500 it supports TCP/IP and is an open protocol, which means that applications do not need to know about the type of server hosting the directory.

leaf An item at the very bottom of a hierarchical tree structure. In hierarchical file systems, files are leaves whereas directories are NODES.

leased line A telephone line that is rented for exclusive use by the customer from one location to another. Typically leased lines are used by businesses to connect geographically distant sites for high-speed data transfer.

least significant digit (lsd) The digit in the least significant, i.e. rightmost, position in the representation of a number, and thus making the smallest contribution to the value of the number. With a binary number, this digit is referred to as the *least significant bit (lsb)*.

LED display A device used in some calculators, digital clocks, etc., to display numbers and letters. The characters are formed from groups of segments. The segments are small electronic components called LEDs, i.e. *light-emitting diodes*. Individual LEDs can be made to emit light (usually red) so as to form the shape of a particular character. A simple SEVEN-SEGMENT DISPLAY can display the numbers 0–9 and some letters. LED displays require more electrical power than LCDS.

left-justified *See* justify.

legacy system A computer, software, operating system, network, or other com-

puter equipment that exists before a new system is installed, and is still required afterward. BACKWARD COMPATIBILITY is an important part of the design and implementation of new systems. Currently many companies are migrating their legacy applications to new programming languages and operating systems that follow open or standard programming interfaces, which should help to make it easier to update applications in the future and will enable the application to run on any operating system.

LEO Lyons Electronic Office. *See* first generation computers.

LET *See* Basic.

letter quality A quality of printing that is as good as a top-quality typewriter. The term is becoming less common with the increased use of laser printers, which generally give better quality than electric typewriters.

lexical analysis The initial phase in the COMPILATION of a program during which the program is split up into meaningful units. These units could, for example, be NAMES, CONSTANTS, RESERVED WORDS, or OPERATORS. The part of the compiler program that does this analysis is called a *lexical analyzer*. The units recognized by the analyzer are known as *tokens*. They are output in some conveniently coded form for further processing by the compiler. *See also* syntax analysis.

library *See* program library; subroutine library.

library program *See* program library.

license agreement An agreement defining terms for the use of hardware or software by a user.

LIFO (last in first out) *See* stack.

light-emitting diode

vances in electronic technology now made it possible to design a computer to suit the requirements of the tasks envisaged for the machine: the concept of computer ARCHITECTURE thus became a reality with this generation. Most manufacturers introduced at least three members of a computer family, architecturally similar but differing in price and performance. The IBM 360 series, first introduced 1964, is an important example.

Comprehensive OPERATING SYSTEMS became, more or less, part of third generation machines. MULTIPROGRAMMING was facilitated and much of the task of control of storage, input/output, and other resources became vested in the operating system or the machine itself. In addition new programming languages were introduced, such as COBOL, and later versions of existing languages, such as FORTRAN, came into use.

See also first, fourth, fifth generation computers.

thrashing **1.** Excessive hard-disk use that occurs when a large number of short files scattered over the disk are being retrieved. Performance will be degraded.
2. The situation in which a virtual memory system is continually swapping pages in and out of memory rather than running applications. Very little progress is made under these circumstances as memory or other resources have become exhausted or too limited to perform the necessary operations.

thread On the Internet, a sequence of postings relating to an original newsgroup or forum message that continue on from each other. To continue the thread as a user a reference topic is specified as part of the user's message posting.

throughput A measure of the overall performance of a computer system, i.e. of the amount of work performed in a given period. It can, for example, be measured in terms of JOBS per day.

thumbnail A small version of an image or document page, which is much quicker to display on a screen or load from a Web site. Thumbnails make it quicker and easier to view or manage a group of larger images. They are often used in image catalogs.

thunk A code in an operating system that allows 16-bit code to call 32-bit code and vice versa. For example, Widows 95 can run programs written in both 16-bit and 32-bit instruction sets.

TIFF (tagged image file format) A common format for scanning, storing, and interchanging bitmapped images. The files have the file extension .tif.

time division multiplexing (TDM) *See* multiplexer.

timeout A condition that occurs when a process waiting for either an external event or the expiry of a preset time interval reaches the end of the time interval before the external event has been detected. If, for example, the process has sent a message and no ACKNOWLEDGMENT has been detected at the end of the preset time period, then the process may take appropriate action, such as retransmitting the message.

timer *See* counter.

time sharing A technique whereby the time of a computer can be shared among several jobs, a brief period being allocated (by the OPERATING SYSTEM) to each job in turn. During such a period – known as a *time slice* – the job is permitted to use the resources of the computer, i.e. the processor, main store, etc. A MULTIACCESS SYSTEM relies on time sharing.

time slice *See* time sharing.

TLU (table look-up) *See* table.

token *See* lexical analysis.

token ring network A LAN in which the nodes are connected together in a ring in such a way that each node can only communicate with its neighbors on either side,