

Introductory Computer - Applications for Administrators

GLOSSARY OF COMMON TERMS USED IN MICROCOMPUTING

ASCII

American Standard Code for Information Interchange. A standard binary code for representing letters of the alphabet numbers punctuation marks and other symbols, plus certain extra codes used for control purposes. Computers use ASCII to store text and other information in memory and on disk. They also use it to send information to other computers and to equipment such as VDUs and printers.

Assembler

A piece of software which translates assembler language programs into the binary instructions that the computer understands.

Assembler language

A low level programming language in which simple mnemonics are used to represent the computer's binary instructions. Programs are written using a text editor or word processor and are converted into binary by an assembler. Assembler language programming can be very tedious and time consuming but it allows functions that are difficult or impossible in higher-level languages. Also, the resulting programs are nearly always shorter and quicker than those produced by a compiler or interpreter.

Basic

The most widely used programming language in the world. Basic was originally designed as an easy-to-learn language which would allow beginners in computing to get results quickly. Its name is an acronym for Beginners All-purpose Symbolic Instruction Code. A Basic Interpreter is available on virtually every make of micro-computer and it can be used for a wide range of applications, though its rather slow for some jobs unless a Basic compiler is used. One problem with Basic, however, is that its features vary (often considerably) from computer to computer. This can make it difficult to use a program written using one machine on another computer made by a different manufacturer.

Binary

A method of representing numbers using 2 as a base instead of the more familiar base 10 (denary) system. While not at all convenient for people to use it is ideal for computers because it uses only two symbols-1- and 0-which can be represented electronically by the presence or absence of an electric current.

Bit

The basic unit of computer information. The word bit is simply a contraction of binary digit.

Bug

A malfunction either in the computer's hardware or in software.



Byte

A group of eight bits. Because generally speaking, a single bit can convey only a limited amount of information, bits are grouped into units capable of representing greater quantities. The most useful basic unit in microcomputing is therefore the byte.

Cassette tape

Material used by most smaller microcomputer for programs and data. An ordinary domestic cassette recorder is employed (some machines have one built in) but although audio cassettes can be used special digital cassettes are generally more reliable. Cassettes are cheap but the is their slowness compared to hard or floppy disks.

Centronics interface

The standard connection that allows you to use a printer with your computer

Cobol

A programming language devised specifically for commercial programming on large computers. It has been squeezed on to some micros to allow them to use the vast amount of commercial software written in Cobol.

Compiler

A piece of software that converts a program written in a high-level programming language into the binary code that computers understand. A program developed with a compiler will nearly always work more quickly than one that requires an interpreter but will not necessarily be either as quick or as short as an assembler language program.

CP/M

The most widely available microcomputer operating system. Developed by Gary Kildall in the USA, CP/M gained rapid acceptance as a sensible and reasonably easy way to ensure that programs written on one make of computer can work properly on another—it provides a "standard" connection between the software and hardware. Several versions of CP/M are now available. CP/M 80 for 8-bit machines, CP/M 86 for 16-bit micros. MP/M (a multi-user version), and CP/NET, a network version.

CPU

The "central processing unit" of a computer. This forms the computer's brain, where the actual computing takes place. In a microcomputer, the CPU is contained on a single component called a microprocessor while on larger computers it comprises anything from several printed circuit boards up to a cabinet full of boards.

Daisywheel printer

A high-quality printer which, instead of using type bars like those found in conventional typewriters, has a small plastic or metal wheel containing the characters to be printed.

Data

Information—anything (other than produced by a computer. Data processing is simply the carrying out of some sort of operation (sorting, collating or calculating) on data in a computer.

Database

A store of data or information arranged in an ordered way so that you can retrieve it easily. For example, a database may contain a list of names, addresses and telephone numbers. With suitable database software, you could type in, say "FRED?" and the computer would produce the addresses and phone numbers of everyone on the list called Fred. Typing something like "FRED/BIRMINGHAM?" would narrow the search down to all the Freds on the list who live in Birmingham. Database work—storing, searching and sorting massive amounts of information—is a use for which computers are ideally suited.

Disk

Device allowing permanent storage of programs and data. Compact floppy disks are most commonly used, but some models also allow you to use hard disks and winchester types, which give greater capacity.

Dot-matrix printer

A cheaper, faster alternative to the daisywheel printer. It forms characters by firing a series of needles at the ribbon and paper to form the characters from a pattern of dots. Naturally, the quality of the resulting print is not as good as that of a daisywheel, but some dot-matrix units are capable of very high quality output and all are much faster.

Editor

A piece of software that allows you to type text into a computer, store it and print it out again.

EPROM

Erasable programmable read only memory. This is a type of PROM whose contents can be erased by exposure to strong ultraviolet light; it can then be re-programmed. (see also memory, PROM & ROM)

Firmware

While hardware is the computer itself and software refers to the programs being run on it, firmware is a combination of the two—one or more programs "fixed" into a memory chip and thus forming a part of the computer system.

Floppy disk

Method allowing permanent storage of programs and data. This is necessary because the contents of a computer's memory vanish when the power is switched off. Floppy disks are the most popular method of this type of storage especially on business computers. They consist of a thin plastic disk coated with a magnetic oxide material rather than a metal surface like a cassette tape. For high capacity, see hard disk.

Fortran

A high-level programming language similar in many ways to Basic. As its name (FORMula TRANslator) suggests, its main uses are in scientific and engineering applications.

Hard copy

Any output from a computer produced with the aid of a printer.

Hard disk

A magnetic disk that holds programs or data in much the same way as a floppy disk. Hard disks hold far more information than floppy disks and work more quickly. The most popular type for microcomputers is the winchester disk.

Hardware

The physical components of the computer system

IEEE-488

An interface used mainly to connect laboratory instruments and other scientific equipment to computers, either for control purposes or to allow the computer to collect data.

Information technology

The merging of communications and computing as in Prestel, for example, and in high-speed digital communications like carrying data as well as digitized sound and video.

Interface

A connection between two systems. As far as computers are concerned, this means a variety of electrical, physical and software standards enabling various types of equipment to be connected together. Thus a computer with a Centronics interface can be used with any printer equipped with a Centronics interface. Other commonly found interfaces are the RS 232 and the IEEE-488

Interpreter

A piece of software that translates a program written in a high-level programming language into binary instructions that the computer understands. Unlike a compiler, though an interpreter does this while program is being used.

I/O

Input/output. I/O "ports" are provided on most computers so that they can communicate with other devices. Generally these ports are built to one or more of the popular interface standards.

Keyboard

Device enabling the user to communicate with a computer by means of typewriter or touch-sensitive keys.

Machine code

The language that computers "understand" directly. It takes the form of a series of binary codes, and these are usually produced by an assembler or a compiler.

Mainframe

A very large, powerful computer of the type used in large businesses government departments and some research establishments.

Memory

One of the major components of a computer system. Memory is the place where the computer holds its programmes and the data those programs require. Most important is the high speed "random access" memory (RAM) which forms part of the main system. However, this loses its contents when you switch off the power so more permanent types of memory are also provided. These include ROM, which retains its contents permanently, and floppy and hard disks on which you can store programs and data when the machine is switched off.

Microcomputer

A small computer based around a microprocessor chip. The term covers machines from the smallest computers available to large, multi-user systems.

Microprocessor

A computer's central processing unit (CPU) to a single component instead of being divided into a number of components or even several boards of components. A microprocessor forms the basis of a microcomputer system.

Minicomputer

A computer which isn't big enough to be called a mainframe but is too big and powerful to be a microcomputer.

Modern

A device allowing computers to communicate through the telephone system. The computer's digital signals are converted into audio tones suitable for transmission along telephone lines to another modern, which reconverts them into digital signals understandable by the computer at the receiving end.

MS-DOS

A 16-bit operating system marketed by Microsoft Inc for use on microcomputers with 8088 or 8088 processors. It is the operating system chosen by IBM for its Personal Computer and its main rival is the 16-bit version of CP/M, CP/M-86.

Multi-user

A system in which the operating system allows several people to share the same computer. The CPU spends a little time working for one user, then some time working for the next user and so on.

Network

A method of connecting several computers together to allow them to exchange data and to share costly peripherals such as printers and hard disks.

Operating system

A set of small, standardized programs that the programmer can use to carry out various operations such as storing data on disk and retrieving it. The most popular microcomputer operating system is CP/M.

Pascal

A high-level programming language used widely in microcomputers but by no means as popular as Basic. It is a compiled language, which makes it slightly more awkward to use but, unlike Basic, it stays more or less the same regardless of the type of computer on which it is used.

Peripherals

Extra pieces of equipment that do not form part of the main computer system, such as printer, modems and acoustic couplers and, with some machines, VDUs

Printer

A device for producing hard copy from a computer. Printers come in two general types, dot matrix and daisywheel.

Program

A list of instructions telling the computer what to do. There are two main types of programs - system programs, such as monitors and operating systems, which are concerned with organizing the internal workings of the computer system, and applications programs, which perform a particular task for the user, such as accounts or word processing. Systems programs are usually written in a low-level programming language such as assembler language while applications programs which may need to be altered more frequently, are usually written in a high-level language.

Programming language

Computers can only understand programs in binary notation; unfortunately, it is particularly difficult for people to understand binary. Programs are therefore written in notation made up usually of English or near-English words. This is then translated into binary patterns by a special program called a compiler or an interpreter.

PROM

A type of ROM the contents of which can be programmed by the user but cannot be erased and re-programmed as they can with an EPROM.

RAM

Random access memory. This is where the computer keeps the programmes it is currently using. It is also the place where any information required for or produced by the program is stored until the computer either needs it (in the case of input) or is instructed to move it elsewhere, for example to a printer, a VDU or a file on disk (in the case of output). The advantage of having as much RAM as possible is that larger programs and more data can be kept there, where it is more quickly accessible than it would be if kept on a disk. However, RAM loses its contents when power is switched off, so disks or cassette tapes are still necessary.

Register

Part of a computer's CPU in which information is processed or stored temporarily.

ROM

Read only memory. This is a type of memory component in which the contents are permanently fixed, usually during the manufacturing stage. However, there are some types of ROM notably PROMs and EPROMs, which can be programmed after they have been manufactured. The main use of ROMs is for holding programs such as monitors in firmware

RS 232

A standard type of interface, which joins a peripheral to a computer. Data is sent serially, one bit at a time, along the interface. The speed at which the data transfer is taking place is known as the baud rate and usually this must be present at each end of the link before successful transfer can take place. This type of interface is also known as the v24

Software

Alternative term for computer programs

User-friendly

Term denoting a computer or a program that is easy to use.

VDU

Visual display unit. The TV-like display found on modern computers. The letters VDU are also frequently used to refer to the display plus the keyboard which in some machines are housed together in a unit separate from the computer.

Video disk

Means of storing visual information and sound. At the moment these disks are being sold as part of a high-quality video playback system but they will soon be connected to computers, allowing you to store massive amount of information.

Word processing

The use of a computer together with special software to store and manipulate text. This allows the writer to make easy alterations and produce perfect copies. Work processing permits other savings of labor. For example you can automatically add the following:

1. The first name
2. The last name
3. The address
4. The city
5. The state
6. The zip code

Z80

The name of one of the most popular 8-bit microprocessor chips used as the base for microcomputers. It forms the heart of most of today's CP/M-80 machines.

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