

file: Any named, ordered collection of information stored on a disk. Application programs and operating systems on disks are files. You make a file when you create text or graphics, give the material a name, and save it to disk.

firmware: Programs stored permanently in read-only memory (ROM). Such programs (for example, the Applesoft Interpreter and the Monitor program) are built into the computer at the factory. They can be executed at any time but cannot be modified or erased from main memory. Compare **hardware**, **software**.

fixed-point: A method of representing numbers inside the computer in which the decimal point (more correctly, the binary point) is considered to occur at a fixed position within the number. Typically, the point is considered to lie at the right end of the number so that the number is interpreted as an **integer**. Compare **floating-point**.

flag: A variable whose value (usually 1 or 0, standing for *true* or *false*) indicates whether some condition holds or whether some event has occurred. A flag is used to control the program's actions at some later time.

floating-point: A method of representing numbers inside the computer in which the decimal point (more correctly, the binary point) is permitted to "float" to different positions within the number. Some of the bits within the number itself are used to keep track of the point's position. Compare **fixed-point**.

floppy disk: A **disk** made of flexible plastic, as compared to a **hard disk**, which is made of metal. The term *floppy* is now usually applied only to disks with thin, flexible **disk jackets**, such as 5.25-inch disks. With 3.5-inch disks, the disk itself is flexible, but the jacket is made of hard plastic; thus, 3.5-inch disks aren't particularly "floppy."

format: (n) (1) The form in which information is organized or presented. (2) The general shape and appearance of a printed page, including page size, character width and spacing, line spacing, and so on. (v) To divide a disk into tracks and sectors where information can be stored. Blank disks must be formatted before you can save information on them for the first time; same as **initialize**.

form feed: An ASCII character (decimal 12) that causes a printer or other paper-handling device to advance to the top of the next page.

Fortran: Short for *Formula Translator*. A high-level programming language especially suitable for applications requiring extensive numerical calculations, such as in mathematics, engineering, and the sciences.

framing error: In serial data transfer, the absence of the expected stop bit(s) at the end of a received character.

frequency: In alternating current (AC) signals, the number of complete cycles transmitted per second. Frequency is usually expressed in hertz (cycles per second), kilohertz (kilocycles per second), or megahertz (megacycles per second). In acoustics, frequency of vibration determines musical pitch.

full duplex: A four-wire communication circuit or protocol that allows two-way data transmission between two points at the same time. Compare **half duplex**.

function: A preprogrammed calculation that can be carried out on request from any point in a program. A function takes in one or more arguments and returns a single value. It can therefore be embedded in an expression.

game I/O connector: A 16-pin connector inside the Apple II, II Plus, and IIe, originally designed for connecting hand controls to the computer, but also used for connecting some other peripheral devices. Compare **hand control connector**.