

Glossary

A-line instruction An unimplemented instruction of the form \$Axxx (the high-order 4 bits have the hexadecimal value \$A).

auto-key rate The rate at which a character key repeats after it's begun to do so.

auto-key threshold The length of time a character key must be held down before it begins to repeat.

auto-pop bit Bit 10 of a Toolbox trap word, signifying that an extra return address is placed on the stack.

bit The atomic memory unit. Each bit can be either set (the value of the bit is 1) or cleared (the value of the bit is 0).

bomb box See *system error alert box*.

boot blocks The first two logical blocks on every Macintosh volume. Boot blocks contain instructions and information necessary to start up (or "boot") a Macintosh computer.

byte A bit quantity, used to store 2^8 , or 256, different possible values. In the MC680x0 bit-numbering scheme, the first bit in a byte is bit number 7, and the last bit is bit number 0. See also *reversed bit-numbering*.

caret A generic term meaning a symbol that indicates where something should be inserted in text. The specific symbol used is a vertical bar(|).

caret-blink time The interval between blinks of the caret that marks an insertion point.

clock chip A special integrated circuit (IC) used for storing parameter RAM and the current date and time. This IC is powered by a battery when the system is off, thus keeping correct time and preserving the parameter RAM information.

come-from patch A system software patch used only by Apple to add enhancements to system software. Come-from patches are placed before any other types of patches in a patch daisy chain.

control panel A modeless dialog box that contains controls that let users specify basic settings and preferences for a systemwide feature, such as the speaker volume, desktop pattern, or picture displayed by a screen saver.

control panel extension A collection of routines that manages a certain part of a control panel's display area.

daisy chain A chain of any number of patches and one system software routine.

dangling reference Typically, a pointer whose target has been either destroyed or moved elsewhere in memory.

date-time record A data structure that represents date and time as a record rather than a 32-bit long integer. The date-time record is a translation of the standard date-time value, so it can represent only dates and times between midnight on January 1, 1904 and 6:28:15 A.M. on February 6, 2040.

default operating system The operating system that gets initialized and booted on a Macintosh computer. Currently, the only default operating system allowed is the Macintosh Operating System.

default startup device The first drive on which the boot code attempts to start up the Macintosh Operating System.

default video device The first monitor on which the system displays the startup message "Welcome to Macintosh." and other startup indications.

double-click time The greatest interval between a mouse-up and mouse-down event that would qualify two mouse clicks as a double-click.

environmental selector A Gestalt selector code, used with the `Gestalt` function, that returns information about the operating environment that can be used by an application to guide its actions. Compare *informational selector*.

exception Any of various situations in which the normal flow of execution of a program is interrupted, with control passing to a system exception handler.

exception handler A system routine invoked automatically by the processor in any of a variety of exceptional circumstances. For example, the trap dispatcher is an exception handler that is called by the processor, to dispatch unimplemented A-line instructions.

exception stack frame A block of data placed on the stack automatically by the processor when an exception occurs.

extended parameter RAM The 236 bytes of parameter RAM that is reserved by the system software.

fatal system error A system error that causes the entire system to crash.

Gestalt Manager The part of the Macintosh Operating System that you can use to determine the features of the current software and hardware operating environment.

glue routine A runtime library routine, usually provided by the development environment, that provides a linkage between high-level language code and a system routine with an interface protocol different from that of the high-level language.

head patch A patch that, upon completion does not regain control. A head patch jumps to the next routine. Compare *tail patch*.

high-order bit The bit contributing the greatest value in a string of bits. For example, in the MC680x0 numbering scheme bit number 7 contributes a value of 2^7 , or 128. Same as *most significant bit*. Compare *low-order bit*.

informational selector A Gestalt selector code, used with the `Gestalt` function, that supplies information about the operating environment that cannot be used to determine whether a software or hardware feature is available. Compare *environmental selector*.

least significant bit The bit contributing the least value in a string of bits. For example, in the MC680x0 numbering scheme bit number 0 in a byte contributes a value of 2^0 , or 1. Same as *low-order bit*. Compare *most significant bit*.

long date-time record A data structure that represents date and time as a record rather than a 64-bit long integer.

long date-time value A 64-bit integer in SANE `comp` format that represents date and time purely in seconds. This format allows dates and times before and after the range of the date-time record (30,000 B.C. to 30,000 A.D.).

long word A 32-bit quantity used to store 2^{32} (or 4,294,967,296) values.

long-word boundary The memory location that divides two long words.

low-order bit The bit contributing the least value in a string of bits. For example, in the MC680x0 numbering scheme bit number 0 in a byte contributes a value of 2^0 , or 1. Same as *least significant bit*. Compare *high-order bit*.

MC680x0 bit-numbering The bit-numbering scheme used by Motorola. Bit numbers are counted from right to left. (That is, the most significant bit has the highest bit number, and the least significant bit number has the lowest bit number). Compare *reversed bit-numbering*.

menu-blink time The number of times a menu item blinks when the user chooses it.

mouse-down event An event indicating that the user pressed the mouse button.

most significant bit The bit contributing the greatest value in a string of bits. For example, in the MC680x0 numbering scheme bit number 7 in a byte contributes a value of 2^7 , or 128. Same as *high-order bit*. Compare *least significant bit*.

mouse scaling A feature that causes the cursor to move twice as far during a mouse stroke as it would have otherwise, provided the change in the cursor's position exceeds the mouse-scaling threshold within one tick after the mouse is moved.

mouse-scaling threshold A number of pixels that, if exceeded by the sum of the horizontal and vertical changes in the cursor's position during one tick of mouse movement, causes mouse scaling to occur (if that feature is turned on); normally six pixels.

mouse-up event An event indicating that the user released the mouse button.

operating-system queue A queue used by the Macintosh Operating System.

Operating System trap An exception that is caused by an A-line instruction that executes an Operating System routine.

Operating System trap dispatch table A table in RAM containing addresses of Operating System routines.

package A set of routines and data types that's stored as a resource of type 'PACK' and only brought into memory when needed.

Package Manager A set of routines that loads the packages into memory.

pad byte The extra byte added to make 2 bytes, when you declare a variable of type Byte.

panel The area managed by a control panel extension. A panel contains controls and other dialog items related to the features managed by control panel extensions.

parameter RAM Battery-powered RAM (random-access memory) contained in the clock chip, which preserves settings such as those made with the control panels. Parameter RAM takes up 256 bytes of battery-powered RAM: 20 bytes are commonly accessible by applications, and 236 bytes are reserved by the system software. See also *clock chip*.

patch Generally, any code used to repair or augment an existing piece of code. In the context of system software, a patch repairs or augments a system software routine. See also *head patch*, *tail patch*, and *come-from patch*.

pseudo-random number generator An algorithm that is designed to return a value that is as random as possible.

queue A list of identically structured entries linked together by pointers.

queue element A data structure that contains a pointer to the next queue element in the queue, a value indicating the queue type, and a variable data field.

queue header A data structure that contains flags specific to the queue, a pointer to the first element in the queue, and a pointer to the last element in the queue.

Queue Utilities The collection of routines for directly adding a queue element to a queue or directly removing a queue element from a queue.

resume procedure A procedure within an application that allows the application to recover from system errors.

reversed bit-numbering A bit-numbering scheme opposite that of the MC680x0 numbering scheme. Bit numbers are counted from left to right instead of right to left. For example, using the reversed bit-numbering scheme on a byte, the first bit is bit number 0 and the last bit is bit number 7. (That is, the most significant bit has the lowest bit number, and the least significant bit number highest bit number). Compare *MC680x0 bit-numbering*.

selector See *selector code*.

selector code A parameter to the `Gestalt` function that specifies what information about the operating environment the caller requires. See *environmental selector* and *informational selector*.

selector function A function that is executed when an application calls `Gestalt` and passes the associated *selector code*.

standard date-time value A 32-bit long integer that represents date and time purely in seconds. The standard date-time value can track dates and times only between midnight on January 1, 1904 and 6:28:15 A.M. on February 6, 2040.

Start Manager A collection of routines that let you get and set system startup information located parameter RAM.

system environment record A description of the operating environment filled in by the `SysEnviron`s function and defined by the `SysEnvRec` data type.

system error An error generated by the Operating System.

system error alert box An alert box displayed by the System Error Handler when a system error has occurred.

system error alert table resource A resource that determines the appearance and function of system error alert boxes and system startup alert boxes.

System Error Handler The part of the Operating System that displays an alert box when an system error occurs and manages display of the "Welcome to Macintosh" alert box at system startup time.

system error ID An ID number that may appear in a system error alert box to identify the error.

system extension A file (with the file type 'INIT') containing a code resource of type 'INIT' and additional other resources. A system extension typically contains code that performs a system-level service and code that loads this system-level service into the system at system startup time.

system initialization The process when the system initialization code located in ROM is executed. Memory is tested and initialized, ROM drivers are installed, device drivers are located, and more.

system startup The process when the system startup code located in ROM is executed. Memory is tested and initialized, ROM drivers are installed, device drivers are located, and more.

system startup alert box The alert box displayed at system startup time. It contains the startup greeting "Welcome to Macintosh."

system startup information Configurable system parameters and machine-language instructions needed to start up a Macintosh computer.

tail patch A patch that transfers control to routine, and then regains control after the routine completes execution. Compare *head patch*.

timeout interval The interval of time the system waits for the startup drive to respond while the computer is booting.

Toolbox trap An exception that is caused by an A-line instruction that executes a Toolbox routine.

Toolbox trap dispatch table A table in RAM that contains addresses to Toolbox routines.

trap An exception caused by an A-line instruction.

trap dispatcher The exception handler that deals with the occurrence of A-line instructions.

trap dispatch table A table of entry points to system routines that are invoked with A-line instructions. Compare *Operating System trap dispatch table* and *Toolbox trap dispatch table*.

Trap Manager A collection of routines that lets you add extra capabilities to system software routines.

trap number The bits of a trap word (bits 0–7 for an Operating System routine, bits 0–9 for a Toolbox routine) that serve as an index into the trap dispatch tables.

trap word See A-line instruction

vertical retrace interrupt An interrupt generated 60 times a second by the Macintosh video circuitry while the beam of the display tube returns from the bottom of the screen to the top; also known as *vertical blanking interrupt*.

word A 16-bit quantity, used to store 2^{16} (or 65,536) possible values.

word boundary The memory location that divides two words.