

Exhibit 21

to Motorola's Opening Claim Construction Brief

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COMPUTER DICTIONARY



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dent of all other trials; and the probability of success for each trial is constant. A binomial distribution can be used to calculate the probability of getting a specified number of successes in a Bernoulli process. For example, the binomial distribution can be used to calculate the probability of getting a seven three times when a pair of dice is rolled twenty times.

bionics The study of living organisms—their characteristics and the ways they function—with a view toward creating hardware that can simulate or duplicate the activities of a biological system. *See also* cybernetics.

BIOS Pronounced “bye-ose”; acronym for basic input/output system, a set of routines that work closely with the hardware to support the transfer of information between elements of the system, such as memory, disks, and the monitor. On IBM and compatible computers, the BIOS, or ROM BIOS, is built into the machine’s read-only memory (ROM). Although critical to performance, the BIOS is invisible to computer users. The BIOS can, however, be accessed by programmers.

bipolar Literally, having two opposite states, such as positive and negative. In information transfer and processing, a bipolar signal is one in which opposite voltage polarities represent on and off, as in a communications signal, or true and false, as in a logic circuit. *Compare* unipolar; *see also* nonreturn to zero.

In electronics, bipolar refers to a type of transistor. *See also* transistor.

BIS *See* business information system.

bistable A term describing a system or device that has two possible states, such as ON and OFF. *See*

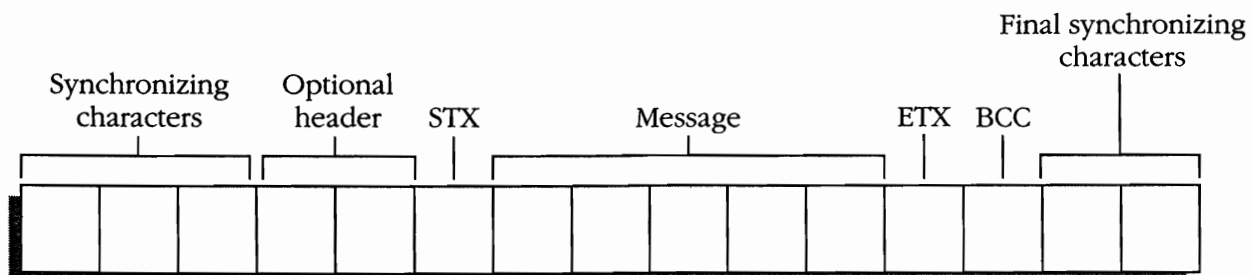
also flip-flop.

bistable circuit Any circuit that has only two stable states. The transition between the two stable states must be initiated from outside the circuit. A bistable circuit is capable of storing one bit of information.

bistable multivibrator *See* flip-flop.

BISYNC Pronounced “bye-sink.” Acronym for binary synchronous communications protocol, a communications standard developed by IBM. BISYNC transmissions are encoded in either ASCII or EBCDIC. Messages can be of any length and are sent in units called frames, optionally preceded by a message header. Because BISYNC uses synchronous transmission, in which message elements are separated by a specific time interval, each frame is preceded and followed by special characters that enable the sending and receiving machines to synchronize their clocks. The basic structure of a BISYNC frame is shown in the illustration. STX and ETX are control characters that mark the beginning and end of the message text; BCC is a set of characters used to verify the accuracy of transmission.

bit Short for binary digit; either 1 or 0 in the binary number system. In processing and storage, a bit is the smallest unit of information handled by a computer and is represented physically by an element such as a single pulse sent through a circuit or a small spot on a magnetic disk capable of storing either a 1 or a 0. Considered singly, bits convey little information a human would consider meaningful. In groups of eight, however, bits become the familiar bytes used to represent all types of information, including the letters of the alphabet and the digits 0



BISYNC. *The structure of a BISYNC frame.*



through 9. *See also* ASCII, binary, byte.

bit block In computer graphics and display, a rectangular group of pixels treated as a unit. Bit blocks are so named because they are, literally, blocks of bits describing the pixels' display characteristics, such as color and intensity. Programmers use bit blocks and a technique called bit block transfer (bitblt) to rapidly display or animate images on the screen. *See also* bit block transfer.

bit block transfer Also called bitblt (pronounced "bit-blit"). In graphics display and animation, a programming technique that manipulates, in memory, rectangular blocks of bits representing the color and other attributes of the pixels forming a screen image. The image described can range from a cursor to a cartoon. Bit block transfers involve moving these bit blocks through a computer's video RAM as a unit so they can be rapidly displayed in a desired location on the screen. Bit block transfers can also involve altering the descriptions of the bits/pixels composing an image; for example, light and dark portions of an image can be reversed. Successive displays can thus be used to change the appearance of an image or to move it around on the screen. Some computers, such as the Commodore Amiga, contain special graphics hardware for manipulating bit blocks on the screen independently of the contents of the rest of the screen. This speeds the animation of small shapes because a program needn't constantly compare and redraw the background around the moving shape. *See also* sprite.

bitblt *See* bit block transfer.

bit bucket An imaginary location into which data can be discarded. A bit bucket is a null input/output device from which no data is read and to which data can be written without effect. The NUL device recognized by MS-DOS is a bit bucket. A directory listing, for example, simply disappears when sent to NUL.

bit density A measure of the amount of information per unit of linear distance or surface area in a storage medium or per unit of time in a communications pipeline.

bit flipping A process of inverting bits—changing 1's to 0's and vice versa. For example, in a graphics

program, to invert a black-and-white bit-mapped image (to change black to white and vice versa), the program could simply flip the bits that compose the bit map.

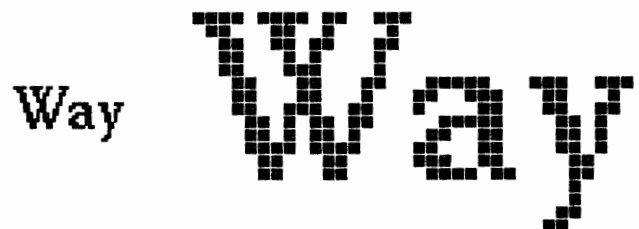
bit image A sequential collection of bits that represents, in memory, an image to be displayed on the screen, particularly in systems having a graphical user interface. Each bit in a bit image corresponds to one pixel (dot) on the screen. The screen itself, for example, represents a single bit image; similarly, the dot patterns for all the characters in a font represent a bit image of the font. On a computer such as the Macintosh 512K, which has a black-and-white screen, the bit values in a bit image can be either 0, to display white, or 1, to display black. The "pattern" of 0's and 1's in the bit image then determines the pattern of white and black dots forming an image on the screen. On a Macintosh or other computer that supports color, the corresponding description of on-screen bits is called a pixel image because more than one bit is needed to represent each pixel. *See also* bit map, pixel image.

bit manipulation Working with individual bits rather than using the much more common—and generally simpler—process of manipulating bytes or 2-byte words.

bitmap *See* bit map.

bit map In general, a bit image. Specifically, a data structure that describes a bit image being held in memory, such as its location in memory and its size. *See also* bit image, pixel image.

bit-mapped font A set of characters in a particular size and style, in which each character is described as a unique bit map (pattern of dots). *See* the illustration. Macintosh screen fonts are examples of bit-mapped fonts. *See also* downloadable font, outline



Bit-mapped font.

Each character is composed of a pattern of dots.