Summary of MIDI 1.0 Messages

The following table lists the major MIDI 1.0 messages in numerical (binary) order (adapted from "MIDI by the Numbers" by D. Valenti, Electronic Musician 2/88, and updated by the MIDI Association.). This table is intended as an overview of MIDI, and is by no means complete.

WARNING! Details about implementing these messages can dramatically impact compatibility with other products. We strongly recommend consulting the official MIDI Specifications for additional information.

Table 1: MIDI 1.0 Specification Message Summary		
Status D7----D0	Data Byte(s) D7----D0	Description
Channel Voice Messages [nnnn = 0-15 (MIDI Channel Number 1-16)]		
1000nnnn	0kkkkkkk 0vvvvvvv	Note Off event. This message is sent when a note is released (ended). (kkkkkkk) is the key (note) number. (vvvvvvv) is the velocity.
1001nnnn	0kkkkkkk 0vvvvvvv	Note On event. This message is sent when a note is depressed (start). (kkkkkkk) is the key (note) number. (vvvvvvv) is the velocity.
1010nnnn	0kkkkkkk 0vvvvvvv	Polyphonic Key Pressure (Aftertouch). This message is most often sent by pressing down on the key after it "bottoms out". (kkkkkkk) is the key (note) number. (vvvvvvv) is the pressure value.

1011nnnn	occccccc ovvvvvvv	Control Change. This message is sent when a controller value changes. Controllers include devices such as pedals and levers. Controller numbers 120-127 are reserved as "Channel Mode Messages" (below). (ccccccc) is the controller number (0-119). (vvvvvvv) is the controller value (0-127).
1100nnnn	opppppppp	Program Change. This message sent when the patch number changes. (ppppppp) is the new program number.
1101nnnn	ovvvvvvv	Channel Pressure (After-touch). This message is most often sent by pressing down on the key after it "bottoms out". This message is different from polyphonic after-touch. Use this message to send the single greatest pressure value (of all the current depressed keys). (vvvvvvv) is the pressure value.
1110nnnn	olllllll ommmmmmm	Pitch Bend Change. This message is sent to indicate a change in the pitch bender (wheel or lever, typically). The pitch bender is measured by a fourteen bit value. Center (no pitch change) is 2000H. Sensitivity is a function of the receiver, but may be set using RPN 0. (lllllll) are the least significant 7 bits. (mmmmmmm) are the most significant 7 bits.
Channel Mode Messages (See also Control Change, above)		
1011nnnn	occccccc ovvvvvvv	Channel Mode Messages. This the same code as the Control Change (above), but implements Mode control and special message by using reserved controller numbers 120-127. The commands are:
		All Sound Off. When All Sound Off is received all oscillators will turn off, and their volume envelopes are set to zero as soon as possible. c = 120, v = 0: All Sound Off

	Reset All Controllers. When Reset All Controllers is received, all controller values are reset to their default values. (See specific Recommended Practices for defaults). c = 121, v = x: Value must only be zero unless otherwise allowed in a specific Recommended Practice.
	Local Control. When Local Control is Off, all devices on a given channel will respond only to data received over MIDI. Played data, etc. will be ignored. Local Control On restores the functions of the normal controllers. c = 122, v = 0: Local Control Off c = 122, v = 127: Local Control On
	All Notes Off. When an All Notes Off is received, all oscillators will turn off. c = 123, v = 0: All Notes Off (See text for description of actual mode commands.) c = 124, v = 0: Omni Mode Off c = 125, v = 0: Omni Mode On c = 126, v = M: Mono Mode On (Poly Off) where M is the number of channels (Omni Off) or 0 (Omni On) c = 127, v = 0: Poly Mode On (Mono Off) (Note: These four messages also cause All Notes Off)
System Common Messages	

11110000	oiiiiiii [oiiiiiii oiiiiiii] odddddddd --- --- odddddddd 11110111	System Exclusive. This message type allows manufacturers to create their own messages (such as bulk dumps, patch parameters, and other non-spec data) and provides a mechanism for creating additional MIDI Specification messages. The Manufacturer's ID code (assigned by MMA or AMEI) is either 1 byte (oiiiiiii) or 3 bytes (oiiiiiii oiiiiiii oiiiiiii). Two of the 1 Byte IDs are reserved for extensions called Universal Exclusive Messages, which are not manufacturer-specific. If a device recognizes the ID code as its own (or as a supported Universal message) it will listen to the rest of the message (odddddddd). Otherwise, the message will be ignored. (Note: Only Real-Time messages may be interleaved with a System Exclusive.)
11110001	onnndddd	MIDI Time Code Quarter Frame. nnn = Message Type dddd = Values
11110010	olllllll ommmmmmm	Song Position Pointer. This is an internal 14 bit register that holds the number of MIDI beats (1 beat= six MIDI clocks) since the start of the song. l is the LSB, m the MSB.
11110011	ossssssss	Song Select. The Song Select specifies which sequence or song is to be played.
11110100		Undefined. (Reserved)
11110101		Undefined. (Reserved)
11110110		Tune Request. Upon receiving a Tune Request, all analog synthesizers should tune their oscillators.
11110111		End of Exclusive. Used to terminate a System Exclusive dump (see above).
System Real-Time Messages		
11111000		Timing Clock. Sent 24 times per quarter note when synchronization is required (see text).

11111001		Undefined. (Reserved)
11111010		Start. Start the current sequence playing. (This message will be followed with Timing Clocks).
11111011		Continue. Continue at the point the sequence was Stopped.
11111100		Stop. Stop the current sequence.
11111101		Undefined. (Reserved)
11111110		Active Sensing. This message is intended to be sent repeatedly to tell the receiver that a connection is alive. Use of this message is optional. When initially received, the receiver will expect to receive another Active Sensing message each 300ms (max), and if it does not then it will assume that the connection has been terminated. At termination, the receiver will turn off all voices and return to normal (non- active sensing) operation.
11111111		Reset. Reset all receivers in the system to power-up status. This should be used sparingly, preferably under manual control. In particular, it should not be sent on power-up.