

MIDI

Musical Instrument Digital Interface



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MIDI

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- Communication Protocol, Digital Interface & Electrical Connectors
- 1 MIDI link through a MIDI cable can carry up to 16 channels of information – NOT Sound

MIDI encapsulates the instructions not the sound.



History of MIDI

Why was it created?

The need of a standard to synchronize electronic musical instruments manufactured by different companies.

Creators?

Ikutaro Kakehashi, Dave Smith & Tom Oberheim

When?

First mention on a paper of 1981

A snippet of a musical score for piano and bass. The piano part is in treble clef, and the bass part is in bass clef. The score includes various musical notations such as notes, rests, and dynamic markings like *mf*, *p*, *dim.*, and *pp*. There are also performance instructions like *rit.* and *a tempo*. The score is divided into measures, with some measures containing multiple notes and rests.

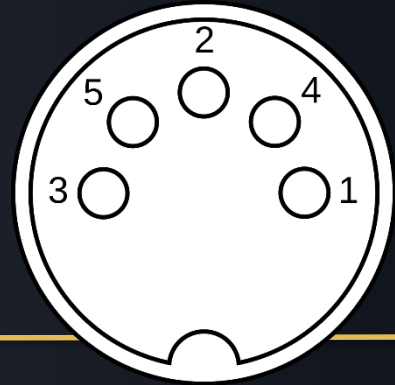
A screenshot of a MIDI software interface. The main window displays a piano roll with a grid of notes and rests. The notes are color-coded by pitch and duration. The interface includes a keyboard view on the left, a MIDI editor on the right, and a status bar at the bottom. The MIDI editor shows a list of events with properties like Type, On Tick, Off Tick, Duration, Note, Velocity, and Channel. The status bar at the bottom shows the current track and channel.

Protocol	Event	Value
Type	Note On/Off Event	
On Tick	111120	
Off Tick	111180	
Duration	60	
Note	74	
Velocity	100	
Channel	10	

Add new events to ...
Track: Track 1: Flutes
Channel: Channel 0

Characteristics & Specification of MIDI

- + Small file size
- + Easy modification and manipulation
- + Wide choice of electronic instruments
- + MIDI over USB standard / Easy connection with PC



MIDI Cable

- 8-bit words transmitted serially at 31.25 Kbit/s
- 16 channels of transmission (0-15)
- Representation of 128 notes (C-1 to G9) \rightarrow [8, 12500] Hz
- MIDI 2.0 \rightarrow 256 Channels / 32, 64, 96 or 128 bits length messages