Arduino MIDI Library

Version 3.0

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2.1 File List

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Class Documentation

3.1 MIDI_Class Class Reference

`#include <MIDI.h>`

Public Member Functions

- MIDI_Class ()
- ~MIDI_Class ()
- void begin (const byte inChannel=1)
- void sendNoteOn (byte NoteNumber, byte Velocity, byte Channel)
- void sendNoteOff (byte NoteNumber, byte Velocity, byte Channel)
- void sendProgramChange (byte ProgramNumber, byte Channel)
- void sendControlChange (byte ControlNumber, byte ControlValue, byte Channel)
- void sendPitchBend (unsigned int PitchValue, byte Channel)
- void sendPitchBend (double PitchValue, byte Channel)
- void sendPolyPressure (byte NoteNumber, byte Pressure, byte Channel)
- void sendAfterTouch (byte Pressure, byte Channel)
- void sendSysEx (byte length, byte *array, bool ArrayContainsBoundaries=false)
- void sendTimeCodeQuarterFrame (byte TypeNibble, byte ValuesNibble)
- void sendTimeCodeQuarterFrame (byte data)
- void sendSongPosition (unsigned int Beats)
- void sendSongSelect (byte SongNumber)
- void sendTuneRequest ()
- void sendRealTime (kMIDIType Type)
- bool read ()
- bool read (const byte Channel)
- kMIDIType getType ()
- byte getChannel ()
- byte getData1 ()
- byte getData2 ()
- byte * getSysExArray ()
- bool check ()
- byte getInputChannel ()
- void setInputChannel (const byte Channel)

- kThruFilterMode getFilterMode ()
- bool getThruState ()
- void turnThruOn (kThruFilterMode inThruFilterMode=Full)
- void turnThruOff ()
- void setThruFilterMode (const byte inThruFilterMode)
- void setThruFilterMode (const kThruFilterMode inThruFilterMode)

3.1.1 Detailed Description

The main class for MIDI handling. See member descriptions to know how to use it, or check out the examples supplied with the library.

Definition at line 120 of file MIDI.h.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 MIDI_Class::MIDI_Class ()

Default constructor for MIDI_Class.

Definition at line 22 of file MIDI.cpp.

```
22 { }
```

3.1.2.2 MIDI_Class::~MIDI_Class ()

Default destructor for MIDI_Class.

This is not really useful for the Arduino, as it is never called...

Definition at line 26 of file MIDI.cpp.

```
26 { }
```

3.1.3 Member Function Documentation

3.1.3.1 void MIDI_Class::begin (const byte *inChannel* = 1)

Call the begin method in the setup() function of the Arduino. All parameters are set to their default values:

- Input channel set to 1 if no value is specified
- Full thru mirroring

Definition at line 34 of file MIDI.cpp.

```
34                                          {
35
36         // Initialise the Serial port
37         USE_SERIAL_PORT.begin(MIDI_BAUDRATE);
38
39
```

```
40 #if COMPFLAG_MIDI_OUT
41
42 #if USE_RUNNING_STATUS
43         mRunningStatus_TX = InvalidType;
44 #endif // USE_RUNNING_STATUS
45
46 #endif // COMPFLAG_MIDI_OUT
47
48
49 #if COMPFLAG_MIDI_IN
50
51         mInputChannel = inChannel;
52         mRunningStatus_RX = InvalidType;
53         mPendingMessageIndex = 0;
54         mPendingMessageExpectedLenght = 0;
55
56         mMessage.valid = false;
57         mMessage.type = InvalidType;
58         mMessage.channel = 0;
59         mMessage.data1 = 0;
60         mMessage.data2 = 0;
61
62 #endif // COMPFLAG_MIDI_IN
63
64
65 #if (COMPFLAG_MIDI_IN && COMPFLAG_MIDI_OUT) // Thru
66
67         mThruFilterMode = Full;
68
69 #endif // Thru
70
71 }
```

3.1.3.2 bool MIDI_Class::check ()

Check if a valid message is stored in the structure.

Definition at line 599 of file MIDI.cpp.

```
599 { return mMessage.valid; }
```

3.1.3.3 byte MIDI_Class::getChannel ()

Getter method: access to the channel of the message stored in the structure.

Definition at line 591 of file MIDI.cpp.

```
591 { return mMessage.channel; }
```

3.1.3.4 byte MIDI_Class::getData1 ()

Getter method: access to the first data byte of the message stored in the structure.

If the message is SysEx, the length of the array is stocked there.

Definition at line 593 of file MIDI.cpp.

```
593 { return mMessage.data1; }
```

3.1.3.5 byte MIDI_Class::getData2 ()

Getter method: access to the second data byte of the message stored in the structure.

Definition at line 595 of file MIDI.cpp.

```
595 { return mMessage.data2; }
```

3.1.3.6 kThruFilterMode MIDI_Class::getFilterMode () [inline]

Definition at line 226 of file MIDI.h.

```
226 { return mThruFilterMode; }
```

3.1.3.7 byte MIDI_Class::getInputChannel () [inline]

Definition at line 186 of file MIDI.h.

```
186 { return mInputChannel; }
```

3.1.3.8 byte * MIDI_Class::getSysExArray ()

Getter method: access to the System Exclusive byte array. Array length is stocked in Data1.

Definition at line 597 of file MIDI.cpp.

```
597 { return mMessage.sysex_array; }
```

3.1.3.9 bool MIDI_Class::getThruState () [inline]

Definition at line 227 of file MIDI.h.

```
227 { return mThruActivated; }
```

3.1.3.10 kMIDIType MIDI_Class::getType ()

Getter method: access to the message type stored in the structure.

Returns an enumerated type.

Definition at line 589 of file MIDI.cpp.

```
589 { return mMessage.type; }
```

3.1.3.11 bool MIDI_Class::read (const byte *inChannel*)

Reading/thru-ing method, the same as read() with a given input channel to read on.

Definition at line 306 of file MIDI.cpp.

```
306                                         {
307
308         if (inChannel >= MIDI_CHANNEL_OFF) return false; // MIDI Input disabled.
309
310         if (parse(inChannel)) return filter(inChannel);
311         else return false;
312
313 }
```

3.1.3.12 bool MIDI_Class::read ()

Read a MIDI message from the serial port using the main input channel (see setInputChannel() for reference).

Returned value: true if any valid message has been stored in the structure, false if not. A valid message is a message that matches the input channel.

If the Thru is enabled and the messages matches the filter, it is sent back on the MIDI output.

Definition at line 301 of file MIDI.cpp.

```
301                         {
302         return read(mInputChannel);
303 }
```

3.1.3.13 void MIDI_Class::sendAfterTouch (byte *Pressure*, byte *Channel*)

Send a MonoPhonic AfterTouch message (applies to all notes)

Parameters:

Pressure The amount of AfterTouch to apply to all notes.

Channel The channel on which the message will be sent (1 to 16).

Definition at line 192 of file MIDI.cpp.

```
192 { send(AfterTouchChannel,Pressure,0,Channel); }
```

3.1.3.14 void MIDI_Class::sendControlChange (byte *ControlNumber*, byte *ControlValue*, byte *Channel*)

Send a Control Change message

Parameters:

ControlNumber The controller number (0 to 127). See the detailed description here: http://www.somascape.org/midi/tech/spec.html#ctrlnums

ControlValue The value for the specified controller (0 to 127).

Channel The channel on which the message will be sent (1 to 16).

Definition at line 179 of file MIDI.cpp.

```
179 { send(ControlChange,ControlNumber,ControlValue,Channel); }
```

3.1.3.15 void MIDI_Class::sendNoteOff (byte *NoteNumber*, byte *Velocity*, byte *Channel*)

Send a Note Off message (a real Note Off, not a Note On with null velocity)

Parameters:

NoteNumber Pitch value in the MIDI format (0 to 127). Take a look at the values, names and frequencies of notes here: http://www.phys.unsw.edu.au/jw/notes.html

Velocity Release velocity (0 to 127).

Channel The channel on which the message will be sent (1 to 16).

Definition at line 166 of file MIDI.cpp.

```
166 { send(NoteOff,NoteNumber,Velocity,Channel); }
```

3.1.3.16 void MIDI_Class::sendNoteOn (byte *NoteNumber*, byte *Velocity*, byte *Channel*)

Send a Note On message

Parameters:

NoteNumber Pitch value in the MIDI format (0 to 127). Take a look at the values, names and frequencies of notes here: http://www.phys.unsw.edu.au/jw/notes.html

Velocity Note attack velocity (0 to 127). A NoteOn with 0 velocity is considered as a NoteOff.

Channel The channel on which the message will be sent (1 to 16).

Definition at line 159 of file MIDI.cpp.

```
159 { send(NoteOn,NoteNumber,Velocity,Channel); }
```

3.1.3.17 void MIDI_Class::sendPitchBend (double *PitchValue*, byte *Channel*)

Send a Pitch Bend message using a floating point value.

Parameters:

PitchValue The amount of bend to send (in a floating point format), between -1 (maximum downwards bend) and +1 (max upwards bend), center value is 0.

Channel The channel on which the message will be sent (1 to 16).

Definition at line 207 of file MIDI.cpp.

```
207                                                                 {
208
209         unsigned int pitchval = (PitchValue+1.f)*8192;
210         if (pitchval > 16383) pitchval = 16383;         // overflow protection
211         sendPitchBend(pitchval,Channel);
212
213 }
```

3.1.3.18 void MIDI_Class::sendPitchBend (unsigned int *PitchValue*, byte *Channel*)

Send a Pitch Bend message using an integer value.

Parameters:

PitchValue The amount of bend to send (in an integer format), between 0 (maximum downwards bend) and 16383 (max upwards bend), center value is 8192.

Channel The channel on which the message will be sent (1 to 16).

Definition at line 198 of file MIDI.cpp.

```
198                                                                     {
199
200         send(PitchBend,(PitchValue & 0x7F),(PitchValue >> 7) & 0x7F,Channel);
201
202 }
```

3.1.3.19 void MIDI_Class::sendPolyPressure (byte *NoteNumber*, byte *Pressure*, byte *Channel*)

Send a Polyphonic AfterTouch message (applies to only one specified note)

Parameters:

NoteNumber The note to apply AfterTouch to (0 to 127).

Pressure The amount of AfterTouch to apply (0 to 127).

Channel The channel on which the message will be sent (1 to 16).

Definition at line 186 of file MIDI.cpp.

```
186 { send(AfterTouchPoly,NoteNumber,Pressure,Channel); }
```

3.1.3.20 void MIDI_Class::sendProgramChange (byte *ProgramNumber*, byte *Channel*)

Send a Program Change message

Parameters:

ProgramNumber The Program to select (0 to 127).

Channel The channel on which the message will be sent (1 to 16).

Definition at line 172 of file MIDI.cpp.

```
172 { send(ProgramChange,ProgramNumber,0,Channel); }
```

3.1.3.21 void MIDI_Class::sendRealTime (kMIDIType *Type*)

Send a Real Time (one byte) message.

You can also send a Tune Request with this method.

Parameters:

Type The available Real Time types are: Start, Stop, Continue, Clock, ActiveSensing and SystemReset.

Definition at line 273 of file MIDI.cpp.

```
273                                             {
274         switch (Type) {
275                 case TuneRequest: // Not really real-time, but one byte anyway.
276                 case Clock:
277                 case Start:
278                 case Stop:
279                 case Continue:
280                 case ActiveSensing:
281                 case SystemReset:
282                         USE_SERIAL_PORT.write((byte)Type);
283                         break;
284                 default:
285                         // Invalid Real Time marker
286                         break;
287         }
288 }
```

3.1.3.22 void MIDI_Class::sendSongPosition (unsigned int *Beats*)

Send a Song Position Pointer message.

Parameters:

Beats The number of beats since the start of the song.

Definition at line 254 of file MIDI.cpp.

```
254                                                     {
255
256         USE_SERIAL_PORT.write(SongPosition);
257         USE_SERIAL_PORT.write(Beats & 0x7F);
258         USE_SERIAL_PORT.write((Beats >> 7) & 0x7F);
259
260 }
```

3.1.3.23 void MIDI_Class::sendSongSelect (byte *SongNumber*)

Send a Song Select message

Definition at line 263 of file MIDI.cpp.

```
263                                                 {
264
265         USE_SERIAL_PORT.write(SongSelect);
266         USE_SERIAL_PORT.write(SongNumber & 0x7F);
267
268 }
```

3.1.3.24 void MIDI_Class::sendSysEx (byte *length*, byte * *array*, bool *ArrayContainsBoundaries* = false)

Generate and send a System Exclusive frame.

Parameters:

length The size of the array to send

array The byte array containing the data to send

ArrayContainsBoundaries When set to 'true', 0xF0 & 0xF7 bytes (start & stop SysEx) will NOT be sent (and therefore must be included in the array).\ default value is set to 'false' for compatibility with previous versions of the library.

Definition at line 221 of file MIDI.cpp.

```
221                                                                                 {
222         if (!ArrayContainsBoundaries) USE_SERIAL_PORT.write(0xF0);
223         for (byte i=0;i<length;i++) USE_SERIAL_PORT.write(array[i]);
224         if (!ArrayContainsBoundaries) USE_SERIAL_PORT.write(0xF7);
225 }
```

3.1.3.25 void MIDI_Class::sendTimeCodeQuarterFrame (byte *data*)

Send a MIDI Time Code Quarter Frame. See MIDI Specification for more information.

Parameters:

data if you want to encode directly the nibbles in your program, you can send the byte here.

Definition at line 244 of file MIDI.cpp.

```
244                                                 {
245
246         USE_SERIAL_PORT.write(TimeCodeQuarterFrame);
247         USE_SERIAL_PORT.write(data);
248
249 }
```

3.1.3.26 void MIDI_Class::sendTimeCodeQuarterFrame (byte *TypeNibble*, byte *ValuesNibble*)

Send a MIDI Time Code Quarter Frame. See MIDI Specification for more information.

Parameters:

TypeNibble MTC type

ValuesNibble MTC data

Definition at line 234 of file MIDI.cpp.

```
234                                                                             {
235
236         byte data = ( ((TypeNibble & 0x07) << 4) | (ValuesNibble & 0x0F) );
237         sendTimeCodeQuarterFrame(data);
238
239 }
```

3.1.3.27 void MIDI_Class::sendTuneRequest ()

Send a Tune Request message. When a MIDI unit receives this message, it should tune its oscillators (if equipped with any)

Definition at line 228 of file MIDI.cpp.

```
228 { sendRealTime(TuneRequest); }
```

3.1.3.28 void MIDI_Class::setInputChannel (const byte *Channel*)

Set the value for the input MIDI channel

Parameters:

Channel the channel value. Valid values are 1 to 16, MIDI_CHANNEL_OMNI if you want to listen to all channels, and MIDI_CHANNEL_OFF to disable MIDI input.

Definition at line 606 of file MIDI.cpp.

```
606 { mInputChannel = inChannel; }
```

3.1.3.29 void MIDI_Class::setThruFilterMode (const kThruFilterMode *inThruFilterMode*)

Set the filter for thru mirroring

Parameters:

inThruFilterMode a filter mode See kThruFilterMode for detailed description.

Definition at line 620 of file MIDI.cpp.

```
620                                                                     {
621         mThruFilterMode = inThruFilterMode;
622         if (mThruFilterMode != Off) mThruActivated = true;
623         else mThruActivated = false;
624 }
```

3.1.3.30 void MIDI_Class::setThruFilterMode (const byte *inThruFilterMode*)

Set the filter for thru mirroring

Parameters:

inThruFilterMode a filter mode See kThruFilterMode for detailed description.
This method uses a byte parameter and is for compatibility only, please use kThruFilterMode for future programs.

Definition at line 630 of file MIDI.cpp.

```
630                                                     {
631         mThruFilterMode = (kThruFilterMode)inThruFilterMode;
632         if (mThruFilterMode != Off) mThruActivated = true;
633         else mThruActivated = false;
634 }
```

3.1.3.31 void MIDI_Class::turnThruOff ()

Setter method: turn message mirroring off.

Definition at line 643 of file MIDI.cpp.

```
643                                {
644         mThruActivated = false;
645         mThruFilterMode = Off;
646 }
```

3.1.3.32 void MIDI_Class::turnThruOn (kThruFilterMode *inThruFilterMode* = `Full`)

Setter method: turn message mirroring on.

Definition at line 638 of file MIDI.cpp.

```
638                                                                {
639         mThruActivated = true;
640         mThruFilterMode = inThruFilterMode;
641 }
```

The documentation for this class was generated from the following files:

- /Users/franky/Documents/Dropbox/SVN/embedded/toolbox/libraries/MIDILib/trunk/Arduino/MIDI.h
- /Users/franky/Documents/Dropbox/SVN/embedded/toolbox/libraries/MIDILib/trunk/Arduino/MIDI.cpp

3.2 midimsg Struct Reference

`#include <MIDI.h>`

Public Attributes

- byte channel
- kMIDIType type
- byte data1
- byte data2
- byte sysex_array [MIDI_SYSEX_ARRAY_SIZE]
- bool valid

3.2.1 Detailed Description

The midimsg structure contains decoded data of a MIDI message read from the serial port with read() or thru().

Definition at line 100 of file MIDI.h.

3.2.2 Member Data Documentation

3.2.2.1 byte midimsg::channel

The MIDI channel on which the message was recieved.

Value goes from 1 to 16.

Definition at line 102 of file MIDI.h.

3.2.2.2 byte midimsg::data1

The first data byte.

Value goes from 0 to 127.

If the message is SysEx, this byte contains the array length.

Definition at line 106 of file MIDI.h.

3.2.2.3 byte midimsg::data2

The second data byte. If the message is only 2 bytes long, this one is null.

Value goes from 0 to 127.

Definition at line 108 of file MIDI.h.

3.2.2.4 byte midimsg::sysex_array[MIDI_SYSEX_ARRAY_SIZE]

System Exclusive dedicated byte array.

Array length is stocked in data1.

Definition at line 110 of file MIDI.h.

3.2.2.5 kMIDIType midimsg::type

The type of the message (see the define section for types reference)

Definition at line 104 of file MIDI.h.

3.2.2.6 bool midimsg::valid

This boolean indicates if the message is valid or not. There is no channel consideration here, validity means the message respects the MIDI norm.

Definition at line 112 of file MIDI.h.

The documentation for this struct was generated from the following file:

- /Users/franky/Documents/Dropbox/SVN/embedded/toolbox/libraries/MIDILib/trunk/Arduino/MIDI.h

Chapter 4

File Documentation

4.1 /Users/franky/Documents/Dropbox/SVN/embedded/toolbox/libraries/MIDILi v2.5.h File Reference

Compatibility file for MIDI Library v2.5 Version 3.0.

Defines

- #define MIDI_rate MIDI_BAUDRATE
- #define ATPoly AfterTouchPoly
- #define CC ControlChange
- #define PC ProgramChange
- #define ATCanal AfterTouchChannel
- #define SysEx SystemExclusive
- #define MIDI_FILTER_OFF 0
- #define MIDI_FILTER_FULL 1
- #define MIDI_FILTER_CANAL 2
- #define MIDI_FILTER_ANTICANAL 3

4.1.1 Detailed Description

Compatibility file for MIDI Library v2.5 Version 3.0.

Project MIDI Library

Author:

François Best

Date:

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Definition in file Compatibility_v2.5.h.

4.1.2 Define Documentation

4.1.2.1 #define ATCanal AfterTouchChannel

Message type AfterTouch Channel

Definition at line 30 of file Compatibility_v2.5.h.

4.1.2.2 #define ATPoly AfterTouchPoly

Message type AfterTouch Poly

Definition at line 24 of file Compatibility_v2.5.h.

4.1.2.3 #define CC ControlChange

Message type Control Change

Definition at line 26 of file Compatibility_v2.5.h.

4.1.2.4 #define MIDI_FILTER_ANTICANAL 3

Definition at line 38 of file Compatibility_v2.5.h.

4.1.2.5 #define MIDI_FILTER_CANAL 2

Definition at line 37 of file Compatibility_v2.5.h.

4.1.2.6 #define MIDI_FILTER_FULL 1

Definition at line 36 of file Compatibility_v2.5.h.

4.1.2.7 #define MIDI_FILTER_OFF 0

Definition at line 35 of file Compatibility_v2.5.h.

4.1.2.8 #define MIDI_rate MIDI_BAUDRATE

The basic baudrate for MIDI communications.

Definition at line 22 of file Compatibility_v2.5.h.

4.1.2.9 #define PC ProgramChange

Message type Program Change

Definition at line 28 of file Compatibility_v2.5.h.

Message type System Exclusive

Definition at line 32 of file Compatibility_v2.5.h.

4.2 /Users/franky/Documents/Dropbox/SVN/embedded/toolbox/libraries/MIDILi File Reference

MIDI Library for the Arduino.

```
#include "MIDI.h"
#include <stdlib.h>
#include "WConstants.h"
#include "HardwareSerial.h"
```

Variables

- MIDI_Class MIDI

4.2.1 Detailed Description

MIDI Library for the Arduino.

Project MIDI Library

Version:

3.0

Author:

François Best

Date:

24/02/11 GPL Forty Seven Effects - 2011

Definition in file MIDI.cpp.

4.2.2 Variable Documentation

4.2.2.1 MIDI_Class MIDI

Main instance (the class comes pre-instantiated).

Definition at line 18 of file MIDI.cpp.

4.3 /Users/franky/Documents/Dropbox/SVN/embedded/toolbox/libraries/MIDILi File Reference

MIDI Library for the Arduino Version 3.0.

```
#include <inttypes.h>
#include "Compatibility_v2.5.h"
```

Classes

- struct midimsg
- class MIDI_Class

Defines

- #define COMPATIBILITY_V25 1
- #define COMPFLAG_MIDI_IN 1
- #define COMPFLAG_MIDI_OUT 1
- #define USE_SERIAL_PORT Serial1
- #define USE_RUNNING_STATUS 1
- #define MIDI_BAUDRATE 31250
- #define MIDI_CHANNEL_OMNI 0
- #define MIDI_CHANNEL_OFF 17
- #define MIDI_SYSEX_ARRAY_SIZE 255

Typedefs

- typedef uint8_t byte

Enumerations

- enum kMIDIType {
  NoteOff = 0x80, NoteOn = 0x90, AfterTouchPoly = 0xA0, ControlChange = 0xB0,
  ProgramChange = 0xC0, AfterTouchChannel = 0xD0, PitchBend = 0xE0, SystemExclusive = 0xF0,
  TimeCodeQuarterFrame = 0xF1, SongPosition = 0xF2, SongSelect = 0xF3, TuneRequest = 0xF6,
  Clock = 0xF8, Start = 0xFA, Continue = 0xFB, Stop = 0xFC,
  ActiveSensing = 0xFE, SystemReset = 0xFF, InvalidType = 0x00 }
- enum kThruFilterMode { Off = 0, Full = 1, SameChannel = 2, DifferentChannel = 3 }

Variables

- MIDI_Class MIDI

4.3.1 Detailed Description

MIDI Library for the Arduino Version 3.0.

Project MIDI Library

Author:

François Best

Date:

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Definition in file MIDI.h.

4.3.2 Define Documentation

4.3.2.1 #define COMPATIBILITY_V25 1

Definition at line 30 of file MIDI.h.

4.3.2.2 #define COMPFLAG_MIDI_IN 1

Definition at line 33 of file MIDI.h.

4.3.2.3 #define COMPFLAG_MIDI_OUT 1

Definition at line 34 of file MIDI.h.

4.3.2.4 #define MIDI_BAUDRATE 31250

Definition at line 56 of file MIDI.h.

4.3.2.5 #define MIDI_CHANNEL_OFF 17

Definition at line 60 of file MIDI.h.

4.3.2.6 #define MIDI_CHANNEL_OMNI 0

Definition at line 59 of file MIDI.h.

4.3.2.7 #define MIDI_SYSEX_ARRAY_SIZE 255

Definition at line 62 of file MIDI.h.

4.3.2.8 #define USE_RUNNING_STATUS 1

Definition at line 44 of file MIDI.h.

4.3.2.9 #define USE_SERIAL_PORT Serial1

Definition at line 40 of file MIDI.h.

4.3.3 Typedef Documentation

4.3.3.1 typedef uint8_t byte

Type definition for practical use (because "unsigned char" is a bit long to write..)

Definition at line 65 of file MIDI.h.

4.3.4 Enumeration Type Documentation

4.3.4.1 enum kMIDIType

Enumeration of MIDI types

Enumerator:

NoteOff

NoteOn

AfterTouchPoly

ControlChange

ProgramChange

AfterTouchChannel

PitchBend

SystemExclusive

TimeCodeQuarterFrame

SongPosition

SongSelect

TuneRequest

Clock

Start

Continue

Stop

ActiveSensing

SystemReset

InvalidType

Definition at line 68 of file MIDI.h.

```
68                {
69          NoteOff               = 0x80,   // Note Off
70          NoteOn                = 0x90,   // Note On
71          AfterTouchPoly        = 0xA0,   // Polyphonic AfterTouch
72          ControlChange         = 0xB0,   // Control Change / Channel Mode
73          ProgramChange         = 0xC0,   // Program Change
```

```
74         AfterTouchChannel     = 0xD0,   // Channel (monophonic) AfterTouch
75         PitchBend             = 0xE0,   // Pitch Bend
76         SystemExclusive       = 0xF0,   // System Exclusive
77         TimeCodeQuarterFrame  = 0xF1,   // System Common - MIDI Time Code Quarter Frame
78         SongPosition          = 0xF2,   // System Common - Song Position Pointer
79         SongSelect            = 0xF3,   // System Common - Song Select
80         TuneRequest           = 0xF6,   // System Common - Tune Request
81         Clock                 = 0xF8,   // System Real Time - Timing Clock
82         Start                 = 0xFA,   // System Real Time - Start
83         Continue              = 0xFB,   // System Real Time - Continue
84         Stop                  = 0xFC,   // System Real Time - Stop
85         ActiveSensing         = 0xFE,   // System Real Time - Active Sensing
86         SystemReset           = 0xFF,   // System Real Time - System Reset
87         InvalidType           = 0x00    // For notifying errors
88 };
```

4.3.4.2 enum kThruFilterMode

Enumeration of Thru filter modes

Enumerator:

Off

Full

SameChannel

DifferentChannel

Definition at line 91 of file MIDI.h.

```
91                      {
92         Off                   = 0,  // Thru disabled (nothing passes through).
93         Full                  = 1,  // Fully enabled Thru (every incoming message is sent back).
94         SameChannel           = 2,  // Only the messages on the Input Channel will be sent back.
95         DifferentChannel      = 3   // All the messages but the ones on the Input Channel will be sent
96 };
```

4.3.5 Variable Documentation

4.3.5.1 MIDI_Class MIDI

Main instance (the class comes pre-instantiated).

Definition at line 18 of file MIDI.cpp.

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