MIDI Implementation

Model : RE-202
Date : Aug. 31, 2022
Version : 1.10

Recognized Receive data

Channel Voice Messages

Received when the “MIDI RX CHANNEL” matches the number of the MIDI channel on which they arrive.

Control Change

Status	2nd Byte	3rd Byte
BnH	ccH	vvH

n = MIDI Channel Number : 0H - FH(0 - 15) 0=ch.1 15=ch.16
cc = Control Change Number : 10H - 18H(16 - 24), 1BH(27), 30H(48), 52H - 54H(82-84)
vv = Value : 00H - 7FH(0 - 127)

* Received when "MIDI CC IN" parameter is set to "ON".

The Function to each Control Change Number is as follows

Function	Control Change Number	Value
TAP TIME (MSB)	10H(16)	00 - 7F(0 - 127)
REPEAT RATE	11H(17)	00 - 7F(0 - 127)
INTENSITY	12H(18)	00 - 7F(0 - 127)
ECHO VOL	13H(19)	00 - 7F(0 - 127)
BASS	14H(20)	00 - 7F(0 - 127)
TREBLE	15H(21)	00 - 7F(0 - 127)
REVERB VOL	16H(22)	00 - 7F(0 - 127)
SATURATION	17H(23)	00 - 7F(0 - 127)
WOW & FLUTTER	18H(24)	00 - 7F(0 - 127)
EFFECT ON/OFF	1BH(27)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON
TAP TIME (LSB)	30H(48)	00 - 7F(0 - 127)
TAP TEMPO	52H(82)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON
TWIST	53H(83)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON
WARP	54H(84)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON

The conversion between Tap Time and 14-bit (MSB + LSB) control value is as follows
time = (MSB * 128 + LSB) * (MAX - 50) / 16256 + 50

* When receiving the MSB, treat the LSB as “0”
* The maximum tap time depends on the time mode setting as follows

time mode	maximum tap time
Normal	1,000 ms
Long	2,000 ms

Program Change

Status	2nd Byte
CnH	ppH

n = MIDI Channel Number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
pp = Program Number : 00H - 7FH (0 - 127) 0 = memory manual, 127 = memory 127

* Received when "MIDI PC IN" parameter is set to "ON".
* Patches will be selected according to the program number that is received.

System Realtime Message

Timing Clock

Status
F8H

* Received when "MIDI SYNC SOURCE" parameter is set to "AUTO".

Active Sensing

Status
FEH

* When an Active Sensing message is received, the interval of all subsequent messages will begin to be monitored.
When the message interval is being monitored, and the interval exceeds 400 ms, the unit returns to a state in which message interval is not monitored.

System Exclusive Message

Status	Data Byte	Status
F0H	41H, ddH, ..., eeH	F7H

Byte	Explanation
F0H:	System Exclusive Message status
41H:	Manufacturer ID (Roland)
dd,...,ee = data:	00H-7FH(0-127)
F7H:	EOX(End Of Exclusive)

Universal Non-Realtime System Exclusive Messages

Identity Request Message (Device Inquiry)

Status	Data Byte	Status
F0H	7EH, ddH, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
ddH	Device ID (10H-1FH, 7FH) * 7FH = BroadCast
06H	Sub ID # 1 (General Information)
01H	Sub ID # 2 (Identity Request)
F7H	EOX (End Of Exclusive)

When this message is received, Identity Reply message will be transmitted.
(please see "Transmit data")

One Way Communication

Request Data 1 RQ1 (11H)

Status	Data Byte	Status
F0H	41H, ddH, 00H, 00H, 00H, 00H, 18H, 11H, aaH, bbH, ccH, ddH, ssH, ttH, uuH, vvH, csH	F7H

Byte	Explanation
F0H	Exclusive status
41H	ManufacturerID (Roland)
ddH	Device ID (10H-1FH, 7FH) * 7FH = Broad Cast
00H	Model ID # 1 (RE-202)
00H	Model ID # 2 (RE-202)
00H	Model ID # 3 (RE-202)
00H	Model ID # 4 (RE-202)
18H	Model ID # 5 (RE-202)
11H	Command ID (Data Request)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
ssH	Size MSB
ttH	Size
uuH	Size
vvH	Size LSB
csH	Check Sum
F7H	EOX (End Of Exclusive)

Data Set1 DT1 (12H)

Status	Data Byte	Status
F0H	41H, ddH, 00H, 00H, 00H, 00H, 18H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, csH	F7H

Byte	Explanation
F0H	Exclusive status
41H	ManufacturerID (Roland)
ddH	Device ID (10H-1FH, 7FH) * 7FH = Broad Cast
00H	Model ID # 1 (RE-202)
00H	Model ID # 2 (RE-202)
00H	Model ID # 3 (RE-202)
00H	Model ID # 4 (RE-202)
18H	Model ID # 5 (RE-202)
12H	Command ID (Data Set)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data
:	
ffH	Data
csH	Check Sum
F7H	EOX (End Of Exclusive)

Transmit data

Channel Voice Messages

Set the channel voice message transmit MIDI channel number to "MIDI TX CHANNEL".

Control Change

Status	2nd Byte	3rd Byte
BnH	ccH	vvH

n = MIDI Channel Number : 0H - FH(0 - 15) 0=ch.1 15=ch.16
cc = Control Change Number : 10H - 18H(16 - 24), 1BH(27), 30H(48), 52H - 54H(82 - 84)
vv = Value : 00H - 7FH(0 - 127)

* If you set up a system parameter "MIDI CC OUT" for "ON",
  control change information is transmitted when operating each controllers.

The Function to each Control Change Number is as follows

Function	Control Change Number	Value
TAP TIME (MSB)	10H(16)	00 - 7F(0 - 127)
REPEAT RATE	11H(17)	00 - 7F(0 - 127)
INTENSITY	12H(18)	00 - 7F(0 - 127)
ECHO VOL	13H(19)	00 - 7F(0 - 127)
BASS	14H(20)	00 - 7F(0 - 127)
TREBLE	15H(21)	00 - 7F(0 - 127)
REVERB VOL	16H(22)	00 - 7F(0 - 127)
SATURATION	17H(23)	00 - 7F(0 - 127)
WOW & FLUTTER	18H(24)	00 - 7F(0 - 127)
EFFECT ON/OFF	1BH(27)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON
TAP TIME (LSB)	30H(48)	00 - 7F(0 - 127)
TAP TEMPO	52H(82)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON
TWIST	53H(83)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON
WARP	54H(84)	00 - 7F(0 - 127) 0-63=OFF, 64-127=ON

The conversion between Tap Time and 14-bit (MSB + LSB) control value is as follows
time = (MSB * 128 + LSB) * (MAX - 50) / 16256 + 50

* When receiving the MSB, treat the LSB as “0”
* The maximum tap time depends on the time mode setting as follows

time mode	maximum tap time
Normal	1,000 ms
Long	2,000 ms

Program Change

Status	2nd Byte
CnH	ppH

n = MIDI Channel Number : 0H - FH (0 - 15) 0 = ch.1 15 = ch.16
pp = Program Number : 00H - 7FH (0 - 127) 0 = memory manual, 127 = memory 127

* If you set up a system parameter "MIDI PC OUT" for "ON", program change information is transmitted when switching memory.

System Realtime Message

Timing Clock

Status
F8H

* If you set up a system parameter "MIDI REALTIME SOURCE" for "INTERNAL", timing clock is transmitted at intervals corresponding to the "TAP TIME".
* If you set up a system parameter "MIDI REALTIME SOURCE" for "MIDI", Timing Clock is transmitted when timing clock messages received for MIDI.

Active Sensing

Status
F8H

* This message is always transmitted at intervals of approximately 250 ms.

System Exclusive Message

Status	Data Byte	Status
F0H	41H, ddH, ..., eeH	F7H

Byte	Explanation
F0H:	System Exclusive Message status
41H:	Manufacturer ID (Roland)
dd,...,ee = data:	00H-7FH(0-127)
F7H:	EOX(End Of Exclusive)

Universal Non-Realtime System Exclusive Messages

Identity Request Message (Device Inquiry)

Status	Data Byte	Status
F0H	7EH, ddH, 06H, 02H, 41H, 18H, 04H, 00H, 00H, x1H, x2H, x3H, x4H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
ddH	Device ID (10H-1FH)
06H	Sub ID # 1 (General Information)
02H	Sub ID # 2 (Identity Reply)
41H	Manufacturer ID (Roland)
18H	Device family code # 1 (RE-202)
04H	Device family code # 2 (RE-202)
00H	Device family Number code # 1 (RE-202)
00H	Device family Number code # 2 (RE-202)
x1H	Software revision level # 1
x2H	Software revision level # 2
x3H	Software revision level # 3
x4H	Software revision level # 4
F7H	EOX (End of Exclusive)

One Way Communication

Data Set1 DT1 (12H)

Status	Data Byte	Status
F0H	41H, ddH, 00H, 00H, 00H, 00H, 18H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, csH	F7H

Byte	Explanation
F0H	Exclusive status
41H	ManufacturerID (Roland)
ddH	Device ID (10H-1FH, 7FH)
00H	Model ID # 1 (RE-202)
00H	Model ID # 2 (RE-202)
00H	Model ID # 3 (RE-202)
00H	Model ID # 4 (RE-202)
18H	Model ID # 5 (RE-202)
12H	Command ID (Data Set)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data
:	
ffH	Data
csH	Check Sum
F7H	EOX (End Of Exclusive)

System Exclusive Address Map

Start Address	Description
10 00 00 00	SYSTEM
20 00 00 00	MEMORY
20 10 00 00	MEMORY MANUAL
:	:
30 00 00 00	MEMORY 127

* SYSTEM

Offset Address	Description
00 00 00	SYSTEM

* MEMORY

Offset Address	Description
00 00 00	MEMORY

* SYSTEM Parameters Offset Address

Offset Address		Description	
00 00	0000 000d	Input Source	(0 - 1) GUITAR, LINE
00 01	0000 0ddd	CTL1 Function	(0 - 4) MEMORY UP, MEMORY DOWN, EFFECT ON/OFF, TAP, WARP
00 02	0000 0ddd	CTL2 Function	(0 - 4) MEMORY UP, MEMORY DOWN, EFFECT ON/OFF, TAP, TWIST
00 03	0000 000d	Direct On/Off	(0 - 1) OFF, ON
00 04	0000 00dd	Direct Mode	(0 - 2) ANALOG, RE-201 SIMULATE 1, RE-201 SIMULATE 2
00 05	0000 000d	Carryover	(0 - 1) OFF, ON
00 06	0000 000d	Time Mode	(0 - 1) NORMAL, LONG
00 07	0000 0ddd	Reverb Type	(0 - 4) SPRING, HALL, PLATE, ROOM, AMBIENCE
00 08	0000 0ddd	Memory Extent	(1 - 4)
00 09	000d dddd	MIDI Rx Channel	(0 - 16) OFF, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
00 0A	000d dddd	MIDI Tx Channel	(0 - 17) OFF, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, RX
00 0B	0000 000d	MIDI PC In	(0 - 1) OFF, ON
00 0C	0000 000d	MIDI PC Out	(0 - 1) OFF, ON
00 0D	0000 000d	MIDI CC In	(0 - 1) OFF, ON
00 0E	0000 000d	MIDI CC Out	(0 - 1) OFF, ON
00 0F	0000 000d	MIDI Sync Source	(0 - 1) INTERNAL, AUTO
00 10	0000 000d	MIDI Realtime Source	(0 - 1) INTERNAL, MIDI
00 11	0000 000d	MIDI Thru	(0 - 1) OFF, ON
00 12	0000 00dd	Twist Type	(0 - 2) NORMAL, HARD, NATURAL
00 13	0000 0ddd	Tap Setting	(0 - 5) HEAD1 QUARTER, HEAD1 DOTTED 8TH, SHORT QUARTER, SHORT DOTTED 8TH, LONG QUARTER, LONG DOTTED 8TH
00 14	0000 000d	Reverb Preference	(0 - 1) SYSTEM, MEMORY

* MEMORY Parameters Offset Address

Offset Address		Description	
00 00	0000 000d	Tape	(0 - 1) NEW, AGED
00 01	0000 dddd	Mode	(0 - 11)
00 02	0ddd dddd	Repeat Rate	(0 - 127)
00 03	0ddd dddd	Repeat Rate Min	(0 - 127)
00 04	0ddd dddd	Repeat Rate Max	(0 - 127)
00 05	0ddd dddd	Intensity	(0 - 127)
00 06	0ddd dddd	Intensity Min	(0 - 127)
00 07	0ddd dddd	Intensity Max	(0 - 127)
00 08	0ddd dddd	Echo Volume	(0 - 127)
00 09	0ddd dddd	Echo Volume Min	(0 - 127)
00 0A	0ddd dddd	Echo Volume Max	(0 - 127)
00 0B	0ddd dddd	Bass	(0 - 127)
00 0C	0ddd dddd	Bass Min	(0 - 127)
00 0D	0ddd dddd	Bass Max	(0 - 127)
00 0E	0ddd dddd	Treble	(0 - 127)
00 0F	0ddd dddd	Treble Min	(0 - 127)
00 10	0ddd dddd	Treble Max	(0 - 127)
00 11	0ddd dddd	Reverb Volume	(0 - 127)
00 12	0ddd dddd	Reverb Volume Min	(0 - 127)
00 13	0ddd dddd	Reverb Volume Max	(0 - 127)
00 14	0ddd dddd	Saturation	(0 - 127)
00 15	0ddd dddd	Saturation Min	(0 - 127)
00 16	0ddd dddd	Saturation Max	(0 - 127)
00 17	0ddd dddd	Wow & Flutter	(0 - 127)
00 18	0ddd dddd	Wow & Flutter Min	(0 - 127)
00 19	0ddd dddd	Wow & Flutter Max	(0 - 127)
00 1A	0000 000d	Reverb Sw	(0 - 1) OFF, ON
00 1B	0000 000d	Tap Sw	(0 - 1) OFF, ON
00 1C	0000 0aaa 0000 bbbb 0000 cccc 0000 dddd	Tap Time	(0 - 2000)
00 20	0000 000d	Time Mode	(0 - 1) NORMAL, LONG
00 21	0000 0ddd	Memory Reverb Type	(0 - 4) SPRING, HALL, PLATE, ROOM, AMBIENCE

[SPACE ECHO] Date : Aug. 31, 2022

Model RE-202 MIDI Implementation Chart Version : 1.10

Function ...		Transmitted	Recognized	Remarks
Basic	Default	OFF, 1-16	OFF, 1-16	Memorized
Channel	Changed	OFF, 1-16	OFF, 1-16	
Mode	Default	x	Mode 3	
	Messages	x	x	
	Altered	**********	**********	
Note Number:		x	x	
	True Voice	**********	**********	
Velocity	Note ON	x	x	
	Note OFF	x	x	
After Touch	Key's	x	x	
	Ch's	x	x	
Pitch Bend		x	x	
Control Change	16 - 24	o	o	
	27	o	o	
	48	o	o	
	82 - 84	o	o	
Prog Change	:True #	0-127	0-127	Program Number 1-128
System Exclusive		o	o	
System Common	:Song Pos	x	x	
	:Song Sel	x	x	
	:Tune	x	x	
System Realtime	:Clock	o	o	
	:Start	x	x	
	:Continue	x	x	
	:Stop	x	x	
Aux Message	:All sound off	x	x	
	:Reset All Controller	x	x	
	:Local ON/OFF	x	x	
	:All Notes OFF	x	x	
	:Active Sense	o	o	
	:Reset	x	x	
Notes				

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes

Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No