MIDI Implementation

Model: TD-17 (TD-17-L)
Date: Sep. 1. 2022
Version: 2.00

* In this implementation, the order in which the TD-17's buttons should be pressed is indicated in the following way.
For example, [SETUP]-[MIDI]-[BASIC] means "press the [SETUP] button, then turn the dial to select the [MIDI], then press the [ENTER] button, then press the [BASIC] button."
For details, refer to "Owner's Manual."
* The "Data List" (PDF) referred to in this document can be obtained via the Roland website.

1. Receive Data

■ Channel Voice Messages

* Following Channel Voice Messages can be received in [SETUP] - [MIDI] - [BASIC] MIDI Channel.
* Not received when [SETUP] - [MIDI] - [BASIC] MIDI Tx/Rx Sw is set to "OFF."

● Note On

Status	2nd byte	3rd byte
9nH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
kk = note number:		00H - 7FH (0 - 127)
vv = note on velocity:		01H - 7FH (1 - 127)

* Only the note numbers assigned by the kit are received.
For details on note numbers, refer to the PAD MIDI page of "TD-17 Data List" (PDF).

● Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
kk = note number:		00H - 7FH (0 - 127)
vv = value		00H - 7FH (0 - 127)

* Only the note numbers assigned by the kit are received.
For details on note numbers, refer to the PAD MIDI page of "TD-17 Data List" (PDF).
* If the value is greater than 1, the decay of the note sounded by the received note number will be shortened based on the value (Used in choking).

● Control Change

○ Foot Controller (Controller number 4)

Status	2nd byte	3rd byte
BnH	04H	vvH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
vv = Control value:		00H - 5AH (0 - 90: open to closed)

* Changes the position of the hi-hat control pedal.

● Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
pp = Program number:		00H - 7FH (prog.1 - prog.128)

* Not Received when [SETUP]-[MIDI]-[BASIC] program Change Rx is set to “OFF.”
* The sound changes starting with a new note-on that follows program change reception. A voice that was already sounding before the program change was received is not affected.

■ Channel Mode Messages

* Following Channel Voice Messages can be received in [KIT]-[MIDI]-[BASIC] MIDI Channel.
* Not received when [SETUP]-[MIDI]-[BASIC] Tx/Rx Sw is set to “OFF.”

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H
n = MIDI channel number:		0H - FH (ch.1 - ch.16)

* When this message is received, all currently-sounding notes on the corresponding channel will be silenced. However, the status of channel messages will not change.

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H
n = MIDI channel number:		0H - FH (ch.1 - ch.16)

* When this message is received, the polyphonic key pressure of all pads and the foot controller are reset to 0.

● All Notes Off (Controller number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H
n = MIDI channel number:		0H - FH (ch.1 - ch.16)

* The same processing will be carried out as when All Sounds Off is received.

●OMNI OFF (Controller number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H
n = MIDI channel number:		0H - FH (ch.1 - ch.16)

* The same processing will be carried out as when All Sounds Off is received.

●OMNI ON (Controller number 125)

Status	2nd byte	3rd byte
BnH	7DH	00H
n = MIDI channel number:		0H - FH (ch.1 - ch.16)

* The same processing will be carried out as when All Sounds Off is received.

●MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
mm= mono number:		00H - 10H (0 - 16)

* The same processing will be carried out as when All Sounds Off is received.

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H
n = MIDI channel number:		0H - FH (ch.1 - ch.16)

* The same processing will be carried out as when All Sounds Off is received.

■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ..., eeH	F7H

F0H: System Exclusive Message status
ii= ID number: An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is.
Roland's manufacturer ID is 41H.
ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd, ..., ee= data: 00H-7FH (0-127)
F7H: EOX (End Of Exclusive)

The System Exclusive Messages received by this device are Universal Non-realtime System Exclusive Messages.
This device receives the following system exclusive messages: universal non-realtime system exclusive messages, data request (RQ1), and data set (DT1).

● Universal Non-realtime System Exclusive Messages

○ Identity Request Message

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID ((10H-1FH (17-32), 7FH Initial value is 10H (17)
06H	Sub ID#1 (General Information)

01H	Sub ID#2 (Identity Request)
F7H	EOX (End Of Exclusive)

* When Identity Request is received, Identity Reply message will be transmitted (p. 3).
* The [SETUP]-[MIDI]-[SYS EX] Device ID setting is used as the Device ID.

● Data Transmission

This instrument can use exclusive messages to exchange many varieties of internal settings with other devices.
The model ID of the exclusive messages used by this instrument is 00H 00H 00H 4BH.

○ Data Request 1 (RQ1)

This message requests the other device to transmit data. The address and size indicate the type and amount of data that is requested. When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met, nothing is transmitted.

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 4BH, 11H, aaH, bbH, ccH, ccH, ddH, ssH, ttH, uuH, vvH, sum	F7H

byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	device ID (dev: 10H-1FH, 7FH)
00H	Model ID#1 (TD-17)
00H	Model ID#2 (TD-17)
00H	Model ID#3 (TD-17)
4BH	Model ID#4 (TD-17)
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
ssH	Size MSB
ttH	Size
uuH	Size
vvH	Size LSB
sum	Checksum
F7H	EOX (End Of Exclusive)

The size of data that can be transmitted at one time is fixed for each type of data.
And data requests must be made with a fixed starting address and size. Refer to the address and size given in “3. Parameter Address Map” (p. 8).
* For the checksum, refer to p. 74.

○ Data Set 1 (DT1)
These are the messages that convey the actual data, and are used when you want to load data into a device.

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 4BH, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Model ID#dev: 10H-1FH, 7FH)
00H	Model ID#1 (TD-17)
00H	Model ID#2 (TD-17)
00H	Model ID#3 (TD-17)
4BH	Model ID#4 (TD-17)
12H	Model ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:
ffH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in “3. Parameter Address Map” (p. 8).
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.
* Regarding the checksum, please refer to p. 74.

2. Transmit Data

* If the [SETUP]-[MIDI]-[THRU] Bluetooth setting (except for the TD-17-L) or USB setting is "ON," received messages are also transmitted to the corresponding jack as well as the messages listed below.

■ Channel Voice Messages

* The following channel voice messages are transmitted on the channel specified as the [SETUP]-[MIDI]-[BASIC] MIDI Channel.
* Not transmitted when [SETUP]-[MIDI]-[BASIC] MIDI Tx/Rx Sw is set to “OFF.”

● Note Off

Status	2nd byte	3rd byte
8nH	kkH	vvH
n = MIDI channel number:		0H-FH (ch.1-ch.16)
kk = note number:		00H-7FH (0-127)
vv = Note off velocity:		40H (64) fixed

* A note-off is transmitted 0.1 seconds after you strike a pad or use the hi-hat control pedal to play a foot close (splash).

● Note On

Status	2nd byte	3rd byte
9nH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
kk = note number:		00H - 7FH (0 - 127)
vv = note on velocity:		01H - 7FH (1 - 127)

* The note number assigned by the kit is transmitted when you strike a pad or use the hi-hat control pedal to play a foot-close (splash).
* If the [KIT]-[XSTICK] Xstick Switch is "ON," and you play the SNARE pad using the cross-stick technique, the note number assigned by [OTHER]-[MIDI NOTE] SNARE <XSTICK> is transmitted.
* The note number that is transmitted when you strike the hi-hat pad (open or closed) is switched depending on how deeply the hi-hat pedal is being pressed.

● Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
kk = note number:		00H - 7FH (0 - 127)
vv = value		00H, 7FH (0, 127)

* This message is transmitted on the note number assigned to the head and the rim, with a value of 7FH when the rim of the pad is pressed or with a value of 00H when the rim is released.
(If using a pad that supports the choke technique and [SETUP]-[Pad Settings]-[TYPE] is set to the corresponding value.)

● Control Change

○ Foot Controller (Controller number 4)

Status	2nd byte	3rd byte
BnH	04H	vvH
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
vv = Control value:		00H - 5AH (0 - 90: open to closed)

* Transmitted when you operate the hi-hat control pedal.
When you strike the HI-HAT pad, this message is transmitted as pedal position data before the note-on.

● Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H - FH (ch.1 - ch.16)
pp = Program number:		00H - 7FH (prog.1 - prog.128)

* Not transmitted when [SETUP]-[MIDI]-[BASIC] Program Change TX is set to “OFF.”
* When a drum kit is selected, the corresponding program number is transmitted.

■ System Realtime Messages

● Active Sensing

Status
FEH

* This message is transmitted at intervals of approximately 250 msec.

■ System Exclusive Message

Identity Reply and Data Set (DT1) are the only System Exclusive messages transmitted by this device.

● Universal Non-realtime System Exclusive Message

○ Identity Reply

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H, 41H, 4BH, 03H, 00H, 00H, 00H, 00H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (10H-1FH (17-32), 7FH) Initial value is 10H (17)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
4BH 03H	Device family code
00H 00H	Device family number code
00H 00H 00H 02H	Software revision level
F7H	EOX (End of Exclusive)

* When Identity Request (p. 3) is received, Identity Reply message will be transmitted.
* The [SETUP]-[MIDI]-[SYS EX] Device ID setting is used as the Device ID.
* If the TD-17 is Ver.1.01 or earlier, the software revision level will be 00H 00H 00H 00H.
* If the TD-17 is Ver.1.02 , the software revision level will be 00H 00H 00H 01H.

○ Data Set 1 (DT1)

These are the messages that convey the actual data, and are used when you want to load data into a device.

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 4BH, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 10H-1FH, 7FH)

00H Model ID#1 (TD-17)
00H Model ID#2 (TD-17)
00H Model ID#3 (TD-179
4BH Model ID#4 (TD-17)
12H Command ID (DT1)
aaH Address MSB
bbH Address
ccH Address
ddH Address LSB
eeH Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
: :
ffH Data
sum Checksum
F7H EOX (End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in “3. Parameter Address Map” (p. 8).
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.

3. Parameter Address Map

* Transmission of “#” marked address is divided to some packets. For example, ABH in hexadecimal notation will be divided to 0AH and 0BH, and is sent/received in this order.

Start Address	Description	
00 00 00 00	Current	[Current]
01 00 00 00	Setup	[Setup]
02 00 00 00	Trigger	[Trigger]
03 00 00 00	Kit 1	[Kit]
03 02 00 00	Kit 2	[Kit]
:		
04 46 00 00	Kit 100	[Kit]

* [Kit]
The assignments to each head within the [Kit] are as follows.
[KitUnitCommon], [KitUnitInst], [KitUnitVEdit]
KICK HEAD 1
SNARE HEAD 2
SNARE RIM 3
TOM1 HEAD 4
TOM1 RIM 5
TOM2 HEAD 6
TOM2 RIM 7
TOM3 HEAD 8
TOM3 RIM 9
HI-HAT HEAD 10

HI-HAT RIM	11
CRASH1 HEAD	12
CRASH1 RIM	13
CRASH2 HEAD	14
CRASH2 RIM	15
RIDE HEAD	16
RIDE RIM	17
RIDE BELL	18
AUX HEAD	19
AUX RIM	20

Offset Address	Description	
00 00 00	Kit Common	[KitCommon]
00 01 00	Kit MIDI	[KitMidi]
00 03 00	Kit Ambience	[KitAmbience]
00 04 00	Kit Reverb	[KitReverb]
00 05 00	Kit Master Comp	[KitMasterComp]
00 10 00	Kit Multi FX	[KitMfx]
00 20 00	Kit Unit Common 1	[KitUnitCommon]
00 21 00	Kit Unit Common 2	[KitUnitCommon]
:		
00 33 00	Kit Unit Common 20	[KitUnitCommon]
00 40 00	Kit Unit Main 1	[KitUnitInst]
00 41 00	Kit Unit Main 2	[KitUnitInst]
:		
00 53 00	Kit Unit Main 20	[KitUnitInst]
00 60 00	Kit Unit Sub 1	[KitUnitInst]
00 61 00	Kit Unit Sub 2	[KitUnitInst]
:		
00 73 00	Kit Unit Sub 20	[KitUnitInst]
01 00 00	Kit Unit VEdit Main 1	[KitUnitVEdit]
01 01 00	Kit Unit VEdit Main 2	[KitUnitVEdit]
:		
01 13 00	Kit Unit VEdit Main 20	[KitUnitVEdit]
01 20 00	Kit Unit VEdit Sub 1	[KitUnitVEdit]
01 21 00	Kit Unit VEdit Sub 2	[KitUnitVEdit]
:		
01 33 00	Kit Unit VEdit Sub 20	[KitUnitVEdit]

* [Setup]

Offset Address	Description

00 02 00	Click	[Click]
00 03 00	Misc	[SetupMisc]

* [Trigger]
The assignments to each trigger within the [TrigAnalog] are as follows.

KICK	1
SNARE	2
TOM1	3
TOM2	4
TOM3	5
HI-HAT	6
CRASH1	7
CRASH2	8
RIDE	9
AUX	10

Offset Address	Description	
00 00 00	Trigger Misc	[TrigMisc]
00 01 00	Trigger 1	[Trig]
00 02 00	Trigger 2	[Trig]
:		
00 0A 00	Trigger 10	[Trig]

* [Current]

Offset Address		Description	
00 00	0aaa aaaa	Drum Kit Number	(0 - 99) 1 - 100
00 00 00 01	Total Size		

* [KitCommon]
Some characters are not displayed for Kit Name and Kit Sub Name.

Offset Address		Description	
00 00	0aaa aaaa	Kit Name 1	(1 - 126) 1 - 126 [ASCII]
00 01	0aaa aaaa	Kit Name 2	(1 - 126) 1 - 126 [ASCII]
00 02	0aaa aaaa	Kit Name 3	(1 - 126) 1 - 126 [ASCII]
00 03	0aaa aaaa	Kit Name 4	(1 - 126) 1 - 126 [ASCII]
00 04	0aaa aaaa	Kit Name 5	(1 - 126) 1 - 126 [ASCII]
00 05	0aaa aaaa	Kit Name 6	(1 - 126)

				1 - 126 [ASCII]
	00 06	0aaa aaaa	Kit Name 7	(1 - 126)
				1 - 126 [ASCII]
	00 07	0aaa aaaa	Kit Name 8	(1 - 126)
				1 - 126 [ASCII]
	00 08	0aaa aaaa	Kit Name 9	(1 - 126)
				1 - 126 [ASCII]
	00 09	0aaa aaaa	Kit Name 10	(1 - 126)
				1 - 126 [ASCII]
	00 0A	0aaa aaaa	Kit Name 11	(1 - 126)
				1 - 126 [ASCII]
	00 0B	0aaa aaaa	Kit Name 12	(1 - 126)
				1 - 126 [ASCII]
	00 0C	0aaa aaaa	Kit Sub Name 1	(1 - 126)
				1 - 126 [ASCII]
	00 0D	0aaa aaaa	Kit Sub Name 2	(1 - 126)
				1 - 126 [ASCII]
	00 0E	0aaa aaaa	Kit Sub Name 3	(1 - 126)
				1 - 126 [ASCII]
	00 0F	0aaa aaaa	Kit Sub Name 4	(1 - 126)
				1 - 126 [ASCII]
	00 10	0aaa aaaa	Kit Sub Name 5	(1 - 126)
				1 - 126 [ASCII]
	00 11	0aaa aaaa	Kit Sub Name 6	(1 - 126)
				1 - 126 [ASCII]
	00 12	0aaa aaaa	Kit Sub Name 7	(1 - 126)
				1 - 126 [ASCII]
	00 13	0aaa aaaa	Kit Sub Name 8	(1 - 126)
				1 - 126 [ASCII]
	00 14	0aaa aaaa	Kit Sub Name 9	(1 - 126)
				1 - 126 [ASCII]
	00 15	0aaa aaaa	Kit Sub Name 10	(1 - 126)
				1 - 126 [ASCII]
	00 16	0aaa aaaa	Kit Sub Name 11	(1 - 126)
				1 - 126 [ASCII]
	00 17	0aaa aaaa	Kit Sub Name 12	(1 - 126)
				1 - 126 [ASCII]
	00 18	0aaa aaaa	Kit Sub Name 13	(1 - 126)
				1 - 126 [ASCII]
	00 19	0aaa aaaa	Kit Sub Name 14	(1 - 126)
				1 - 126 [ASCII]
	00 1A	0aaa aaaa	Kit Sub Name 15	(1 - 126)
				1 - 126 [ASCII]
	00 1B	0aaa aaaa	Kit Sub Name 16	(1 - 126)
				1 - 126 [ASCII]
#	00 1C	0000 aaaa		
	00 1D	0000 bbbb		
	00 1E	0000 cccc		
	00 1F	0000 dddd	Kit Volume	(-601 - 60) -INF, -60.0 - +6.0 [dB]
#	00 20	0000 aaaa		
	00 21	0000 bbbb		
	00 22	0000 cccc		
	00 23	0000 dddd	Pedal HH Volume	(-601 - 60) -INF, -60.0 - +6.0 [dB]
#	00 24	0000 aaaa		

	00 25	0000 bbbb		
	00 26	0000 cccc		
	00 27	0000 dddd	Xstick Volume	(-601 - 60) -INF, -60.0 - +6.0 [dB]
	00 28	0000 000a	Xstick Switch	(0 - 1) OFF, ON
#	00 29	0000 aaaa		
	00 2A	0000 bbbb	HH Open/Close Balance	(-5 - 5) -5 - +5
00 00 00 2B		Total Size		

* [KitMidi]

Offset Address		Description	
# 00 00	0000 aaaa		
00 01	0000 bbbb		
00 02	0000 cccc		
00 03	0000 dddd	Note KICK	(0 - 128) 0 - 127, OFF
# 00 04	0000 aaaa		
00 05	0000 bbbb		
00 06	0000 cccc		
00 07	0000 dddd	Note SNARE (HEAD)	(0 - 128) 0 - 127, OFF
# 00 08	0000 aaaa		
00 09	0000 bbbb		
00 0A	0000 cccc		
00 0B	0000 dddd	Note SNARE (RIM)	(0 - 128) 0 - 127, OFF
# 00 0C	0000 aaaa		
00 0D	0000 bbbb		
00 0E	0000 cccc		
00 0F	0000 dddd	Note SNARE (XSTICK)	(0 - 128) 0 - 127, OFF
# 00 10	0000 aaaa		
00 11	0000 bbbb		
00 12	0000 cccc		
00 13	0000 dddd	Note TOM1 (HEAD)	(0 - 128) 0 - 127, OFF
# 00 14	0000 aaaa		
00 15	0000 bbbb		
00 16	0000 cccc		
00 17	0000 dddd	Note TOM1 (RIM)	(0 - 128) 0 - 127, OFF
# 00 18	0000 aaaa		
00 19	0000 bbbb		
00 1A	0000 cccc		
00 1B	0000 dddd	Note TOM2 (HEAD)	(0 - 128) 0 - 127, OFF
# 00 1C	0000 aaaa		
00 1D	0000 bbbb		
00 1E	0000 cccc		
00 1F	0000 dddd	Note TOM2 (RIM)	(0 - 128) 0 - 127, OFF

#	00 20	0000 aaaa		
	00 21	0000 bbbb		
	00 22	0000 cccc		
	00 23	0000 dddd	Note TOM3 (HEAD)	(0 - 128) 0 - 127, OFF
#	00 24	0000 aaaa		
	00 25	0000 bbbb		
	00 26	0000 cccc		
	00 27	0000 dddd	Note TOM3 (RIM)	(0 - 128) 0 - 127, OFF
#	00 28	0000 aaaa		
	00 29	0000 bbbb		
	00 2A	0000 cccc		
	00 2B	0000 dddd	Note HI-HAT OPEN (BOW)	(0 - 128) 0 - 127, OFF
#	00 2C	0000 aaaa		
	00 2D	0000 bbbb		
	00 2E	0000 cccc		
	00 2F	0000 dddd	Note HI-HAT OPEN (EDGE)	(0 - 128) 0 - 127, OFF
#	00 30	0000 aaaa		
	00 31	0000 bbbb		
	00 32	0000 cccc		
	00 33	0000 dddd	Note HI-HAT CLOSE (BOW)	(0 - 128) 0 - 127, OFF
#	00 34	0000 aaaa		
	00 35	0000 bbbb		
	00 36	0000 cccc		
	00 37	0000 dddd	Note HI-HAT CLOSE (EDGE)	(0 - 128) 0 - 127, OFF
#	00 38	0000 aaaa		
	00 39	0000 bbbb		
	00 3A	0000 cccc		
	00 3B	0000 dddd	Note HI-HAT PEDAL	(0 - 128) 0 - 127, OFF
#	00 3C	0000 aaaa		
	00 3D	0000 bbbb		
	00 3E	0000 cccc		
	00 3F	0000 dddd	Note CRASH1 (BOW)	(0 - 128) 0 - 127, OFF
#	00 40	0000 aaaa		
	00 41	0000 bbbb		
	00 42	0000 cccc		
	00 43	0000 dddd	Note CRASH1 (EDGE)	(0 - 128) 0 - 127, OFF
#	00 44	0000 aaaa		
	00 45	0000 bbbb		
	00 46	0000 cccc		
	00 47	0000 dddd	Note CRASH2 (BOW)	(0 - 128) 0 - 127, OFF
#	00 48	0000 aaaa		
	00 49	0000 bbbb		
	00 4A	0000 cccc		
	00 4B	0000 dddd	Note CRASH2 (EDGE)	(0 - 128) 0 - 127, OFF
#	00 4C	0000 aaaa		
	00 4D	0000 bbbb		
	00 4E	0000 cccc		

	Offset Address		Description	
	00 4F	0000 dddd	Note RIDE (BOW)	(0 - 128) 0 - 127, OFF
#	00 50	0000 aaaa		
	00 51	0000 bbbb		
	00 52	0000 cccc		
	00 53	0000 dddd	Note RIDE (EDGE)	(0 - 128) 0 - 127, OFF
#	00 54	0000 aaaa		
	00 55	0000 bbbb		
	00 56	0000 cccc		
	00 57	0000 dddd	Note RIDE (BELL)	(0 - 128) 0 - 127, OFF
#	00 58	0000 aaaa		
	00 59	0000 bbbb		
	00 5A	0000 cccc		
	00 5B	0000 dddd	Note AUX (HEAD)	(0 - 128) 0 - 127, OFF
#	00 5C	0000 aaaa		
	00 5D	0000 bbbb		
	00 5E	0000 cccc		
	00 5F	0000 dddd	Note AUX (RIM)	(0 - 128) 0 - 127, OFF
	00 00 00 60	Total Size		

* [KitAmbience]

	Offset Address		Description	
	00 00	0000 000a	Switch	(0 - 1) OFF, ON
	00 01	000a aaaa	Room Type	(0 - 24) BEACH, LIVING ROOM, BATH ROOM, STUDIO, GARAGE, LOCKER ROOM, THEATER, CAVE, GYMNASIUM, DOME STADIUM, BOOTH A, BOOTH B, STUDIO A, STUDIO B, BASEMENT, JAZZ CLUB, ROCK CLUB, BALLROOM, GATE, CONCERT HALL, SPORTS ARENA, EXPO HALL, BOTTLE, CITY, SPIRAL
	00 02	0000 0aaa	Room Size	(0 - 4) TINY, SMALL, MEDIUM, LARGE, HUGE
	00 03	0aaa aaaa	Room Shape	(0 - 100) 0 - 100
	00 04	0000 0aaa	Wall Type	(0 - 5) CURTAIN, CLOTH, WOOD, PLASTER, CONCRETE, GLASS
	00 05	0000 aaaa	Mic Position	(0 - 8) NEXT DOOR, LOW FLOOR, LOW, MID LOW, MID, MID HIGH, HIGH, CEILING A, CEILING B
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Level	(-601 - 60) -INF, -60.0 - +6.0 [dB]
	00 00 00 0A	Total Size		

* [KitReverb]

Offset Address		Description	
00 00	0000 000a	Switch	(0 - 1) OFF, ON
00 01	0000 0aaa	Type	(0 - 4) ROOM1, ROOM2, HALL1, HALL2, PLATE
00 02	0aaa aaaa	Pre Delay	(0 - 100) 0 - 100 [msec]
00 03	0aaa aaaa	Time	(1 - 100) 0.1 - 10 [sec]
00 04	0aaa aaaa	Density	(0 - 127) 0 - 127
00 05	0aaa aaaa	Diffusion	(0 - 127) 0 - 127
00 06	0aaa aaaa	LF Damp	(0 - 100) 0 - 100
00 07	0aaa aaaa	HF Damp	(0 - 100) 0 - 100
00 08	0aaa aaaa	Spread	(0 - 127) 0 - 127
00 09	0aaa aaaa	Tone	(0 - 127) 0 - 127
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Level	(-601 - 60)
00 00 00 0E	Total Size		

* [KitMasterComp]

Offset Address		Description	
00 00	0000 000a	Switch	(0 - 1)
00 01	0000 0aaa	Type	(0 - 7) SINGLE SOFT COMP, SINGLE HARD COMP, SINGLE LIMITER, SINGLE PARALLEL 2 BAND SOFT COMP, 2 BAND HARD COMP, 2 BAND LIMITER, 2 BAND PARALLEL
# 00 02	0000 aaaa		
00 03	0000 bbbb		
00 04	0000 cccc		
00 05	0000 dddd	Split Freq	(0 - 1600) SINGLE, 10 - 16000
# 00 06	0000 aaaa		
00 07	0000 bbbb	Lo Gain	(-120 - 48) -60 - +24
# 00 08	0000 aaaa		
00 09	0000 bbbb	Hi Gain	(-120 - 48) -60 - +24
# 00 0A	0000 aaaa		

	00 0B	0000 bbbb	Lo Threshold	(-60 - 0) -60 - 0
#	00 0C	0000 aaaa		
	00 0D	0000 bbbb	Hi Threshold	(-60 - 0) -60 - 0
	00 0E	0000 0aaa	Lo Ratio	(0 - 7)
	00 0F	0000 0aaa	Hi Ratio	(0 - 7)
	00 10	0000 00aa	Lo Knee	(0 - 3)
	00 11	0000 00aa	Hi Knee	(0 - 3)
	00 12	0aaa aaaa	Lo Attack	(0 - 100) 0 - 100
	00 13	0aaa aaaa	Hi Attack	(0 - 100) 0 - 100
	00 14	0aaa aaaa	Lo Release	(0 - 99) 0 - 99
	00 15	0aaa aaaa	Hi Release	(0 - 99) 0 - 99
	00 16	0aaa aaaa	Balance	(1 - 100) D99:1W - D0:100W
	00 00 00 17	Total Size		

* [KitUnitInst]

Offset Address		Description	
# 00 00	0000 aaaa		
00 01	0000 bbbb		
00 02	0000 cccc		
00 03	0000 dddd	Instrument	(0 -)
# 00 04	0000 aaaa		
00 05	0000 bbbb		
00 06	0000 cccc		
00 07	0000 dddd	Volume	(-601 - 60) -INF, -60.0 - +6.0 [dB]
00 08	0000 000a	InstBank	(0 - 1) PRESET, USER
00 00 00 09	Total Size		

* [KitUnitCommon]

Offset Address		Description	
# 00 00	0000 aaaa		
00 01	0000 bbbb	Pan	(-30 - 30) L30 - 1, CENTER, R1 - 30
00 02	0000 000a	Sub Inst Switch	(0 - 1) OFF, ON
00 03	0000 00aa	Layer Type	(0 - 3) MIX, FADE1, FADE2, SWITCH
00 04	0aaa aaaa	Fade Point	(1 - 127) 1 - 127

	00 05	0000 000a	Eq Switch (0 - 1) OFF, ON
	00 06	000a aaaa	Eq Low Freq (0 - 17) 20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1KHz
#	00 07	0000 aaaa	
	00 08	0000 bbbb	Eq Low Gain (-15 - 15) -15.0 - +15.0[dB]
	00 09	000a aaaa	Eq Mid Freq (0 - 29) 20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
	00 0A	0000 0aaa	Eq Mid Q (0 - 4) 0.5, 1.0, 2.0, 4.0, 8.0
#	00 0B	0000 aaaa	
	00 0C	0000 bbbb	Eq Mid Gain (-15 - 15) -15.0 - +15.0[dB]
	00 0D	0000 aaaa	Eq High Freq (0 - 12) 1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	Eq High Gain (-15 - 15) -15.0 - +15.0[dB]
#	00 10	0000 aaaa	
	00 11	0000 bbbb	
	00 12	0000 cccc	
	00 13	0000 dddd	Ambience Send Level (-601 - 60) -INF, -60.0 - +6.0[dB]
#	00 14	0000 aaaa	
	00 15	0000 bbbb	
	00 16	0000 cccc	
	00 17	0000 dddd	Multi FX Send Level (-601 - 60) -INF, -60.0 - +6.0[dB]
#	00 18	0000 aaaa	
	00 19	0000 bbbb	
	00 1A	0000 cccc	
	00 1B	0000 dddd	RevSendLevel (-601 - 60) -INF, -60.0 - +6.0[dB]
	00 00 00 1C	Total Size	

* [Click]

Offset Address		Description	
00 00	0000 aaaa	Sound	(0 - 14)

			METRONOME, CLICK, VOICE, BEEP 1, BEEP 2, TEK CLICK, STICKS, CLAVES, WOOD BLOCK, COWBELL, AGOGO, TRIANGLE, TAMBOURINE, MARACAS, CABASA
#	00 01	0000 aaaa	
	00 02	0000 bbbb	Pan (-30 - 30) L30 - 1, CENTER, R1 - 30
#	00 03	0000 aaaa	
	00 04	0000 bbbb	
	00 05	0000 cccc	
	00 06	0000 dddd	Level (-601 - 60) -INF, -60.0 - +6.0[dB]
	00 00 00 07	Total Size	

* [TrigMisc]

Offset Address		Description
# 00 20	0000 aaaa	
00 21	0000 bbbb	Pedal HH Sens (-10 - 10) -10 - 10
00 22	0aaa aaaa	XStick Adj (0 - 127) 0 - 127
00 23	0aaa aaaa	XTalk Cancel Rate 1(KICK) (0 - 80) 0 - 80
00 24	0aaa aaaa	XTalk Cancel Rate 2(SNARE) (0 - 80) 0 - 80
00 25	0aaa aaaa	XTalk Cancel Rate 3(TOM1) (0 - 80) 0 - 80
00 26	0aaa aaaa	XTalk Cancel Rate 4(TOM2) (0 - 80) 0 - 80
00 27	0aaa aaaa	XTalk Cancel Rate 5(TOM3) (0 - 80) 0 - 80
00 28	0aaa aaaa	XTalk Cancel Rate 6(HI-HAT) (0 - 80) 0 - 80
00 29	0aaa aaaa	XTalk Cancel Rate 7(CRASH1) (0 - 80) 0 - 80
00 2A	0aaa aaaa	XTalk Cancel Rate 8(CRASH2) (0 - 80) 0 - 80
00 2B	0aaa aaaa	XTalk Cancel Rate 9(RIDE) (0 - 80) 0 - 80
00 2C	0aaa aaaa	XTalk Cancel Rate 10(AUX) (0 - 80) 0 - 80
00 00 00 2D	Total Size	

* [Trig]

Offset Address		Description
00 00	00aa aaaa	Pad Type (0 - 46) KDA22, KD180L, KD140, KD120, KD85, KD10, KD9,

		KD8, KD7, KT10, KT9, PDA120L, PDA100L, PD128, PD125X, PD125, PD108, PD105X, PD105, PD85, PDX100, PDX12, PDX8, PDX6, PD8, VH11, VH10, CY16RT, CY15R, CY14CT, CY14RT, CY14C, CY13R, CY12CT, CY12C, CY12R/C, CY8, CY5, BT1, BT1 SENS, RT30K, RT30HR, RT30H SN, RT30H TM, RT10K, RT10S, RT10T	
00 01	000a aaaa	Sensitivity	(0 - 31) 1 - 32
00 02	00aa aaaa	RimGain	(0 - 32) 0 - 3.2
00 03	000a aaaa	Threshold	(0 - 31) 0 - 31
00 04	0000 0aaa	Curve	(0 - 7) LINEAR, EXP1, EXP2, LOG1, LOG2, SPLINE, LOUD1, LOUD2
00 05	0000 0aaa	ExtNoiseCancel	(0 - 5) OFF, 1 - 5
00 06	0aaa aaaa	Head/Rim Adj	(0 - 80) 0 - 80
00 07	00aa aaaa	Scan Time	(0 - 40) 0 - 4.0
00 08	0aaa aaaa	Mask Time	(0 - 64) 0 - 64
00 09	0000 aaaa	Retrig Cancel	(0 - 15) 1 - 16
00 00 00 0A	Total Size		

* If the TD-17 is Ver.1.01 or earlier, the Pad Type will be as follows.

00 00	00aa aaaa	Pad Type	(0 - 39) KDA22, KD140, KD120, KD85, KD10, KD9, KD8, KD7, KT10, KT9, PD128, PD125X, PD125, PD108, PD105X, PD105, PD85, PDX100, PDX12, PDX8, PDX6, PD8, VH11, VH10, CY15R, CY14C, CY13R, CY12C, CY12R/C, CY8, CY5, BT1, BT1 SENS, RT30K, RT30HR, RT30H SN, RT30H TM, RT10K, RT10S, RT10T

* [SetupMisc]

Offset Address		Description	
# 00 00	0000 aaaa		
00 01	0000 bbbb	USB Input Gain	(-36 - 12) -36 - +12[dB]
# 00 02	0000 aaaa		
00 03	0000 bbbb	USB Output Gain	(-24 - 24) -24 - +24[dB]
00 00 00 04	Total Size		

* [KitMfx]

Offset Address		Description
00 00	000a aaaa	Type (0 - 40) DELAY, TAPE ECHO, REVERSE DELAY, 3TAP PAN DELAY, OD->DELAY, DS->DELAY, CHORUS, SPACE-D, OD->CHORUS, DS->CHORUS, PHASER A, PHASER B, STEP PHASER, FLANGER, REVERB, LONG REVERB, SUPER FILTER, FILTER+DRIVE, AUTO WAH, OD/DS->TWAH, LOFI COMPRESS, DISTORTION, OVERDRIVE, SATURATOR, T-SCREAM, BIT CRUSHER, ISOLATOR, RING MODULATOR, PITCH SHIFTER, AUTO PAN, EQUALIZER, SPECTRUM, LOW BOOST ENHANCER, HUMANIZER, SLICER, STEP FLANGER, HEXA-CHORUS, 4 TAP PAN DELAY, EH->FLANGER, SPEAKER SIM
00 01	0000 000a	Switch (0 - 1) OFF, ON
# 00 02	0000 aaaa	
00 03	0000 bbbb	
00 04	0000 cccc	
00 05	0000 dddd	Level (-601 - 60) -INF, -60.0 - +6.0[dB]
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	MFX Parameter 1 (*1)
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	MFX Parameter 2 (*1)
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	MFX Parameter 3 (*1)
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	MFX Parameter 4 (*1)
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	MFX Parameter 5 (*1)
# 00 1A	0000 aaaa	
00 1B	0000 bbbb	
00 1C	0000 cccc	
00 1D	0000 dddd	MFX Parameter 6 (*1)
# 00 1E	0000 aaaa	
00 1F	0000 bbbb	
00 20	0000 cccc	
00 21	0000 dddd	MFX Parameter 7 (*1)
# 00 22	0000 aaaa	
00 23	0000 bbbb	
00 24	0000 cccc	

	00 25	0000 dddd	MFX Parameter 8	(*1)
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	MFX Parameter 9	(*1)
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	MFX Parameter 10	(*1)
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	MFX Parameter 11	(*1)
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	MFX Parameter 12	(*1)
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	MFX Parameter 13	(*1)
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	MFX Parameter 14	(*1)
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	MFX Parameter 15	(*1)
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	MFX Parameter 16	(*1)
#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	MFX Parameter 17	(*1)
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	MFX Parameter 18	(*1)
#	00 4E	0000 aaaa		
	00 4F	0000 bbbb		
	00 50	0000 cccc		
	00 51	0000 dddd	MFX Parameter 19	(*1)
#	00 52	0000 aaaa		
	00 53	0000 bbbb		
	00 54	0000 cccc		
	00 55	0000 dddd	MFX Parameter 20	(*1)
#	00 56	0000 aaaa		
	00 57	0000 bbbb		
	00 58	0000 cccc		
	00 59	0000 dddd	MFX Parameter 21	(*1)
#	00 5A	0000 aaaa		
	00 5B	0000 bbbb		
	00 5C	0000 cccc		
	00 5D	0000 dddd	MFX Parameter 22	(*1)
#	00 5E	0000 aaaa		

	Offset Address		Description	
	00 5F	0000 bbbb		
	00 60	0000 cccc		
	00 61	0000 dddd	MFX Parameter 23	(*1)
#	00 62	0000 aaaa		
	00 63	0000 bbbb		
	00 64	0000 cccc		
	00 65	0000 dddd	MFX Parameter 24	(*1)
#	00 66	0000 aaaa		
	00 67	0000 bbbb		
	00 68	0000 cccc		
	00 69	0000 dddd	MFX Parameter 25	(*1)
#	00 6A	0000 aaaa		
	00 6B	0000 bbbb		
	00 6C	0000 cccc		
	00 6D	0000 dddd	MFX Parameter 26	(*1)
#	00 6E	0000 aaaa		
	00 6F	0000 bbbb		
	00 70	0000 cccc		
	00 71	0000 dddd	MFX Parameter 27	(*1)
#	00 72	0000 aaaa		
	00 73	0000 bbbb		
	00 74	0000 cccc		
	00 75	0000 dddd	MFX Parameter 28	(*1)
#	00 76	0000 aaaa		
	00 77	0000 bbbb		
	00 78	0000 cccc		
	00 79	0000 dddd	MFX Parameter 29	(*1)
#	00 7A	0000 aaaa		
	00 7B	0000 bbbb		
	00 7C	0000 cccc		
	00 7D	0000 dddd	MFX Parameter 30	(*1)
#	00 7E	0000 aaaa		
	00 7F	0000 bbbb		
	01 00	0000 cccc		
	01 01	0000 dddd	MFX Parameter 31	(*1)
#	01 02	0000 aaaa		
	01 03	0000 bbbb		
	01 04	0000 cccc		
	01 05	0000 dddd	MFX Parameter 32	(*1)
	00 00 01 06	Total Size		

(*1) This area is assigned as follows according to the selected MFX Type.
Addresses for which the MFX Type has no assignment are ignored.

MFX Type: DELAY

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Tempo Sync L	(0 - 1) OFF, ON
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		

	00 0D	0000 dddd	Delay L Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Delay L Time (note)	(0 - 21) MUSICAL-NOTES
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Tempo Sync R	(0 - 1) OFF, ON
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Delay R Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Delay R Time (note)	(0 - 21) MUSICAL-NOTES
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Phase Left	(0 - 1) NORMAL, INVERSE
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Phase Right	(0 - 1) NORMAL, INVERSE
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Feedback Mode	(0 - 1) NORMAL, CROSS
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Feedback	(0 - 98) -98 - +98 [%]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	HF Damp	(0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	High Gain	(0 - 30)

			-15 - +15 [dB]
#	00 3A	0000 aaaa	
	00 3B	0000 bbbb	
	00 3C	0000 cccc	
	00 3D	0000 dddd	dummy (ignored)
#	00 3E	0000 aaaa	
	00 3F	0000 bbbb	
	00 40	0000 cccc	
	00 41	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: TAPE ECHO

Offset Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Mode (0 - 6) S, M, L, S+M, S+L, M+L, S+M+L
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Repeat Rate (0 - 127) 0 - 127
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Intensity (0 - 127) 0 - 127
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Bass (0 - 30) -15 - +15 [dB]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Treble (0 - 30) -15 - +15 [dB]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Head S Pan (0 - 127) L64 - 63R
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Head M Pan (0 - 127) L64 - 63R
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Head L Pan (0 - 127) L64 - 63R
#	00 26	0000 aaaa	

	Offset Address		Description	
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Tape Distortion	(0 - 5) 0 - 5
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	W/F Rate	(0 - 127) 0 - 127
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	W/F Depth	(0 - 127) 0 - 127
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	dummy (ignored)	
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	dummy (ignored)	
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: REVERSE DELAY

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Threshold	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Tempo Sync Rev	(0 - 1) OFF, ON
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	RevDelay Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	RevDelay Time (note)	(0 - 21) MUSICAL-NOTES
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	RevDelay Feedback	(0 - 98)

				-98 - +98 [%]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	RevDelay HF Damp	(0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	RevDelay Pan	(0 - 127) L64 - 63R
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	RevDelay Level	(0 - 127) 0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Tempo Sync Delay1	(0 - 1) OFF, ON
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Delay1 Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Delay1 Time (note)	(0 - 21) MUSICAL-NOTES
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Tempo Sync Delay2	(0 - 1) OFF, ON
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Delay2 Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Delay2 Time (note)	(0 - 21) MUSICAL-NOTES
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	Tempo Sync Delay3	(0 - 1) OFF, ON
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	Delay3 Time (msec)	(1 - 1300) 1 - 1300 [msec]

#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	Delay3 Time (note)	(0 - 21) MUSICAL-NOTES
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	Delay 3 Feedback	(0 - 98) -98 - +98 [%]
#	00 4E	0000 aaaa		
	00 4F	0000 bbbb		
	00 50	0000 cccc		
	00 51	0000 dddd	Delay HF Damp	(0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
#	00 52	0000 aaaa		
	00 53	0000 bbbb		
	00 54	0000 cccc		
	00 55	0000 dddd	Delay 1 Pan	(0 - 127) L64 - 63R
#	00 56	0000 aaaa		
	00 57	0000 bbbb		
	00 58	0000 cccc		
	00 59	0000 dddd	Delay 2 Pan	(0 - 127) L64 - 63R
#	00 5A	0000 aaaa		
	00 5B	0000 bbbb		
	00 5C	0000 cccc		
	00 5D	0000 dddd	Delay 1 Level	(0 - 127) 0 - 127
#	00 5E	0000 aaaa		
	00 5F	0000 bbbb		
	00 60	0000 cccc		
	00 61	0000 dddd	Delay 2 Level	(0 - 127) 0 - 127
#	00 62	0000 aaaa		
	00 63	0000 bbbb		
	00 64	0000 cccc		
	00 65	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 66	0000 aaaa		
	00 67	0000 bbbb		
	00 68	0000 cccc		
	00 69	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 6A	0000 aaaa		
	00 6B	0000 bbbb		
	00 6C	0000 cccc		
	00 6D	0000 dddd	dummy (ignored)	
#	00 6E	0000 aaaa		
	00 6F	0000 bbbb		
	00 70	0000 cccc		
	00 71	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: 3TAP PAN DELAY

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Tempo Sync L	(0 - 1) OFF, ON
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Delay L Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Delay L Time (note)	(0 - 21) MUSICAL-NOTES
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Tempo Sync R	(0 - 1) OFF, ON
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Delay R Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Delay R Time (note)	(0 - 21) MUSICAL-NOTES
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Tempo Sync Center	(0 - 1) OFF, ON
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Delay Ctr Time (msec)	(0 - 21) MUSICAL-NOTES
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Delay Ctr Time (note)	(0 - 21) MUSICAL-NOTES
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Center Feedback	(0 - 98) -98 - +98 [%]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		

	Offset Address		Description	
	00 31	0000 dddd	HF Damp	(0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Left Level	(0 - 127) 0 - 127
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Right Level	(0 - 127) 0 - 127
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Center Level	(0 - 127) 0 - 127
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	dummy (ignored)	
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: OD -> DELAY

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Overdrive Drive	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Overdrive Pan	(0 - 127) L64 - 63R
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		

	Offset Address		Description	
	00 11	0000 dddd	Tempo Sync	(0 - 1) OFF, ON
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Delay Time (msec)	(1 - 2600) 1 - 2600 [msec]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Delay Time (note)	(0 - 21) MUSICAL-NOTES
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Delay Feedback	(0 - 98) -98 - +98 [%]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Delay HF Damp	(0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Delay Balance	(0 - 100) D100:0W - D0:100W
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: DS -> DELAY

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Distortion Drive	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Distortion Pan	(0 - 127) L64 - 63R
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Tempo Sync	(0 - 1) OFF, ON
#	00 12	0000 aaaa		
	00 13	0000 bbbb		

	Offset Address		Description
	00 14	0000 cccc	
	00 15	0000 dddd	Delay Time (msec) (1 - 2600) 1 - 2600 [msec]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Delay Time (note) (0 - 21) MUSICAL-NOTES
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Delay Feedback (0 - 98) -98 - +98 [%]
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Delay HF Damp (0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Delay Balance (0 - 100) D100:0W - D0:100W
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: CHORUS

	Offset Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Filter Type (0 - 2) OFF, LPF, HPF
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Cutoff Freq (0 - 16) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Pre Delay (0 - 125) 0.0 - 100 [msec]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Tempo Sync (0 - 1)

			OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Rate (Hz) (1 - 200) 0.05 - 10.00 [Hz]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Rate (note) (0 - 21) MUSICAL-NOTES
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Depth (0 - 127) 0 - 127
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Phase (0 - 90) 0 - 180 [deg]
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Low Gain (0 - 30) -15 - +15 [dB]
#	00 2A	0000 aaaa	
	00 2B	0000 bbbb	
	00 2C	0000 cccc	
	00 2D	0000 dddd	High Gain (0 - 30) -15 - +15 [dB]
#	00 2E	0000 aaaa	
	00 2F	0000 bbbb	
	00 30	0000 cccc	
	00 31	0000 dddd	dummy (ignored)
#	00 32	0000 aaaa	
	00 33	0000 bbbb	
	00 34	0000 cccc	
	00 35	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: SPACE-D

Offset Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Pre Delay (0 - 125) 0.0 - 100 [msec]
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Tempo Sync (0 - 1) OFF, ON
#	00 0E	0000 aaaa	

	Offset Address		Description	
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Rate (Hz)	(1 - 200) 0.05 - 10.00 [Hz]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Rate (note)	(0 - 21) MUSICAL-NOTES
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Depth	(0 - 127) 0 - 127
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Phase	(0 - 90) 0 - 180 [deg]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	dummy (ignored)	
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: OD -> CHORUS

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Overdrive Drive	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Overdrive Pan	(0 - 127) L64 - 63R
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		

	Offset Address		Description	
	00 11	0000 dddd	Pre Delay	(0 - 125) 0.0 - 100 [msec]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Tempo Sync	(0 - 1) OFF, ON
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Rate (Hz)	(1 - 200) 0.05 - 10.00 [Hz]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Rate (note)	(0 - 21) MUSICAL-NOTES
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Chorus Depth	(0 - 127) 0 - 127
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Chorus Balance	(0 - 100) D100:0W - D0:100W
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: DS -> CHORUS

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Distortion Drive	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Distortion Pan	(0 - 127) L64 - 63R
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Pre Delay	(0 - 125) 0.0 - 100 [msec]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Tempo Sync	(0 - 1)

			OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Rate (Hz) (1 - 200) 0.05 - 10.00 [Hz]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Rate (note) (0 - 21) MUSICAL-NOTES
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Chorus Depth (0 - 127) 0 - 127
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Chorus Balance (0 - 100) D100:0W - D0:100W
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: PHASER A

Offset Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Mode (0 - 2) 4-STAGE, 8-STAGE, 12-STAGE
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Manual (0 - 127) 0 - 127
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Tempo Sync (0 - 1) OFF, ON
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Rate (Hz) (1 - 200) 0.05 - 10.00 [Hz]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Rate (note) (0 - 21) MUSICAL-NOTES

	Offset Address		Description	
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Depth	(0 - 127) 0 - 127
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Polarity	(0 - 1) INVERSE, SYNCHRO
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Resonance	(0 - 127) 0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Cross Feedback	(0 - 98) -98 - +98 [%]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	dummy (ignored)	
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: PHASER B

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Speed	(0 - 100) 0 - 100
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Depth	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		

	Offset Address		Description	
	00 10	0000 cccc		
	00 11	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: STEP PHASER

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Mode	(0 - 2) 4-STAGE, 8-STAGE, 12-STAGE
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Manual	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Tempo Sync (Rate)	(0 - 1) OFF, ON
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Rate (Hz)	(1 - 200) 0.05 - 10.00 [Hz]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Rate (note)	(0 - 21) MUSICAL-NOTES
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Depth	(0 - 127) 0 - 127
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Polarity	(0 - 1) INVERSE, SYNCHRO
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		

	Offset Address		Description	
	00 25	0000 dddd	Resonance	(0 - 127) 0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Cross Feedback	(0 - 98) -98 - +98 [%]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Tempo Sync (Step Rate)	(0 - 1) OFF, ON
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Step Rate (Hz)	(1 - 200) 0.05 - 10.00 [Hz]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Step Rate (note)	(0 - 21) MUSICAL-NOTES
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	dummy (ignored)	
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: FLANGER

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Filter Type	(0 - 2) OFF, LPF, HPF
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Cutoff Freq	(0 - 16) 200, 250, 315, 400, 500, 630, 800,

			1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Pre Delay (0 - 125) 0.0 - 100 [msec]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Tempo Sync (0 - 1) OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Rate (Hz) (1 - 200) 0.05 - 10.00 [Hz]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Rate (note) (0 - 21) MUSICAL-NOTES
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Depth (0 - 127) 0 - 127
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Phase (0 - 90) 0 - 180 [deg]
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Feedback (0 - 98) -98 - +98 [%]
#	00 2A	0000 aaaa	
	00 2B	0000 bbbb	
	00 2C	0000 cccc	
	00 2D	0000 dddd	Low Gain (0 - 30) -15 - +15 [dB]
#	00 2E	0000 aaaa	
	00 2F	0000 bbbb	
	00 30	0000 cccc	
	00 31	0000 dddd	High Gain (0 - 30) -15 - +15 [dB]
#	00 32	0000 aaaa	
	00 33	0000 bbbb	
	00 34	0000 cccc	
	00 35	0000 dddd	dummy (ignored)
#	00 36	0000 aaaa	
	00 37	0000 bbbb	
	00 38	0000 cccc	
	00 39	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: REVERB

Offset Address		Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Type (0 - 5) ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Pre Delay (0 - 125) 0.0 - 100 [msec]
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Time (0 - 127) 0 - 127
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	HF Damp (0 - 17) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	Low Gain (0 - 30) -15 - +15 [dB]
# 00 1A	0000 aaaa	
00 1B	0000 bbbb	
00 1C	0000 cccc	
00 1D	0000 dddd	High Gain (0 - 30) -15 - +15 [dB]
# 00 1E	0000 aaaa	
00 1F	0000 bbbb	
00 20	0000 cccc	
00 21	0000 dddd	dummy (ignored)
# 00 22	0000 aaaa	
00 23	0000 bbbb	
00 24	0000 cccc	
00 25	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: LONG REVERB

Offset Address		Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Depth (0 - 127) 0 - 127

#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Time (0 - 127) 0 - 127
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Pre LPF (1 - 32) 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 15000, BYPASS [Hz]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Pre HPF (0 - 31) BYPASS, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 15000 [Hz]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Peaking Freq (0 - 16) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Peaking Gain (0 - 30) -15 - +15 [dB]
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Peaking Q (0 - 4) 0.5, 1.0, 2.0, 4.0, 8.0
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	HF Damp (1 - 32) 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 15000, BYPASS [Hz]
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	LF Damp (0 - 31) BYPASS, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 15000 [Hz]

#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Character	(0 - 5) 1 - 6
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	EQ Low Freq	(0 - 1) 200, 400 [Hz]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	EQ Low Gain	(0 - 30) -15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	EQ High Freq	(0 - 2) 2000, 4000, 8000 [Hz]
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	EQ High Gain	(0 - 30) -15 - +15 [dB]
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: SUPER FILTER

Offset Address		Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Filter Type (0 - 3) OFF, LPF, HPF, NOTCH
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Filter Slope (0 - 2) -12, -24, -36 [dB]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Filter Cutoff (0 - 127) 0 - 127
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Filter Resonance (0 - 127) 0 - 127
#	00 16	0000 aaaa	

	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Filter Gain	(0 - 12) 0 - +12[dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Modulation Sw	(0 - 1) OFF, ON
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Modulation Wave	(0 - 4) TRI, SQR, SIN, SAW1, SAW2
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Tempo Sync	(0 - 1) OFF, ON
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Rate (Hz)	(1 - 200) 0.05 - 10.00 [Hz]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Rate (note)	(0 - 21) MUSICAL-NOTES
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Depth	(0 - 127) 0 - 127
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Attack	(0 - 127) 0 - 127
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: FILTER+DRIVE

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Cutoff	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		

	Offset Address		Description	
	00 0C	0000 cccc		
	00 0D	0000 dddd	Resonance	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Drive	(0 - 127) 0 - 127
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: AUTO WAH

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Filter Type	(0 - 1) LPF, HPF
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Manual	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Peak	(0 - 127) 0 - 127
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Sens	(0 - 127) 0 - 127
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Polarity	(0 - 1) UP, DOWN
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Tempo Sync	(0 - 1) OFF, ON
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Rate (Hz)	(1 - 200) 0.05 - 10.00 [Hz]
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		

	Offset Address		Description	
	00 25	0000 dddd	Rate (note)	(0 - 21) MUSICAL-NOTES
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Depth	(0 - 127) 0 - 127
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Phase	(0 - 90) 0 - 180 [deg]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: OD/DS -> TWAH

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Drive Switch	(0 - 1) OFF, ON
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Drive Type	(0 - 1) OVERDRIVE, DISTORTION
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Drive	(0 - 127) 0 - 127
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Tone	(0 - 127) 0 - 127
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Amp Switch	(0 - 1)

			OFF, ON
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Amp Type (0 - 3) SMALL, BUILT-IN, 2-STACK, 3-STACK
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Touch Wah Switch (0 - 1) OFF, ON
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Touch Wah Mode (0 - 1) LPF, BPF
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Touch Wah Polarity (0 - 1) DOWN, UP
#	00 2A	0000 aaaa	
	00 2B	0000 bbbb	
	00 2C	0000 cccc	
	00 2D	0000 dddd	Touch Wah Sens (0 - 127) 0 - 127
#	00 2E	0000 aaaa	
	00 2F	0000 bbbb	
	00 30	0000 cccc	
	00 31	0000 dddd	Touch Wah Manual (0 - 127) 0 - 127
#	00 32	0000 aaaa	
	00 33	0000 bbbb	
	00 34	0000 cccc	
	00 35	0000 dddd	Touch Wah Peak (0 - 127) 0 - 127
#	00 36	0000 aaaa	
	00 37	0000 bbbb	
	00 38	0000 cccc	
	00 39	0000 dddd	Touch Wah Balance (0 - 100) D100:0W - D0:100W
#	00 3A	0000 aaaa	
	00 3B	0000 bbbb	
	00 3C	0000 cccc	
	00 3D	0000 dddd	Low Gain (0 - 30) -15 - +15 [dB]
#	00 3E	0000 aaaa	
	00 3F	0000 bbbb	
	00 40	0000 cccc	
	00 41	0000 dddd	High Gain (0 - 30) -15 - +15 [dB]
#	00 42	0000 aaaa	
	00 43	0000 bbbb	
	00 44	0000 cccc	
	00 45	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: LOFI COMPRESS

Offset Address		Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Pre Filter Type (0 - 5) 1, 2, 3, 4, 5, 6
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	LoFi Type (0 - 8) 1, 2, 3, 4, 5, 6, 7, 8, 9
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	PostFilter Type (0 - 2) OFF, LPF, HPF
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	PostFilter Cutoff (0 - 16) 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	Low Gain (0 - 30) -15 - +15 [dB]
# 00 1A	0000 aaaa	
00 1B	0000 bbbb	
00 1C	0000 cccc	
00 1D	0000 dddd	High Gain (0 - 30) -15 - +15 [dB]
# 00 1E	0000 aaaa	
00 1F	0000 bbbb	
00 20	0000 cccc	
00 21	0000 dddd	dummy (ignored)
# 00 22	0000 aaaa	
00 23	0000 bbbb	
00 24	0000 cccc	
00 25	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: DISTORTION

Offset Address		Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Drive (0 - 127) 0 - 127

Offset Address		Description	
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Tone	(0 - 127) 0 - 127
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Amp Sw	(0 - 1) OFF, ON
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	Amp Type	(0 - 3) SMALL, BUILT-IN, 2-STACK, 3-STACK
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
# 00 1E	0000 aaaa		
00 1F	0000 bbbb		
00 20	0000 cccc		
00 21	0000 dddd	Pan	(0 - 127) L64 - 63R
# 00 22	0000 aaaa		
00 23	0000 bbbb		
00 24	0000 cccc		
00 25	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: OVERDRIVE

Offset Address		Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	Drive	(0 - 127) 0 - 127
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Tone	(0 - 127) 0 - 127
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Amp Sw	(0 - 1) OFF, ON
# 00 12	0000 aaaa		

	Offset Address			
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Amp Type	(0 - 3) SMALL, BUILT-IN, 2-STACK, 3-STACK
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Pan	(0 - 127) L64 - 63R
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: SATURATOR

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Saturator Gain	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Saturator Drive	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Saturator Level	(0 - 127) 0 - 127
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Comp Depth	(0 - 127) 0 - 127
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Comp Level	(0 - 127) 0 - 127
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		

	00 1C	0000 cccc		
	00 1D	0000 dddd	Hi Gain	(3 - 21) -12 - +6 [dB]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: T-SCREAM

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Distortion	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Tone	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: BIT CRUSHER

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Sample Rate	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Bit Down	(0 - 18) 0 - 18
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Filter	(0 - 127) 0 - 127
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 16	0000 aaaa		

	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: ISOLATOR

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Boost/Cut Low	(0 - 64) -60 - +4 [dB]
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Boost/Cut Mid	(0 - 64) -60 - +4 [dB]
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Boost/Cut High	(0 - 64) -60 - +4 [dB]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Anti Phase Low Sw	(0 - 1) OFF, ON
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Anti Phase Low Level	(0 - 127) 0 - 127
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Anti Phase Mid Sw	(0 - 1) OFF, ON
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Anti Phase Mid Level	(0 - 127) 0 - 127
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Low Boost Sw	(0 - 1) OFF, ON
#	00 26	0000 aaaa		
	00 27	0000 bbbb		

	00 28	0000 cccc		
	00 29	0000 dddd	Low Boost Level	(0 - 127) 0 - 127
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: RING MODULATOR

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Frequency	(0 - 127) 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Sens	(0 - 127) 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Polarity	(0 - 1) UP, DOWN
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	dummy (ignored)	
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: PITCH SHIFTER

	Offset Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	

	Offset Address		Description	
	00 08	0000 cccc		
	00 09	0000 dddd	Coarse	(0 - 36) -24 - +12 [semi]
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Fine	(0 - 100) -100 - +100 [cent]
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Tempo Sync	(0 - 1) OFF, ON
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Delay Time (msec)	(1 - 1300) 1 - 1300 [msec]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Delay Time (note)	(0 - 21) MUSICAL-NOTES
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Feedback	(0 - 98) -98 - +98 [%]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Low Gain	(0 - 30) -15 - +15 [dB]
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	dummy (ignored)	
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: AUTO PAN

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Mod Wave	(0 - 5)

			TRI, SQR, SIN, SAW1, SAW2, TRP
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Tempo Sync (0 - 1) OFF, ON
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Rate (Hz) (1 - 200) 0.05 - 10.00 [Hz]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Rate (note) (0 - 21) MUSICAL-NOTES
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Depth (0 - 127) 0 - 127
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Low Gain (0 - 30) -15 - +15 [dB]
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	High Gain (0 - 30) -15 - +15 [dB]
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: EQUALIZER

Offset Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Low Freq (0 - 13) 20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Low Gain (0 - 30) -15 - +15[dB]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	

	00 10	0000 cccc		
	00 11	0000 dddd	Mid 1 Freq	(0 - 16)
				200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz,
				800Hz, 1000Hz, 1250Hz, 1600Hz, 2000Hz,
				2500Hz, 3150Hz, 4000Hz, 5000Hz, 6300Hz, 8000Hz
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Mid1 Gain	(0 - 30)
				-15 - +15[dB]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Mid 1 Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Mid 2 Freq	(0 - 16)
				200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz,
				800Hz, 1000Hz, 1250Hz, 1600Hz, 2000Hz,
				2500Hz, 3150Hz, 4000Hz, 5000Hz, 6300Hz, 8000Hz
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Mid 2 Gain	(0 - 30)
				-15 - +15 [dB]
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Mid 2 Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	High Freq	(0 - 9)
				2000Hz, 2500Hz, 3150Hz, 4000Hz,
				5000Hz, 6300Hz, 8000Hz, 10000Hz,
				12500Hz, 16000Hz,
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		

00 30	0000 cccc		
00 31	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: SPECTRUM

Offset Address		Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	250Hz	(0 - 30) -15 - +15 [dB]
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	500Hz	(0 - 30) -15 - +15[dB]
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	1000Hz	(0 - 30) -15 - +15 [dB]
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	1250Hz	(0 - 30) -15 - +15[dB]
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	2000Hz	(0 - 30) -15 - +15[dB]
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	3150Hz	(0 - 30) -15 - +15[dB]
# 00 1E	0000 aaaa		
00 1F	0000 bbbb		
00 20	0000 cccc		
00 21	0000 dddd	4000Hz	(0 - 30) -15 - +15 [dB]
# 00 22	0000 aaaa		
00 23	0000 bbbb		
00 24	0000 cccc		
00 25	0000 dddd	8000Hz	(0 - 30) -15 - +15[dB]
# 00 26	0000 aaaa		
00 27	0000 bbbb		
00 28	0000 cccc		

	00 29	0000 dddd	Q (0 - 4) 0.5, 1.0, 2.0, 4.0, 8.0
#	00 2A	0000 aaaa	
	00 2B	0000 bbbb	
	00 2C	0000 cccc	
	00 2D	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: LOW BOOST

#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Boost Frequency (0 - 8) 50Hz, 56Hz, 63Hz, 71Hz, 80Hz, 90Hz, 100Hz, 112Hz, 125Hz
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Boost Gain (0 - 12) 0 - +12[dB]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Boost Width (0 - 2) WIDE, MID, NARROW
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Low Gain (0 - 30) -15 - +15[dB]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	High Gain (0 - 30) -15 - +15[dB]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Level (0 - 127) 0 - 127

MFX Type: ENHANCER

#	00 06	0000 aaaa	
	00 07	0000 bbbb	

	00 08	0000 cccc		
	00 09	0000 dddd	Sens	(0 - 127)
				0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Mix	(0 - 127)
				0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Low Gain	(0 - 30)
				-15 - +15[dB]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	High Gain	(0 - 30)
				-15 - +15[dB]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: HUMANIZER

	Offset Address		Description	
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Drive Sw	(0 - 1)
				OFF, ON
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Drive	(0 - 127)
				0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Vowel1	(0 - 4)
				a, e, i, o, u
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Vowel2	(0 - 4)
				a, e, i, o, u
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Tempo Sync	(0 - 1)
				OFF, ON

#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Rate(Hz)	(1 - 200)
				0.05 - 10.00 [Hz]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Rate(note)	(0 - 21)
				MUSICAL-NOTES
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Depth	(0 - 127)
				0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Input Sync	(0 - 1)
				OFF, ON
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Input Sync Threshold	(0 - 127)
				0 - 127
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Manual	(0 - 100)
				0 - 100
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Pan	(0 - 127)
				0 - 127
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: SLICER

Offset Address	Description

#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Step 01	(0 - 127) | 0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Step 02	(0 - 127) | 0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Step 03	(0 - 127) | 0 - 127
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Step 04	(0 - 127) | 0 - 127
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Step 05	(0 - 1) | OFF, ON
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Step 06	(0 - 127) | 0 - 127
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Step 07	(0 - 127) | 0 - 127
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Step 08	(0 - 127) | 0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Step 09	(0 - 127) | 0 - 127
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Step 10	(0 - 127) | 0 - 127
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Step 11	(0 - 127) | 0 - 127
#	00 32	0000 aaaa		
	00 33	0000 bbbb		

	00 34	0000 cccc				
	00 35	0000 dddd	Step 12		(0 - 127)	0 - 127
#	00 36	0000 aaaa				
	00 37	0000 bbbb				
	00 38	0000 cccc				
	00 39	0000 dddd	Step 13		(0 - 127)	0 - 127
#	00 3A	0000 aaaa				
	00 3B	0000 bbbb				
	00 3C	0000 cccc				
	00 3D	0000 dddd	Step 14		(0 - 127)	0 - 127
#	00 3E	0000 aaaa				
	00 3F	0000 bbbb				
	00 40	0000 cccc				
	00 41	0000 dddd	Step 15		(0 - 127)	0 - 127
#	00 42	0000 aaaa				
	00 43	0000 bbbb				
	00 44	0000 cccc				
	00 45	0000 dddd	Step 16		(0 - 127)	0 - 127
#	00 46	0000 aaaa				
	00 47	0000 bbbb				
	00 48	0000 cccc				
	00 49	0000 dddd	Tempo Sync	(0 - 1)		OFF, ON
#	00 4A	0000 aaaa				
	00 4B	0000 bbbb				
	00 4C	0000 cccc				
	00 4D	0000 dddd	Rate(Hz)		(1 - 200)	0.05 - 10.00 [Hz]
#	00 4E	0000 aaaa				
	00 4F	0000 bbbb				
	00 50	0000 cccc				
	00 51	0000 dddd	Rate(note)		(0 - 21)	MUSICAL-NOTES
#	00 52	0000 aaaa				
	00 53	0000 bbbb				
	00 54	0000 cccc				
	00 55	0000 dddd	Attack		(0 - 127)	0 - 127
#	00 56	0000 aaaa				
	00 57	0000 bbbb				
	00 58	0000 cccc				
	00 59	0000 dddd	Input Sync	(0 - 1)		OFF, ON
#	00 5A	0000 aaaa				
	00 5B	0000 bbbb				
	00 5C	0000 cccc				
	00 5D	0000 dddd	Input Sync Threshold		(0 - 127)	0 - 127
#	00 5E	0000 aaaa				
	00 5F	0000 bbbb				
	00 60	0000 cccc				

	00 61	0000 dddd	Mode	(0 - 1)	LEGATO, SLASH
#	00 62	0000 aaaa			
	00 63	0000 bbbb			
	00 64	0000 cccc			
	00 65	0000 dddd	Shuffle	(0 - 127)	0 - 127
#	00 66	0000 aaaa			
	00 67	0000 bbbb			
	00 68	0000 cccc			
	00 69	0000 dddd	Level	(0 - 127)	0 - 127

MFX Type: STEP FLANGER

Offset Address			Description		
#	00 06	0000 aaaa			
	00 07	0000 bbbb			
	00 08	0000 cccc			
	00 09	0000 dddd	Filter Type	(0 - 2)	OFF, LPF, HPF
#	00 0A	0000 aaaa			
	00 0B	0000 bbbb			
	00 0C	0000 cccc			
	00 0D	0000 dddd	Cutoff Freq	(0 - 16)	200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1000Hz, 1250Hz, 1600Hz, 2000Hz, 2500Hz, 3150Hz, 4000Hz, 5000Hz, 6300Hz, 8000Hz
#	00 0E	0000 aaaa			
	00 0F	0000 bbbb			
	00 10	0000 cccc			
	00 11	0000 dddd	Pre Delay	(0 - 125)	0.0 - 100 [msec]
#	00 12	0000 aaaa			
	00 13	0000 bbbb			
	00 14	0000 cccc			
	00 15	0000 dddd	Tempo Sync (Rate)	(0 - 1)	OFF, ON
#	00 16	0000 aaaa			
	00 17	0000 bbbb			
	00 18	0000 cccc			
	00 19	0000 dddd	Rate(Hz)	(1 - 200)	0.05 - 10.00 [Hz]
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			

	00 1D	0000 dddd	Rate(note)	(0 - 21)	
MUSICAL-NOTES					
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	Depth	(0 - 127)	0 - 127
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	Phase	(0 - 90)	0 - 180 [deg]
#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	Feedback	(0 - 98)	-98 - +98 [%]
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	Tempo Sync (Step Rate)	(0 - 1)	OFF, ON
#	00 2E	0000 aaaa			
	00 2F	0000 bbbb			
	00 30	0000 cccc			
	00 31	0000 dddd	Step Rate(Hz)	(1 - 200)	0.10 - 20.00 [Hz]
#	00 32	0000 aaaa			
	00 33	0000 bbbb			
	00 34	0000 cccc			
	00 35	0000 dddd	Step Rate(note)	(1 - 21)	MUSICAL-NOTES
#	00 36	0000 aaaa			
	00 37	0000 bbbb			
	00 38	0000 cccc			
	00 39	0000 dddd	Low Gain	(0 - 30)	-15 - +15 [dB]
#	00 3A	0000 aaaa			
	00 3B	0000 bbbb			
	00 3C	0000 cccc			
	00 3D	0000 dddd	High Gain	(0 - 30)	-15 - +15 [dB]
#	00 3E	0000 aaaa			
	00 3F	0000 bbbb			
	00 40	0000 cccc			
	00 41	0000 dddd	dummy (ignored)		
#	00 42	0000 aaaa			
	00 43	0000 bbbb			
	00 44	0000 cccc			
	00 45	0000 dddd	Level	(0 - 127)	0 - 127

MFX Type: HEXA-CHORUS

Offset Address		Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	Pre Delay	(0 - 125)
			0.0 - 100 [msec]
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Tempo Sync	(0 - 1)
			OFF, ON
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Rate(Hz)	(1 - 200)
			0.05 - 10.00 [Hz]
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	Rate(note)	(0 - 21)
			MUSICAL-NOTES
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	Depth	(0 - 127)
			0 - 127
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	Pre Delay Deviation	(0 - 20)
			0 - 20
# 00 1E	0000 aaaa		
00 1F	0000 bbbb		
00 20	0000 cccc		
00 21	0000 dddd	Depth Deviation	(0 - 40)
			-20 - +20
# 00 22	0000 aaaa		
00 23	0000 bbbb		
00 24	0000 cccc		
00 25	0000 dddd	Pan Deviation	(0 - 20)
			0 - 20
# 00 26	0000 aaaa		
00 27	0000 bbbb		
00 28	0000 cccc		
00 29	0000 dddd	dummy (ignored)	
# 00 2A	0000 aaaa		
00 2B	0000 bbbb		
00 2C	0000 cccc		
00 2D	0000 dddd	Level	(0 - 127)
			0 - 127

MFX Type: 4 TAP PAN DELAY

Offset Address		Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	Delay 1 Sync	(0 - 1) OFF, ON
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Delay 1 Time(msec)	(1 - 2600) 1 - 2600 [msec]
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Delay 1 Time(note)	(0 - 21) MUSICAL-NOTES
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	Delay 2 Sync	(0 - 1) OFF, ON
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	Delay 2 Time(msec)	(1 - 2600) 1 - 2600 [msec]
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	Delay 2 Time(note)	(0 - 21) MUSICAL-NOTES
# 00 1E	0000 aaaa		
00 1F	0000 bbbb		
00 20	0000 cccc		
00 21	0000 dddd	Delay 3 Sync	(0 - 1) OFF, ON
# 00 22	0000 aaaa		
00 23	0000 bbbb		
00 24	0000 cccc		
00 25	0000 dddd	Delay 3 Time(msec)	(1 - 2600) 1 - 2600 [msec]
# 00 26	0000 aaaa		
00 27	0000 bbbb		
00 28	0000 cccc		
00 29	0000 dddd	Delay 3 Time(note)	(0 - 21) MUSICAL-NOTES
# 00 2A	0000 aaaa		
00 2B	0000 bbbb		
00 2C	0000 cccc		
00 2D	0000 dddd	Delay 4 Sync	(0 - 1)

			OFF, ON
#	00 2E	0000 aaaa	
	00 2F	0000 bbbb	
	00 30	0000 cccc	
	00 31	0000 dddd	Delay 3 Time(msec) (1 - 2600)
			1 - 2600 [msec]
#	00 32	0000 aaaa	
	00 33	0000 bbbb	
	00 34	0000 cccc	
	00 35	0000 dddd	Delay 3 Time(note) (0 - 21)
			MUSICAL-NOTES
#	00 36	0000 aaaa	
	00 37	0000 bbbb	
	00 38	0000 cccc	
	00 39	0000 dddd	Delay 1 Feedback (0 - 98)
			-98 - +98 [%]
#	00 3A	0000 aaaa	
	00 3B	0000 bbbb	
	00 3C	0000 cccc	
	00 3D	0000 dddd	HF Damp (0 - 17)
			200Hz, 250Hz, 315Hz, 400Hz, 500Hz,
			630Hz, 800Hz, 1000Hz, 1250Hz, 1600Hz,
			2000Hz, 2500Hz, 3150Hz, 4000Hz,
			5000Hz, 6300Hz, 8000Hz, BYPASS
#	00 3E	0000 aaaa	
	00 3F	0000 bbbb	
	00 40	0000 cccc	
	00 41	0000 dddd	Delay 1 Level (0 - 127)
			0 - 127
#	00 42	0000 aaaa	
	00 43	0000 bbbb	
	00 44	0000 cccc	
	00 45	0000 dddd	Delay 2 Level (0 - 127)
			0 - 127
#	00 46	0000 aaaa	
	00 47	0000 bbbb	
	00 48	0000 cccc	
	00 49	0000 dddd	Delay 3 Level (0 - 127)
			0 - 127
#	00 4A	0000 aaaa	
	00 4B	0000 bbbb	
	00 4C	0000 cccc	
	00 4D	0000 dddd	Delay 4 Level (0 - 127)
			0 - 127
#	00 4E	0000 aaaa	
	00 4F	0000 bbbb	
	00 50	0000 cccc	
	00 51	0000 dddd	Low Gain (0 - 30)
			-15 - +15 [dB]
#	00 52	0000 aaaa	
	00 53	0000 bbbb	
	00 54	0000 cccc	

	00 55	0000 dddd	High Gain	(0 - 30) -15 - +15 [dB]
#	00 56	0000 aaaa		
	00 57	0000 bbbb		
	00 58	0000 cccc		
	00 59	0000 dddd	dummy (ignored)	
#	00 5A	0000 aaaa		
	00 5B	0000 bbbb		
	00 5C	0000 cccc		
	00 5D	0000 dddd	Level	(0 - 127) 0 - 127

MFX Type: EH->FLANGER

Offset Address		Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	Enhancer Sens	(0 - 127) 0 - 127
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Enhancer Mix	(0 - 127) 0 - 127
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	FLANG Pre Delay	(0 - 125) 0.0 - 100 [msec]
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	FLANG Tempo Sync	(0 - 1) 0 - 127
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	FLANG Rate(Hz)	(1 - 200) 0.05 - 10.00 [Hz]
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	FLANG Rate(note)	(0 - 21) MUSICAL-NOTES
# 00 1E	0000 aaaa		
00 1F	0000 bbbb		
00 20	0000 cccc		
00 21	0000 dddd	FLANG Depth	(0 - 127) 0 - 127
# 00 22	0000 aaaa		
00 23	0000 bbbb		
00 24	0000 cccc		

	00 25	0000 dddd	FLANG Feedback	(0 - 98)
				-98 - +98 [%]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	FLANG Balance	(0 - 100) D100:0W - D0:100W
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: SPEAKER SIM

Offset Address		Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Speaker Type (0 - 15) SMALL 1, SMALL 2, MIDDLE, JC-120, BUILT-IN 1, BUILT-IN 2, BUILT-IN 3, BUILT-IN 4, BUILT-IN 5, BG STACK 1, BG STACK 2, MS STACK 1, MS STACK 2, METAL STACK, 2-STACK, 3-STACK
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Mic Setting (0 - 2) 1 - 3
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Mic Level (0 - 127) 0 - 127
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Direct Level (0 - 127) 0 - 127
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Level (0 - 127) 0 - 127

* [KitUnitVEdit]

Offset Address		Description

	00 00	0000 0000	(reserve)	
#	00 01	0000 aaaa		
	00 02	0000 bbbb		
	00 03	0000 cccc		
	00 04	0000 dddd	V-Edit Parameter 1	(*2)
#	00 05	0000 aaaa		
	00 06	0000 bbbb		
	00 07	0000 cccc		
	00 08	0000 dddd	V-Edit Parameter 2	(*2)
#	00 09	0000 aaaa		
	00 0A	0000 bbbb		
	00 0B	0000 cccc		
	00 0C	0000 dddd	V-Edit Parameter 3	(*2)
#	00 0D	0000 aaaa		
	00 0E	0000 bbbb		
	00 0F	0000 cccc		
	00 10	0000 dddd	V-Edit Parameter 4	(*2)
#	00 11	0000 aaaa		
	00 12	0000 bbbb		
	00 13	0000 cccc		
	00 14	0000 dddd	V-Edit Parameter 5	(*2)
#	00 15	0000 aaaa		
	00 16	0000 bbbb		
	00 17	0000 cccc		
	00 18	0000 dddd	V-Edit Parameter 6	(*2)
#	00 19	0000 aaaa		
	00 1A	0000 bbbb		
	00 1B	0000 cccc		
	00 1C	0000 dddd	V-Edit Parameter 7	(*2)
#	00 1D	0000 aaaa		
	00 1E	0000 bbbb		
	00 1F	0000 cccc		
	00 20	0000 dddd	V-Edit Parameter 8	(*2)
#	00 21	0000 aaaa		
	00 22	0000 bbbb		
	00 23	0000 cccc		
	00 24	0000 dddd	V-Edit Parameter 9	(*2)
#	00 25	0000 aaaa		
	00 26	0000 bbbb		
	00 27	0000 cccc		
	00 28	0000 dddd	V-Edit Parameter 10	(*2)
#	00 29	0000 aaaa		
	00 2A	0000 bbbb		
	00 2B	0000 cccc		
	00 2C	0000 dddd	V-Edit Parameter 11	(*2)
#	00 2D	0000 aaaa		
	00 2E	0000 bbbb		
	00 2F	0000 cccc		
	00 30	0000 dddd	V-Edit Parameter 12	(*2)
#	00 31	0000 aaaa		
	00 32	0000 bbbb		
	00 33	0000 cccc		
	00 34	0000 dddd	V-Edit Parameter 13	(*2)
#	00 35	0000 aaaa		
	00 36	0000 bbbb		
	00 37	0000 cccc		
	00 38	0000 dddd	V-Edit Parameter 14	(*2)

	Offset Address		Description	
#	00 39	0000 aaaa		
	00 3A	0000 bbbb		
	00 3B	0000 cccc		
	00 3C	0000 dddd	V-Edit Parameter 15	(*2)
#	00 3D	0000 aaaa		
	00 3E	0000 bbbb		
	00 3F	0000 cccc		
	00 40	0000 dddd	V-Edit Parameter 16	(*2)
	00 00 00 41	Total Size		

(*2) This area is assigned as follows according to the instrument that is assigned. Addresses for which the instrument has no assignment are ignored.

INSTRUMENT GROUP: KICK

	Offset Address		Description	
	00 00	0000 0000	(reserve)	
#	00 01	0000 aaaa		
	00 02	0000 bbbb		
	00 03	0000 cccc		
	00 04	0000 dddd	Tuning	(-100 - 100) -100 - +100
#	00 05	0000 aaaa		
	00 06	0000 bbbb		
	00 07	0000 cccc		
	00 08	0000 dddd	Muffling	(0 - 9) OFF, TAPE1 - 4, BLANKET1 - 3, WEIGHT1 - 2
#	00 09	0000 aaaa		
	00 0A	0000 bbbb		
	00 0B	0000 cccc		
	00 0C	0000 dddd	Snare Buzz	(0 - 8) OFF, 1 - 8
	00 00 00 21	Total Size		

INSTRUMENT GROUP: SNARE

	Offset Address		Description	
	00 00	0000 0000	(reserve)	
#	00 01	0000 aaaa		
	00 02	0000 bbbb		
	00 03	0000 cccc		
	00 04	0000 dddd	Tuning	(-100 - 100) -100 - +100
#	00 05	0000 aaaa		
	00 06	0000 bbbb		
	00 07	0000 cccc		
	00 08	0000 dddd	Muffling	(0 - 9) OFF, TAPE1 - 7, DONUT1 - 2
#	00 09	0000 aaaa		
	00 0A	0000 bbbb		
	00 0B	0000 cccc		

	00 0C	0000 dddd	Strainer Adj (0 - 8) LOOSE1 - 3, MEDIUM1 - 3, TIGHT1 - 3
00 00 00 21	Total Size		

INSTRUMENT GROUP: CROSS STICK

	Offset Address		Description
	00 00	0000 0000	(reserve)
#	00 01	0000 aaaa	
	00 02	0000 bbbb	
	00 03	0000 cccc	
	00 04	0000 dddd	Tuning (-100 - 100) -100 - +100
#	00 05	0000 aaaa	
	00 06	0000 bbbb	
	00 07	0000 cccc	
	00 08	0000 dddd	Muffling (0 - 9) OFF, TAPE1 - 7, DONUT1 - 2
00 00 00 21	Total Size		

INSTRUMENT GROUP: TOM

	Offset Address		Description
	00 00	0000 0000	(reserve)
#	00 01	0000 aaaa	
	00 02	0000 bbbb	
	00 03	0000 cccc	
	00 04	0000 dddd	Tuning (-100 - 100) -100 - +100
#	00 05	0000 aaaa	
	00 06	0000 bbbb	
	00 07	0000 cccc	
	00 08	0000 dddd	Muffling (0 - 9) OFF, TAPE1 - 5, FELT1 - 4
#	00 09	0000 aaaa	
	00 0A	0000 bbbb	
	00 0B	0000 cccc	
	00 0C	0000 dddd	Snare Buzz (0 - 8) OFF, 1 - 8
00 00 00 21	Total Size		

INSTRUMENT GROUP: HI-HAT

	Offset Address		Description
	00 00	0000 0000	(reserve)
#	00 01	0000 aaaa	

	Offset Address		Description	
	00 02	0000 bbbb		
	00 03	0000 cccc		
	00 04	0000 dddd	Size	(0 - 78) 1.0 - 40.0
#	00 05	0000 aaaa		
	00 06	0000 bbbb		
	00 07	0000 cccc		
	00 08	0000 dddd	Fixed	(0 - 4) NORMAL, FIXED1 - 4
	00 00 00 21	Total Size		

INSTRUMENT GROUP: RIDE, CRASH, SPLASH/CHINA

	Offset Address		Description	
	00 00	0000 0000	(reserve)	
#	00 01	0000 aaaa		
	00 02	0000 bbbb		
	00 03	0000 cccc		
	00 04	0000 dddd	Size	(0 - 78) 1.0 - 40.0
#	00 05	0000 aaaa		
	00 06	0000 bbbb		
	00 07	0000 cccc		
	00 08	0000 dddd	Muffling	(0 - 19) OFF, TAPE1 - 19
	00 00 00 21	Total Size		

INSTRUMENT GROUP: Other than the above

	Offset Address		Description	
	00 00	0000 0000	(reserve)	
#	00 01	0000 aaaa		
	00 02	0000 bbbb		
	00 03	0000 cccc		
	00 04	0000 dddd	Pitch	(-4800 - 4800) -4800 - +4800
#	00 05	0000 aaaa		
	00 06	0000 bbbb		
	00 07	0000 cccc		
	00 08	0000 dddd	Decay	(1 - 100) 1 - 100
	00 00 00 21	Total Size		

4. Supplementary Material

■ Decimal and Hexadecimal Table

In MIDI documentation, data values and addresses/sizes of exclusive messages etc.
are expressed as hexadecimal values for each 7 bits. The following table shows how these correspond to decimal numbers. (in the case of hexadecimal values for each 7 bits, or positive hexadecimal values for each 4 bits.)

D	H	D	H	D	H	D	H
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

D: decimal
H: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.
* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128+bb.
* For values with a ± sign, 00H=-64, 40H=±0, and 7FH=+63. When expressing these values as decimal expressions, we use values that are 64 less than the values in the decimal table above.
In the case of a two-byte value, 00 00H=-8192, 40 00H=±0, and 7F 7FH=+8191. For example, aa bbH expressed in decimal would be aa bbH - 40 00H＝aa×128＋bb?64×128.

<Example 1>
What is the decimal expression of 5AH?
From the preceding table, 5AH = 90

<Example 2>
What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?
From the preceding table, since 12H = 18 and 34H = 52
18 x 128 + 52 = 2356

■ Examples of Actual MIDI Messages

<Example 1> 92 3E 5F
9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> C9 2O
CnH is the Program Change status, and n is the MIDI channel number. Since 9H = 9 and 2OH = 32, this is a Program Change message with MIDI CH = 10, program number 33.

<Example 3> B9 O4 5A 99 2C 7F B9 O4 2D
9n is the Note-on status, and n is the MIDI channel number. BnH is the Control Change status, and n is the MIDI channel number. Thus, the above messages have the following meaning.
B9 O4 5A　　MIDI ch. 10, foot controller: 5AH
99 2C 7F　　MIDI ch. 10, Note On message
B9 O4 2D　　MIDI ch. 10, foot controller: 2DH
In other words, with these messages a Note On message with a note number of 44 (G#2) and velocity of 127 is transmitted on MIDI Channel 10, and then the foot controller value is set from 90 to 45.
According to the settings made at the factory, the drum part is assigned to MIDI Channel 10, Note Number 44 is assigned to the pedal hi-hat, and the foot controller is set to Pedal CC; in this case, the TD-17 plays a foot splash when the message is received.

■ Examples of Exclusive Messages and Checksum Calculation
When transmitting Roland exclusive messages (DT1), a checksum is added following the data (before F7) so that the receiving device can check whether the message was received correctly.
The checksum value is determined by the address and data of the exclusive message that is transmitted.

● How to calculate the checksum

(An “H” is appended to the end of numbers in hexadecimal notation.)
The checksum is a value derived by adding the address, data and checksum itself and inverting the lower 7 bits.
Here’s an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb cc ddH and the data is ee
ff gg hhH.

aa + bb + cc + dd + ee + ff + gg + hh = sum
sum / 128 = quotient ... remainder
128 - remainder = checksum
(However, the checksum will be 0 if the remainder is 0.)

<Example 1>
Specifying a TUNING of +5 for the instrument assigned to the SNARE head of drum kit number 1
From the "parameter address map," the start address for drum kit number 1 is 03 00 00 00H, and the VEdit parameter of the instrument that is assigned to the SNARE head has an offset address of 01 01 00H, and the offset address of TUNING is 00 01H; thus, the address is

```
   03 00 00 00H
      01 01 00H
+)       00 01H
----------------
   03 01 01 01H
```

Since +5 is the parameter value 00 00 00 05H

F0	41	10	00 00 00 4B	12	03 01 01 01	00 05	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland)
(3) Device ID (17) (4) Model ID (TD-17)
(5) Command ID (DT1) (6) EOX

Then calculate the checksum.
03H + 01H + 01H + 01H + 00H + 05H = 3 + 1 + 1 + 1 + 0 + 5 = 11 (sum)
11 (sum) ÷ 128 = 0 (quotient) … 11 (remainder) checksum = 128 - 11 (remainder) = 117 = 75H
This means that F0 41 10 00 00 00 4B 12 03 01 01 01 00 00 00 05 75 F7 is the message
should be sent.

<Example 2>
Requesting transmission of the pad EQ switch for the SNARE of drum kit number 1
"Parameter address map" indicates that the start address of drum kit 1 is 03 00 00 00H, the offset address of the SNARE pad parameters is 00 21 00H, and the offset
address of the pad EQ switch is00 05H; therefore, the address is

```
   03 00 00 00H
      00 21 00H
+)       00 05H
----------------
   03 00 21 05H
```

Since the size is 00 00 00 01H

F0	41	10	00 00 00 4B	11	03 00 21 05	00 00 00 01	??	F7
(1)	(2)	(3)	(4)	(5)	address	size	checksum	(6)

(1) Exclusive Status (2) ID (Roland)
(3) Device ID (17) (4) Model ID (TD-17)
(5) Command ID (DT1) (6) EOX

Then calculate the checksum.
03H + 00H + 21H + 05H + 00H + 00H +00H + 01H = 3 + 0 + 33 + 5 + 0 + 0 + 0 + 1 = 42 (sum)
42 (sum) ÷ 128=0 (quotient) … 42 (remainder) = 128 - 42 (remainder) = 86 = 56H

This means that F0 41 10 00 00 00 4B 11 03 00 21 05 00 00 00 01 56 F7 is the

message should be sent.

5. MIDI Implementation Chart

Model TD-17 Date : May 1, 2018
Version : 1.00

MIDI Implementation Chart

Function...	Transmitted	Recognized	Remarks
Basic Default	1-16, OFF	1-16, OFF	Memorized
Channel Changed	1-16, OFF	1-16, OFF	
Default	Mode 3	Mode 3	

Mode	Messages	x	x	
	Altered	**********	x	
Note Number		0-127	0-127	
	:True Voice	**********	0-127	Memorized
Velocity	Note On	o 9nH, v = 1-127	o	
	Note Off	o 8nH, v = 64	x	
After Touch	Key's	o	o	
	Channel's	x	x	
Pitch Bend		x	x	
Control Change	4	o (Pedal) *1	o *1	Foot Controller
Program Change		o 0-127 *2	o 0-127 *2	Program No. 1-128
	:True Number	**********	0-127	
System Exclusive		o *4	o *2	
System Common	:Song Position	x	x	
	:Song Select	x	x	
	:Tune Request	x	x	
System Real Time	:Clock	x	x	
	:Commands	x	x	

	:All Sound Off	o	o (120, 123-127)	
	:Reset All Controllers	x	o	
Aux	:Local On/Off	x	x	
Messages	:All Notes Off	x	o	*3
	:Active Sensing	o	x	
	:System Reset	x	x	
Notes		*1 Handled as hi-hat control pedal position data.		
		*2 o x is selectable.		
		*3 The same result as All Sound Off.		
		*4 Transmitted if Transmit Edit Data is on, or when RQ1 is received.		

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

o : Yes

Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO

x : No