

MIDI Data Format

Many MIDI messages listed in the MIDI Data Format section are expressed in hexadecimal or binary numbers. Hexadecimal numbers may include the letter "H" as a suffix. The letter "n" indicates a certain whole number.

The chart below lists the corresponding decimal number for each hexadecimal number.

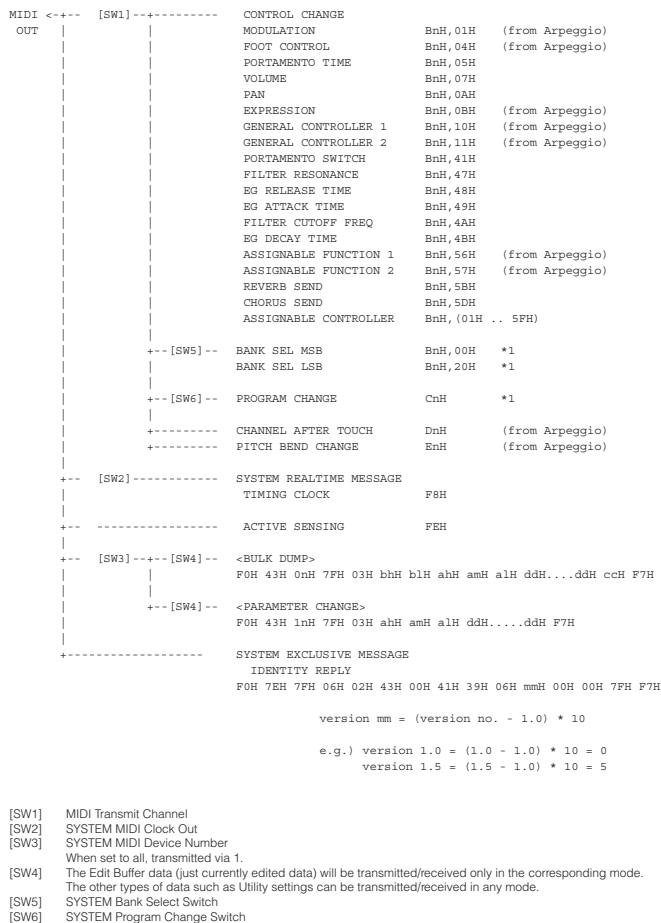
Decimal	Hexadecimal	Decimal	Hexadecimal
0	00	64	40
1	01	65	41
2	02	66	42
3	03	67	43
4	04	68	44
5	05	69	45
6	06	70	46
7	07	71	47
8	08	72	48
9	09	73	49
10	0A	74	4A
11	0B	75	4B
12	0C	76	4C
13	0D	77	4D
14	0E	78	4E
15	0F	79	4F
16	10	80	50
17	11	81	51
18	12	82	52
19	13	83	53
20	14	84	54
21	15	85	55
22	16	86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

Additional Notes

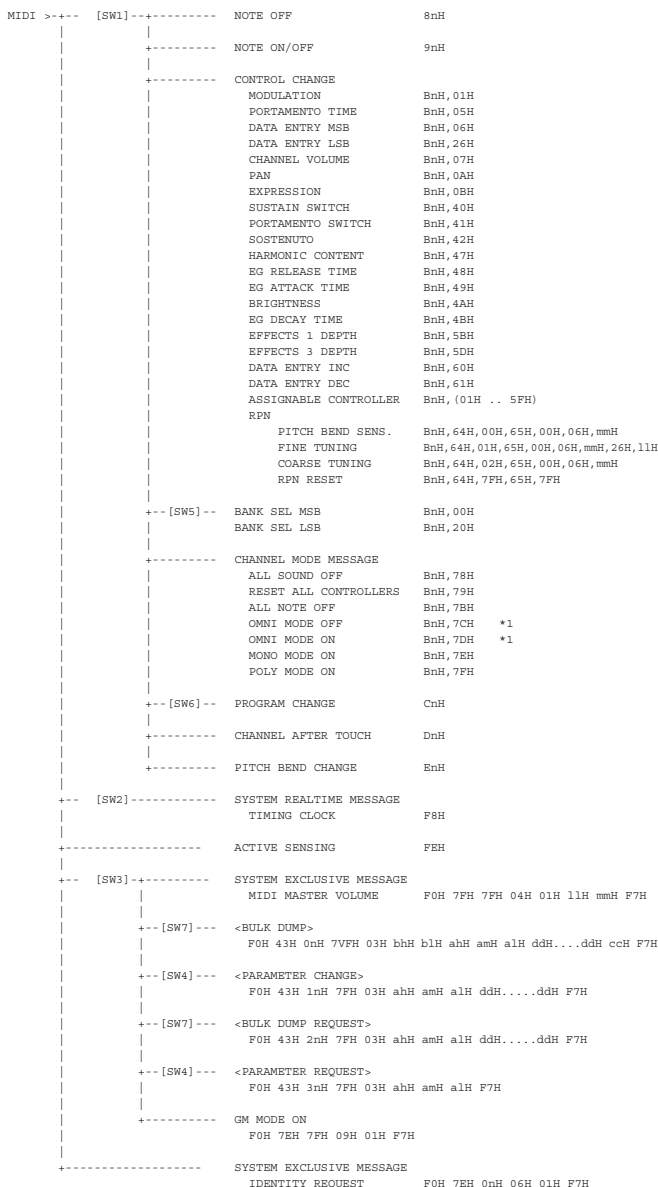
- For example, 144 – 159(Decimal)/9nH/1001 0000 – 1001 1111(Binary) indicate the note-on messages for the channels 1 through 16 respectively. 176 – 191/BnH/1011 0000 – 1011 1111 indicate the control change messages for the channels 1 through 16 respectively. 192 – 207/CnH/1100 0000 – 1100 1111 indicate the program change messages for the channels 1 through 16 respectively. 240/F0H/1111 0000 is positioned at the beginning of data to indicate a system exclusive message. 247/F7H/1111 0111 is positioned at the end of the system exclusive message.
- aaH (Hexadecimal)/0aaaaaa (Binary) indicates the data addresses. The data address consists of High, Mid and Low.
- bbH/0bbbbbbb indicates byte counts.
- ccH/0ccccccc indicates check sums.
- ddH/0ddddddd indicates data/value.

SYNTHSIZER/SEQUENCER PART

(1) TRANSMIT FLOW



*1 Transmitted only in the Voice mode.

(2) RECEIVE FLOW

[SW1] In the Voice mode: complies with Basic Receive Channel.

[SW2] In the Multi mode: complies with Part Receive Channel and Part Receive Switch.

[SW2] Complies with SYSTEM MIDI Sync setting. (This parameter can be received when it is not set to internal.)

[SW3] MIDI Device Number

[SW4] When this is not set to off, the MIDI Master Volume can be recognized in any mode.

[SW4] The Edit Buffer data of a mode can be recognized in only the current mode.

[SW4] The other types of data can be transmitted/recognized in any mode.

[SW5] SYSTEM Bank Select Switch

[SW6] SYSTEM Program Change Switch (This parameter can be received only in the Voice Play mode.)

[SW7] SYSTEM Bulk Receive Switch and same as SW5.

*1 Received only in the Voice mode.

(3) TRANSMIT/RECEIVE DATA**(3-1) CHANNEL VOICE MESSAGES****(3-1-1) NOTE OFF**

STATUS	1000nnnn (8nH)	n = 0 - 15 CHANNEL NUMBER
NOTE No.	0kkkkkkk	k = 0 (C-2) - 127 (G8)
VELOCITY	0vvvvvvv	v: ignored
Receive only		

(3-1-2) NOTE ON/OFF

STATUS	1001nnnn (9nH)	n = 0 - 15 CHANNEL NUMBER
NOTE NUMBER	0kkkkkkk	k = 0 (C-2) - 127 (G8)
VELOCITY NOTE ON	0vvvvvvv (v≠0)	
NOTE OFF	0vvvvvvv (v=0)	

(3-1-3) CONTROL CHANGE

STATUS	1011nnnn (BnH)	n = 0 - 15 CHANNEL NUMBER
CONTROL NUMBER	0ccccccc	
CONTROL VALUE	0vvvvvvv	

***TRANSMITTED CONTROL NUMBER**

c = 0	BANK SEL MSB	; v = 0-127	*3
c = 32	BANK SEL LSB	; v = 0-127	*3
c = 5	PORTAMENTO TIME	; v = 0 - 127	
c = 7	CHANNEL VOLUME	; v = 0 - 127	
c = 10	PAN	; v = 0 - 127	
c = 65	PORTAMENTO SWITCH	; v = 0-63:OFF , 64-127:ON	
c = 71	FILTER RESONANCE	; v = 0:-64 - 64:0 - 127:+63	
c = 72	EG RELEASE TIME	; v = 0:-64 - 64:0 - 127:+63	
c = 73	EG ATTACK TIME	; v = 0:-64 - 64:0 - 127:+63	
c = 74	FILTER CUTOFF FRQ	; v = 0:-64 - 64:0 - 127:+63	
c = 75	EG DECAY TIME	; v = 0:-64 - 64:0 - 127:+63	
c = 91	REVERB SEND	; v = 0, 127	
c = 93	CHORUS SEND	; v = 0, 127	
c = 1..95	ASSIGNABLE CONTROLLER	; v = 0 - 127	*4

*** RECEIVED CONTROL NUMBER**

c = 0	BANK SEL MSB	; v = 0 - 127	*3
c = 32	BANK SEL LSB	; v = 0 - 127	*3
c = 1	MODULATION	; v = 0 - 127	
c = 5	PORTAMENTO TIME	; v = 0 - 127	*2
c = 6	DATA ENTRY MSB	; v = 0 - 127	*1
c = 38	DATA ENTRY LSB	; v = 0 - 127	*1
c = 7	MAIN VOLUME	; v = 0 - 127	
c = 10	PAN	; v = 0 - 127	
c = 11	EXPRESSION	; v = 0 - 127	
c = 64	SUSTAIN SWITCH	; v = 0-63:OFF , 64-127:ON	*2
c = 65	PORTAMENTO SWITCH	; v = 0-63:OFF , 64-127:ON	*2
c = 66	SOSTENUTO	; v = 0-63:OFF , 64-127:ON	*2
c = 71	HARMONIC CONTENT	; v = 0:-64 - 64:0 - 127:+63	
c = 72	EG RELEASE TIME	; v = 0:-64 - 64:0 - 127:+63	*2
c = 73	EG ATTACK TIME	; v = 0:-64 - 64:0 - 127:+63	
c = 74	BRIGHTNESS	; v = 0:-64 - 64:0 - 127:+63	
c = 75	EG DECAY TIME	; v = 0:-64 - 64:0 - 127:+63	
c = 91	EFFECTS 1 DEPTH	; v = 0 - 127	
c = 93	EFFECTS 3 DEPTH	; v = 0 - 127	
c = 96	DATA ENTRY INC	; v = 127	*1
c = 97	DATA ENTRY DEC	; v = 127	*1
c = 1..95	ASSIGNABLE CONTROLLER	; v = 0 - 127	*4

*1 Used only when a value is set using RPN.

*2 Invalid with Drum Voices.

*3 Relation between BANK CHANGE and PROGRAM is as follows:

CATEGORY	MSB	LSB	PROGRAM No.	
GM Voice	0	0	0..127 (1..128)	
GM Drum Voice	127	0	0 (1)	
Normal Voice Preset 1	63	0	0..127 (1..128)	
Preset 2	63	1	0..127 (1..128)	
Preset 3	63	2	0..127 (1..128)	
Preset 4	63	3	0..127 (1..128)	
Preset 5	63	4	0..127 (1..128)	
Preset 6	63	5	0..127 (1..128)	
Preset 7	63	6	0..127 (1..128)	
Preset 8	63	7	0..127 (1..128)	
User 1	63	8	0..127 (1..128)	
User 2	63	9	0..127 (1..128)	
User 3	63	10	0..127 (1..128)	
Drum Voice Preset	63	32	0..63 (1..64)	
Drum Voice User	63	40	0..31 (1..32)	
Mixing Voice	63	60	0..15 (1..16)	*5
Multi	63	68	0..127 (1..128)	

*4 The default CONTROL NUMBERS of ASSIGNABLE CONTROLLER are as follows:

BREATH CONTROLLER	2
FOOT CONTROLLER 2	4
FOOT CONTROLLER 1	11
Assign 1	16
Assign 2	17
RIBBON CONTROLLER	22
ARPEGGIO 1-5 SELECT	85
Assignable Function 1	86
Assignable Function 2	87
FOOT SWITCH	88
ARPEGGIO HOLD	89
ARPEGGIO SW	90

5 Can be selected only in the Multi mode. Up to 16 Mixing Voices are available in a Multi.

PORTAMENTO TIME sets the time it takes for the pitch to reach the next note played when PORTAMENTO SWITCH is set to on.

0: shortest time; 127: longest time

PAN position relatively changes according to the preset value for each voice.

EFFECTS 1 DEPTH controls reverb send level.

EFFECTS 3 DEPTH controls chorus send level.

HARMONIC CONTENT adjusts the resonance preset for each voice.

Setting a value adds to or subtracts from the center value, 64, since it is an offset parameter.

The larger the value more resonant sound will be produced.

The effective range may be narrower than the range you can designate depending on the selected voice.

The parameters, EG ATTACK TIME, EG DECAY TIME, EG SUSTAIN LEVEL, EG RELEASE TIME adjust the envelopes preset for each voice.

Setting these values add to or subtract from the center value, 64, since these are offset parameters. BRIGHTNESS adjusts the cutoff frequency preset for each voice. Setting a value adds to or subtracts from the center value, 64, since it is an offset parameter. The smaller the value the cutoff frequency will be lowered. The effective range may be narrower than the range you can designate depending on the selected voice. Bank Select will be actually executed when the Program Change message is received. Bank Select and Program Change numbers that are not supported by Yamaha will be ignored.

(3-1-4) PROGRAM CHANGE

STATUS	1100nnnn (CnH)	n = 0 - 15 CHANNEL NUMBER
PROGRAM NUMBER	0ppppppp	p = 0 - 127

(3-1-5) CHANNEL AFTER TOUCH

STATUS	1101nnnn (DnH)	n = 0 - 15 CHANNEL NUMBER
VALUE	0vvvvvvv	v = 0 - 127 AFTER TOUCH VALUE

(3-1-6) PITCH BEND CHANGE

STATUS	1110nnnn (EnH)	n = 0 - 15 CHANNEL NUMBER
LSB	0vvvvvvv	PITCH BEND CHANGE LSB
MSB	0vvvvvvv	PITCH BEND CHANGE MSB

Transmitted with a resolution of 7 bits.

(3-2) CHANNEL MODE MESSAGES

STATUS	1011nnnn (BnH)	n = 0 - 15 CHANNEL NUMBER
CONTROL NUMBER	0ccccccc	c = CONTROL NUMBER
CONTROL VALUE	0vvvvvvv	v = DATA VALUE

(3-2-1) ALL SOUND OFF (CONTROL NUMBER = 78H, DATA VALUE = 0)

All the sounds currently played including the channel messages such as note-on and hold-on in a certain channel are muted when receiving this message.

(3-2-2) RESET ALL CONTROLLERS (CONTROL NUMBER = 79H, DATA VALUE = 0)

Resets the values set for the following controllers.

PITCH BEND CHANGE	0 (center)
CHANNEL AFTER TOUCH	0 (minimum)
MODULATION	0 (minimum)
EXPRESSION	127 (maximum)
BREATH CONTROLLER	127 (maximum)
FOOT CONTROLLER	127 (maximum)
Assign 1	0 (center)
Assign 2	0 (center)
SUSTAIN SWITCH	0 (off)
SOSTENUTO SWITCH	0 (off)
RPN	Not assigned; No change

Doesn't reset the following data:
PROGRAM CHANGE, BANK SELECT MSB/LSB, VOLUME, PAN.
HARMONIC CONTENT, SUSTAIN LEVEL, RELEASE TIME, ATTACK TIME,
DECAY TIME, BRIGHTNESS, EFFECT SEND LEVEL 1, EFFECT SEND LEVEL 3,
PORTAMENTO SWITCH, PITCH BEND SENSITIVITY, FINE TUNING, COARSE TUNING

(3-2-3) ALL NOTE OFF (CONTROL NUMBER = 7BH, DATA VALUE = 0)

All the notes currently set to on in certain channel(s) are muted when receiving this message. However, if Sustain or Sostenuto is on, notes will continue sounding until these are turned off.

(3-2-4) OMNI MODE OFF (CONTROL NUMBER = 7CH, DATA VALUE = 0)

Performs the same function as when receiving ALL NOTES OFF.
Sets VOICE RECEIVE CHANNEL to "OMNI OFF," channel 1.

(3-2-5) OMNI MODE ON (CONTROL NUMBER = 7DH, DATA VALUE = 0)

Performs the same function as when receiving ALL NOTES OFF.
Sets VOICE RECEIVE CHANNEL to "OMNI ON."

(3-2-6) MONO (CONTROL NUMBER = 7EH, DATA VALUE = 0..16)

Performs the same function as when receiving ALL SOUNDS OFF.
If the 3rd byte (mono) is within 0 through 16, the channel will be Mode 4 (m = 1).
In the Voice mode, the mode can be Mode 2 (m = 1) according to VOICE RECEIVE CHANNEL.

(3-2-7) POLY (CONTROL NUMBER = 7FH, DATA VALUE = 0)

Performs the same function as when receiving ALL SOUNDS OFF. The channel will be Mode 3.
In the Voice mode, the mode can be Mode 1 according to VOICE RECEIVE CHANNEL.

(3-3) REGISTERED PARAMETER NUMBER

STATUS	1011nnnn (BnH)	n = 0 - 15 CHANNEL NUMBER
LSB	01100100 (64H)	
RPN LSB	0ppppppp	p = RPN LSB (Refer to the table as shown below.)
MSB	01100101 (65H)	
RPN MSB	0qqqqqqq	q = RPN MSB (Refer to the table as shown below.)
DATA ENTRY MSB	00000110 (06H)	
DATA VALUE	0mmmmmmm	m = Data Value
DATA ENTRY LSB	00100110 (26H)	
DATA VALUE	01111111	l = Data Value

First, designate the parameter using RPN MSB/LSB numbers. Then, set its value with data entry MSB/LSB.

RPN	D.ENTRY	LSB MSB MSB LSB PARAMETER NAME	DATA RANGE
00H 00H mmH ---		PITCH BEND SENSITIVITY	00H ~ 18H (0 - 24 semitones)
01H 00H mmH 11H MASTER FINE TUNE			{mmH,11H}={00H,00H}~{40H,00H}~{7FH,7FH} (-8192*100/8192) ~ 0 ~ (+8192*100/8192)
02H 00H mmH ---		MASTER COARSE TUNE	28H ~ 40H ~ 58H (-24 ~ 0 ~ +24 semitones)
7FH 7FH --- ---		RPN RESET	
RPN numbers will be left not designated. The internal values are not affected.			

(3-4) SYSTEM REAL TIME MESSAGES

(3-4-1) ACTIVE SENSING

STATUS	11111110 (FEH)
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Transmitted at every 200 msec.
Once this code is received, the instrument starts sensing.
When no status nor data is received for over approximately 350 ms, MIDI receiving buffer will be cleared, and the sounds currently played is forcibly turned off.

(3-5) SYSTEM EXCLUSIVE MESSAGE

(3-5-1) UNIVERSAL NON REALTIME MESSAGE

(3-5-1-1) GENERAL MIDI MODE ON

F0H 7EH 7FH 09H 01H F7H

Received in the Multi mode when Compare or Store Compare is inactive.

(3-5-1-2) IDENTITY REQUEST (Receive only)

F0H 7EH 0nH 06H 01H F7H
("n" = Device No. However, this instrument receives under "omni.")

(3-5-1-3) IDENTITY REPLY (Transmit only)

F0H 7EH 7FH 06H 02H 43H 00H 41H 39H 06H mmH 00H 00H 7FH F7H

version mm = (version no. - 1.0) * 10

e.g.) version 1.0 = (1.0 - 1.0) * 10 = 0
version 1.5 = (1.5 - 1.0) * 10 = 5

(3-5-2) UNIVERSAL REALTIME MESSAGE

(3-5-2-1) MIDI MASTER VOLUME

F0H 7FH 7FH 04H 01H 11H mmH F7H

Sets the MASTER VOLUME value.
The value "mm" is used to set the master volume (the value "ll" should be ignored).

(3-5-3) PARAMETER CHANGE

(3-5-3-1) NATIVE PARAMETER CHANGE, MODE CHANGE

11110000	F0	Exclusive status
01000011	43	YAMAHA ID
0001nnnn	1n	Device Number
01111111	7F	Model ID
00000011	03	Model ID
0aaaaaaa	aaaaaaa	Address High
0aaaaaaa	aaaaaaa	Address Mid
0aaaaaaa	aaaaaaa	Address Low
0ddddd	ddddd	Data
11110111	F7	End of Exclusive

For parameters with data size of 2 or more, the appropriate number of data bytes will be transmitted. See the following MIDI Data Table for Address.

(3-5-4) BULK DUMP

11110000	F0	Exclusive status
01000011	43	YAMAHA ID
0000nnnn	0n	Device Number
01111111	7F	Model ID
00000011	03	Model ID
0bbbbbbb	bbbbbbb	Byte Count
0bbbbbbb	bbbbbbb	Byte Count
0aaaaaaa	aaaaaaa	Address High
0aaaaaaa	aaaaaaa	Address Mid
0aaaaaaa	aaaaaaa	Address Low
0	0	Data
0ccccccc	ccccccc	Check-sum
11110111	F7	End of Exclusive

See the following MIDI Data Table for Address and Byte Count.
The Check sum is the value that results in a value of 0 for the lower 7 bits when the Byte Count, Start Address, Data and Check sum itself are added.

(3-5-5) DUMP REQUEST

11110000	F0	Exclusive status
01000011	43	YAMAHA ID
0010nnnn	2n	Device Number
01111111	7F	Model ID
00000011	03	Model ID
0aaaaaaa	aaaaaaa	Address High
0aaaaaaa	aaaaaaa	Address Mid
0aaaaaaa	aaaaaaa	Address Low
11110111	F7	End of Exclusive

See the following MIDI Data Table for Address and Byte Count.

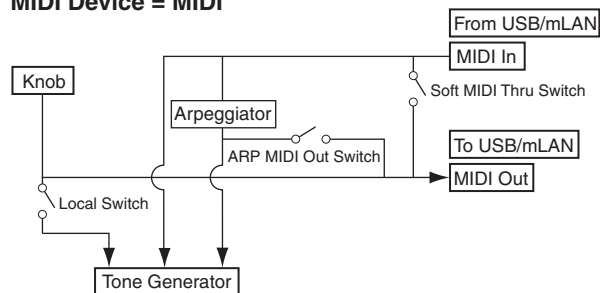
(3-5-6) PARAMETER REQUEST

11110000	F0	Exclusive status
01000011	43	YAMAHA ID
0011nnnn	3n	Device Number
01111111	7F	Model ID
00000011	03	Model ID
0aaaaaaa	aaaaaaa	Address High
0aaaaaaa	aaaaaaa	Address Mid
0aaaaaaa	aaaaaaa	Address Low
11110111	F7	End of Exclusive

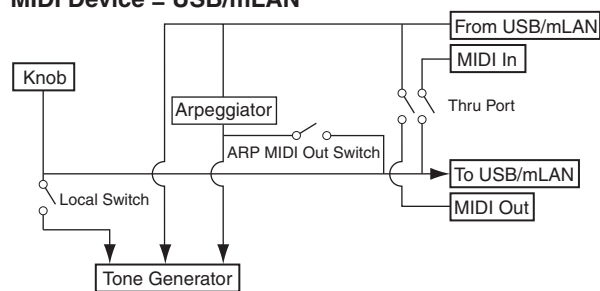
See the following MIDI Data Table for Address.

(4) SYSTEM OVERVIEW (Knob, Switch and Tone Generator)

MIDI Device = MIDI



MIDI Device = USB/mLAN



An optional mLAN expansion board can be installed to this instrument, and either USB or mLAN can be used.

Although note on/note off data received via MIDI and played with the Arpeggiator will be distinguished, other controllers (channel messages) equally affect all notes.

ALL SOUND OFF clears all the sounds in the specific channel(s) played by both the keyboard and the data via MIDI.
ALL NOTES OFF received via MIDI clears the sounds in the specific channel(s) played via MIDI.

MIDI Data Table

Bank Select

Available Bank Select/Program Change

MSB (HEX)	LSB (HEX)	Program No.	Type	Memory	Description
0	00	0 00	0 – 127	Normal Voice	GM Voice
127	7F	0 00	0	Drum Voice	GM Drum
63	3F	0 00	0 – 127	Normal Voice	Preset 1
		1 01	0 – 127		Preset 2
		2 02	0 – 127		Preset 3
		3 03	0 – 127		Preset 4
		4 04	0 – 127		Preset 5
		5 05	0 – 127		Preset 6
		6 06	0 – 127		Preset 7
		7 07	0 – 127		Preset 8
		8 08	0 – 127		User 1
		9 09	0 – 127		User 2
		10 0A	0 – 127		User 3
		32 20	0 – 63	Drum Voice	Preset
		40 28	0 – 31		User
		60 3C	0 – 15	Mixing Voice	User
		68 44	0 – 127	Multi	User

When only the Program Change is received after entering any of the mode, the corresponding voice in the currently selected Type/Memory is called up. The Multi mode can be changed only via the Parameter Change.

Parameter Base Address

Parameter Block	Top Address			Description
	H	M	L	
SYSTEM	00	00	00	System
	00	05	00	Sequencer Setup
	00	20	00	Master EQ for Voice
	00	21	00	Master Effect for Voice
	00	3n	00	Micro Tuning User Table
	00	5n	00	Micro Tuning User Table Name
	00	6n	00	Quick Setup
	00	41	00	Audio In Part (mLAN)
	0A	00	00	Mode Change
	0D	00	00	Part Set control for Mix Voice
BULK CONTROL	0E	00	00	Header
	0F	00	00	Footer
NORMAL VOICE COMMON	40	00	00	Common 1
	40	01	00	Reverb
	40	02	00	Chorus
	40	03	00	Insertion A
	40	04	00	Insertion B
	40	06	00	Controller+LFO
	40	07	00	Audition
	40	30	00	Arpeggio
	41	ee	00	ee: Element No. (0 – 7)
	42	ee	00	ee: Element No. (0 – 7)
DRUM COMMON	46	00	00	Common 1
	46	01	00	Reverb
	46	02	00	Chorus
	46	03	00	Insertion A
	46	04	00	Insertion B
	46	07	00	Audition
	46	08	00	Controller
	46	30	00	Arpeggio
	47	ee	00	ee: Element No. (0 – 72)
	36	00	00	Multi Common
MULTI	36	01	00	Reverb
	36	02	00	Chorus
	36	10	00	Master EQ
	36	11	00	Master Effect
	36	30	00	Arpeggio
	37	00	00	Part 1
				:
	37	0F	00	Part 16
	38	00	00	Part 1 additional
				:
	38	0F	00	Part 16 additional
	39	41	00	Audio In Part (mLAN)

Bulk Dump Block

"Top Address" indicates the top address of each block designated by bulk dump operation.

"Byte Count" indicates the data size contained in each block designated by bulk dump operation.

The Block from the Bulk Header to the Bulk Footer of the Voice can be received regardless their order. They can be received even if all of them are not transmitted. They cannot be received if the irrelevant Block is included.

To execute 1 Voice bulk dump request, designate its corresponding Bulk Header address.

When the Multiple Bulk Control Footer is received, the data of Masters, Performances, and Voices will be saved to the Flash ROM.

For the information about "mm" and "nn" shown in the following list, refer to MIDI PARAMETER CHANGE TABLE (BULK CONTROL) below.

Parameter Block	Description	Byte Count		Top Address		
		Dec	Hex	H	M	L
SYSTEM	System	52	0034	00	00	00
	Sequencer Setup	22	0016	00	05	00
	Master EQ (for Voice Mode)	20	0014	00	20	00
	Master Effect (for Voice Mode)	36	0024	00	21	00
MICRO TUNING	Table 1	24		00	30	00
	:	8 Blocks		:	:	:
	Table 8	24	0018	00	37	00
MICRO TUNING NAME	Table 1	20	0014	00	50	00
	:	8 Blocks		:	:	:
	Table 8	20	0014	00	57	00
QUICK SETUP	Quick Setup 1	12	000C	00	60	00
	Quick Setup 2	12	000C	00	:	00
	Quick Setup 3	12	000C	00	62	00
AUDIO IN PART	Audio Input (mLAN)	8	0008	00	41	00

VOICE (NORMAL)	Bulk Header	0	00	0E	mm	nn
	COMMON	Common	82	0052	40	00
		Reverb	37	0025	40	01
		Chorus	38	0026	40	02
		Insertion A	35	0023	40	03
		Insertion B	35	0023	40	04
		Controller + LFO	69	0045	40	06
		Audition	4	0004	40	70
		ARP	79	004F	40	30
	ELEMENT 1	Oscillator + Amplitude + Pitch	95	005F	41	00
		Filter + EQ + LFO	70	0046	42	00
	ELEMENT 2	Oscillator + Amplitude + Pitch	95	005F	41	01
		Filter + EQ + LFO	70	0046	42	01
	ELEMENT 3	Oscillator + Amplitude + Pitch	95	005F	41	02
		Filter + EQ + LFO	70	0046	42	02
	ELEMENT 4	Oscillator + Amplitude + Pitch	95	005F	41	03
		Filter + EQ + LFO	70	0046	42	03
	ELEMENT 5	Oscillator + Amplitude + Pitch	95	005F	41	04
		Filter + EQ + LFO	70	0046	42	04
	ELEMENT 6	Oscillator + Amplitude + Pitch	95	005F	41	05
		Filter + EQ + LFO	70	0046	42	05
	ELEMENT 7	Oscillator + Amplitude + Pitch	95	005F	41	06
		Filter + EQ + LFO	70	0046	42	06
	ELEMENT 8	Oscillator + Amplitude + Pitch	95	005F	41	07
		Filter + EQ + LFO	70	0046	42	07
	Bulk Footer	0	00	0F	mm	nn

VOICE (DRUM)	Bulk Header	0	00	0E	mm	nn
	COMMON	Common	74	004A	46	00
		Reverb	37	0025	46	01
		Chorus	38	0026	46	02
		Insertion A	35	0023	46	03
		Insertion B	35	0023	46	04
		Audition	4	0004	46	07
		Controller	30	001E	46	08
		ARP	79	004F	46	30
	KEY C 0	Key	47	002F	47	00
		:	73 Blocks		:	:
	KEY C 6	Key	47	002F	47	48
		Bulk Footer	0	00	0F	mm

Parameter Block	Description	Byte Count		Top Address		
		Dec	Hex	H	M	L
MULTI	Bulk Header	0	00	0E	mm	nn
	COMMON	Common	81	0051	36	00
		Reverb	37	0025	36	01
		Chorus	38	0026	36	02
		Master EQ	20	0014	36	10
		Master Effect	36	0024	36	11
		ARP	13	000D	36	30
	PART	Part 1	61	003D	37	00
		:	16 Blocks		:	:
		Part 16	61	003D	37	0F
		ARP Part 1	66	0042	38	00
		:	16 Blocks		:	:
		ARP Part 16	66	0042	38	0F
	AUDIO IN PART	Audio In Part (mLAN)	8	0008	39	41
		Bulk Footer	0	00	0F	mm

MIDI PARAMETER CHANGE TABLE (Mode Change)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
0A	00	01	1	00 – 06	Mode Change	0: Voice, 5: Multi, 6: Demo	

MIDI PARAMETER CHANGE TABLE Part Set Control for Mix Voice

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
0D	00	00	1	00 – 0F	Part Set Control for Mix Part Voice	0 – 15	

MIDI PARAMETER CHANGE TABLE (Bulk Control)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
0E	00	nn	1	-	Bulk Header	Normal Voice PRE 1 (nn = 0 – 127)	
01	nn	1	-	-		Normal Voice PRE 2 (nn = 0 – 127)	
02	nn	1	-	-		Normal Voice PRE 3 (nn = 0 – 127)	
03	nn	1	-	-		Normal Voice PRE 4 (nn = 0 – 127)	
04	nn	1	-	-		Normal Voice PRE 5 (nn = 0 – 127)	
05	nn	1	-	-		Normal Voice PRE 6 (nn = 0 – 127)	
06	nn	1	-	-		Normal Voice PRE 7 (nn = 0 – 127)	
07	nn	1	-	-		Normal Voice PRE 8 (nn = 0 – 127)	
09	nn	1	-	-		Normal Voice GM (nn = 0 – 127)	
0A	nn	1	-	-		Normal Voice USER 1 (nn = 0 – 127)	
0B	nn	1	-	-		Normal Voice USER 2 (nn = 0 – 127)	
0C	nn	1	-	-		Normal Voice USER 3 (nn = 0 – 127)	
0F	nn	1	-	-		Normal Voice Edit Buffer (nn = 0)	
20	nn	1	-	-		Drum Voice PRE (nn = 0 – 63)	
21	nn	1	-	-		Drum Voice GM (nn = 0)	
28	nn	1	-	-		Drum Voice USER (nn = 0 – 31)	
29	nn	1	-	-		reserved	
2F	nn	1	-	-		Drum Voice Edit Buffer (nn = 0)	
30	nn	1	-	-		Mix Part Voice Edit Buffer (nn = 0 – 15) nn: part	
31	nn	1	-	-		Mixing Voice (Current Multi) (nn = 0 – 15) nn: Voice Number	
5F	nn	1	-	-		Multi Edit Buffer (nn = 0)	
0F	00	nn	1	-	Bulk Footer	Normal Voice PRE 1 (nn = 0 – 127)	
01	nn	1	-	-		Normal Voice PRE 2 (nn = 0 – 127)	
02	nn	1	-	-		Normal Voice PRE 3 (nn = 0 – 127)	
03	nn	1	-	-		Normal Voice PRE 4 (nn = 0 – 127)	
04	nn	1	-	-		Normal Voice PRE 5 (nn = 0 – 127)	
05	nn	1	-	-		Normal Voice PRE 6 (nn = 0 – 127)	
06	nn	1	-	-		Normal Voice PRE 7 (nn = 0 – 127)	
07	nn	1	-	-		Normal Voice PRE 8 (nn = 0 – 127)	
09	nn	1	-	-		Normal Voice GM (nn = 0 – 127)	
0A	nn	1	-	-		Normal Voice USER 1 (nn = 0 – 127)	
0B	nn	1	-	-		Normal Voice USER 2 (nn = 0 – 127)	
0C	nn	1	-	-		Normal Voice USER 3 (nn = 0 – 127)	
0F	nn	1	-	-		Normal Voice Edit Buffer (nn = 0)	
20	nn	1	-	-		Drum Voice PRE (nn = 0 – 63)	
21	nn	1	-	-		Drum Voice GM (nn = 0)	
28	nn	1	-	-		Drum Voice USER (nn = 0 – 31)	
29	nn	1	-	-		reserved	
2F	nn	1	-	-		Drum Voice Edit Buffer (nn = 0)	
30	nn	1	-	-		Mix Part Voice Edit Buffer (nn = 0 – 15) nn: part	
31	nn	1	-	-		Mixing Voice (Current Multi) (nn = 0 – 15) nn: Voice Number	
5F	nn	1	-	-		Multi Edit Buffer (nn = 0)	

MIDI PARAMETER CHANGE TABLE (SYSTEM)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
00	00	00	1	00 – 7F	Master Volume	0 – 127	MIDI Master Volume
		01	1	28 – 58	Master Note Shift	-24 – +24 [semitones]	
		02	4	00 – 0F	Master Tune	-102.4 – +102.3 [cent]	MIDI Master Tuning
				00 – 0F		1st bit 3-0 → bit 15-12	
				00 – 0F		2nd bit 3-0 → bit 11-8	
				00 – 0F		3rd bit 3-0 → bit 7-4	
						4th bit 3-0 → bit 3-0	
		06	1	00 – 01	Controller Reset	hold, reset	
		07	1		reserved		
		08	1		reserved		
		09	1	00 – 01	Local Switch	off, on	
		0A	1	00 – 10, 7F	Basic Receive Channel	1 – 16, omni, off	
		0B	1	00 – 0F, 7F	Basic Transmit Channel	1 – 16, off	
		0C	1	00 – 01	Layer 1 – 4 Parts Switch	off, on	
		0D	1	00 – 01	Stereo L&R Output Gain	00: 0dB, 01: +6dB	
		0E	1	00 – 01	Assign Out L&R Output Gain	00: 0dB, 01: +6dB	
		0F	1	00 – 7F	mLAN Individual Output Gain	bit 0: 0, +6dB 1&2, bit 1: 0, +6dB 3&4, ..., bit 6: 0, +6dB 13&14	
		10	1		reserved		
		11	1		reserved		
		12	1		reserved		
		13	1		reserved		
		14	1	00 – 01	Receive/Transmit Bank Select	off, on	
		15	1	00 – 01	Receive/Transmit Program Change	off, on	
		16	1	00 – 01	Soft MIDI Thru Switch	off, on	
		17	1		reserved		
		18	1	00 – 02	MIDI IN/OUT	MIDI, USB, mLAN	
		19	1		reserved		
		1A	1	00 – 01	Audition Switch Function	audition, arpeggio	
		1B	1	00 – 01	Knob Select Display Switch	off, on	
		1C	1	00 – 07	Knob Display Time	off, 1, 1.5, 2, 3, 4, 5, keep	
		1D	1		reserved		
		1E	1	00 – 03	Power on Mode	Multi, Voice (INT), Voice (PRE1), GM	
		1F	1	00 – 03	Bulk Interval	0 – 30 ms	
		20	1	00 – 01	Bank/Part Wrap Around	off, on	
		21	1	00 – 01	ARP 1 – 5 Select Switch Mode	00: inc, 01: direct	
		22	1	00 – 5F	ARP 1– 5 Select Control Number	off, 1 – 95	
		23	1		reserved		
		24	1		reserved		
		25	1	00 – 5F	ARP Switch Control Number	off, 1 – 95	
		26	1	00 – 5F	ARP Hold Control Number	off, 1 – 95	
		27	1	00 – 02	mLAN Monitor Setup	stand alone, with PC, with PC (Direct Monitor)	
		28	1	00 – 01	ARP MIDI Out Switch	off, on	for Voice Mode
		29	1	00 – 0F	ARP MIDI Out Channel	1 – 16	:
		2A	1	00 – 5F	RB Control Number	off, 1 – 95	
		2B	1	00 – 5F	FS Assign	off, 1 – 95	
		2C	1	00 – 5F	Assign1 Control Number	off, 1 – 95	
		2D	1	00 – 5F	Assign2 Control Number	off, 1 – 95	
		2E	1	00 – 5F	BC Control Number	off, 1 – 95	
		2F	1	00 – 5F	FC1 Control Number	off, 1 – 95	
		30	1	00 – 5F	FC2 Control Number	off, 1 – 95	
		31	1	00 – 5F	Assignable Button 1 Assign	off, 1 – 95	
		32	1	00 – 5F	Assignable Button 2 Assign	off, 1 – 95	
		33	1		reserved		

TOTAL SIZE = 52 34 (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
00 pp 00	1	00 – 03	Audio Input Mode	L mono, R mono, L+R mono, stereo	
	01	1 00 – 7F	Audio Input Part Volume	0 – 127	
	02	1 01 – 7F	Audio Input Part Pan	L63 – C – R63	
	03	1 00 – 7F	Audio Input Part Reverb Send	0 – 127	
	04	1 00 – 7F	Audio Input Part Chorus Send	0 – 127	
	05	1 00 – 7F	reserved		
	06	1 00 – 7F	Audio Input Part Dry Level	0 – 127	
	07	1 00 – 4F	Audio Input Part Output Select	0: L&R 8: asnL&R 9-15: mLAN1&2, ..., mLAN13&14 64-79: asnL, asnR, mLAN1, ..., mLAN14	

TOTAL SIZE = 8 08 (HEX)

pp = part number
41 Audio In Part (mLAN)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
00 20 00	1	34 – 4C	EQ Gain 1	-12 – +12 [dB]	for Voice Mode
	01	1 04 – 28	EQ Frequency 1	32 – 2000 [Hz]	:
	02	1 01 – 78	EQ Q1	0.1 – 12.0	:
	03	1 00 – 01	EQ Shape 1	shelv, peak	:
	04	1 34 – 4C	EQ Gain 2	-12 – +12 [dB]	:
	05	1 0E – 36	EQ Frequency 2	100 – 10.0 [kHz]	:
	06	1 01 – 78	EQ Q2	0.1 – 12.0	:
			reserved		:
	08	1 34 – 4C	EQ Gain 3	-12 – +12 [dB]	:
	09	1 0E – 36	EQ Frequency 3	100 – 10.0 [kHz]	:
	0A	1 01 – 78	EQ Q3	0.1 – 12.0	:
			reserved		:
	0C	1 34 – 4C	EQ Gain 4	-12 – +12 [dB]	:
	0D	1 0E – 36	EQ Frequency 4	100 – 10.0 [kHz]	:
	0E	1 01 – 78	EQ Q4	0.1 – 12.0	:
			reserved		:
	10	1 34 – 4C	EQ Gain 5	-12 – +12 [dB]	:
	11	1 1C – 3A	EQ Frequency 5	0.5 – 16.0 [kHz]	:
	12	1 01 – 78	EQ Q5	0.1 – 12.0	:
	13	1 00 – 01	EQ Shape 5	shelv, peak	:

TOTAL SIZE = 20 14 (HEX)

00 21 00	2	00 – 7F 00 – 7F	Master Effect Type MSB Master Effect Type LSB	Refer to "Effect Parameter List."	for Voice Mode
	02	1 00 – 7F	Template Number		
	03	2 00 – 7F 00 – 7F	Master Effect Parameter 1 MSB Master Effect Parameter 1 LSB	:	:
	05	2 00 – 7F 00 – 7F	Master Effect Parameter 2 MSB Master Effect Parameter 2 LSB	:	:
	07	2 00 – 7F 00 – 7F	Master Effect Parameter 3 MSB Master Effect Parameter 3 LSB	:	:
	09	2 00 – 7F 00 – 7F	Master Effect Parameter 4 MSB Master Effect Parameter 4 LSB	:	:
	0B	2 00 – 7F 00 – 7F	Master Effect Parameter 5 MSB Master Effect Parameter 5 LSB	:	:
	0D	2 00 – 7F 00 – 7F	Master Effect Parameter 6 MSB Master Effect Parameter 6 LSB	:	:
	0F	2 00 – 7F 00 – 7F	Master Effect Parameter 7 MSB Master Effect Parameter 7 LSB	:	:
	11	2 00 – 7F 00 – 7F	Master Effect Parameter 8 MSB Master Effect Parameter 8 LSB	:	:
	13	2 00 – 7F 00 – 7F	Master Effect Parameter 9 MSB Master Effect Parameter 9 LSB	:	:
	15	2 00 – 7F 00 – 7F	Master Effect Parameter 10 MSB Master Effect Parameter 10 LSB	:	:
	17	2 00 – 7F 00 – 7F	Master Effect Parameter 11 MSB Master Effect Parameter 11 LSB	:	:
	19	2 00 – 7F 00 – 7F	Master Effect Parameter 12 MSB Master Effect Parameter 12 LSB	:	:
	1B	2 00 – 7F 00 – 7F	Master Effect Parameter 13 MSB Master Effect Parameter 13 LSB	:	:
	1D	2 00 – 7F 00 – 7F	Master Effect Parameter 14 MSB Master Effect Parameter 14 LSB	:	:
	1F	2 00 – 7F 00 – 7F	Master Effect Parameter 15 MSB Master Effect Parameter 15 LSB	:	:
	21	2 00 – 7F 00 – 7F	Master Effect Parameter 16 MSB Master Effect Parameter 16 LSB	:	:
	23	1 00 – 01	Master Effect ON/OFF	0: Off, 1: On	:

TOTAL SIZE = 36 24 (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
00 3n 00	2	001D – 0163	Micro Tuning C	-99 – 0 – +99 [cent] 1st: 00h – 01h 2nd: 00h – 7Fh	
	02	2 001D – 0163	Micro Tuning C#	:	
	04	2 001D – 0163	Micro Tuning D	:	
	06	2 001D – 0163	Micro Tuning D#	:	
	08	2 001D – 0163	Micro Tuning E	:	
	0A	2 001D – 0163	Micro Tuning F	:	
	0C	2 001D – 0163	Micro Tuning F#	:	
	0E	2 001D – 0163	Micro Tuning G	:	
	10	2 001D – 0163	Micro Tuning G#	:	
	12	2 001D – 0163	Micro Tuning A	:	
	14	2 001D – 0163	Micro Tuning A#	:	
	16	2 001D – 0163	Micro Tuning B	:	

TOTAL SIZE = 24 18 (HEX)

n = user table number
00 – 07 Table 1 – 8

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
00 5n 00	1	00, 20 – 7E	Micro Tuning Table Name 1	0, 32 – 126 (ASCII)	
	01	1 00, 20 – 7E	Micro Tuning Table Name 2	0, 32 – 126 (ASCII)	
	02	1 00, 20 – 7E	Micro Tuning Table Name 3	0, 32 – 126 (ASCII)	
	03	1 00, 20 – 7E	Micro Tuning Table Name 4	0, 32 – 126 (ASCII)	
	04	1 00, 20 – 7E	Micro Tuning Table Name 5	0, 32 – 126 (ASCII)	
	05	1 00, 20 – 7E	Micro Tuning Table Name 6	0, 32 – 126 (ASCII)	
	06	1 00, 20 – 7E	Micro Tuning Table Name 7	0, 32 – 126 (ASCII)	
	07	1 00, 20 – 7E	Micro Tuning Table Name 8	0, 32 – 126 (ASCII)	
	08	1 00, 20 – 7E	Micro Tuning Table Name 9	0, 32 – 126 (ASCII)	
	09	1 00, 20 – 7E	Micro Tuning Table Name 10	0, 32 – 126 (ASCII)	
	0A	1 00, 20 – 7E	Micro Tuning Table Name 11	0, 32 – 126 (ASCII)	
	0B	1 00, 20 – 7E	Micro Tuning Table Name 12	0, 32 – 126 (ASCII)	
	0C	1 00, 20 – 7E	Micro Tuning Table Name 13	0, 32 – 126 (ASCII)	Table number (1 – 8)
	0D	1 00, 20 – 7E	Micro Tuning Table Name 14	0, 32 – 126 (ASCII)	
	0E	1 00, 20 – 7E	Micro Tuning Table Name 15	0, 32 – 126 (ASCII)	
	0F	1 00, 20 – 7E	Micro Tuning Table Name 16	0, 32 – 126 (ASCII)	
	10	1 00, 20 – 7E	Micro Tuning Table Name 17	0, 32 – 126 (ASCII)	
	11	1 00, 20 – 7E	Micro Tuning Table Name 18	0, 32 – 126 (ASCII)	
	12	1 00, 20 – 7E	Micro Tuning Table Name 19	0, 32 – 126 (ASCII)	
	13	1 00, 20 – 7E	Micro Tuning Table Name 20	0, 32 – 126 (ASCII)	

TOTAL SIZE = 20 14 (HEX)

n = user table number
00 – 07 Table 1 – 8

00 6n 00	1	00, 20 – 7E	Quick Setup Name 1	0, 32 – 126 (ASCII)	
	01	1 00, 20 – 7E	Quick Setup Name 2	0, 32 – 126 (ASCII)	
	02	1 00, 20 – 7E	Quick Setup Name 3	0, 32 – 126 (ASCII)	
	03	1 00, 20 – 7E	Quick Setup Name 4	0, 32 – 126 (ASCII)	
	04	1 00, 20 – 7E	Quick Setup Name 5	0, 32 – 126 (ASCII)	
	05	1 00, 20 – 7E	Quick Setup Name 6	0, 32 – 126 (ASCII)	
	06	1 00, 20 – 7E	Quick Setup Name 7	0, 32 – 126 (ASCII)	
	07	1 00, 20 – 7E	Quick Setup Name 8	0, 32 – 126 (ASCII)	
	08	1 00 – 01	Local Switch	off, on	
	09	1 00 – 02	MIDI Sync	internal, external, auto	
	0A	1 00 – 01	MIDI Clock Out	off, on	
	0B	1 00 – 01	ARP MIDI Out Switch	all off, all on	

TOTAL SIZE = 12 0C (HEX)

n = setup number
00 – 02 Table 1 – 3

MIDI PARAMETER CHANGE TABLE
(NORMAL VOICE COMMON)

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
40	00	00	1	00, 20 – 7E	Voice Name 1	0, 32 – 126 (ASCII)
		01	1	00, 20 – 7E	Voice Name 2	0, 32 – 126 (ASCII)
		02	1	00, 20 – 7E	Voice Name 3	0, 32 – 126 (ASCII)
		03	1	00, 20 – 7E	Voice Name 4	0, 32 – 126 (ASCII)
		04	1	00, 20 – 7E	Voice Name 5	0, 32 – 126 (ASCII)
		05	1	00, 20 – 7E	Voice Name 6	0, 32 – 126 (ASCII)
		06	1	00, 20 – 7E	Voice Name 7	0, 32 – 126 (ASCII)
		07	1	00, 20 – 7E	Voice Name 8	0, 32 – 126 (ASCII)
		08	1	00, 20 – 7E	Voice Name 9	0, 32 – 126 (ASCII)
		09	1	00, 20 – 7E	Voice Name 10	0, 32 – 126 (ASCII)
		0A	1	00, 20 – 7E	Voice Name 11	0, 32 – 126 (ASCII)
		0B	1	00, 20 – 7E	Voice Name 12	0, 32 – 126 (ASCII)
		0C	1	00, 20 – 7E	Voice Name 13	0, 32 – 126 (ASCII)
		0D	1	00, 20 – 7E	Voice Name 14	0, 32 – 126 (ASCII)
		0E	1	00, 20 – 7E	Voice Name 15	0, 32 – 126 (ASCII)
		0F	1	00, 20 – 7E	Voice Name 16	0, 32 – 126 (ASCII)
		10	1	00, 20 – 7E	Voice Name 17	0, 32 – 126 (ASCII)
		11	1	00, 20 – 7E	Voice Name 18	0, 32 – 126 (ASCII)
		12	1	00, 20 – 7E	Voice Name 19	0, 32 – 126 (ASCII)
		13	1	00, 20 – 7E	Voice Name 20	0, 32 – 126 (ASCII)
		14	1		reserved	
		15	1		reserved	
		16	1		reserved	
		17	1		reserved	
		18	1	00 – 10	Voice Category 1 (Main)	0 – 16 (Pn – --) Pn, Kb, Or, Gt, Bs, St, Br, SW, Ld, Pd, Sc, Cp, Dr, Se, Me, Et, --
		19	1	00 – 05	Voice Category 1 (Sub)	0 – 5 (Sub1 – Sub5) Depends on Main Category.
		1A	1	00 – 10	Voice Category 2 (Main)	0 – 16 (Pn – --) Pn, Kb, Or, Gt, Bs, St, Br, SW, Ld, Pd, Sc, Cp, Dr, Se, Me, Et, --
		1B	1	00 – 05	Voice Category 2 (Sub)	0 – 5 (Sub1 – Sub5) Depends on Main Category.
		1C	1		reserved	
		1D	1		reserved	
		1E	1	00 – 03	Knob Function Select	0= Tone1, 1= Tone2, 2= EQ, 3= Assign
		1F	1	01 – 7F	Pan	L63 – C – R63
		20	1	28 – 58	Note Shift	-24 – +24 [semitones]
		21	1	00 – 7F	AEG Attack Time	-64 – +63
		22	1	00 – 7F	AEG Decay Time	-64 – +63
		23	1	00 – 7F	AEG Sustain Level	-64 – +63
		24	1	00 – 7F	AEG Release Time	-64 – +63
		25	1	00 – 7F	FEQ Attack Time	-64 – +63
		26	1	00 – 7F	FEQ Decay Time	-64 – +63
		27	1		reserved	
		28	1	00 – 7F	FEQ Release Time	-64 – +63
		29	1	00 – 7F	FEQ Depth	-64 – +63
		2A	1	00 – 7F	Cutoff Frequency	-64 – +63
		2B	1	00 – 7F	Resonance	-64 – +63
		2C	1	00	reserved	
		2D	2	002E – 0136	EQ Low Frequency MSB EQ Low Frequency LSB	50.1 – 2.00k
		2F	1	20 – 60	EQ Low Gain	-32 – +32
		30	1	00	reserved	
		31	2	0053 – 0171	EQ Mid Frequency MSB EQ Mid Frequency LSB	139.7 – 12.9k 10.1k
		33	1	20 – 60	EQ Mid Gain	-32 – +32
		34	1	00 – 1F	EQ Mid Q	0 – 31
		35	2	0103 – 017F	EQ High Frequency MSB EQ High Frequency LSB	503.8 – 10.1k 14k
		37	1	20 – 60	EQ High Gain	-32 – +32
		38	1	00	reserved	
		39	1	00 – 7F	Assignable Knob 1 Value	-64 – +63
		3A	1	00 – 7F	Assignable Knob 2 Value	-64 – +63
		3B	1		reserved	
		3C	1		reserved	
		3D	1		reserved	
		3E	1		reserved	
		3F	1		reserved	
		40	1	00 – 7F	Volume	0 – 127
		41	1	00 – 01	Key Assign Mode	single, multi
		42	1	00 – 01	Mono/Poly Mode	mono, poly
		43	1	00 – 14	Micro Tuning Scale	Equal, Pure Major, Pure Minor, Werckmeister, Kimberger, Vallot&Yng, 1/4 Shift, 1/4 Tone, 1/8 Tone, Indian, Arabic 1, Arabic 2, Arabic 3, User 1, User 2, User 3, User 4, User 5, User 6, User 7, User 8
		44	1	00 – 0B	Micro Tuning Root	C – B
		45	1	10 – 58	Pitch Bend Range Upper	-48 – +24 [semitones]

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes	
		46	1	10 – 58	Pitch Bend Range Lower	-48 – +24 [semitones]
		47	1	00 – 01	Portamento Mode	fingered, fulltime
		48	1	00 – 01	Portamento Switch	off, on
		49	1	00 – 7F	Portamento Time	0 – 127
		4A	1	00 – 03	Portamento Time Mode	rate1, time1, rate2, time2
		4B	1	00 – 07	Legato Slope	0-7
		4C	1	00 – 7F	Reverb Send	0 – 127
		4D	1	00 – 7F	Chorus Send	0 – 127
		4E	1	00 – 02	Insertion Connect Type	Para, A->B, B->A
		4F	1	7F	reserved	127
		50	1	7F	reserved	127
		51	1	00	reserved	

TOTAL SIZE = 82 52 (HEX)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
40	30	00	1	00 – 04	ARP SF Select	SF1 – SF5	
		01	2	0005 – 022C	ARP Tempo MSB ARP Tempo LSB	5 – 300	
		03	1		reserved		
		04	1		reserved		
		05	2		reserved		
		07	2		reserved		
		09	2		reserved		
		0B	2		reserved		
		0D	1	00 – 01	ARP Switch	off, on	
		0E	1		reserved		
		0F	1		reserved		
		10	1		reserved		
		11	2		reserved		
		13	1	00 – 01	ARP Loop	off, on	
		14	1	00 – 02	ARP Hold	sync-off, off, on	
		15	1	00 – 06	ARP Unit Multiply	50%, 66%, 75%, 100%, 133%, 150%, 200%	
		16	1	00 – 7F	ARP Note Limit Low	C-2 – G8	
		17	1	00 – 7F	ARP Note Limit High	C-2 – G8	
		18	1	01 – 7F	ARP Velocity Limit Low	1 – 127	
		19	1	01 – 7F	ARP Velocity Limit High	1 – 127	
		1A	1	00 – 04	ARP Key Mode	sort, thru, direct, sort+direct, thru+direct	
		1B	1	00 – 01	ARP Vel Mode	original, thru	
		1C	1	00 – 01	ARP Change Timing	realtime, measure	
		1D	1	01 – 07	ARP Quantize Value	32th, 16th Triplet, 16th, 8th Triplet, 8th, 4th Triplet, 4th	
		1E	1	00 – 64	ARP Quantize Strength	0 – 100%	
		1F	2	0000 – 0148	ARP Velocity Rate MSB ARP Velocity Rate LSB	0 – 200%	
		21	2	0000 – 0148	ARP Gate Time Rate MSB ARP Gate Time Rate LSB	0 – 200%	
		23	2		reserved		
		25	2		reserved		
		27	2	0008 – 0178	ARP Swing MSB ARP Swing LSB	-120 – 0 – +120	The setting of this parameter will be applied to the Quantize Value.
		29	1	00 – 7F	ARP Accent Velocity Threshold	off, 1 – 127	
		2A	1	00 – 01	ARP Accent Start Quantize	off, on	
		2B	1	3D – 43	ARP Octave Range	-3 – 0 – +3	
		2C	1	36 – 4A	ARP Output Octave Shift	-10 – 0 – +10	
		2D	1	00 – 01	ARP Trigger Mode	gate, toggle	
		2E	1	00 – 01	ARP Random SFX	off, on	
		2F	1	00 – 01	ARP Random SFX Key On Control	off, on	
		30	1	00 – 7F	ARP Random SFX Velocity Offset	-64 – 0 – +63	
		31	2	001C – 0164	ARP Assign Velocity Rate Offset SF1 MSB ARP Assign Velocity Rate Offset SF1 LSB	-100 – 0 – +100	
		33	2	001C – 0164	ARP Assign Gate Time Offset SF1 MSB ARP Assign Gate Time Offset SF1 LSB	-100 – 0 – +100	
		35	2	001C – 0164	ARP Assign Velocity Rate Offset SF2 MSB ARP Assign Velocity Rate Offset SF2 LSB	-100 – 0 – +100	
		37	2	001C – 0164	ARP Assign Gate Time Offset SF2 MSB ARP Assign Gate Time Offset SF2 LSB	-100 – 0 – +100	
		39	2	001C – 0164	ARP Assign Velocity Rate Offset SF3 MSB ARP Assign Velocity Rate Offset SF3 LSB	-100 – 0 – +100	
		3B	2	001C – 0164	ARP Assign Gate Time Offset SF3 MSB ARP Assign Gate Time Offset SF3 LSB	-100 – 0 – +100	
		3D	2	001C – 0164	ARP Assign Velocity Rate Offset SF4 MSB ARP Assign Velocity Rate Offset SF4 LSB	-100 – 0 – +100	
		3F	2	001C – 0164	ARP Assign Gate Time Offset SF4 MSB ARP Assign Gate Time Offset SF4 LSB	-100 – 0 – +100	

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
	41	2	001C – 0164	ARP Assign Velocity Rate Offset SF5 MSB ARP Assign Velocity Rate Offset SF5 LSB	-100 – 0 – +100
	43	2	001C – 0164	ARP Assign Gate Time Offset SF5 MSB ARP Assign Gate Time Offset SF5 LSB	-100 – 0 – +100
	45	2	0000 – 3369	ARP SF1 Assign Type MSB ARP SF1 Assign Type LSB	off, 0001 – 6633
	47	2	0000 – 3369	ARP SF2 Assign Type MSB ARP SF2 Assign Type LSB	off, 0001 – 6633
	49	2	0000 – 3369	ARP SF3 Assign Type MSB ARP SF3 Assign Type LSB	off, 0001 – 6633
	4B	2	0000 – 3369	ARP SF4 Assign Type MSB ARP SF4 Assign Type LSB	off, 0001 – 6633
	4D	2	0000 – 3369	ARP SF5 Assign Type MSB ARP SF5 Assign Type LSB	off, 0001 – 6633

TOTAL SIZE = 79 4F (HEX)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
40	01	00	2	00 – 7F 00 – 7F	Reverb Type MSB Reverb Type LSB	Refer to "Effect Parameter List."	
		02	1	00 – 7F	Template Number		
		03	2	00 – 7F 00 – 7F	Reverb Parameter 1 MSB Reverb Parameter 1 LSB	:	
		05	2	00 – 7F 00 – 7F	Reverb Parameter 2 MSB Reverb Parameter 2 LSB	:	
		07	2	00 – 7F 00 – 7F	Reverb Parameter 3 MSB Reverb Parameter 3 LSB	:	
		09	2	00 – 7F	Reverb Parameter 4 MSB Reverb Parameter 4 LSB	:	
		0B	2	00 – 7F 00 – 7F	Reverb Parameter 5 MSB Reverb Parameter 5 LSB	:	
		0D	2	00 – 7F 00 – 7F	Reverb Parameter 6 MSB Reverb Parameter 6 LSB	:	
		0F	2	00 – 7F 00 – 7F	Reverb Parameter 7 MSB Reverb Parameter 7 LSB	:	
		11	2	00 – 7F 00 – 7F	Reverb Parameter 8 MSB Reverb Parameter 8 LSB	:	
		13	2	00 – 7F 00 – 7F	Reverb Parameter 9 MSB Reverb Parameter 9 LSB	:	
		15	2	00 – 7F 00 – 7F	Reverb Parameter 10 MSB Reverb Parameter 10 LSB	:	
		17	2	00 – 7F 00 – 7F	Reverb Parameter 11 MSB Reverb Parameter 11 LSB	:	
		19	2	00 – 7F 00 – 7F	Reverb Parameter 12 MSB Reverb Parameter 12 LSB	:	
		1B	2	00 – 7F 00 – 7F	Reverb Parameter 13 MSB Reverb Parameter 13 LSB	:	
		1D	2	00 – 7F 00 – 7F	Reverb Parameter 14 MSB Reverb Parameter 14 LSB	:	
		1F	2	00 – 7F 00 – 7F	Reverb Parameter 15 MSB Reverb Parameter 15 LSB	:	
		21	2	00 – 7F 00 – 7F	Reverb Parameter 16 MSB Reverb Parameter 16 LSB	:	
		23	1	00 – 7F	Reverb Return	-∞dB – 0dB – +6dB (0 – 96 – 127)	
		24	1	01 – 7F	Reverb Pan	L63 – C – R63	

TOTAL SIZE = 37 25 (HEX)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
40	02	00	2	00 – 7F 00 – 7F	Chorus Type MSB Chorus Type LSB	Refer to "Effect Parameter List."	
		02	1	00 – 7F	Template Number		
		03	2	00 – 7F 00 – 7F	Chorus Parameter 1 MSB Chorus Parameter 1 LSB	:	
		05	2	00 – 7F 00 – 7F	Chorus Parameter 2 MSB Chorus Parameter 2 LSB	:	
		07	2	00 – 7F 00 – 7F	Chorus Parameter 3 MSB Chorus Parameter 3 LSB	:	
		09	2	00 – 7F 00 – 7F	Chorus Parameter 4 MSB Chorus Parameter 4 LSB	:	
		0B	2	00 – 7F 00 – 7F	Chorus Parameter 5 MSB Chorus Parameter 5 LSB	:	
		0D	2	00 – 7F 00 – 7F	Chorus Parameter 6 MSB Chorus Parameter 6 LSB	:	
		0F	2	00 – 7F 00 – 7F	Chorus Parameter 7 MSB Chorus Parameter 7 LSB	:	
		11	2	00 – 7F 00 – 7F	Chorus Parameter 8 MSB Chorus Parameter 8 LSB	:	
		13	2	00 – 7F 00 – 7F	Chorus Parameter 9 MSB Chorus Parameter 9 LSB	:	
		15	2	00 – 7F 00 – 7F	Chorus Parameter 10 MSB Chorus Parameter 10 LSB	:	
		17	2	00 – 7F 00 – 7F	Chorus Parameter 11 MSB Chorus Parameter 11 LSB	:	
		19	2	00 – 7F 00 – 7F	Chorus Parameter 12 MSB Chorus Parameter 12 LSB	:	
		1B	2	00 – 7F 00 – 7F	Chorus Parameter 13 MSB Chorus Parameter 13 LSB	:	
		1D	2	00 – 7F 00 – 7F	Chorus Parameter 14 MSB Chorus Parameter 14 LSR	:	

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
	1F	2	00 – 7F 00 – 7F	Chorus Parameter 15 MSB Chorus Parameter 15 LSB	:
	21	2	00 – 7F 00 – 7F	Chorus Parameter 16 MSB Chorus Parameter 16 LSB	:
	23	1	00 – 7F	Chorus Return	--dB – 0dB – +6dB (0 – 96 – 127)
	24	1	01 – 7F	Chorus Pan	L63 – C – R63
	25	1	00 – 7F	Send Chorus To Reverb	--dB – 0dB (0 – 127)

TOTAL SIZE = 38 26 (HEX)

40	03	00	2	00 – 7F 00 – 7F	Insertion-A Type MSB Insertion-A Type LSB	Refer to "Effect Parameter List."	
		02	1	00 – 7F	Template Number		
		03	2	00 – 7F 00 – 7F	Insertion-A Parameter 1 MSB Insertion-A Parameter 1 LSB	:	
		05	2	00 – 7F 00 – 7F	Insertion-A Parameter 2 MSB Insertion-A Parameter 2 LSB	:	
		07	2	00 – 7F 00 – 7F	Insertion-A Parameter 3 MSB Insertion-A Parameter 3 LSB	:	
		09	2	00 – 7F 00 – 7F	Insertion-A Parameter 4 MSB Insertion-A Parameter 4 LSB	:	
		0B	2	00 – 7F 00 – 7F	Insertion-A Parameter 5 MSB Insertion-A Parameter 5 LSB	:	
		0D	2	00 – 7F 00 – 7F	Insertion-A Parameter 6 MSB Insertion-A Parameter 6 LSB	:	
		0F	2	00 – 7F 00 – 7F	Insertion-A Parameter 7 MSB Insertion-A Parameter 7 LSB	:	
		11	2	00 – 7F 00 – 7F	Insertion-A Parameter 8 MSB Insertion-A Parameter 8 LSB	:	
		13	2	00 – 7F 00 – 7F	Insertion-A Parameter 9 MSB Insertion-A Parameter 9 LSB	:	
		15	2	00 – 7F 00 – 7F	Insertion-A Parameter 10 MSB Insertion-A Parameter 10 LSB	:	
		17	2	00 – 7F 00 – 7F	Insertion-A Parameter 11 MSB Insertion-A Parameter 11 LSB	:	
		19	2	00 – 7F 00 – 7F	Insertion-A Parameter 12 MSB Insertion-A Parameter 12 LSB	:	
		1B	2	00 – 7F 00 – 7F	Insertion-A Parameter 13 MSB Insertion-A Parameter 13 LSB	:	
		1D	2	00 – 7F 00 – 7F	Insertion-A Parameter 14 MSB Insertion-A Parameter 14 LSB	:	
		1F	2	00 – 7F 00 – 7F	Insertion-A Parameter 15 MSB Insertion-A Parameter 15 LSB	:	
		21	2	00 – 7F 00 – 7F	Insertion-A Parameter 16 MSB Insertion-A Parameter 16 LSB	:	

TOTAL SIZE = 35 23 (HEX)

40	04	00	2	00 – 7F 00 – 7F	Insertion-B Type MSB Insertion-B Type LSB	Refer to "Effect Parameter List."	
		02	1	00 – 7F	Template Number		
		03	2	00 – 7F 00 – 7F	Insertion-B Parameter 1 MSB Insertion-B Parameter 1 LSB	:	
		05	2	00 – 7F 00 – 7F	Insertion-B Parameter 2 MSB Insertion-B Parameter 2 LSB	:	
		07	2	00 – 7F 00 – 7F	Insertion-B Parameter 3 MSB Insertion-B Parameter 3 LSB	:	
		09	2	00 – 7F 00 – 7F	Insertion-B Parameter 4 MSB Insertion-B Parameter 4 LSB	:	
		0B	2	00 – 7F 00 – 7F	Insertion-B Parameter 5 MSB Insertion-B Parameter 5 LSB	:	
		0D	2	00 – 7F 00 – 7F	Insertion-B Parameter 6 MSB Insertion-B Parameter 6 LSB	:	
		0F	2	00 – 7F 00 – 7F	Insertion-B Parameter 7 MSB Insertion-B Parameter 7 LSB	:	
		11	2	00 – 7F 00 – 7F	Insertion-B Parameter 8 MSB Insertion-B Parameter 8 LSB	:	
		13	2	00 – 7F 00 – 7F	Insertion-B Parameter 9 MSB Insertion-B Parameter 9 LSB	:	
		15	2	00 – 7F 00 – 7F	Insertion-B Parameter 10 MSB Insertion-B Parameter 10 LSB	:	
		17	2	00 – 7F 00 – 7F	Insertion-B Parameter 11 MSB Insertion-B Parameter 11 LSB	:	
		19	2	00 – 7F 00 – 7F	Insertion-B Parameter 12 MSB Insertion-B Parameter 12 LSB	:	
		1B	2	00 – 7F 00 – 7F	Insertion-B Parameter 13 MSB Insertion-B Parameter 13 LSB	:	
		1D	2	00 – 7F 00 – 7F	Insertion-B Parameter 14 MSB Insertion-B Parameter 14 LSB	:	
		1F	2	00 – 7F 00 – 7F	Insertion-B Parameter 15 MSB Insertion-B Parameter 15 LSB	:	
		21	2	00 – 7F 00 – 7F	Insertion-B Parameter 16 MSB Insertion-B Parameter 16 LSB	:	

TOTAL SIZE = 35 23 (HEX)

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
40	06	00	1	00 – 0E	Controller Set 1 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF 2
		01	2	00 00 – 20, 41 – 65	Controller Set 1 Destination MSB Controller Set 1 Destination LSB	0 – 32, 65 – 101
		03	1	00 – 7F	Controller Set 1 Depth	-64 – +63
		04	1		reserved	
		05	1	00 – 0E	Controller Set 2 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF 2
		06	2	00 00 – 20, 41 – 65	Controller Set 2 Destination MSB Controller Set 2 Destination LSB	0 – 32, 65 – 101
		08	1	00 – 7F	Controller Set 2 Depth	-64 – +63
		09	1		reserved	
		0A	1	00 – 0E	Controller Set 3 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF 2
		0B	2	00 00 – 20, 41 – 65	Controller Set 3 Destination MSB Controller Set 3 Destination LSB	0 – 32, 65 – 101
		0D	1	00 – 7F	Controller Set 3 Depth	-64 – +63
		0E	1		reserved	
		0F	1	00 – 0E	Controller Set 4 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF 2
		10	2	00 00 – 20, 41 – 65	Controller Set 4 Destination MSB Controller Set 4 Destination LSB	0 – 32, 65 – 101
		12	1	00 – 7F	Controller Set 4 Depth	-64 – +63
		13	1		reserved	
		14	1	00 – 0E	Controller Set 5 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF 2
		15	2	00 00 – 20, 41 – 65	Controller Set 5 Destination MSB Controller Set 5 Destination LSB	0 – 32, 65 – 101
		17	1	00 – 7F	Controller Set 5 Depth	-64 – +63
		18	1		reserved	
		19	1	00 – 0E	Controller Set 6 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF 2
		1A	2	00 00 – 20, 41 – 65	Controller Set 6 Destination MSB Controller Set 6 Destination LSB	0 – 32, 65 – 101
		1C	1	00 – 7F	Controller Set 6 Depth	-64 – +63
		1D	1		reserved	
		1E	1	00 – 05	LFO Phase	0, 90, 120, 180, 240, 270
		1F	1	00 – 0C	LFO Wave	tri, tri+, saw up, saw down, squ1/4, squ1/3, squ, squ2/3, squ3/4, trpzd, S/H1, S/H2, user
		20	1	00 – 3F	LFO Speed	0 – 63 (available only when the Tempo Sync is set to off)
		21	1	05 – 18	LFO Tempo Speed	5 – 24 (available only when the Tempo Sync is set to on) 16th, 8th/3, 16th., 8th, 4th/3, 8th., 4th, 2th/3, 4th., 2nd, Whole/3, 2nd., 4thX4, 4thX5, 4thX6, 4thX7, 4thX8, 4thX16, 4thX32, 4thX64
		22	1	00 – 01	LFO Tempo Sync	off, on
		23	1	00 – 7F	LFO Delay Time	0 – 127
		24	1	00 – 7F	LFO Fade In Time	0 – 127
		25	1	00 – 7F	LFO Hold Time	0 – 126, hold
		26	1	00 – 7F	LFO Fade Out Time	0 – 127
		27	1	00 – 02	LFO Key On Reset	off, each-on, 1st-on
		28	1	00 – 01	LFO Play Mode	Loop, One Shot
		29	1	00 – 45	LFO Box 1 Destination	Refer to Fig 1-2.
		2A	1	00 – 7F	LFO Box 1 Depth	0 – 127
		2B	1		reserved	
		2C	1	00 – 45	LFO Box 2 Destination	Refer to Fig 1-2.
		2D	1	00 – 7F	LFO Box 2 Depth	0 – 127
		2E	1		reserved	
		2F	1	00 – 45	LFO Box 3 Destination	Refer to Fig 1-2.
		30	1	00 – 7F	LFO Box 3 Depth	0 – 127
		31	1		reserved	
		32	1	00 – 06	User Wave Total Step	2, 3, 4, 6, 8, 12, 16
		33	1	00 – 03	User Wave Slope	off, up, down, up&down
		34	1	00 – 7F	User Wave Step Value 1	0 – 127

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
		35	1	00 – 7F	User Wave Step Value 2	0 – 127
		36	1	00 – 7F	User Wave Step Value 3	0 – 127
		37	1	00 – 7F	User Wave Step Value 4	0 – 127
		38	1	00 – 7F	User Wave Step Value 5	0 – 127
		39	1	00 – 7F	User Wave Step Value 6	0 – 127
		3A	1	00 – 7F	User Wave Step Value 7	0 – 127
		3B	1	00 – 7F	User Wave Step Value 8	0 – 127
		3C	1	00 – 7F	User Wave Step Value 9	0 – 127
		3D	1	00 – 7F	User Wave Step Value 10	0 – 127
		3E	1	00 – 7F	User Wave Step Value 11	0 – 127
		3F	1	00 – 7F	User Wave Step Value 12	0 – 127
		40	1	00 – 7F	User Wave Step Value 13	0 – 127
		41	1	00 – 7F	User Wave Step Value 14	0 – 127
		42	1	00 – 7F	User Wave Step Value 15	0 – 127
		43	1	00 – 7F	User Wave Step Value 16	0 – 127
		44	1	00 – 7F	LFO Random Speed Depth	0 – 127

TOTAL SIZE = 69 45 (HEX)

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
40	07	00	2	00 – 02 00 – 7F	Audition Phrase Number MSB Audition Phrase Number LSB	001 – 285
		02	1	28 – 58	Audition Note Shift	-24 – 24
		03	1	00 – 7F	Audition Velocity Shift	-64 – 63

TOTAL SIZE = 4 04 (HEX)

MIDI PARAMETER CHANGE TABLE (NORMAL VOICE ELEMENT)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes		
41	ee	00	1	00 – 01	Element Assign	0: off, 1: on	
		01	1	00	Wave Select	0: Preset	
		02	1	00 – 07	Element Group Number	0 – 7	
		03	2	00 – 7F 00 – 7F	Wave Number MSB Wave Number LSB	1 – 2670 1st bit 6 – 0 → bit 13 – 7	
		05	1	01	Rcv Note Off	ON	
		06	1	01	Key Assign	MULTI	
		07	1	00	Alternate Group	0: OFF	
		08	1	01 – 7F	Pan	L63 – C – R63	
		09	1	00 – 7F	Random Pan Depth	0 – 127	
		0A	1	00 – 7F	Alternate Pan Depth	L64 – 0 – R63	
		0B	1	00 – 7F	Scaling Pan Depth	-64 – +63	
		0C	1	00 – 07	XA Control	normal, legato, key off sound, wave cycle, wave random, all AF off, AF 1 on, AF 2 on	
		0D	1	00 – 7F	Note Limit Low	0 – 127	
		0E	1	00 – 7F	Note Limit High	0 – 127	
		0F	1	01 – 7F	Velocity Limit Low	1 – 127	
		10	1	01 – 7F	Velocity Limit High	1 – 127	
		11	1	00 – 7F	Velocity Cross Fade	0 – 127	
		12	1	00 – 7F	Key On Delay	0 – 127 (available only when the Tempo Sync is set to off)	
		13	1	00 – 01	Key On Delay Tempo Sync	0: off, 1: on	
		14	1	7F	Element Reverb Send Level	127	
		15	1	7F	Element Chorus Send Level	127	
		16	1	00	reserved	reserved for Element Var Send	
		17	1	00 – 02	Insertion Effect Switch	thru, insA, insB	
		18	1	00	Output Select	0: STEREO OUT	
		19	2	00 – 00 00 – 3F	Control Box Sw	bit 0-6: reserved bit 0-5: Box 1 – Box 6 bit 6: reserved	
		1B	2	00 – 00 00 – 07	LFO Box Sw	bit 0-6: reserved bit 0-2: Box 1 – Box 3 bit 3-6: reserved	
		1D	1	05 – 15	Key On Delay Tempo	5 – 21 (available only when the Tempo Sync is set to on) 16th, 8th/3, 16th., 8th, 4th/3, 8th., 4th, 2th/3, 4th., 2nd, Whole/3, 2nd., 4thX4, 4thX5, 4thX6, 4thX7, 4thX8	
		1E	1	00 – 01	Half Damper Switch	0: off, 1: on	
		1F	1	00	reserved		
		20	1	00 – 7F	Element Level	0 – 127	
		21	1	00 – 7F	Level Velocity Sensitivity	-64 – +63	
		22	1	00 – 7F	Level Velocity Offset	0 – 127	
		23	1	00 – 04	Level Sens Key Curve	00 – 04	
		24	1	00	reserved		
		25	1	00 – 7F	AEG Attack Time	0 – 127	
		26	1	00 – 7F	AEG Decay 1 Time	0 – 127	
		27	1	00 – 7F	AEG Decay 2 Time	0 – 127	
		28	1	00 – 7F	Half Damper Time	0 – 127	
		29	1	00 – 7F	AEG Release Time	0 – 127	
		2A	1	00 – 7F	AEG Init Level	0 – 127	
		2B	1	00 – 7F	AEG Attack Level	0 – 127	
		2C	1	00 – 7F	AEG Decay 1 Level	0 – 127	
		2D	1	00 – 7F	AEG Decay 2 Level	0 – 127	
		2E	1	00	reserved		
		2F	1	00 – 04	AEG Time Velocity Segment	ATK, ATK+DCY, DCY, ATK+RLS, ALL	
		30	1	00 – 7F	AEG Time Velocity Sensitivity	-64 – +63	
		31	1	00 – 7F	AEG Time Key Follow Sensitivity	-64 – +63	
		32	1	00 – 7F	AEG Time Key Follow Center Note	C-2 – G8	
		33	1	00 – 7C	Level Scaling Break Point 1	C -2 – E8	BP1<BP2<BP3<BP4
		34	1	01 – 7D	Level Scaling Break Point 2	C#-2 – F8	BP1<BP2<BP3<BP4
		35	1	02 – 7E	Level Scaling Break Point 3	D -2 – F#8	BP1<BP2<BP3<BP4
		36	1	03 – 7F	Level Scaling Break Point 4	D#-2 – G8	BP1<BP2<BP3<BP4
		37	2	00 – 01 00 – 7F	Level Scaling Offset 1	-128 – +127	
		39	2	00 – 01 00 – 7F	Level Scaling Offset 2	-128 – +127	
		3B	2	00 – 01 00 – 7F	Level Scaling Offset 3	-128 – +127	
		3D	2	00 – 01 00 – 7F	Level Scaling Offset 4	-128 – +127	
		3F	1	00 – 7F	Level Key Follow Sensitivity	-200% – +200%	
		40	1	00	reserved		
		41	1	10 – 70	Coarse Tune	-48 – +48	
		42	1	00 – 7F	Fine Tune	-64 – +63	
		43	1	00 – 7F	Pitch Velocity Sensitivity	-64 – +63	
		44	1	00	reserved		

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
	45	1	00 – 7F	Random Pitch Depth	0 – 127	
	46	1	00 – 7F	Pitch Key Follow Sensitivity	-200% – +200%	
	47	1	00 – 7F	Pitch Key Follow Center Note	C-2 – G8	
	48	1	00 – 7F	Pitch Fine Scaling Sensitivity	-64 – +63	
	49	1	00 – 7F	PEG Hold Time	0 – 127	
	4A	1	00 – 7F	PEG Attack Time	0 – 127	
	4B	1	00 – 7F	PEG Decay 1 Time	0 – 127	
	4C	1	00 – 7F	PEG Decay 2 Time	0 – 127	
	4D	1	00 – 7F	PEG Release Time	0 – 127	
	4E	2	00 – 01 00 – 7F	PEG Hold Level	-128 – +127 (-4800 – +4800 [cent])	
	50	2	00 – 01 00 – 7F	PEG Attack Level	-128 – +127 (-4800 – +4800 [cent])	
	52	2	00 – 01 00 – 7F	PEG Decay 1 Level	-128 – +127 (-4800 – +4800 [cent])	
	54	2	00 – 01 00 – 7F	PEG Decay 2 Level	-128 – +127 (-4800 – +4800 [cent])	
	56	2	00 – 01 00 – 7F	PEG Release Level	-128 – +127 (-4800 – +4800 [cent])	
	58	1	00 – 7F	PEG Depth	-64 – +63	
	59	1	00 – 04	PEG Time Velocity Segment	ATK, ATK+DCY, DCY, ATK+RLS, ALL	
	5A	1	00 – 7F	PEG Time Velocity Sensitivity	-64 – +63	
	5B	1	00 – 7F	PEG Level Velocity Sensitivity	-64 – +63	
	5C	1	00 – 04	PEG Level Sens Velocity Curve	00 – 04	
	5D	1	00 – 7F	PEG Time Key Follow Sensitivity	-64 – +63	
	5E	1	00 – 7F	PEG Time Key Follow Center Note	C-2 – G8	

TOTAL SIZE = 95 5F (HEX)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
42	ee	00	1	00 – 15	Filter Type	LPF24D, LPF24A, LPF18, LPF18s, LPF12, LPF6, HPF24D, HPF12, BPF12D, BPFw, BPF6, BEF12, BEF6, Dual LPF, Dual HPF, Dual BPF, Dual BEF, LPF12+BPFF6, THRU	
		01	2	00 – 01 00 – 7F	Filter Cutoff Frequency	0 – 255	
		03	1	00 – 7F	Filter Cutoff Velocity Sensitivity	-64 – +63	
		04	1		reserved		
		05	1	00 – 7F	Filter Resonance/Width/Band	0 – 127	
		06	1	00 – 7F	Filter Resonance Velocity Sensitivity	-64 – +63	
		07	2	00 – 01 00 – 7F	HPF Cutoff Frequency	0 – 255	
		09	1	40	reserved		
		0A	2	00 – 01	Distance	-128 – +127 (available only when the Dual Type Filter is selected)	
				00 – 7F			
		0C	2	00 – 01 00 – 7F	Filter Gain	0 – 255	
		0E	1	00 – 7F	FEG Hold Time	0 – 127	
		0F	1	00 – 7F	FEG Attack Time	0 – 127	
		10	1	00 – 7F	FEG Decay 1 Time	0 – 127	
		11	1	00 – 7F	FEG Decay 2 Time	0 – 127	
		12	1	00 – 7F	FEG Release Time	0 – 127	
		13	2	00 – 01 00 – 7F	FEG Hold Level	-128 – +127 (-9600 – +9600 [cent])	
		15	2	00 – 01 00 – 7F	FEG Attack Level	-128 – +127 (-9600 – +9600 [cent])	
		17	2	00 – 01 00 – 7F	FEG Decay 1 Level	-128 – +127 (-9600 – +9600 [cent])	
		19	2	00 – 01 00 – 7F	FEG Decay 2 Level	-128 – +127 (-9600 – +9600 [cent])	
		1B	2	00 – 01 00 – 7F	FEG Release Level	-128 – +127 (-9600 – +9600 [cent])	
		1D	1	00 – 7F	FEG Depth	-64 – +63	
		1E	1	00 – 04	FEG Time Velocity Segment	ATK, ATK+DCY, DCY, ATK+RLS, ALL	
		1F	1	00 – 7F	FEG Time Velocity Sensitivity	-64 – +63	
		20	1	00 – 7F	FEG Level Velocity Sensitivity	-64 – +63	
		21	1	00 – 04	FEG Level Velocity Curve	00 – 04	
		22	1	00 – 7F	FEG Time Key Follow Sensitivity	-64 – +63	
		23	1	00 – 7F	FEG Time Key Follow Center Note	C-2 – G8	
		24	1	00 – 7C	Filter Cutoff Scaling Break Point 1	C -2 – E8	BP1<BP2<BP3<BP4
		25	1	01 – 7D	Filter Cutoff Scaling Break Point 2	C# -2 – F8	BP1<BP2<BP3<BP4
		26	1	02 – 7E	Filter Cutoff Scaling Break Point 3	D -2 – F#8	BP1<BP2<BP3<BP4
		27	1	03 – 7F	Filter Cutoff Scaling Break Point 4	D# -2 – G8	BP1<BP2<BP3<BP4
		28	2	00 – 01 00 – 7F	Filter Cutoff Scaling Offset 1	-128 – +127	

MIDI Data Table

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
	2A	2	00 – 01 00 – 7F	Filter Cutoff Scaling Offset 2	-128 – +127	
	2C	2	00 – 01 00 – 7F	Filter Cutoff Scaling Offset 3	-128 – +127	
	2E	2	00 – 01 00 – 7F	Filter Cutoff Scaling Offset 4	-128 – +127	
	30	1	00 – 7F	Filter Cutoff Key Follow Sensitivity	-200% – +200%	
	31	1	00 – 7F	HPF Cutoff Key Follow Sensitivity	-200% – +200%	
	32	1	00 – 05	EQ Type	EQ L/H, P EQ, Boost 6, Boost 12, Boost 18, thru	
	33	1	00 – 1F	EQ Q	0 – 31	
	34	2	00 – 01 00 – 7F	EQ 1 Frequency	EQ L/H: 46 – 182 P.EQ: 83 – 251	
	36	1	20 – 60	EQ 1 Gain	-32 – +32	
	37	2	00 – 01 00 – 7F	EQ 2 Frequency	EQ L/H: 131 – 241	
	39	1	20 – 60	EQ 2 Gain	-32 – +32	
	3A	1	00 – 02	LFO Wave	saw, tri, squ	
	3B	1	00 – 01	LFO Key On Sync	off, on	
	3C	1	00 – 7F	LFO Key On Delay Time	0 – 127	
	3D	1	00 – 3F	LFO Speed	0 – 63	
	3E	1	00 – 7F	LFO AMod Depth	0 – 127	
	3F	1	00 – 7F	LFO PMod Depth	0 – 127	
	40	1	00 – 7F	LFO FMod Depth	0 – 127	
	41	1	00 – 7F	LFO Fade In Time	0 – 127	
	42	1	00 – 05	Common LFO Phase Offset	+0, +90, +120, +180, +240, +270	
	43	1	00 – 7F	Common LFO Box 1 Depth Ratio	0 – 127	
	44	1	00 – 7F	Common LFO Box 2 Depth Ratio	0 – 127	
	45	1	00 – 7F	Common LFO Box 3 Depth Ratio	0 – 127	

TOTAL SIZE = 70 46 (HEX)

MIDI PARAMETER CHANGE TABLE
(DRUM VOICE COMMON)

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
46	00	00	1	00, 20 – 7E	Voice Name 1	0, 32 – 126 (ASCII)
		01	1	00, 20 – 7E	Voice Name 2	0, 32 – 126 (ASCII)
		02	1	00, 20 – 7E	Voice Name 3	0, 32 – 126 (ASCII)
		03	1	00, 20 – 7E	Voice Name 4	0, 32 – 126 (ASCII)
		04	1	00, 20 – 7E	Voice Name 5	0, 32 – 126 (ASCII)
		05	1	00, 20 – 7E	Voice Name 6	0, 32 – 126 (ASCII)
		06	1	00, 20 – 7E	Voice Name 7	0, 32 – 126 (ASCII)
		07	1	00, 20 – 7E	Voice Name 8	0, 32 – 126 (ASCII)
		08	1	00, 20 – 7E	Voice Name 9	0, 32 – 126 (ASCII)
		09	1	00, 20 – 7E	Voice Name 10	0, 32 – 126 (ASCII)
		0A	1	00, 20 – 7E	Voice Name 11	0, 32 – 126 (ASCII)
		0B	1	00, 20 – 7E	Voice Name 12	0, 32 – 126 (ASCII)
		0C	1	00, 20 – 7E	Voice Name 13	0, 32 – 126 (ASCII)
		0D	1	00, 20 – 7E	Voice Name 14	0, 32 – 126 (ASCII)
		0E	1	00, 20 – 7E	Voice Name 15	0, 32 – 126 (ASCII)
		0F	1	00, 20 – 7E	Voice Name 16	0, 32 – 126 (ASCII)
		10	1	00, 20 – 7E	Voice Name 17	0, 32 – 126 (ASCII)
		11	1	00, 20 – 7E	Voice Name 18	0, 32 – 126 (ASCII)
		12	1	00, 20 – 7E	Voice Name 19	0, 32 – 126 (ASCII)
		13	1	00, 20 – 7E	Voice Name 20	0, 32 – 126 (ASCII)
		14	1		reserved	
		15	1		reserved	
		16	1		reserved	
		17	1		reserved	
		18	1	00 – 10	Voice Category 1 (Main)	0 – 16 (Pn – –) Pn, Kb, Or, Gt, Bs, St, Br, SW, Ld, Pd, Sc, Cp, Dr, Se, Me, Et, --
		19	1	00 – 05	Voice Category 1 (Sub)	0 – 5 (Sub1 – Sub5) Depends on Main Category.
		1A	1	00 – 10	Voice Category 2 (Main)	0 – 16 (Pn – –) Pn, Kb, Or, Gt, Bs, St, Br, SW, Ld, Pd, Sc, Cp, Dr, Se, Me, Et, --
		1B	1	00 – 05	Voice Category 2 (Sub)	0 – 5 (Sub1 – Sub5) Depends on Main Category.
		1C	1		reserved	
		1D	1		reserved	
		1E	1	00 – 03	Knob Function Select	0=Tone1, 1=Tone2 2=EQ, 3=Assign
		1F	1	01 – 7F	Pan	L63 – C – R63
		20	1		reserved	
		21	1	00 – 7F	AEG Attack Time	-64 – +63
		22	1	00 – 7F	AEG Decay Time	-64 – +63
		23	1		reserved	
		24	1		reserved	

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
	25	1		reserved		
	26	1		reserved		
	27	1		reserved		
	28	1		reserved		
	29	1		reserved		
	2A	1	00 – 7F	Cutoff Frequency	-64 – +63	
	2B	1	00 – 7F	Resonance	-64 – +63	
	2C	1	00	reserved		
	2D	2	002E – 0136	EQ Low Frequency MSB EQ Low Frequency LSB	50.1 – 2.00k	
	2F	1	20 – 60	EQ Low Gain	-32 – +32	
	30	1	00	reserved		
	31	2	0053 – 0171	EQ Mid Frequency MSB EQ Mid Frequency LSB	139.7 – 12.9k 10.1k	
	33	1	20 – 60	EQ Mid Gain	-32 – +32	
	34	1	00 – 1F	EQ Mid Q	0 – 31	
	35	2	0103 – 017F	EQ High Frequency MSB EQ High Frequency LSB	503.8 – 10.1k 14k	
	37	1	20 – 60	EQ High Gain	-32 – +32	
	38	1	00	reserved		
	39	1	00 – 7F	Assignable Knob 1 Value	-64 – +63	
	3A	1	00 – 7F	Assignable Knob 2 Value	-64 – +63	
	3B	1		reserved		
	3C	1		reserved		
	3D	1		reserved		
	3E	1		reserved		
	3F	1		reserved		
	40	1	00 – 7F	Volume	0 – 127	
	41	1		reserved		
	42	1	10 – 58	Pitch Bend Range Upper	-48 – +24 [semitones]	
	43	1	10 – 58	Pitch Bend Range Lower	-48 – +24 [semitones]	
	44	1	00 – 7F	Reverb Send	0 – 127	
	45	1	00 – 7F	Chorus Send	0 – 127	
	46	1	00 – 02	Insertion Connect Type	Para, A->B, B->A	
	47	1	00 – 7F	Ins-EF Reverb Send Level	0 – 127	
	48	1	00 – 7F	Ins-EF Chorus Send Level	0 – 127	
	49	1	00	reserved		

TOTAL SIZE = 74 4A (HEX)

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
46	30	00	1	00 – 04	ARP SF Select	SF1 – SF5
		01	2	0005 – 022C	ARP Tempo MSB ARP Tempo LSB	5 – 300
		03	1		reserved	
		04	1		reserved	
		05	2		reserved	
		07	2		reserved	
		09	2		reserved	
		0B	2		reserved	
		0D	1	00 – 01	ARP Switch	off, on
		0E	1		reserved	
		0F	1		reserved	
		10	1		reserved	
		11	2		reserved	
		13	1	00 – 01	ARP Loop	off, on
		14	1	00 – 02	ARP Hold	sync-off, off, on
		15	1	00 – 06	ARP Unit Multiply	50%, 66%, 75%, 100%, 133%, 150%, 200%
		16	1	00 – 7F	ARP Note Limit Low	C-2 – G8
		17	1	00 – 7F	ARP Note Limit High	C-2 – G8
		18	1	01 – 7F	ARP Velocity Limit Low	1 – 127
		19	1	01 – 7F	ARP Velocity Limit High	1 – 127
		1A	1	00 – 04	ARP Key Mode	sort, thru, direct, sort+direct, thru+direct
		1B	1	00 – 01	ARP Vel Mode	original, thru
		1C	1	00 – 01	ARP Change Timing	realtime, measure
		1D	1	01 – 07	ARP Quantize Value	32th, 16th Triplet, 16th, 8th Triplet, 8th, 4th Triplet, 4th
		1E	1	00 – 64	ARP Quantize Strength	0 – 100%
		1F	2	0000 – 0148	ARP Velocity Rate MSB ARP Velocity Rate LSB	0 – 200%
		21	2	0000 – 0148	ARP Gate Time Rate MSB ARP Gate Time Rate LSB	0 – 200%
		23	2		reserved	
		25	2		reserved	

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
27	2	0008 – 0178	ARP Swing MSB ARP Swing LSB	-120 – 0 – +120	The setting of this parameter will be applied to the Quantize Value.
29	1	00 – 7F	ARP Accent Velocity Threshold	off, 1 – 127	
2A	1	00 – 01	ARP Accent Start Quantize	off, on	
2B	1	3D – 43	ARP Octave Range	-3 – 0 – +3	
2C	1	36 – 4A	ARP Output Octave Shift	-10 – 0 – +10	
2D	1	00 – 01	ARP Trigger Mode	gate, toggle	
2E	1	00 – 01	ARP Random SFX	off, on	
2F	1	00 – 01	ARP Random SFX Key On Control	off, on	
30	1	00 – 7F	ARP Random SFX Velocity Offset	-64 – 0 – +63	
31	2	001C – 0164	ARP Assign Velocity Rate Offset SF1 MSB ARP Assign Velocity Rate Offset SF1 LSB	-100 – 0 – +100	
33	2	001C – 0164	ARP Assign Gate Time Offset SF1 MSB ARP Assign Gate Time Offset SF1 LSB	-100 – 0 – +100	
35	2	001C – 0164	ARP Assign Velocity Rate Offset SF2 MSB ARP Assign Velocity Rate Offset SF2 LSB	-100 – 0 – +100	
37	2	001C – 0164	ARP Assign Gate Time Offset SF2 MSB ARP Assign Gate Time Offset SF2 LSB	-100 – 0 – +100	
39	2	001C – 0164	ARP Assign Velocity Rate Offset SF3 MSB ARP Assign Velocity Rate Offset SF3 LSB	-100 – 0 – +100	
3B	2	001C – 0164	ARP Assign Gate Time Offset SF3 MSB ARP Assign Gate Time Offset SF3 LSB	-100 – 0 – +100	
3D	2	001C – 0164	ARP Assign Velocity Rate Offset SF4 MSB ARP Assign Velocity Rate Offset SF4 LSB	-100 – 0 – +100	
3F	2	001C – 0164	ARP Assign Gate Time Offset SF4 MSB ARP Assign Gate Time Offset SF4 LSB	-100 – 0 – +100	
41	2	001C – 0164	ARP Assign Velocity Rate Offset SF5 MSB ARP Assign Velocity Rate Offset SF5 LSB	-100 – 0 – +100	
43	2	001C – 0164	ARP Assign Gate Time Offset SF5 MSB ARP Assign Gate Time Offset SF5 LSB	-100 – 0 – +100	
45	2	0000 – 3369	ARP SF1 Assign Type MSB ARP SF1 Assign Type LSB	off, 0001 – 6633	
47	2	0000 – 3369	ARP SF2 Assign Type MSB ARP SF2 Assign Type LSB	off, 0001 – 6633	
49	2	0000 – 3369	ARP SF3 Assign Type MSB ARP SF3 Assign Type LSB	off, 0001 – 6633	
4B	2	0000 – 3369	ARP SF4 Assign Type MSB ARP SF4 Assign Type LSB	off, 0001 – 6633	
4D	2	0000 – 3369	ARP SF5 Assign Type MSB ARP SF5 Assign Type LSB	off, 0001 – 6633	

TOTAL SIZE = 79 4F (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
46 01	00	2	00 – 7F 00 – 7F	Reverb Type MSB Reverb Type LSB	Refer to "Effect Parameter List."
02	1	00 – 7F	Template Number		
03	2	00 – 7F 00 – 7F	Reverb Parameter 1 MSB Reverb Parameter 1 LSB	:	
05	2	00 – 7F 00 – 7F	Reverb Parameter 2 MSB Reverb Parameter 2 LSB	:	
07	2	00 – 7F 00 – 7F	Reverb Parameter 3 MSB Reverb Parameter 3 LSB	:	
09	2	00 – 7F 00 – 7F	Reverb Parameter 4 MSB Reverb Parameter 4 LSB	:	
0B	2	00 – 7F 00 – 7F	Reverb Parameter 5 MSB Reverb Parameter 5 LSB	:	
0D	2	00 – 7F 00 – 7F	Reverb Parameter 6 MSB Reverb Parameter 6 LSB	:	
0F	2	00 – 7F 00 – 7F	Reverb Parameter 7 MSB Reverb Parameter 7 LSB	:	
11	2	00 – 7F 00 – 7F	Reverb Parameter 8 MSB Reverb Parameter 8 LSB	:	
13	2	00 – 7F 00 – 7F	Reverb Parameter 9 MSB Reverb Parameter 9 LSB	:	
15	2	00 – 7F 00 – 7F	Reverb Parameter 10 MSB Reverb Parameter 10 LSB	:	
17	2	00 – 7F 00 – 7F	Reverb Parameter 11 MSB Reverb Parameter 11 LSB	:	
19	2	00 – 7F 00 – 7F	Reverb Parameter 12 MSB Reverb Parameter 12 LSB	:	
1B	2	00 – 7F 00 – 7F	Reverb Parameter 13 MSB Reverb Parameter 13 LSB	:	
1D	2	00 – 7F 00 – 7F	Reverb Parameter 14 MSB Reverb Parameter 14 LSB	:	
1F	2	00 – 7F 00 – 7F	Reverb Parameter 15 MSB Reverb Parameter 15 LSB	:	
21	2	00 – 7F 00 – 7F	Reverb Parameter 16 MSB Reverb Parameter 16 LSB	:	
23	1	00 – 7F	Reverb Return	∞dB – 0dB – +6dB (0 – 96 – 127)	
24	1	01 – 7F	Reverb Pan	L63 – C – R63	

TOTAL SIZE = 37 25 (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
46 02	00	2	00 – 7F 00 – 7F	Chorus Type MSB Chorus Type LSB	Refer to "Effect Parameter List."
02	1	00 – 7F	Template Number		
03	2	00 – 7F 00 – 7F	Chorus Parameter 1 MSB Chorus Parameter 1 LSB	:	
05	2	00 – 7F 00 – 7F	Chorus Parameter 2 MSB Chorus Parameter 2 LSB	:	
07	2	00 – 7F 00 – 7F	Chorus Parameter 3 MSB Chorus Parameter 3 LSB	:	
09	2	00 – 7F 00 – 7F	Chorus Parameter 4 MSB Chorus Parameter 4 LSB	:	
0B	2	00 – 7F 00 – 7F	Chorus Parameter 5 MSB Chorus Parameter 5 LSB	:	
0D	2	00 – 7F 00 – 7F	Chorus Parameter 6 MSB Chorus Parameter 6 LSB	:	
0F	2	00 – 7F 00 – 7F	Chorus Parameter 7 MSB Chorus Parameter 7 LSB	:	
11	2	00 – 7F 00 – 7F	Chorus Parameter 8 MSB Chorus Parameter 8 LSB	:	
13	2	00 – 7F 00 – 7F	Chorus Parameter 9 MSB Chorus Parameter 9 LSB	:	
15	2	00 – 7F 00 – 7F	Chorus Parameter 10 MSB Chorus Parameter 10 LSB	:	
17	2	00 – 7F 00 – 7F	Chorus Parameter 11 MSB Chorus Parameter 11 LSB	:	
19	2	00 – 7F 00 – 7F	Chorus Parameter 12 MSB Chorus Parameter 12 LSB	:	
1B	2	00 – 7F 00 – 7F	Chorus Parameter 13 MSB Chorus Parameter 13 LSB	:	
1D	2	00 – 7F 00 – 7F	Chorus Parameter 14 MSB Chorus Parameter 14 LSB	:	
1F	2	00 – 7F 00 – 7F	Chorus Parameter 15 MSB Chorus Parameter 15 LSB	:	
21	2	00 – 7F 00 – 7F	Chorus Parameter 16 MSB Chorus Parameter 16 LSB	:	
23	1	00 – 7F	Chorus Return	∞dB – 0dB – +6dB (0 – 96 – 127)	
24	1	01 – 7F	Chorus Pan	L63 – C – R63	
25	1	00 – 7F	Send Chorus To Reverb	∞dB – 0dB (0 – 127)	

TOTAL SIZE = 38 26 (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
46 03	00	2	00 – 7F 00 – 7F	Insertion-A Type MSB Insertion-A Type LSB	Refer to "Effect Parameter List."
02	1	00 – 7F	Template Number		
03	2	00 – 7F 00 – 7F	Insertion-A Parameter 1 MSB Insertion-A Parameter 1 LSB	:	
05	2	00 – 7F 00 – 7F	Insertion-A Parameter 2 MSB Insertion-A Parameter 2 LSB	:	
07	2	00 – 7F 00 – 7F	Insertion-A Parameter 3 MSB Insertion-A Parameter 3 LSB	:	
09	2	00 – 7F 00 – 7F	Insertion-A Parameter 4 MSB Insertion-A Parameter 4 LSB	:	
0B	2	00 – 7F 00 – 7F	Insertion-A Parameter 5 MSB Insertion-A Parameter 5 LSB	:	
0D	2	00 – 7F 00 – 7F	Insertion-A Parameter 6 MSB Insertion-A Parameter 6 LSB	:	
0F	2	00 – 7F 00 – 7F	Insertion-A Parameter 7 MSB Insertion-A Parameter 7 LSB	:	
11	2	00 – 7F 00 – 7F	Insertion-A Parameter 8 MSB Insertion-A Parameter 8 LSB	:	
13	2	00 – 7F 00 – 7F	Insertion-A Parameter 9 MSB Insertion-A Parameter 9 LSB	:	
15	2	00 – 7F 00 – 7F	Insertion-A Parameter 10 MSB Insertion-A Parameter 10 LSB	:	
17	2	00 – 7F 00 – 7F	Insertion-A Parameter 11 MSB Insertion-A Parameter 11 LSB	:	
19	2	00 – 7F 00 – 7F	Insertion-A Parameter 12 MSB Insertion-A Parameter 12 LSB	:	
1B	2	00 – 7F 00 – 7F	Insertion-A Parameter 13 MSB Insertion-A Parameter 13 LSB	:	
1D	2	00 – 7F 00 – 7F	Insertion-A Parameter 14 MSB Insertion-A Parameter 14 LSB	:	
1F	2	00 – 7F 00 – 7F	Insertion-A Parameter 15 MSB Insertion-A Parameter 15 LSB	:	
21	2	00 – 7F 00 – 7F	Insertion-A Parameter 16 MSB Insertion-A Parameter 16 LSB	:	

TOTAL SIZE = 35 23 (HEX)

MIDI Data Table

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
46 04 00	2	00 – 7F 00 – 7F	Insertion-B Type MSB Insertion-B Type LSB	Refer to "Effect Parameter List."	
	02 1	00 – 7F	Template Number		
	03 2	00 – 7F 00 – 7F	Insertion-B Parameter 1 MSB Insertion-B Parameter 1 LSB	:	
	05 2	00 – 7F 00 – 7F	Insertion-B Parameter 2 MSB Insertion-B Parameter 2 LSB	:	
	07 2	00 – 7F 00 – 7F	Insertion-B Parameter 3 MSB Insertion-B Parameter 3 LSB	:	
	09 2	00 – 7F 00 – 7F	Insertion-B Parameter 4 MSB Insertion-B Parameter 4 LSB	:	
	0B 2	00 – 7F 00 – 7F	Insertion-B Parameter 5 MSB Insertion-B Parameter 5 LSB	:	
	0D 2	00 – 7F 00 – 7F	Insertion-B Parameter 6 MSB Insertion-B Parameter 6 LSB	:	
	0F 2	00 – 7F 00 – 7F	Insertion-B Parameter 7 MSB Insertion-B Parameter 7 LSB	:	
	11 2	00 – 7F 00 – 7F	Insertion-B Parameter 8 MSB Insertion-B Parameter 8 LSB	:	
	13 2	00 – 7F 00 – 7F	Insertion-B Parameter 9 MSB Insertion-B Parameter 9 LSB	:	
	15 2	00 – 7F 00 – 7F	Insertion-B Parameter 10 MSB Insertion-B Parameter 10 LSB	:	
	17 2	00 – 7F 00 – 7F	Insertion-B Parameter 11 MSB Insertion-B Parameter 11 LSB	:	
	19 2	00 – 7F 00 – 7F	Insertion-B Parameter 12 MSB Insertion-B Parameter 12 LSB	:	
	1B 2	00 – 7F 00 – 7F	Insertion-B Parameter 13 MSB Insertion-B Parameter 13 LSB	:	
	1D 2	00 – 7F 00 – 7F	Insertion-B Parameter 14 MSB Insertion-B Parameter 14 LSB	:	
	1F 2	00 – 7F 00 – 7F	Insertion-B Parameter 15 MSB Insertion-B Parameter 15 LSB	:	
	21 2	00 – 7F 00 – 7F	Insertion-B Parameter 16 MSB Insertion-B Parameter 16 LSB	:	

TOTAL SIZE = 35 23 (HEX)

Address	Size	Data Range (HEX)	Prameter Name	Description	Notes
46 07 00	2	00 – 02 01 – 7F	Audition Phrase Number MSB Audition Phrase Number LSB	001 – 285	
	02 1	28 – 58	Audition Note Shift	-24 – 24	
	03 1	00 – 7F	Audition Velocity Shift	-64 – 63	

TOTAL SIZE = 4 04 (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
46 08 00	1	00 – 0E	Controller Set 1 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF2	
	01 2	00 00 – 23, 41 – 43	Controller Set 1 Destination MSB Controller Set 1 Destination LSB	0 – 32, 65 – 67	
	03 1	00 – 7F	Controller Set 1 Depth	-64 – +63	
	04 1		reserved		
	05 1	00 – 0E	Controller Set 2 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF2	
	06 2	00 00 – 23, 41 – 43	Controller Set 2 Destination MSB Controller Set 2 Destination LSB	0 – 32, 65 – 67	
	08 1	00 – 7F	Controller Set 2 Depth	-64 – +63	
	09 1		reserved		
	0A 1	00 – 0E	Controller Set 3 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF2	
	0B 2	00 00 – 23, 41 – 43	Controller Set 3 Destination MSB Controller Set 3 Destination LSB	0 – 32, 65 – 67	
	0D 1	00 – 7F	Controller Set 3 Depth	-64 – +63	
	0E 1		reserved		
	0F 1	00 – 0E	Controller Set 4 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF2	
	10 2	00 00 – 23, 41 – 43	Controller Set 4 Destination MSB Controller Set 4 Destination LSB	0 – 32, 65 – 67	
	12 1	00 – 7F	Controller Set 4 Depth	-64 – +63	
	13 1		reserved		
	14 1	00 – 0E	Controller Set 5 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF2	
	15 2	00 00 – 23, 41 – 43	Controller Set 5 Destination MSB Controller Set 5 Destination LSB	0 – 32, 65 – 67	
	17 1	00 – 7F	Controller Set 5 Depth	-64 – +63	
	18 1		reserved		

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
	19 1	00 – 0E	Controller Set 6 Source	0: PB, 1: MW, 3: AT, 4: FC, 5: FS, 6: RB, 7: BC, 8: AS1, 9: AS2, 12: FC2, 13: AF1, 14: AF2	
	1A 2	00 00 – 23, 41 – 43	Controller Set 6 Destination MSB Controller Set 6 Destination LSB	0 – 32, 65 – 67	
	1C 1	00 – 7F	Controller Set 6 Depth	-64 – +63	
	1D 1		reserved		

TOTAL SIZE = 30 1E (HEX)

MIDI PARAMETER CHANGE TABLE (DRUM VOICE KEY)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
47 ee 00	1	00 – 01	Element Assign	off, on	
	01 1	00	Wave Type	0: Preset Wave	
	02 1	00	reserved		
	03 1	00 – 01	Receive Note Off	off, on	
	04 1	00 – 01	Key Assign Mode	single, multi	
	05 1	00 – 7F	Alternate Group	0: off, 1 – 127	
	06 2	00 – 7F	Wave Number MSB	1st bit 6-0 → bit 13-7	
		00 – 7F	Wave Number LSB	2nd bit 6-0 → bit 6-0	
	08 1	01 – 7F	Pan	L63 – C – R63	
	09 1	00 – 7F	Random Pan Depth	0 – 127	
	0A 1	00 – 7F	Alternate Pan Depth	L64 – 0 – R63	
	0B 1	00 – 7F	Reverb Send Level	0 – 127	
	0C 1	00 – 7F	Chorus Send Level	0 – 127	
	0D 1		reserved		
	0E 1	00 – 02	Insertion Effect Switch	thru, insA, insB	
	0F 1	00 – 4F	Output Select	0: L&R, 8: asnL&R, 9-15: asn1&2, ..., asn13&14, 64-79: asnL, asnR, asn1, ..., asn14	
	10 1	00 – 7F	Element Level	0 – 127	
	11 1	00 – 7F	Level Velocity Sensitivity	-64 – +63	
	12 1	00	reserved		
	13 1	00 – 7F	AEG Attack Time	0 – 127	
	14 1	00 – 7F	AEG Decay 1 Time	0 – 127	
	15 1	00 – 7F	AEG Decay 2 Time	0 – 126, hold	
	16 1	00	reserved		
	17 1	00	reserved		
	18 1	00	reserved		
	19 1	00 – 7F	AEG Decay 1 Level	0 – 127	
	1A 1	00	reserved		
	1B 1	00	reserved		
	1C 1	10 – 70	Coarse Tune	-48 – +48	
	1D 1	00 – 7F	Fine Tune	-64 – +63	
	1E 1	00 – 7F	Pitch Velocity Sensitivity	-64 – +63	
	1F 1	00	reserved		
	20 2	00 – 01	LPF Cutoff Frequency MSB	0 – 255	
		00 – 7F	LPF Cutoff Frequency LSB		
	22 1	00 – 7F	LPF Cutoff Velocity Sensitivity	-64 – +63	
	23 1	00 – 7F	LPF Resonance	0 – 127	
	24 1	40	reserved		
	25 2	00 – 01 00 – 7F	HPF Cutoff Frequency MSB HPF Cutoff Frequency LSB	0 – 255	
	27 1	00 – 05	EQ Type	EQ L/H, P.EQ, Boost 6, Boost 12, Boost 18, thru	
	28 1	00 – 1F	EQ Q	0 – 31	
	29 2	00 – 01 00 – 7F	EQ 1 Frequency MSB EQ 1 Frequency LSB	EQ L/H: 46 – 182 P.EQ: 83 – 251	
	2B 1	20 – 60	EQ 1 GAIN	-32 – +32	
	2C 2	00 – 01 00 – 7F	EQ 2 Frequency MSB EQ 2 Frequency LSB	EQ L/H: 131 – 241	
	2E 1	20 – 60	EQ 2 GAIN	-32 – +32	

TOTAL SIZE = 47 2F (HEX)

ee = Element Number (00h – 48h: C0 – C6)

MIDI PARAMETER CHANGE TABLE (MULTI COMMON for Pattern, Song)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
36 00	00	1	00, 20 – 7E	Multi Name 1	0, 32 – 126 (ASCII)
	01	1	00, 20 – 7E	Multi Name 2	0, 32 – 126 (ASCII)
	02	1	00, 20 – 7E	Multi Name 3	0, 32 – 126 (ASCII)
	03	1	00, 20 – 7E	Multi Name 4	0, 32 – 126 (ASCII)
	04	1	00, 20 – 7E	Multi Name 5	0, 32 – 126 (ASCII)
	05	1	00, 20 – 7E	Multi Name 6	0, 32 – 126 (ASCII)
	06	1	00, 20 – 7E	Multi Name 7	0, 32 – 126 (ASCII)
	07	1	00, 20 – 7E	Multi Name 8	0, 32 – 126 (ASCII)
	08	1	00, 20 – 7E	Multi Name 9	0, 32 – 126 (ASCII)
	09	1	00, 20 – 7E	Multi Name 10	0, 32 – 126 (ASCII)
	0A	1	00, 20 – 7E	Multi Name 11	0, 32 – 126 (ASCII)
	0B	1	00, 20 – 7E	Multi Name 12	0, 32 – 126 (ASCII)
	0C	1	00, 20 – 7E	Multi Name 13	0, 32 – 126 (ASCII)
	0D	1	00, 20 – 7E	Multi Name 14	0, 32 – 126 (ASCII)
	0E	1	00, 20 – 7E	Multi Name 15	0, 32 – 126 (ASCII)
	0F	1	00, 20 – 7E	Multi Name 16	0, 32 – 126 (ASCII)
	10	1	00, 20 – 7E	Multi Name 17	0, 32 – 126 (ASCII)
	11	1	00, 20 – 7E	Multi Name 18	0, 32 – 126 (ASCII)
	12	1	00, 20 – 7E	Multi Name 19	0, 32 – 126 (ASCII)
	13	1	00, 20 – 7E	Multi Name 20	0, 32 – 126 (ASCII)
	14	1		reserved	
	15	1		reserved	
	16	1		reserved	
	17	1		reserved	
	18	1		reserved	
	19	1		reserved	
	1A	1		reserved	
	1B	1		reserved	
	1C	1		reserved	
	1D	1		reserved	
36 00	1E	1	00 – 03	Knob Function Select	0= Tone1, 1= Tone2, 2= EQ, 3= Assign
	1F	1		reserved	
	20	1		reserved	
	21	1		reserved	
	22	1		reserved	
	23	1		reserved	
	24	1		reserved	
	25	1		reserved	
	26	1		reserved	
	27	1		reserved	
	28	1		reserved	
	29	1		reserved	
	2A	1		reserved	
	2B	1		reserved	
	2C	1		reserved	
	2D	2		reserved	
	2F	1		reserved	
	30	2		reserved	
	32	1		reserved	
	33	1		reserved	
	34	2		reserved	
	36	1		reserved	
	37	1		reserved	
	38	1		reserved	
	39	1		reserved	
	3A	1		reserved	
	3B	1		reserved	
	3C	1		reserved	
36 00	3D	1	00 – 7F	Assignable Knob 1 Value	-64 – +63
	3E	1	00 – 7F	Assignable Knob 2 Value	-64 – +63
	3F	1		reserved	
	40	1		reserved	
	41	1		reserved	
	42	1		reserved	
	43	1		reserved	
	44	1		reserved	
	45	1		reserved	
	46	1		reserved	
	47	1		reserved	
	48	1		reserved	
	49	1		reserved	
	4A	1		reserved	
	4B	1		reserved	
	4C	1		reserved	
	4D	4	00	Insertion Part Sw	reserved Up to eight parts can be turned on simultaneously.

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
				00 – 7F	bit 0: off, on Part 15 bit 1: off, on Part 16 bit 2: off, on reserved bit 3: off, on reserved bit 4: off, on reserved bit 5: off, on reserved bit 6: off, on reserved
				00 – 7F	bit 0: off, on Part 8 bit 1: off, on Part 9 bit 2: off, on Part 10 bit 3: off, on Part 11 bit 4: off, on Part 12 bit 5: off, on Part 13 bit 6: off, on Part 14
				00 – 7F	bit 0: off, on Part 1 bit 1: off, on Part 2 bit 2: off, on Part 3 bit 3: off, on Part 4 bit 4: off, on Part 5 bit 5: off, on Part 6 bit 6: off, on Part 7

TOTAL SIZE = 81 51 (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
36 30	00	1	00 – 04	ARP SF Select	SF1 – SF5
	01	2	0005 – 022C	ARP Tempo MSB ARP Tempo LSB	5 – 300
	03	1	00 – 01	ARP Switch	off, on
	04	1	00 – 07	ARP Synchro Quantize Value	off, 32th, 16th Triplet, 16th, 8th Triplet, 8th, 4th Triplet, 4th
	05	2	001C – 0164	ARP Quantize Strength Offset MSB ARP Quantize Strength Offset LSB	-100 – +100
	07	2	001C – 0164	ARP Gate Time Rate Offset MSB ARP Gate Time Rate Offset LSB	-100 – +100
	09	2	001C – 0164	ARP Velocity Rate Offset MSB ARP Velocity Rate Offset LSB	-100 – +100
	0B	2	0008 – 0178	ARP Swing Offset MSB ARP Swing Offset LSB	-120 – +120

TOTAL SIZE = 13 0D (HEX)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
36 01	00	2	00 – 7F 00 – 7F	Reverb Type MSB Reverb Type LSB	Refer to "Effect Parameter List."
	02	1	00 – 7F	Template Number	
	03	2	00 – 7F 00 – 7F	Reverb Parameter 1 MSB Reverb Parameter 1 LSB	:
	05	2	00 – 7F 00 – 7F	Reverb Parameter 2 MSB Reverb Parameter 2 LSB	:
	07	2	00 – 7F 00 – 7F	Reverb Parameter 3 MSB Reverb Parameter 3 LSB	:
	09	2	00 – 7F 00 – 7F	Reverb Parameter 4 MSB Reverb Parameter 4 LSB	:
	0B	2	00 – 7F 00 – 7F	Reverb Parameter 5 MSB Reverb Parameter 5 LSB	:
	0D	2	00 – 7F 00 – 7F	Reverb Parameter 6 MSB Reverb Parameter 6 LSB	:
	0F	2	00 – 7F 00 – 7F	Reverb Parameter 7 MSB Reverb Parameter 7 LSB	:
	11	2	00 – 7F 00 – 7F	Reverb Parameter 8 MSB Reverb Parameter 8 LSB	:
	13	2	00 – 7F 00 – 7F	Reverb Parameter 9 MSB Reverb Parameter 9 LSB	:
	15	2	00 – 7F 00 – 7F	Reverb Parameter 10 MSB Reverb Parameter 10 LSB	:
	17	2	00 – 7F 00 – 7F	Reverb Parameter 11 MSB Reverb Parameter 11 LSB	:
	19	2	00 – 7F 00 – 7F	Reverb Parameter 12 MSB Reverb Parameter 12 LSB	:
	1B	2	00 – 7F 00 – 7F	Reverb Parameter 13 MSB Reverb Parameter 13 LSB	:
	1D	2	00 – 7F 00 – 7F	Reverb Parameter 14 MSB Reverb Parameter 14 LSB	:
	1G	2	00 – 7F 00 – 7F	Reverb Parameter 15 MSB Reverb Parameter 15 LSB	:
	21	2	00 – 7F 00 – 7F	Reverb Parameter 16 MSB Reverb Parameter 16 LSB	:
	23	1	00 – 7F	Reverb Return	-∞dB – 0dB – +6dB (0 – 96 – 127)
	24	1	01 – 7F	Reverb Pan	L63 – C – R63

TOTAL SIZE = 37 25 (HEX)

MIDI Data Table

36	02	00	2	00 – 7F 00 – 7F	Chorus Type MSB Chorus Type LSB	Refer to "Effect Parameter List."	
		02	1	00 – 7F	Template Number		
		03	2	00 – 7F 00 – 7F	Chorus Parameter 1 MSB Chorus Parameter 1 LSB	:	
		05	2	00 – 7F 00 – 7F	Chorus Parameter 2 MSB Chorus Parameter 2 LSB	:	
		07	2	00 – 7F 00 – 7F	Chorus Parameter 3 MSB Chorus Parameter 3 LSB	:	
		09	2	00 – 7F 00 – 7F	Chorus Parameter 4 MSB Chorus Parameter 4 LSB	:	
		0B	2	00 – 7F 00 – 7F	Chorus Parameter 5 MSB Chorus Parameter 5 LSB	:	
		0D	2	00 – 7F 00 – 7F	Chorus Parameter 6 MSB Chorus Parameter 6 LSB	:	
		0F	2	00 – 7F 00 – 7F	Chorus Parameter 7 MSB Chorus Parameter 7 LSB	:	
		11	2	00 – 7F 00 – 7F	Chorus Parameter 8 MSB Chorus Parameter 8 LSB	:	
		13	2	00 – 7F 00 – 7F	Chorus Parameter 9 MSB Chorus Parameter 9 LSB	:	
		15	2	00 – 7F 00 – 7F	Chorus Parameter 10 MSB Chorus Parameter 10 LSB	:	
		17	2	00 – 7F 00 – 7F	Chorus Parameter 11 MSB Chorus Parameter 11 LSB	:	
		19	2	00 – 7F 00 – 7F	Chorus Parameter 12 MSB Chorus Parameter 12 LSB	:	
		1B	2	00 – 7F 00 – 7F	Chorus Parameter 13 MSB Chorus Parameter 13 LSB	:	
		1D	2	00 – 7F 00 – 7F	Chorus Parameter 14 MSB Chorus Parameter 14 LSB	:	
		1G	2	00 – 7F 00 – 7F	Chorus Parameter 15 MSB Chorus Parameter 15 LSB	:	
		21	2	00 – 7F 00 – 7F	Chorus Parameter 16 MSB Chorus Parameter 16 LSB	:	
		23	1	00 – 7F	Chorus Return	→dB – 0dB – +6dB (0 – 96 – 127)	
		24	1	01 – 7F	Chorus Pan	L63 – C – R63	
		25	1	00 – 7F	Send Chorus To Reverb	→dB – 0dB (0 – 127)	

TOTAL SIZE = 38 26 (HEX)

36	10	00	1	34 – 4C	EQ Gain 1	-12 – +12 [dB]	
		01	1	04 – 2B	EQ Frequency 1	32 – 2000 [Hz]	
		02	1	01 – 78	EQ Q1	0.1 – 12.0	
		03	1	00 – 01	EQ Shape 1	shelv, peak	
		04	1	34 – 4C	EQ Gain 2	-12 – +12 [dB]	
		05	1	0E – 36	EQ Frequency 2	100 – 10.0 [kHz]	
		06	1	01 – 78	EQ Q2	0.1 – 12.0	
		07	1		reserved		
		08	1	34 – 4C	EQ Gain 3	-12 – +12 [dB]	
		09	1	0E – 36	EQ Frequency 3	100 – 10.0 [kHz]	
		0A	1	01 – 78	EQ Q3	0.1- 12.0	
		0B	1		reserved		
		0C	1	34 – 4C	EQ Gain 4	-12 – +12 [dB]	
		0D	1	0E – 36	EQ Frequency 4	100 – 10.0 [kHz]	
		0E	1	01 – 78	EQ Q4	0.1 – 12.0	
		0F	1		reserved		
		10	1	34 – 4C	EQ Gain 5	-12 – +12 [dB]	
		11	1	1C – 3A	EQ Frequency 5	0.5 – 16.0 [kHz]	
		12	1	01 – 78	EQ Q5	0.1 – 12.0	
		13	1	00 – 01	EQ Shape 5	shelv, peak	

TOTAL SIZE = 20 14 (HEX)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
36	11	00	2	00 – 7F 00 – 7F	Master Effect Type MSB Master Effect Type LSB	Refer to "Effect Parameter List."	
		02	1	00 – 7F	Template Number		
		03	2	00 – 7F 00 – 7F	Master Effect Parameter 1 MSB Master Effect Parameter 1 LSB	:	
		05	2	00 – 7F 00 – 7F	Master Effect Parameter 2 MSB Master Effect Parameter 2 LSB	:	
		07	2	00 – 7F 00 – 7F	Master Effect Parameter 3 MSB Master Effect Parameter 3 LSB	:	
		09	2	00 – 7F 00 – 7F	Master Effect Parameter 4 MSB Master Effect Parameter 4 LSB	:	
		0B	2	00 – 7F 00 – 7F	Master Effect Parameter 5 MSB Master Effect Parameter 5 LSB	:	
		0D	2	00 – 7F 00 – 7F	Master Effect Parameter 6 MSB Master Effect Parameter 6 LSB	:	
		0F	2	00 – 7F 00 – 7F	Master Effect Parameter 7 MSB Master Effect Parameter 7 LSB	:	
		11	2	00 – 7F 00 – 7F	Master Effect Parameter 8 MSB Master Effect Parameter 8 LSB	:	
		13	2	00 – 7F 00 – 7F	Master Effect Parameter 9 MSB Master Effect Parameter 9 LSB	:	
		15	2	00 – 7F 00 – 7F	Master Effect Parameter 10 MSB Master Effect Parameter 10 LSB	:	
		17	2	00 – 7F 00 – 7F	Master Effect Parameter 11 MSB Master Effect Parameter 11 LSB	:	
		19	2	00 – 7F 00 – 7F	Master Effect Parameter 12 MSB Master Effect Parameter 12 LSB	:	
		1B	2	00 – 7F 00 – 7F	Master Effect Parameter 13 MSB Master Effect Parameter 13 LSB	:	
		1D	2	00 – 7F 00 – 7F	Master Effect Parameter 14 MSB Master Effect Parameter 14 LSB	:	
		1G	2	00 – 7F 00 – 7F	Master Effect Parameter 15 MSB Master Effect Parameter 15 LSB	:	
		21	2	00 – 7F 00 – 7F	Master Effect Parameter 16 MSB Master Effect Parameter 16 LSB	:	
		23	1	00 – 01	Master Effect ON/OFF	0: OFF; 1: ON	
TOTAL SIZE = 36 24 (HEX)							

MIDI PARAMETER CHANGE TABLE
(MULTI PART)

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
37	pp	00	1	reserved	
		01	1	00 – 7F	Bank Select MSB
		02	1	00 – 7F	Bank Select LSB
		03	1	00 – 7F	Program Number
		04	1	00 – 0F, 7F	Receive Channel
		05	1	00 – 01	Mono/Poly
		06	1	01 – 7F	Velocity Limit Low
		07	1	01 – 7F	Velocity Limit High
		08	1	00 – 7F	Note Limit Low
		09	1	00 – 7F	Note Limit High
		0A	1	10 – 58	Pitch Bend Range Upper
		0B	1	10 – 58	Pitch Bend Range Lower
		0C	1	00 – 7F	Velocity Sense Depth
		0D	1	00 – 7F	Velocity Sense Offset
		0E	1	00 – 7F	Volume
		0F	1	01 – 7F	Pan
		10	1	reserved	
		11	2	00 – 0F 00 – 0F	Detune MSB Detune LSB
		13	1	00 – 7F	Reverb Send
		14	1	00 – 7F	Chorus Send
		15	1	00 – 7F	reserved
		16	1	00 – 7F	Dry Level
		17	1	28 – 58	Note Shift
		18	1		reserved
		19	1	00 – 01	Param. with Voice
		1A	1	00 – 01	Voice with ARP
		1B	1	00 – 01	Portamento Switch
		1C	1	00 – 7F	Portamento Time
		1D	1	00 – 01	Portamento Mode
		1E	1	reserved	
		1F	1	00 – 7F	Output Select
37	pp	20	1	00 – 7F	reserved Receive Control Change Receive Bank Select Receive Program Change Receive AT Receive PB

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
		21	1	00 – 7F	Receive Volume/Expression Receive Pan Receive Sustain/Sostenuto Receive MW reserved Receive FC1 Receive FC2	bit 0: off, on Volume/Expression bit 1: off, on Pan bit 2: off, on Sustain/Sostenuto bit 3: off, on MW bit 4: reserved bit 5: off, on FC1 bit 6: off, on FC2
		22	1	00 – 7F	Receive FS Receive BC Receive RB Receive Assignable Knob 1 Receive Assignable Knob 2 Receive Assignable Button 1 Receive Assignable Button 2	bit 0: off, on FS bit 1: off, on BC bit 2: off, on RB bit 3: off, on AS1 bit 4: off, on AS2 bit 5: off, on AF1 bit 6: off, on AF2
37	pp	23	1	00 – 01	Voice Element Pan	off, on
		24	1	00 – 7F	AEG Attack Time	-64 – +63
		25	1	00 – 7F	AEG Decay Time	-64 – +63
		26	1	00 – 7F	AEG Sustain Level	-64 – +63
		27	1	00 – 7F	AEG Release Time	-64 – +63
		28	1	00 – 7F	FEG Attack Time	-64 – +63
		29	1	00 – 7F	FEG Decay Time	-64 – +63
		2A	1	00 – 7F	FEG Sustain Level	-64 – +63
		2B	1	00 – 7F	FEG Release Time	-64 – +63
		2C	1	00 – 7F	FEG Depth	-64 – +63
		2D	1	00 – 7F	reserved	
		2E	1	00 – 7F	Filter Cutoff Frequency	-64 – +63
		2F	1	00 – 7F	Filter Resonance/Width	-64 – +63
37	pp	30	1	00	reserved	
		31	2	002E – 0136	Low Frequency MSB Low Frequency LSB	50.1 – 2.00k
		33	1	20 – 60	Low Gain	-32 – +32
		34	1	00	reserved	
		35	2	0053 – 0171	Mid Frequency MSB Mid Frequency LSB	139.7 – 10.1k
		37	1	20 – 60	Mid Gain	-32 – +32
		38	1	00 – 1F	Mid Q	0 – 31
		39	2	0103 – 017F	High Frequency MSB High Frequency LSB	503.8 – 14k
		3B	1	20 – 60	High Gain	-32 – +32
		3C	1	00	reserved	

TOTAL SIZE = 61 3D (HEX)

pp = part number
00 – 0F Part 1 – 16 (Normal, Drum)

Address		Size	Data Range (HEX)	Parameter Name	Description	Notes
38	pp	00	1	00 – 01	ARP Switch	off, on
		01	1	00 – 01	ARP MIDI Out Switch	off, on
		02	1	00 – 10	ARP MIDI Out Channel	1 – 16, rcv-ch
		03	1		reserved	
		04	2		reserved	
		06	1	00 – 01	ARP Loop	off, on
		07	1	00 – 02	ARP Hold	sync-off, off, on
		08	1	00 – 06	ARP Unit Multiply	50%, 66%, 75%, 100%, 133%, 150%, 200%
		09	1	00 – 7F	ARP Note Limit Low	C-2 – G8
		0A	1	00 – 7F	ARP Note Limit High	C-2 – G8
		0B	1	01 – 7F	ARP Velocity Limit Low	1 – 127
		0C	1	01 – 7F	ARP Velocity Limit High	1 – 127
		0D	1	00 – 04	ARP Key Mode	sort, thru, direct, sort +direct, thru+direct
		0E	1	00 – 01	ARP Vel Mode	original, thru
		0F	1	00 – 01	ARP Change Timing	realtime, measure
		10	1	01 – 07	ARP Quantize Value	32th, 16th Triplet, 16th, 8th Triplet, 8th, 4th Triplet, 4th
		11	1	00 – 64	ARP Quantize Strength	0 – 100%
		12	2	0000 – 0148	ARP Velocity Rate MSB ARP Velocity Rate LSB	0 – 200%
		14	2	0000 – 0148	ARP Gate Time Rate MSB ARP Gate Time Rate LSB	0 – 200%
		16	2		reserved	
		18	2		reserved	
		1A	2	0008 – 0178	ARP Swing MSB ARP Swing LSB	-120 – 0 – +120
		1C	1	00 – 7F	ARP Accent Velocity Threshold	off, 1 – 127
		1D	1	00 – 01	ARP Accent Start Quantize	off, on
		1E	1	3D – 43	ARP Octave Range	-3 – 0 – +3
		1F	1	36 – 4A	ARP Output Octave Shift	-10 – 0 – +10
		20	1	00 – 01	ARP Trigger Mode	gate, toggle
		21	1	00 – 01	ARP Random SFX	off, on
		22	1	00 – 01	ARP Random SFX Key On Control	off, on
		23	1	00 – 7F	ARP Random SFX Velocity Offset	-64 – 0 – +63
		24	2	001C – 0164	ARP Assign Velocity Rate Offset SF1 MSB ARP Assign Velocity Rate Offset SF1 LSB	-100 – 0 – +100
		26	2	001C – 0164	ARP Assign Gate Time Offset SF1 MSB ARP Assign Gate Time Offset SF1 LSB	-100 – 0 – +100

Address	Size	Data Range (HEX)	Parameter Name	Description	Notes
	28	2	001C – 0164	ARP Assign Velocity Rate Offset SF2 MSB ARP Assign Velocity Rate Offset SF2 LSB	-100 – 0 – +100
	2A	2	001C – 0164	ARP Assign Gate Time Offset SF2 MSB ARP Assign Gate Time Offset SF2 LSB	-100 – 0 – +100
	2C	2	001C – 0164	ARP Assign Velocity Rate Offset SF3 MSB ARP Assign Velocity Rate Offset SF3 LSB	-100 – 0 – +100
	2E	2	001C – 0164	ARP Assign Gate Time Offset SF3 MSB ARP Assign Gate Time Offset SF3 LSB	-100 – 0 – +100
	30	2	001C – 0164	ARP Assign Velocity Rate Offset SF4 MSB ARP Assign Velocity Rate Offset SF4 LSB	-100 – 0 – +100
	32	2	001C – 0164	ARP Assign Gate Time Offset SF4 MSB ARP Assign Gate Time Offset SF4 LSB	-100 – 0 – +100
	34	2	001C – 0164	ARP Assign Velocity Rate Offset SF5 MSB ARP Assign Velocity Rate Offset SF5 LSB	-100 – 0 – +100
	36	2	001C – 0164	ARP Assign Gate Time Offset SF5 MSB ARP Assign Gate Time Offset SF5 LSB	-100 – 0 – +100
	38	2	0000 – 3369	ARP SF1 Assign Type MSB ARP SF1 Assign Type LSB	off, 0001 – 6633
	3A	2	0000 – 3369	ARP SF2 Assign Type MSB ARP SF2 Assign Type LSB	off, 0001 – 6633
	3C	2	0000 – 3369	ARP SF3 Assign Type MSB ARP SF3 Assign Type LSB	off, 0001 – 6633
	3E	2	0000 – 3369	ARP SF4 Assign Type MSB ARP SF4 Assign Type LSB	off, 0001 – 6633
	40	2	0000 – 3369	ARP SF5 Assign Type MSB ARP SF5 Assign Type LSB	off, 0001 – 6633

TOTAL SIZE = 66 42 (HEX)

pp = part number
00 – 0F Part 1 – 16 (Normal, Drum)

Address			Size	Data Range (HEX)	Parameter Name	Description	Notes
39	pp	00	1	00 – 03	Audio Input Mode	L mono, R mono, L+R mono, stereo	
		01	1	00 – 7F	Audio Input Part Volume	0 – 127	
		02	1	01 – 7F	Audio Input Part Pan	L63 – C – R63	
		03	1	00 – 7F	Audio Input Part Reverb Send	0 – 127	
		04	1	00 – 7F	Audio Input Part Chorus Send	0 – 127	
		05	1	00 – 7F	reserved		
		06	1	00 – 7F	Audio Input Part Dry Level	0 – 127	
		07	1	00 – 4F	Audio Input Part Output Select	0: L&R, 8: asnl&R, 9-15: mLAN1&2 ... mLAN13&14, 64-79: asnl, asnR, mLAN1 ... mLAN14	

TOTAL SIZE = 8 08 (HEX)

pp = part number
41 Audio In Part (mLAN)

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode	Default Messages Altered	3 X *****	1 - 4 (m=1) *2 1 - 4 (m=1) *2 X	Memorized
Note Number : True voice		0 - 127 *3 *****	0 - 127 0 - 127	
Velocity	Note ON Note OFF	O 9nH, v=1-127*3 X 9nH, v=0 *3	O v=1-127 X	
After Touch	Key's Ch's	X O *3	X O *1	
Pitch Bend		O *3	O *1	
Control Change	0,32 1,11 5,7,10 6,38 64 65 66 71-75 91,93 96-97 100-101 1-95	O *1 O *3 O X X O X O O X X O	O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1	Bank Select Data Entry Sustain Sw Portamento Sw Sostenuto Sound Controller Effect Depth RPN Inc,Dec RPN LSB,MSB Assignable Cntrl
Prog Change : True #		O 0 - 127 *1 *****	O 0 - 127 *1 0 - 127 *1	
System Exclusive		O	O	
Common : Song Pos. : Song Sel. : Tune		X X X	X X X	
System : Clock Real Time : Commands		O *4 X	O *5 X	
Aux : All Sound Off : Reset All Cntrls : Local ON/OFF Mes- : All Notes OFF sages: Active Sense : Reset		X X X X O X	O (120,126,127) O (121) X O (123-125) O X	
Notes: *1 receive/transmit if switch is on. *2 m is always treated as "1" regardless of its value. *3 transmit if arpeggio MIDI out switch is on. *4 if MIDI Clock Out is on. *5 if MIDI Sync is external or auto.				

Mode 1 : OMNI ON , POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON ,MONO
Mode 4 : OMNI OFF,MONO

O : Yes
X : No