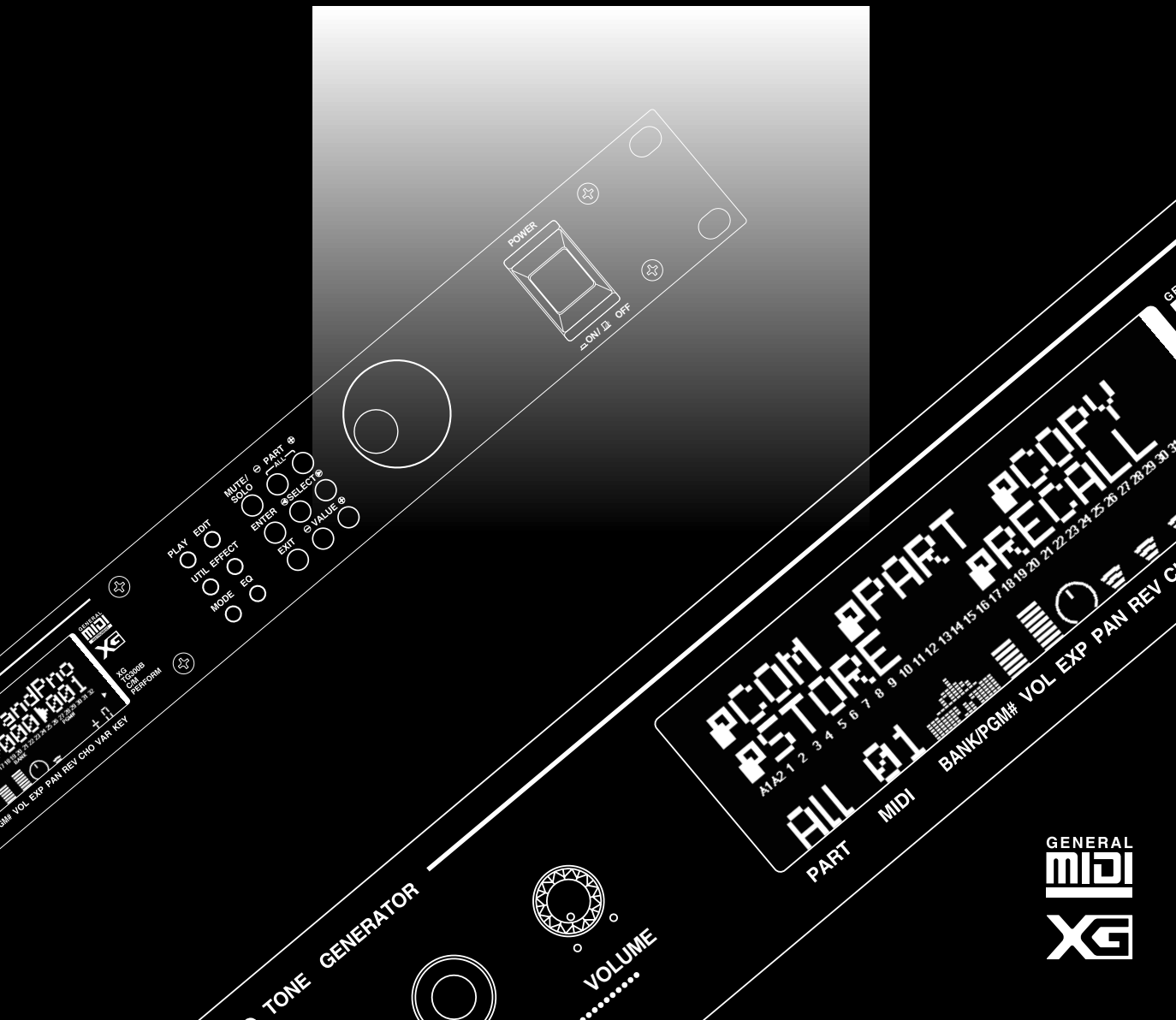


YAMAHA

MU90R

tone GENERATOR

SOUND LIST & MIDI DATA



GENERAL
MIDI
XG

AD input preset

MU90 A/D INPUT PRESET

			A/D1						
			A/D2						
BANK	Source		PGM CNG# = 0	1	2	3	4	5	6
0	MIC	Preset Name input gain var type	Off mic -	Mic mic -	Reverb mic -	Chorus mic -	Chorus+Reverb mic -	Karaoke1 mic Karaoke1	Karaoke2 mic Karaoke2
1	GUITAR (Note 1)	Preset Name input gain var type	Off mic -	Guitar mic -	Reverb mic -	Chorus mic -	Chorus+Reverb mic -	Tube mic Amp Sim.	Stack mic Amp Sim.
2	KEYBOARD	Preset Name input gain var type	Off line -	Keyboard line -	Reverb line -	Chorus line -	Chorus+Reverb line -	Phaser EP line Phaser	Pan EP line Auto Pan
3	AUDIO (Note 2)	Preset Name input gain var type	Off line -	Audio line -	Reverb line -	Chorus line -	Chorus+Reverb line -		
18	STEREO KEYBOARD (Note 3)	Preset Name input gain var type	Off line -	Keyboard line -	Reverb line -	Chorus line -	Chorus+Reverb line -	Phaser EP line Phaser	Pan EP line Auto Pan
19	STEREO AUDIO (Note 3)	Preset Name input gain var type	Off line -	Audio line -	Reverb line -	Chorus line -	Chorus+Reverb line -		

			A/D1						
			A/D2						
BANK	Source		PGM CNG# = 7	8	9	10	11	12	
0	MIC	Preset Name input gain var type	Karaoke3 mic Karaoke3	Echo mic Echo	Vocal mic Stage1	Studio mic Exciter	Oct Up mic Pitch Change	Oct Down mic Pitch Change	
1	GUITAR (Note 1)	Preset Name input gain var type	Flang Gtr mic Flanger	Clean Gtr mic Celeste	Funk Gtr mic Touch Wah	Tremolo mic Tremolo	Phaser mic Phaser	5th Guitar mic Pitch Change	
2	KEYBOARD	Preset Name input gain var type	Wah Clavi line Touch Wah	Rotary Orgn line Rotary Speaker	Synth Str line Symphonic	Synth Pad line Flanger2	Synth Lead line Delay LCR	SFX line Pitch Change	
3	AUDIO (Note 2)	Preset Name input gain var type							
18	STEREO KEYBOARD (Note 3)	Preset Name input gain var type	Wah Clavi line Touch Wah	Rotary Orgn line Rotary Speaker	Synth Str line Symphonic	Synth Pad line Flanger2	Synth Lead line Delay LCR	SFX line Pitch Change	
19	STEREO AUDIO (Note 3)	Preset Name input gain var type							

(Note 1) The input may be distorted depending on the guitar that you use. Make adjustments using either the A/D INPUT VOLUME or the volume of your guitar.

(Note 2) For AUDIO, A/D1 is panned to the left channel, and A/D2 is panned to the right channel.

(Note 3) The stereo setting can be selected only for A/D1.

The A/D1 and A/D2 inputs are handled as the left and right channels respectively of a stereo signal.

Effect Program List

REVERB

No.	MSB	LSB	Effect Type	Features
0	00H	00H	NO EFFECT	Effect is off
1	01H	00H	HALL 1	Reverb simulating the reverberance of a hall
2	01H	01H	HALL 2	"
3	02H	00H	ROOM 1	Reverb simulating the reverberance of a room
4	02H	01H	ROOM 2	"
5	02H	02H	ROOM 3	"
6	03H	00H	STAGE 1	Reverb suitable for solo instruments
7	03H	01H	STAGE 2	"
8	04H	00H	PLATE	Reverb simulating a metal plate reverb device
9	10H	00H	WHITE ROOM	Unique short reverb with a slight initial delay
10	11H	00H	TUNNEL	Simulation of a cylindrical space extending to left and right
11	12H	00H	CANYON	Simulation of an imaginary sound space extending without limits
12	13H	00H	BASEMENT	Reverb with unique resonance after a slight initial delay

CHORUS

No.	MSB	LSB	Effect Type	Features
0	00H	00H	NO EFFECT	Effect is off
1	41H	00H	CHORUS 1	Standard chorus effect. Gives the sound a natural spaciousness.
2	41H	01H	CHORUS 2	"
3	41H	02H	CHORUS 3	"
4	41H	08H	CHORUS 4	"
5	42H	00H	CELESTE 1	This effect uses a three-phase LFO to create modulation and spaciousness
6	42H	01H	CELESTE 2	"
7	42H	02H	CELESTE 3	"
8	42H	08H	CELESTE 4	"
9	43H	00H	FLANGER 1	An effect reminiscent of a jet airplane
10	43H	01H	FLANGER 2	"
11	43H	08H	FLANGER 3	"
12	44H	00H	SYMPHONIC	Additional stages are added to the modulation of CELESTE
13	57H	00H	ENSEMBLE DETUNE	A chorus effect without modulation created by adding a slightly pitch-shifted sound
14	48H	00H	PHASER 1	Adds modulation by cyclically changing the phase

VARIATION

No.	MSB	LSB	Effect Type	Features
0	00H	00H	NO EFFECT	Effect is off
1	01H	00H	HALL 1	Reverb simulating the reverberance of a hall
2	01H	01H	HALL 2	"
3	02H	00H	ROOM 1	Reverb simulating the reverberance of a room
4	02H	01H	ROOM 2	"
5	02H	02H	ROOM 3	"
6	03H	00H	STAGE 1	Reverb suitable for solo instruments
7	03H	01H	STAGE 2	"
8	04H	00H	PLATE	Reverb simulating a metal plate reverb unit
9	10H	00H	WHITE ROOM	Unique short reverb with a slight initial delay
10	11H	00H	TUNNEL	Simulation of a cylindrical space extending to left and right
11	12H	00H	CANYON	Simulation of an imaginary sound space extending without limits
12	13H	00H	BASEMENT	Reverb with unique resonance after a slight initial delay
13	05H	00H	DELAY L,C,R	An effect which generates three delays: L, R and C (center)
14	06H	00H	DELAY L,R	An effect which generates two delays, L and R, and provides two feedback delays
15	07H	00H	ECHO	Two delays (L and R) and independent feedback for L and R
16	08H	00H	CROSS DELAY	This effect crosses the feedback of two delays
17	09H	00H	ER 1	An effect which produces only the early reflections of reverb
18	09H	01H	ER 2	"
19	0AH	00H	GATE REVERB	Simulation of gated reverb
20	0BH	00H	REVERSE GATE	Simulation of gated reverb played backward
21	14H	00H	KARAOKE 1	Echo for karaoke
22	14H	01H	KARAOKE 2	"
23	14H	02H	KARAOKE 3	"
24	41H	00H	CHORUS 1	Standard chorus effect. Adds natural spaciousness.
25	41H	01H	CHORUS 2	"
26	41H	02H	CHORUS 3	"
27	41H	08H	CHORUS 4	"
28	42H	00H	CELESTE 1	An effect which uses a 3-phase LFO to add modulation and spaciousness
29	42H	01H	CELESTE 2	"
30	42H	02H	CELESTE 3	"
31	42H	08H	CELESTE 4	"
32	43H	00H	FLANGER 1	An effect reminiscent of a jet airplane
33	43H	01H	FLANGER 2	"
34	43H	08H	FLANGER 3	"
35	44H	00H	SYMPHONIC	Additional stages are added to the modulation of CELESTE
36	57H	00H	ENSEMBLE DETUNE	A chorus effect without modulation created by adding a slightly pitch-shifted sound
37	58H	00H	AMBIENCE	An effect that blurs the location of the sound to add spatial width
38	45H	00H	ROTARY SPEAKER	Simulation of a rotary speaker. AC1 (assignable controller 1) etc. can be used to control the speed of rotation.
39	56H	00H	2WAY ROTARY SPEAKER	Simulation of a rotary speaker. AC1 (assignable controller 1) etc. can be used to control the speed of rotation.

Effect Program List

40	46H	00H	TREMOLO	An effect which cyclically modulates the volume
41	47H	00H	AUTO PAN	An effect which cyclically moves the sound left/right and front/back
42	48H	00H	PHASER 1	Cyclically changes the phase to add modulation
43	48H	08H	PHASER 2	"
44	49H	00H	DISTORTION	Adds a hard-edged distortion. A noise gate is provided, making this suitable for use with A/D input as well.
45	49H	01H	COMP+DISTORTION	Since a compressor is provided in the initial stage, even distortion is produced regardless of the input level.
46	4AH	00H	OVER DRIVE	Adds mild distortion. A noise gate is provided, making this suitable for use with A/D input as well.
47	4BH	00H	AMP SIMULATOR	Simulates a guitar amp. A noise gate is provided, making this suitable for use with A/D input as well.
48	4CH	00H	3BAND EQ(MONO)	Mono EQ with low, mid and high equalization
49	4DH	00H	2BAND EQ(STEREO)	Stereo EQ with low and high equalization. Ideal for the drum part.
50	4EH	00H	AUTO WAH(LFO)	Cyclically changes the center frequency of a wah filter. Can be used with AC1 etc. as a pedal wah.
51	4EH	01H	AUTO WAH+DIST	The output of AUTO WAH is distorted by DISTORTION. Can be used with AC1 etc. as a pedal wah.
52	4EH	02H	AUTO WAH+ODRV	The output of AUTO WAH is distorted by OVERDRIVE. Can be used with AC1 etc. as a pedal wah.
53	52H	00H	TOUCH WAH 1	The level of the input will modify the center frequency of the wah filter. Can be used with AC1 etc. as a pedal wah.
54	52H	01H	TOUCH WAH+DIST	The output of TOUCH WAH is distorted by DISTORTION. Can be used with AC1 etc. as a pedal wah.
55	52H	02H	TOUCH WAH+ODRV	The output of TOUCH WAH is distorted by OVERDRIVE. Can be used with AC1 etc. as a pedal wah.
56	52H	08H	TOUCH WAH 2	The level of the input will modify the center frequency of the wah filter. Can be used with AC1 etc. as a pedal wah.
57	50H	00H	PITCH CHANGE 1	This effect changes the pitch of the input signal.
58	50H	01H	PITCH CHANGE 2	"
59	51H	00H	AURAL EXCITER®	This effect adds new overtones to the input signal to make it stand out.
60	53H	00H	COMPRESSOR	Limits the output when the input signal exceeds a specified level. Can also add a sense of attack to the sound.
61	54H	00H	NOISE GATE	Gates the input when the input signal falls below a specified level. Effective when you wish to suppress noise from the A/D input.
62	55H	00H	VOICE CANCEL	Attenuates the vocal part of a recording on CD etc.
63	40H	00H	THRU	Bypass without applying an effect

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Effect Program List

INSERTION1,2

No.	MSB	LSB	Effect Type	Features
0	40H	00H	THRU	Bypass without applying an effect
1	01H	00H	HALL 1	Reverb simulating the reverberance of a hall
2	01H	01H	HALL 2	"
3	02H	00H	ROOM 1	Reverb simulating the reverberance of a room
4	02H	01H	ROOM 2	"
5	02H	02H	ROOM 3	"
6	03H	00H	STAGE 1	Reverb suitable for solo instruments
7	03H	01H	STAGE 2	"
8	04H	00H	PLATE	Reverb simulating a metal plate reverb unit
9	05H	00H	DELAY L,C,R	An effect which generates three delays: L, R and C (center)
10	06H	00H	DELAY L,R	An effect which generates two delays, L and R, and provides two feedback delays
11	07H	00H	ECHO	Two delays (L and R) and independent feedback for L and R
12	08H	00H	CROSS DELAY	This effect crosses the feedback of two delays
13	14H	00H	KARAOKE 1	Echo for karaoke
14	14H	01H	KARAOKE 2	"
15	14H	02H	KARAOKE 3	"
16	41H	00H	CHORUS 1	Standard chorus effect. Adds natural spaciousness.
17	41H	01H	CHORUS 2	"
18	41H	02H	CHORUS 3	"
19	41H	08H	CHORUS 4	"
20	42H	00H	CELESTE 1	An effect which uses a 3-phase LFO to add modulation and spaciousness
21	42H	01H	CELESTE 2	"
22	42H	02H	CELESTE 3	"
23	42H	08H	CELESTE 4	"
24	43H	00H	FLANGER 1	An effect reminiscent of a jet airplane
25	43H	01H	FLANGER 2	"
26	43H	08H	FLANGER 3	"
27	44H	00H	SYMPHONIC	Additional stages are added to the modulation of CELESTE
28	57H	00H	ENSEMBLE DETUNE	A chorus effect without modulation created by adding a slightly pitch-shifted sound
29	45H	00H	ROTARY SPEAKER	Simulation of a rotary speaker. AC1 (assignable controller 1) etc. can be used to control the speed of rotation.
30	46H	00H	TREMOLO	An effect which cyclically modulates the volume
31	47H	00H	AUTO PAN	An effect which cyclically moves the sound left/right and front/back
32	48H	00H	PHASER 1	Cyclically changes the phase to create modulation
33	49H	00H	DISTORTION	Adds a hard-edged distortion
34	4AH	00H	OVER DRIVE	Adds mild distortion
35	4BH	00H	AMP SIMULATOR	Simulates a guitar amp
36	4CH	00H	3BAND EQ(MONO)	Mono EQ with low, mid and high equalization
37	4DH	00H	2BAND EQ(STEREO)	Stereo EQ with low and high equalization. Ideal for the drum part.
38	4EH	00H	AUTO WAH(LFO)	Cyclically changes the center frequency of a wah filter. Can be used with AC1 etc. as a pedal wah.
39	52H	00H	TOUCH WAH 1	The level of the input will modify the center frequency of the wah filter. Can be used with AC1 etc. as a pedal wah.
40	52H	08H	TOUCH WAH 2	The level of the input will modify the center frequency of the wah filter. Can be used with AC1 etc. as a pedal wah.
41	51H	00H	AURAL EXCITER®	This effect adds new overtones to the input signal to make it stand out.
42	53H	00H	COMPRESSOR	Limits the output when the input signal exceeds a specified level. Can also add a sense of attack to the sound.
43	54H	00H	NOISE GATE	Gates the input when the input signal falls below a specified level. Effective when you wish to suppress noise from the A/D input.

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MU90 Effect LSB, MSB LIST

REVERB TYPE

TYPE MSB		TYPE LSB				
DEC	HEX	00	01	02	...	08
000	0	NO EFFECT				
001	1	HALL 1	HALL 2			
002	2	ROOM 1	ROOM 2	ROOM 3		
003	3	STAGE 1	STAGE 2			
004	4	PLATE				
005	5	NO EFFECT				
:	:	:				
015	F	NO EFFECT				
016	10	WHITE ROOM				
017	11	TUNNEL				
018	12	CANYON				
019	13	BASEMENT				
020	14	NO EFFECT				
:	:	:				
127	7F	NO EFFECT				

NO EFFECT
Same as basic effects (LSB=00)

CHORUS TYPE

TYPE MSB		TYPE LSB				
DEC	HEX	00	01	02	...	08
000	0	NO EFFECT				
001	1	NO EFFECT				
:	:	:				
064	40	NO EFFECT				
065	41	CHORUS 1	CHORUS 2	CHORUS 3		CHORUS 4
066	42	CELESTE 1	CELESTE 2	CELESTE 3		CELESTE 4
067	43	FLANGER 1	FLANGER 2			FLANGER 3
068	44	SYMPHONIC				
069	45	NO EFFECT				
:	:	:				
071	47	NO EFFECT				
072	48	PHASER 1				
073	49	NO EFFECT				
:	:	:				
086	56	NO EFFECT				
087	57	ENSEMBLE DETUNE				
088	58	NO EFFECT				
:	:	:				
127	7F	NO EFFECT				

NO EFFECT
Same as basic effects (LSB=00)

VARIATION TYPE (0-63)

TYPE MSB		TYPE LSB				
DEC	HEX	00	01	02	...	08
000	0	NO EFFECT				
001	1	HALL 1	HALL 2			
002	2	ROOM 1	ROOM 2	ROOM 3		
003	3	STAGE 1	STAGE 2			
004	4	PLATE				
005	5	DELAY L.C.R				
006	6	DELAY L.R				
007	7	ECHO				
008	8	CROSS DELAY				
009	9	ER 1	ER 2			
010	A	GATE REVERB				
011	B	REVERSE GATE				
012	C	NO EFFECT or THRU				
:	:	:				
015	F	NO EFFECT or THRU				
016	10	WHITE ROOM				
017	11	TUNNEL				
018	12	CANYON				
019	13	BASEMENT				
020	14	KARAOKE 1	KARAOKE 2	KARAOKE 3		
021	15	NO EFFECT or THRU				
:	:	:				
063	3F	NO EFFECT or THRU				

NO EFFECT (for SYS) or THRU (for INS)
Same as basic effects (LSB=00)

MU90 Effect LSB, MSB LIST

VARIATION TYPE (64-127)

TYPE MSB		TYPE LSB				
DEC	HEX	00	01	02	...	08
064	40	THRU				
065	41	CHORUS 1	CHORUS 2	CHORUS 3		CHORUS 4
066	42	CELESTE 1	CELESTE 2	CELESTE 3		CELESTE 4
067	43	FLANGER 1	FLANGER 2			FLANGER 3
068	44	SYMPHONIC				
069	45	ROTARY SPEAKER				
070	46	TREMOLO				
071	47	AUTO PAN				
072	48	PHASER 1				PHASER 2
073	49	DISTORTION	COMP+DISTORTION			
074	4A	OVER DRIVE				
075	4B	AMP SIMULATOR				
076	4C	3-BAND EQ				
077	4D	2-BAND EQ				
078	4E	AUTO WAH(LFO)	AUTO WAH+DIST	AUTO WAH+OVERDRIVE		
079	4F	THRU				
080	50	PITCH CHANGE	PITCH CHANGE2			
081	51	AURAL EXCITER®				
082	52	TOUCH WAH 1	TOUCH WAH+DIST	TOUCH WAH+OVERDRIVE		TOUCH WAH 2
083	53	COMPRESSOR				
084	54	NOISE GATE				
085	55	VOICE CANCEL				
086	56	2WAY ROTARY SPEAKER				
087	57	ENSEMBLE DETUNE				
088	58	AMBIENCE				
089	59	THRU				
:	:	:				
:	:	:				
127	7F	THRU				

THRU
 Same as basic effects (LSB=00)

INSERTION EFFECT TYPE

TYPE MSB		TYPE LSB				
DEC	HEX	00	01	02	...	08
000	0	THRU				
001	1	HALL 1	HALL 2			
002	2	ROOM 1	ROOM 2	ROOM 3		
003	3	STAGE 1	STAGE 2			
004	4	PLATE				
005	5	DELAY L.C.R				
006	6	DELAY L.R				
007	7	ECHO				
008	8	CROSS DELAY				
009	9	THRU				
:	:	:				
:	:	:				
019	13	THRU				
020	14	KARAOKE 1	KARAOKE 2	KARAOKE 3		
021	15	THRU				
:	:	:				
:	:	:				
063	3F	THRU				
064	40	THRU				
065	41	CHORUS 1	CHORUS 2	CHORUS 3		CHORUS 4
066	42	CELESTE 1	CELESTE 2	CELESTE 3		CELESTE 4
067	43	FLANGER 1	FLANGER 2			FLANGER 3
068	44	SYMPHONIC				
069	45	ROTARY SPEAKER				
070	46	TREMOLO				
071	47	AUTO PAN				
072	48	PHASER 1				
073	49	DISTORTION				
074	4A	OVER DRIVE				
075	4B	AMP SIMULATOR				
076	4C	3BAND EQ				
077	4D	2-BAND EQ				
078	4E	AUTO WAH(LFO)				
079	4F	THRU				
080	50	THRU				
081	51	AURAL EXCITER®				
082	52	TOUCH WAH 1				TOUCH WAH 2
083	53	COMPRESSOR				
084	54	NOISE GATE				
085	55	THRU				
086	56	THRU				
087	57	ENSEMBLE DETUNE				
088	58	THRU				
:	:	:				
:	:	:				
127	7F	THRU				

THRU
 Same as basic effects (LSB=00)

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MU90 Effect Parameter List

HALL1,HALL2

ROOM1,ROOM2,ROOM3

STAGE1,STAGE2

PLATE (reverb, variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Reverb Time	0.3~30.0s	0-69	table#4	
2	Diffusion	0~10	0-10		
3	Initial Delay	0~63	0-63	table#5	
4	HPF Cutoff	Thru~8.0kHz	0-52	table#3	
5	LPF Cutoff	1.0k~Thru	34-60	table#3	
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Rev Delay	0~63	0-63	table#5	
12	Density	0~4 (reverb, variation block) 0~2 (insertion1,2 block)	0-4 0-2		
13	Er/Rev Balance	E63>R ~ E=R ~ E<R63	1-127		
14	High Damp	0.1~1.0	1-10		
15	Feedback Level	-63~+63	1-127		
16					

WHITE ROOM

TUNNEL

CANYON

BASEMENT (reverb, variation block)

No.	Parameter	Display	Value	See Table	Control
1	Reverb Time	0.3~30.0s	0-69	table#4	
2	Diffusion	0~10	0-10		
3	Initial Delay	0~63	0-63	table#5	
4	HPF Cutoff	Thru~8.0kHz	0-52	table#3	
5	LPF Cutoff	1.0k~Thru	34-60	table#3	
6	Width	0.5~10.2m	0-37	table#11	
7	Height	0.5~20.2m	0-73	table#11	
8	Depth	0.5~30.2m	0-104	table#11	
9	Wall Vary	0~30	0-30		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Rev Delay	0~63	0-63	table#5	
12	Density	0~4	0-4		
13	Er/Rev Balance	E63>R ~ E=R ~ E<R63	1-127		
14	High Damp	0.1~1.0	1-10		
15	Feedback Level	-63~+63	1-127		
16					

DELAY L,C,R (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Lch Delay	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
2	Rch Delay	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
3	Cch Delay	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
4	Feedback Delay	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
5	Feedback Level	-63~+63	1-127		
6	Cch Level	0~127	0-127		
7	High Damp	0.1~1.0	1-10		
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11					
12					
13	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
14	EQ Low Gain	-12~+12dB	52-76		
15	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
16	EQ High Gain	-12~+12dB	52-76		

DELAY L,R (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Lch Delay	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
2	Rch Delay	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
3	Feedback Delay 1	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
4	Feedback Delay 2	0.1~1486.0ms (variation block) 0.1~742.9ms (insertion1,2 block)	1-14860 1-7429		
5	Feedback Level	-63~+63	1-127		
6	High Damp	0.1~1.0	1-10		
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11					
12					
13	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
14	EQ Low Gain	-12~+12dB	52-76		
15	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
16	EQ High Gain	-12~+12dB	52-76		

ECHO (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Lch Delay1	0.1~743.0ms (variation block) 0.1~371.4ms (insertion1,2 block)	1-7430 1-3714		
2	Lch Feedback Level	-63~+63	1-127		
3	Rch Delay1	0.1~743.0ms (variation block) 0.1~371.4ms (insertion1,2 block)	1-7430 1-3714		
4	Rch Feedback Level	-63~+63	1-127		
5	High Damp	0.1~1.0	1-10		
6	Lch Delay2	0.1~743.0ms (variation block) 0.1~371.4ms (insertion1,2 block)	1-7430 1-3714		
7	Rch Delay2	0.1~743.0ms (variation block) 0.1~371.4ms (insertion1,2 block)	1-7430 1-3714		
8	Delay2 Level	0~127	0-127		
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11					
12					
13	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
14	EQ Low Gain	-12~+12dB	52-76		
15	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
16	EQ High Gain	-12~+12dB	52-76		

CROSS DELAY (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	L->R Delay	0.1~743.0ms (variation block) 0.1~371.4ms (insertion1,2 block)	1-7430 1-3714		
2	R->L Delay	0.1~743.0ms (variation block) 0.1~371.4ms (insertion1,2 block)	1-7430 1-3714		
3	Feedback Level	-63~+63	1-127		
4	Input Select	L,R,L&R	0-2		
5	High Damp	0.1~1.0	1-10		
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11					
12					
13	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
14	EQ Low Gain	-12~+12dB	52-76		
15	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
16	EQ High Gain	-12~+12dB	52-76		

EARLY REF1,EARLY REF2 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Type	S-H, L-H, Rdm, Rvs, Plt, Spr	0-5		
2	Room Size	0.1~7.0	0-44	table#6	
3	Diffusion	0~10	0-10		
4	Initial Delay	0~63	0-63	table#5	
5	Feedback Level	-63~+63	1-127		
6	HPF Cutoff	Thru~8.0kHz	0-52	table#3	
7	LPF Cutoff	1.0k~Thru	34-60	table#3	
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Liveness	0~10	0-10		
12	Density	0~3	0-3		
13	High Damp	0.1~1.0	1-10		
14					
15					
16					

GATE REVERB

REVERSE GATE (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Type	TypeA,TypeB	0-1		
2	Room Size	0.1~20.0	0-127	table#6	
3	Diffusion	0~10	0-10		
4	Initial Delay	0~127	0-127	table#5	
5	Feedback Level	-63~+63	1-127		
6	HPF Cutoff	Thru~8.0kHz	0-52	table#3	
7	LPF Cutoff	1.0k~Thru	34-60	table#3	
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Liveness	0~10	0-10		
12	Density	0~3	0-3		
13	High Damp	0.1~1.0	1-10		
14					
15					
16					

MU90 Effect Parameter List

KARAOKE1,2,3 (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Delay Time	0~127	0-127	table#7	
2	Feedback Level	-63~+63	1-127		
3	HPF Cutoff	Thru~8.0kHz	0-52	table#3	
4	LPF Cutoff	1.0k~Thru	34-60	table#3	
5					
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11					
12					
13					
14					
15					
16					

FLANGER1,2,3 (chorus, variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0~127	0-127		
3	Feedback Level	-63~+63	1-127		
4	Delay Offset	0~63	0-63	table#2	
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	EQ Mid Frequency	100Hz~10.0kHz (variation block)	14-54	table#3	
12	EQ Mid Gain	-12~+12dB (variation block)	52-76		
13	EQ Mid Width	1.0~12.0 (variation block)	10-120		
14	LFO Phase Difference	-180~+180deg	4-124	resolution= 3deg.	
15					
16					

ENSEMBLE DETUNE (chorus, variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Detune	-50~+50cent	14-114		
2	Lch Init Delay	0~127	0-127	table#2	
3	Rch Init Delay	0~127	0-127	table#2	
4					
5					
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	EQ Low Frequency	32Hz~2.0kHz (variation, insertion1,2 block)	4-40	table#3	
12	EQ Low Gain	-12~+12dB (variation, insertion1,2 block)	52-76		
13	EQ High Frequency	500Hz~16.0kHz (variation, insertion1,2 block)	28-58	table#3	
14	EQ High Gain	-12~+12dB (variation, insertion1,2 block)	52-76		
15					
16					

ROTARY SPEAKER (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	●
2	LFO Depth	0~127	0-127		
3					
4					
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	EQ Mid Frequency	100Hz~10.0kHz (variation block)	14-54	table#3	
12	EQ Mid Gain	-12~+12dB (variation block)	52-76		
13	EQ Mid Width	1.0~12.0 (variation block)	10-120		
14					
15					
16					

CHORUS1,2,3,4

CELESTE1,2,3,4 (chorus, variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0~127	0-127		
3	Feedback Level	-63~+63	1-127		
4	Delay Offset	0~127	0-127	table#2	
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	EQ Mid Frequency	100Hz~10.0kHz (variation block)	14-54	table#3	
12	EQ Mid Gain	-12~+12dB (variation block)	52-76		
13	EQ Mid Width	1.0~12.0 (variation block)	10-120		
14					
15	Input Mode	mono/stereo	0-1		
16					

SYMPHONIC (chorus, variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0~127	0-127		
3	Delay Offset	0~127	0-127	table#2	
4					
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	EQ Mid Frequency	100Hz~10.0kHz (variation block)	14-54	table#3	
12	EQ Mid Gain	-12~+12dB (variation block)	52-76		
13	EQ Mid Width	1.0~12.0 (variation block)	10-120		
14					
15					
16					

AMBIENCE (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Delay Time	0~127	0-127	table#2	
2	Output Phase	normal/invers	0-1		
3					
4					
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11					
12					
13					
14					
15					
16					

2WAY ROTARY SPEAKER (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Rotor Speed	0.0Hz~39.7Hz	0-127	table#1	●
2	Drive Low	0~127	0-127		
3	Drive High	0~127	0-127		
4	Low/High	L63>H ~ L=H ~ L<H63	1-127		
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10					
11	Crossover Frequency	100Hz~10.0kHz	14-54	table#3	
12	Mic L-R Angle	0deg~180deg	0-60	resolution= 3deg.	
13					
14					
15					
16					

MU90 Effect Parameter List

TREMOLO (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	●
2	AM Depth	0~127	0-127		
3	PM Depth	0~127	0-127		
4					
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10					
11	EQ Mid Frequency	100Hz~10.0kHz (variation block)	14-54	table#3	
12	EQ Mid Gain	-12~+12dB (variation block)	52-76		
13	EQ Mid Width	1.0~12.0 (variation block)	10-120		
14	LFO Phase Difference	-180~+180deg	4-124	resolution=3deg.	
15	Input Mode	mono/stereo	0-1		
16					

PHASER 1 (chorus, variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0~127	0-127		
3	Phase Shift Offset	0~127	0-127		
4	Feedback Level	-63~+63	1-127		
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Stage	4,5,6 (chorus, insertion1,2 block)	4-6		
12	Diffusion	4~12 (variation block)	4-12		
13		mono/stereo	0-1		
14					
15					
16					

DISTORTION

OVERDRIVE (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Drive	0~127	0-127		●
2	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
3	EQ Low Gain	-12~+12dB	52-76		
4	LPF Cutoff	1.0k~Thru	34-60	table#3	
5	Output Level	0~127	0-127		
6					
7	EQ Mid Frequency	100Hz~10.0kHz	14-54	table#3	
8	EQ Mid Gain	-12~+12dB	52-76		
9	EQ Mid Width	1.0~12.0	10-120		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Edge(Clip Curve)	0~127	0-127	mild~sharp	
12					
13					
14					
15					
16					

AMP SIMULATOR (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Drive	0~127	0-127		●
2	AMP Type	Off,Stack,Combo,Tube	0-3		
3	LPF Cutoff	1.0k~Thru	34-60	table#3	
4	Output Level	0~127	0-127		
5					
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Edge(Clip Curve)	0~127	0-127	mild~sharp	
12					
13					
14					
15					
16					

AUTO PAN (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	●
2	L/R Depth	0~127	0-127		
3	F/R Depth	0~127	0-127		
4	PAN Direction	L<->R,L->R,L<-R,Lturn, Rturn,L/R	0-5		
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10					
11	EQ Mid Frequency	100Hz~10.0kHz (variation block)	14-54	table#3	
12	EQ Mid Gain	-12~+12dB (variation block)	52-76		
13	EQ Mid Width	1.0~12.0 (variation block)	10-120		
14					
15					
16					

PHASER 2 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0~127	0-127		
3	Phase Shift Offset	0~127	0-127		
4	Feedback Level	-63~+63	1-127		
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Stage	3,4,5,6	3-6		
12					
13	LFO Phase Difference	-180deg~+180deg	4-124	resolution=3deg.	
14					
15					
16					

COMP+DIST (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Drive	0~127	0-127		●
2	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
3	EQ Low Gain	-12~+12dB	52-76		
4	LPF Cutoff	1.0k~Thru	34-60	table#3	
5	Output Level	0~127	0-127		
6					
7	EQ Mid Frequency	100Hz~10.0kHz	14-54	table#3	
8	EQ Mid Gain	-12~+12dB	52-76		
9	EQ Mid Width	1.0~12.0	10-120		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Edge(Clip Curve)	0~127	0-127	mild~sharp	
12	Attack	1ms~40ms	0-19	table#8	
13	Release	10ms~680ms	0-15	table#9	
14	Threshold	-48dB~-6dB	79-121		
15	Ratio	1.0~20.0	0-7	table#10	
16					

3BAND EQ(MONO) (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	EQ Low Gain	-12~+12dB	52-76		
2	EQ Mid Frequency	100Hz~10.0kHz	14-54	table#3	
3	EQ Mid Gain	-12~+12dB	52-76		
4	EQ Mid Width	1.0~12.0	10-120		
5	EQ High Gain	-12~+12dB	52-76		
6	EQ Low Frequency	50Hz~2.0kHz	8-40	table#3	
7	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
8					
9					
10					
11					
12					
13					
14					
15	Input Mode	mono/stereo	0-1		
16					

MU90 Effect Parameter List

2BAND EQ(STEREO) (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
2	EQ Low Gain	-12~+12dB	52-76		
3	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
4	EQ High Gain	-12~+12dB	52-76		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

AUTO WAH (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0-127	0-127		
3	Cutoff Frequency Offset	0-127	0-127		●
4	Resonance	1.0~12.0	10-120		
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Drive	0-127	0-127		
12					
13					
14					
15					
16					

AUTO WAH+DIST

AUTO WHA+ODRV (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz~39.7Hz	0-127	table#1	
2	LFO Depth	0-127	0-127		
3	Cutoff Frequency Offset	0-127	0-127		●
4	Resonance	1.0~12.0	10-120		
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Drive	0-127	0-127		
12	EQ Low Gain (distortion)	-12~+12dB	52-76		
13	EQ Mid Gain (distortion)	-12~+12dB	52-76		
14	LPF Cutoff	1.0kHz~thru	34-60	table#3	
15	Output Level	0-127	0-127		
16					

TOUCH WAH 1 (variation, insertion1,2 block)

TOUCH WAH+DIST (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Sensitive	0-127	0-127		
2	Cutoff Frequency Offset	0-127	0-127		●
3	Resonance	1.0~12.0	10-120		
4					
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Drive	0-127	0-127		
12					
13					
14					
15					
16					

TOUCH WAH 2 (variation, insertion1,2 block)

TOUCH WAH+ODRV (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Sensitive	0-127	0-127		
2	Cutoff Frequency Offset	0-127	0-127		●
3	Resonance	1.0~12.0	10-120		
4					
5					
6	EQ Low Frequency	32Hz~2.0kHz	4-40	table#3	
7	EQ Low Gain	-12~+12dB	52-76		
8	EQ High Frequency	500Hz~16.0kHz	28-58	table#3	
9	EQ High Gain	-12~+12dB	52-76		
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		
11	Drive	0-127	0-127		
12	EQ Low Gain (distortion)	-12~+12dB	52-76		
13	EQ Mid Gain (distortion)	-12~+12dB	52-76		
14	LPF Cutoff	1.0kHz~thru	34-60	table#3	
15	Output Level	0-127	0-127		
16					

PITCH CHANGE 1 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Pitch	-24~+24	40-88		
2	Initial Delay	0-127	0-127	table#7	
3	Fine 1	-50Hz~+50Hz	14-114		
4	Fine 2	-50Hz~+50Hz	14-114		
5	Feedback Level	-99~+99%	1-127		
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Pan 1	L63~R63	1-127		
12	Output Level 1	0-127	0-127		
13	Pan 2	L63~R63	1-127		
14	Output Level 2	0-127	0-127		
15					
16					

PITCH CHANGE 2 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Pitch	-24~+24	40-88		
2	Initial Delay	0-127	0-127	table#7	
3	Fine 1	-50~+50cent	14-114		
4	Fine 2	-50~+50cent	14-114		
5	Feedback Level	-99~+99%	1-127		
6					
7					
8					
9					
10	Dry/Wet	D63>W ~ D=W ~ D<W63	1-127		●
11	Pan 1	L63~R63	1-127		
12	Output Level 1	0-127	0-127		
13	Pan 2	L63~R63	1-127		
14	Output Level 2	0-127	0-127		
15					
16					

AURAL EXCITER®

(variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	HPF Cutoff	500Hz~16.0kHz	28-58	table#3	●
2	Drive	0-127	0-127		
3	Mix Level	0-127	0-127		
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

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MU90 Effect Parameter List

COMPRESSOR (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Attack	1~40ms	0-19	table#8	
2	Release	10~680ms	0-15	table#9	
3	Threshold	-48~-6dB	79-121		
4	Ratio	1.0~20.0	0-7	table#10	
5	Output Level	0~127	0-127		
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

NOISE GATE (variation, insertion1,2 block)

No.	Parameter	Display	Value	See Table	Control
1	Attack	1~40ms	0-19	table#8	
2	Release	10~680ms	0-15	table#9	
3	Threshold	-72~-30dB	55-97		
4	Output Level	0~127	0-127		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

VOICE CANCELAR (variation block)

No.	Parameter	Display	Value	See Table	Control
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11	Low Adjust	0~26	0-26		
12	High Adjust	0~26	0-26		
13					
14					
15					
16					

Explanation of effect parameters

Parameter name	Effect types in which the parameter exists	Explanation of parameter
AM Depth	TREMOLO	Depth of volume modulation
AMP Type	AMP SIMULATOR	Select the amp type to be simulated
Attack	COMPRESSOR type NOISE GATE	Time until when the compressor begins to take effect Time until when the gate begins to open
Cch Delay	DELAY L,C,R	Delay length of center channel
Cch Level	DELAY L,C,R	Volume of center channel
Crossover Frequency	2WAY ROTARY SPEAKER	Crossover frequency between the high frequency speaker and the low frequency speaker
Cutoff Frequency Offset	WAH type	Frequency offset value which will control the wah filter
Delay Offset	CHORUS type	Offset value of delay modulation
Delay Time	KARAOKE 1,2,3 AMBIENCE	Interval between repeats of the karaoke echo Delay length
Delay2 Level	ECHO	Volume of the second delay
Density	REVERB type, EARLY REF type	Density of the reflections. Higher values produce greater density.
Depth	REVERB type	Depth of the room to be simulated
Detune	ENSEMBLE DETUNE	Amount of pitch shift
Diffusion	REVERB type, EARLY REF type, PHASER	Controls the amount of spread
Drive	DISTORTION type AURAL EXCITER	The degree of distortion The degree to which the exciter effect is applied
Drive High	2WAY ROTARY SPEAKER	Depth of the modulation caused by the rotation of the low frequency speaker
Drive Low	2WAY ROTARY SPEAKER	Depth of the modulation caused by the rotation of the high frequency speaker
Dry/Wet	All types	Balance between dry sound and effect sound
Edge (Clip Curve)	DISTORTION type	Curve of distortion character (sharp (127) distorts suddenly, and mild (0) distorts gradually)
EQ High Frequency	All types	Frequency at which the EQ will boost/cut the high range
EQ High Gain	All types	Amount of gain with which the EQ will boost/cut the high range
EQ Low Frequency	All types	Frequency at which the EQ will boost/cut the low range
EQ Low Gain	All types	Amount of gain with which the EQ will boost/cut the low range
EQ Mid Frequency	All types	Frequency at which the EQ will boost/cut the mid range
EQ Mid Gain	All types	Amount of gain with which the EQ will boost/cut the mid range
EQ Mid Width	All types	Width of the area at which the EQ will boost/cut the mid range
Er/Rev Balance	REVERB type	Level balance between the early reflections and the reverb sound
F/R Depth	AUTO PAN	Depth of front/back panning (valid when PAN Direction=Lturn, Rturn)
Feedback Delay	DELAY L,C,R	Length of feedback delay
Feedback Delay 1	DELAY L, R	Length of feedback delay 1
Feedback Delay 2	DELAY L, R	Length of feedback delay 2
Feedback Level	REVERB type DELAY type, EARLY REF type, PITCH CHANGE type KARAOKE type CHORUS type, FLANGER type PHASER type	Amount of feedback for the initial delay Amount of feedback Setting for delay repeats Level at which the delayed output is returned to the input (negative values invert the phase) Level at which the output of the phaser is returned to the input (negative values invert the phase)
Fine 1	PITCH CHANGE type	Fine pitch setting for first unit
Fine 2	PITCH CHANGE type	Fine pitch setting for second unit
Height	REVERB type	Height of the room to be simulated
High Adjust	VOICE CANCELAR	Adjust the upper limit of the mid-range frequencies to be attenuated
High Damp	REVERB type, DELAY type, EARLY REF type	Adjust the decay of the high frequencies (smaller values will cause high frequencies to decay more rapidly)
HPF Cutoff	REVERB type, EARLY REF type, KARAOKE type, AURAL EXCITER	Frequency at which the high pass filter will cut the low range
Initial Delay	REVERB type EARLY REF type PITCH CHANGE type	Delay time until the early reflections Length of delay until the ER (Gate Reverb) sounds Delay length
Input Mode	All types	Mono/stereo switch for the input
Input Select	CROSS DELAY	Select the input
L/R Depth	AUTO PAN	Depth of left/right panning
L->R Delay	CROSS DELAY	Delay time from left (input) to right (output)
Lch Delay	DELAY type	Delay length of the left channel
Lch Delay 1	ECHO	First delay length of the left channel
Lch Delay 2	ECHO	Second delay length of the left channel
Lch Feedback Level	ECHO	Feedback amount of the left channel
Lch Init Delay	ENSEMBLE DETUNE	Length of left channel delay
LFO Depth	CHORUS type, FLANGER type, SYMPHONIC type ROTARY SPEAKER PHASER type WAH type	Frequency of delay modulation Modulation depth caused by speaker rotation Depth of phase modulation Depth to which wah filter is controlled
LFO Frequency	CHORUS type, FLANGER type, SYMPHONIC ROTARY SPEAKER TREMOLO AUTO PAN PHASER type WAH type	Frequency of delay modulation Frequency at which the speaker rotates Modulation frequency Auto pan frequency Frequency of phase modulation Frequency at which wah filter is controlled
LFO Phase Difference	PHASER type, FLANGER type	L/R phase difference between modulation waveforms (At 0 deg (=64) there is no phase difference.)
Liveness	EARLY REF type	ER decay. Lower values produce faster decay.
Low Adjust	VOICE CANCELAR	Adjust the lower limit of the mid-range that will be attenuated
Low/High	2WAY ROTARY SPEAKER	Volume balance between the high range speaker and the low range speaker
LPF Cutoff	All types	Frequency at which the low pass filter will cut the high range
Mic L-R Angle	2WAY ROTARY SPEAKER	L/R angle of the mics which will pick up the output
Mix Level	AURAL EXCITER	Level of the effect sound which will be mixed into the dry sound
Output Level	All types	Output level
Output Level 1	PITCH CHANGE type	Output level of first unit
Output Level 2	PITCH CHANGE type	Output level of second unit
Output Phase	AMBIENCE	Exchange the L/R phase of the effect sound
Pan 1	PITCH CHANGE type	PAN of first unit
Pan 2	PITCH CHANGE type	PAN of second unit
PAN Direction	AUTO PAN	Type of auto pan (L<->R is sine wave, L/R is square wave)
Phase Shift Offset	PHASER type	Offset value of phase modulation
Pitch	PITCH CHANGE type	Pitch setting in semitone steps

Explanation of effect parameters

PM Depth	TREMOLO	Depth of delay modulation
R->L Delay	CROSS DELAY	Delay time from right (input) to left (output)
Ratio	COMPRESSOR type	Compression ratio of the compressor
Rch Delay	DELAY type	Delay length of the right channel
Rch Delay 1	ECHO	First delay length of the right channel
Rch Delay 2	ECHO	Second delay length of the right channel
Rch Feedback Level	ECHO	Feedback amount of the right channel
Rch Init Delay	ENSEMBLE DETUNE	Length of right channel delay
Release	COMPRESSOR type NOISE GATE	Time until when the compressor effect is removed Time until when the gate is closed
Resonance	WAH type	Bandwidth of the wah filter
Rev Delay	REVERB type	Delay time from the early reflections until the reverb sound
Reverb Time	REVERB type	Length of reverb
Room Size	EARLY REF type	ER will become longer as the size of the room (this value) increases
Rotor Speed	2WAY ROTARY SPEAKER	Frequency at which the speaker rotates
Sensitive	WAH type	Sensitivity with which the wah filter will respond to changes in the input
Stage	PHASER type	Number of stages in the phase shifter
Threshold	COMPRESSOR type NOISE GATE	Input level at which the effect begins to apply Input level at which the gate begins to open
Type	EARLY REF type	Select the type
Wall Vary	REVERB type	Condition of the walls of the room being simulated (higher values produce more random reflections)
Width	REVERB type	Width of the room being simulated

Note (The types such as "REVERB type" referred to in the above table include the following effects.)

CHORUS type	CHORUS1, CHORUS2, CHORUS3, CHORUS4, CELESTE1, CELESTE2, CELESTE3, CELESTE4,
COMPRESSOR type	COMPRESSOR, COMP+DIST
DELAY type	DELAY L,C,R, DELAY L,R, ECHO, CROSS DELAY
DISTORTION type	DISTORTION, OVERDRIVE, AMP SIMULATOR, AUTO WAH+DIST, AUTO WAH+ODRV, TOUCH WAH+DIST, TOUCH WAH+ODRV, COMP+DIST
EARLY REF type	EARLY REF1, EARLY REF2, GATE REVERB, REVERSE GATE
FLANGER type	FLANGER1, FLANGER2, FLANGER3
KARAOKE type	KARAOKE1, KARAOKE2, KARAOKE3
PHASER type	PHASER1, PHASER2
PITCH CHANGE type	PITCH CHANGE1, PITCH CHANGE2
REVERB type	HALL1, HALL2, ROOM1, ROOM2, ROOM3, STAGE1, STAGE2, PLATE, WHITE ROOM, TUNNEL, CANYON, BASEMENT
WAH type	AUTO WAH, AUTO WAH+DIST, AUTO WAH+ODRV, TOUCH WAH1, TOUCH WAH2, TOUCH WAH+DIST, TOUCH WAH+ODRV

Data Value Assign Table

table #1
LFO Frequency

Data	Value	Data	Value	Data	Value	Data	Value
0	0	32	1.35	64	2.69	96	8.41
1	0.04	33	1.39	65	2.78	97	8.75
2	0.08	34	1.43	66	2.86	98	9.08
3	0.13	35	1.47	67	2.94	99	9.42
4	0.17	36	1.51	68	3.03	100	9.76
5	0.21	37	1.56	69	3.11	101	10.1
6	0.25	38	1.60	70	3.20	102	10.8
7	0.29	39	1.64	71	3.28	103	11.4
8	0.34	40	1.68	72	3.37	104	12.1
9	0.38	41	1.72	73	3.45	105	12.8
10	0.42	42	1.77	74	3.53	106	13.5
11	0.46	43	1.81	75	3.62	107	14.1
12	0.51	44	1.85	76	3.70	108	14.8
13	0.55	45	1.89	77	3.87	109	15.5
14	0.59	46	1.94	78	4.04	110	16.2
15	0.63	47	1.98	79	4.21	111	16.8
16	0.67	48	2.02	80	4.37	112	17.5
17	0.72	49	2.06	81	4.54	113	18.2
18	0.76	50	2.10	82	4.71	114	19.5
19	0.80	51	2.15	83	4.88	115	20.9
20	0.84	52	2.19	84	5.05	116	22.2
21	0.88	53	2.23	85	5.22	117	23.6
22	0.93	54	2.27	86	5.38	118	24.9
23	0.97	55	2.31	87	5.55	119	26.2
24	1.01	56	2.36	88	5.72	120	27.6
25	1.05	57	2.40	89	6.06	121	28.9
26	1.09	58	2.44	90	6.39	122	30.3
27	1.14	59	2.48	91	6.73	123	31.6
28	1.18	60	2.52	92	7.07	124	33.0
29	1.22	61	2.57	93	7.40	125	34.3
30	1.26	62	2.61	94	7.74	126	37.0
31	1.3	63	2.65	95	8.08	127	39.7

table#3
EQ Frequency

Data	Value	Data	Value
8	50	40	2.0k
9	56	41	2.2k
10	63	42	2.5k
11	70	43	2.8k
12	80	44	3.2k
13	90	45	3.6k
14	100	46	4.0k
15	110	47	4.5k
16	125	48	5.0k
17	140	49	5.6k
18	160	50	6.3k
19	180	51	7.0k
20	200	52	8.0k
21	225	53	9.0k
22	250	54	10.0k
23	280	55	11.0k
24	315	56	12.0k
25	355	57	14.0k
26	400	58	16.0k
27	450	59	18.0k
28	500	60	THRU(20.0k)
29	560		
30	630		
31	700		
32	800		
33	900		
34	1.0k		
35	1.1k		
36	1.2k		
37	1.4k		
38	1.6k		
39	1.8k		

table#2
Modulation Delay Offset

Data	Value	Data	Value	Data	Value	Data	Value
0	0.0	32	3.2	64	6.4	96	9.6
1	0.1	33	3.3	65	6.5	97	9.7
2	0.2	34	3.4	66	6.6	98	9.8
3	0.3	35	3.5	67	6.7	99	9.9
4	0.4	36	3.6	68	6.8	100	10.0
5	0.5	37	3.7	69	6.9	101	11.1
6	0.6	38	3.8	70	7.0	102	12.2
7	0.7	39	3.9	71	7.1	103	13.3
8	0.8	40	4.0	72	7.2	104	14.4
9	0.9	41	4.1	73	7.3	105	15.5
10	1.0	42	4.2	74	7.4	106	17.1
11	1.1	43	4.3	75	7.5	107	18.6
12	1.2	44	4.4	76	7.6	108	20.2
13	1.3	45	4.5	77	7.7	109	21.8
14	1.4	46	4.6	78	7.8	110	23.3
15	1.5	47	4.7	79	7.9	111	24.9
16	1.6	48	4.8	80	8.0	112	26.5
17	1.7	49	4.9	81	8.1	113	28.0
18	1.8	50	5.0	82	8.2	114	29.6
19	1.9	51	5.1	83	8.3	115	31.2
20	2.0	52	5.2	84	8.4	116	32.8
21	2.1	53	5.3	85	8.5	117	34.3
22	2.2	54	5.4	86	8.6	118	35.9
23	2.3	55	5.5	87	8.7	119	37.5
24	2.4	56	5.6	88	8.8	120	39.0
25	2.5	57	5.7	89	8.9	121	40.6
26	2.6	58	5.8	90	9.0	122	42.2
27	2.7	59	5.9	91	9.1	123	43.7
28	2.8	60	6.0	92	9.2	124	45.3
29	2.9	61	6.1	93	9.3	125	46.9
30	3.0	62	6.2	94	9.4	126	48.4
31	3.1	63	6.3	95	9.5	127	50.0

table#4
Reverb time

Data	Value	Data	Value	Data	Value
0	0.3	32	3.5	64	17.0
1	0.4	33	3.6	65	18.0
2	0.5	34	3.7	66	19.0
3	0.6	35	3.8	67	20.0
4	0.7	36	3.9	68	25.0
5	0.8	37	4.0	69	30.0
6	0.9	38	4.1		
7	1.0	39	4.2		
8	1.1	40	4.3		
9	1.2	41	4.4		
10	1.3	42	4.5		
11	1.4	43	4.6		
12	1.5	44	4.7		
13	1.6	45	4.8		
14	1.7	46	4.9		
15	1.8	47	5.0		
16	1.9	48	5.5		
17	2.0	49	6.0		
18	2.1	50	6.5		
19	2.2	51	7.0		
20	2.3	52	7.5		
21	2.4	53	8.0		
22	2.5	54	8.5		
23	2.6	55	9.0		
24	2.7	56	9.5		
25	2.8	57	10.0		
26	2.9	58	11.0		
27	3.0	59	12.0		
28	3.1	60	13.0		
29	3.2	61	14.0		
30	3.3	62	15.0		
31	3.4	63	16.0		

Data Value Assign Table

table#5

Delay Time(200.0ms)

Data	Value	Data	Value
0	0.1	32	50.5
1	1.7	33	52.0
2	3.2	34	53.6
3	4.8	35	55.2
4	6.4	36	56.8
5	8.0	37	58.3
6	9.5	38	59.9
7	11.1	39	61.5
8	12.7	40	63.1
9	14.3	41	64.6
10	15.8	42	66.2
11	17.4	43	67.8
12	19.0	44	69.4
13	20.6	45	70.9
14	22.1	46	72.5
15	23.7	47	74.1
16	25.3	48	75.7
17	26.9	49	77.2
18	28.4	50	78.8
19	30.0	51	80.4
20	31.6	52	81.9
21	33.2	53	83.5
22	34.7	54	85.1
23	36.3	55	86.7
24	37.9	56	88.2
25	39.5	57	89.8
26	41.0	58	91.4
27	42.6	59	93.0
28	44.2	60	94.5
29	45.7	61	96.1
30	47.3	62	97.7
31	48.9	63	99.3

table#6

Room Size

Data	Value	Data	Value
0	0.1	32	5.1
1	0.3	33	5.3
2	0.4	34	5.4
3	0.6	35	5.6
4	0.7	36	5.7
5	0.9	37	5.9
6	1.0	38	6.1
7	1.2	39	6.2
8	1.4	40	6.4
9	1.5	41	6.5
10	1.7	42	6.7
11	1.8	43	6.8
12	2.0	44	7.0
13	2.1		
14	2.3		
15	2.5		
16	2.6		
17	2.8		
18	2.9		
19	3.1		
20	3.2		
21	3.4		
22	3.5		
23	3.7		
24	3.9		
25	4.0		
26	4.2		
27	4.3		
28	4.5		
29	4.6		
30	4.8		
31	5.0		

Table#8

Compressor Attack Time

Data	Value
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	12
11	14
12	16
13	18
14	20
15	23
16	26
17	30
18	35
19	40

Table#9

Compressor Release Time

Data	Value
0	10
1	15
2	25
3	35
4	45
5	55
6	65
7	75
8	85
9	100
10	115
11	140
12	170
13	230
14	340
15	680

Table#10

Compressor Ratio

Data	Value
0	1.0
1	1.5
2	2.0
3	3.0
4	5.0
5	7.0
6	10.0
7	20.0

table#7

Delay Time(400.0ms)

Data	Value	Data	Value	Data	Value	Data	Value
0	0.1	32	100.9	64	201.6	96	302.4
1	3.2	33	104.0	65	204.8	97	305.5
2	6.4	34	107.2	66	207.9	98	308.7
3	9.5	35	110.3	67	211.1	99	311.8
4	12.7	36	113.5	68	214.2	100	315.0
5	15.8	37	116.6	69	217.4	101	318.1
6	19.0	38	119.8	70	220.5	102	321.3
7	22.1	39	122.9	71	223.7	103	324.4
8	25.3	40	126.1	72	226.8	104	327.6
9	28.4	41	129.2	73	230.0	105	330.7
10	31.6	42	132.4	74	233.1	106	333.9
11	34.7	43	135.5	75	236.3	107	337.0
12	37.9	44	138.6	76	239.4	108	340.2
13	41.0	45	141.8	77	242.6	109	343.3
14	44.2	46	144.9	78	245.7	110	346.5
15	47.3	47	148.1	79	248.9	111	349.6
16	50.5	48	151.2	80	252.0	112	352.8
17	53.6	49	154.4	81	255.2	113	355.9
18	56.8	50	157.5	82	258.3	114	359.1
19	59.9	51	160.7	83	261.5	115	362.2
20	63.1	52	163.8	84	264.6	116	365.4
21	66.2	53	167.0	85	267.7	117	368.5
22	69.4	54	170.1	86	270.9	118	371.7
23	72.5	55	173.3	87	274.0	119	374.8
24	75.7	56	176.4	88	277.2	120	378.0
25	78.8	57	179.6	89	280.3	121	381.1
26	82.0	58	182.7	90	283.5	122	384.3
27	85.1	59	185.9	91	286.6	123	387.4
28	88.3	60	189.0	92	289.8	124	390.6
29	91.4	61	192.2	93	292.9	125	393.7
30	94.6	62	195.3	94	296.1	126	396.9
31	97.7	63	198.5	95	299.2	127	400.0

table#11

Reverb Width:Depth:Height

Data	Value	Data	Value	Data	Value	Data	Value
0	0.5	32	8.8	64	17.6	96	27.5
1	0.8	33	9.1	65	17.9	97	27.8
2	1.0	34	9.4	66	18.2	98	28.1
3	1.3	35	9.6	67	18.5	99	28.5
4	1.5	36	9.9	68	18.8	100	28.8
5	1.8	37	10.2	69	19.1	101	29.2
6	2.0	38	10.4	70	19.4	102	29.5
7	2.3	39	10.7	71	19.7	103	29.9
8	2.6	40	11.0	72	20.0	104	30.2
9	2.8	41	11.2	73	20.2		
10	3.1	42	11.5	74	20.5		
11	3.3	43	11.8	75	20.8		
12	3.6	44	12.1	76	21.1		
13	3.9	45	12.3	77	21.4		
14	4.1	46	12.6	78	21.7		
15	4.4	47	12.9	79	22.0		
16	4.6	48	13.1	80	22.4		
17	4.9	49	13.4	81	22.7		
18	5.2	50	13.7	82	23.0		
19	5.4	51	14.0	83	23.3		
20	5.7	52	14.2	84	23.6		
21	5.9	53	14.5	85	23.9		
22	6.2	54	14.8	86	24.2		
23	6.5	55	15.1	87	24.5		
24	6.7	56	15.4	88	24.9		
25	7.0	57	15.6	89	25.2		
26	7.2	58	15.9	90	25.5		
27	7.5	59	16.2	91	25.8		
28	7.8	60	16.5	92	26.1		
29	8.0	61	16.8	93	26.5		
30	8.3	62	17.1	94	26.8		
31	8.6	63	17.3	95	27.1		

1. Channel messages

1.1 Note-on / Note-off

These are messages which convey keyboard performance data.
Range of received notes = C-2 ...G8
Velocity range = 1...127 (Velocity is received only for note-on)

When the Multi Part parameter Rcv NOTE MESSAGE = OFF, that part is not received.
For Drum parts*, key-off is not received when the Drum Setup parameter Rcv NOTE OFF = OFF.

For Drum parts, key-on is not received when the Drum Setup parameter Rcv NOTE ON = OFF.

* Drum Part indicates that the Multi Part parameter PART MODE is DRUM or DRUMS1...4.

1.2 Control Changes

These messages convey controller operations such as for volume and pan. The function is distinguished by the control number (Ctrl#).

When the Multi Part parameter Rcv CONTROL CHANGE = OFF, that part will not receive control changes.

1.2.1 Bank Select

These messages select the voice bank.

Control#	Parameter	Data Range
0	Bank Select MSB	0,64, 126, 127 (Normal voice,SFX voice, SFX kit, Drum kit)
32	Bank Select LSB	0...127

Bank Select processing is suspended until a Program Change message is received, and when a voice from a different voice bank is to be selected, Bank Select and a program change message must be transmitted as a set, in the order of Bank Select MSB, LSB, and Program Change.

Bank Select is not received when Sound Module Mode = C/M.

1.2.2 Modulation

In general this message controls the depth at which vibrato is applied, but the depth of the following seven effects can be controlled.

The effect of these messages can be changed by the following parameters.

- Multi Part Parameter
 1. MW PITCH CONTROL
 2. MW FILTER CONTROL
 3. MW AMPLITUDE CONTROL
 4. MW LFO PMOD DEPTH
 5. MW LFO FMOD DEPTH
 6. MW LFO AMOD DEPTH
- Effect Parameter
 7. MW VARIATION CONTROL DEPTH
(Valid when Variation Effect is assigned to a part as an Insertion effect.)

With the initial settings, the LFO Pitch Modulation (PMOD) effect will apply.

Control#	Parameter	Data Range
0	Modulation	0...127

When the Multi Part parameter Rcv MODULATION = OFF, that part will not receive Modulation.

If the receiving channel is a drum part, effects 5 and 6 will not apply.

1.2.3 Portamento Time

This message controls the way in which portamento (see 1.2.9) is applied.

Control#	Parameter	Data Range
5	Portamento Time	0...127

When Portamento = ON, this adjusts the speed of the pitch change.

A value of 0 is the shortest portamento time, and 127 is the longest portamento time.

If the receiving channel is a drum part, Portamento Time is not received.

1.2.4 Data Entry

This message sets the value of the parameter specified by RPN (see 1.2.22) or NRPN (see 1.2.21).

Control#	Parameter	Data Range
6	Data Entry MSB	0...127
38	Data Entry LSB	0...127

1.2.5 Main Volume

This message control the volume of each part.
(Use it to adjust the volume balance of each part.)

Control#	Parameter	Data Range
7	Main Volume	0...127

If the Multi Part parameter Rcv VOLUME = OFF, that part will not receive Main Volume.

0 is silence, 127 is maximum volume.

1.2.6 Panpot

This message controls the stereo location of the sound of each part.

Control#	Parameter	Data Range
10	Pan	0...64...127

If the Multi Part parameter Rcv PAN = OFF, that part will not receive Panpot. 0 is left, 64 is center, 127 is right.

1.2.7 Expression

This message controls the dynamics of each part.
(Use it to create volume changes during a song.)

Control#	Parameter	Data Range
11	Expression	0...127

If the Multi Part parameter Rcv EXPRESSION = OFF, that part will not receive Expression.

1.2.8 Hold1

This message controls sustain pedal on/off.

Control#	Parameter	Data Range
64	Hold1	0...63,64...127 (OFF , ON)

When ON, the currently-sounding notes will be sustained even after note-off is received.
If the Multi Part parameter Rcv HOLD1 = OFF, that part will not receive Hold1.

1.2.9 Portamento

This message controls portamento pedal on/off.

Control#	Parameter	Data Range
64	Portamento	0...63,64...127 (OFF , ON)

When ON, the pitch will smoothly change from one note to the next. The time over which the pitch change occurs is adjusted by Portamento Time (see 1.2.3). If the Multi Part parameter MONO/POLY MODE = MONO, turning Portamento = ON will also cause the sound to be smoothly connected (legato).

If any of the following Multi Part parameter settings apply, that part will not receive Portamento.

- Rcv PORTAMENTO = OFF
- PART MODE = DRUM, DRUMS1...4

1.2.10 Sostenuto

This message controls sostenuto pedal on/off.

Control#	Parameter	Data Range
66	Sostenuto	0...63,64...127 (OFF , ON)

When sostenuto is turned on while a note is sounding, that note will continue sustaining until sostenuto is turned off.

If the following Multi Part parameter setting applies, that part will not receive Sostenuto.

- Rcv SOSTENUTO = OFF

1.2.11 Soft Pedal

This message controls soft pedal on/off.

Control#	Parameter	Data Range
67	Soft Pedal	0...63,64...127 (OFF , ON)

When ON, the sound will be softer.

If any of the following Multi Part parameter settings apply, that part will not receive Soft Pedal.

- Rcv SOFT PEDAL = OFF
- PART MODE = DRUM, DRUM1...4

1.2.12 Harmonic Content

This message adjusts the resonance of the filter that is specified by the sound.

Control#	Parameter	Data Range
71	Harmonic Content	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies an increase or decrease centered at 64.

Higher values will produce a more distinctive sound.

For some sounds, the effective range may be narrower than the settable range.

1.2.13 Release Time

This message adjusts the EG Release Time specified by the sound.

Control#	Parameter	Data Range
72	Release Time	0...64...127 (-64...0...+63)

MIDI Data Format

Since this is a relative change parameter, it specifies an increase or decrease centered at 64.

Higher values will lengthen the release which occurs after note-off.

1.2.14 Attack Time

This message adjusts the EG Attack Time specified by the sound.

Control#	Parameter	Data Range
73	Attack Time	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies an increase or decrease centered at 64.

Higher values will make the attack more gradual, and lower values will make the attack more sharp.

1.2.15 Brightness

This message adjusts the low pass filter cutoff frequency specified by the sound.

Control#	Parameter	Data Range
74	Brightness	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies an increase or decrease centered at 64.

Lower values will produce a more mellow sound.

For some sounds, the effective range may be narrower than the settable range.

1.2.16 Portamento Control

This message specifies the key source number for portamento (the key number from which portamento will start). The portamento source key is specified as 0...127.

When Portamento Control is received, the currently sounding pitch will change at a speed of Portamento Time 0 to the key of the next note-on that is received on the same channel.

Control#	Parameter	Data Range
84	Portamento Control	0...127 (C-2...G8)

This is received even if Rcv PORTAMENTO = OFF.

1.2.17 Effect1 Depth (Reverb Send Level)

This message specifies the send level for the reverb effect.

Control#	Parameter	Data Range
91	Effect1 Depth	0...127

Higher values will produce a deeper reverb. The result of the value will depend on the state of the reverb effect.

1.2.18 Effect3 Depth (Chorus Send Level)

This message specifies the send level for the chorus effect.

Control#	Parameter	Data Range
93	Effect3 Depth	0...127

Higher values will produce more modulation and spaciousness. The result of the value will depend on the state of the chorus effect.

1.2.19 Effect4 Depth (Variation Effect Send Level)

This message specifies the send level for the variation effect.

Control#	Parameter	Data Range
94	Effect4 Depth	0...127

However, this is not received if the Variation Effect parameter Variation Connection = 0 (Insertion).

1.2.20 Data Increment / Decrement (for RPN)

This message increases or decreases the value of the parameter specified by RPN (see 1.2.22) in units of 1.

Control#	Parameter	Data Range
96	RPN Increment	--
97	RPN Decrement	--

The data byte is ignored.

1.2.21 NRPN (Non-registered Parameter Number)

These messages are used to set parameters such as vibrato, filter, EG, or drum setup etc. The parameter is specified by transmitting a NRPN MSB and NRPN LSB, and subsequently Data Entry (see 1.2.4) is used to set the value of the specified parameter.

Control#	Parameter	Data Range
98	NRPN LSB	0...127
99	NRPN MSB	0...127

When the Multi Part parameter Rcv NRPN = OFF, NRPN for that part will not be received. The following NRPN messages can be received.

NRPN	Data Entry*1	Parameter name and range of values
01H 08H	mm -- *2	Vibrato Rate mm : 00H - 40H - 7FH (-64...0...+63)
01H 09H	mm --	Vibrato Depth mm : 00H - 40H - 7FH (-64...0...+63)
01H 0AH	mm -- *3	Vibrato Delay mm : 00H - 40H - 7FH (-64...0...+63)
01H 20H	mm --	Low Pass Filter Cutoff Frequency mm : 00H - 40H - 7FH (-64...0...+63)
01H 21H	mm --	Low Pass Filter Resonance mm : 00H - 40H - 7FH (-64...0...+63)
01H 24H	mm --	High Pass Filter Cutoff Frequency mm : 00H - 40H - 7FH (-64...0...+63)
01H 30H	mm -- *4	EQ Bass Gain mm : 00H - 40H - 7FH (-64...0...+63)
01H 31H	mm -- *4	EQ Treble Gain mm : 00H - 40H - 7FH (-64...0...+63)
01H 34H	mm -- *4	EQ Bass Frequency mm : 04H - 28H (32...2.0k[Hz])
01H 35H	mm -- *4	EQ Treble Frequency mm : 1CH - 3AH (500...16.0k[Hz])
01H 63H	mm --	EG Attack Time mm : 00H - 40H - 7FH (-64...0...+63)
01H 64H	mm --	EG Decay Time mm : 00H - 40H - 7FH (-64...0...+63)
01H 66H	mm --	EG Release Time mm : 00H - 40H - 7FH (-64...0...+63)
14H rr	mm --	Drum Low Pass Filter Cutoff Frequency rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
15H rr	mm --	Drum Low Pass Filter Resonance rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
16H rr	mm --	Drum EG Attack Rate rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
17H rr	mm --	Drum EG Decay Rate rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63) Applies to both Decay 1 and 2
18H rr	mm --	Drum Instrument Pitch Coarse rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
19H rr	mm --	Drum Instrument Pitch Fine rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
1AH rr	mm --	Drum Instrument Level rr : drum instrument note number mm : 00H - 7FH (0...maximum)
1CH rr	mm --	Drum Instrument Panpot rr : drum instrument note number mm : 00H,01H-40H-7FH (RND, L63...C...R63)
1DH rr	mm --	Drum Instrument Reverb Send Level rr : drum instrument note number mm : 00H - 7FH (0...maximum)
1EH rr	mm --	Drum Instrument Chorus Send Level rr : drum instrument note number mm : 00H - 7FH (0...maximum)
1FH rr	mm --	Drum Instrument Variation Send Level rr : drum instrument note number mm : 00H - 7FH (0...maximum) when Variation Connection = SYSTEM mm : 00H, 01H-7FH(OFF,ON) when Variation Connection = INSERTION

MIDI Data Format

24H rr	mm --	Drum High Pass Filter Cutoff Frequency mm : 00H - 40H - 7FH (-64...0...+63)
30H rr	mm --	Drum EQ Bass Gain mm : 00H - 40H - 7FH (-64...0...+63)
31H rr	mm --	Drum EQ Treble Gain mm : 00H - 40H - 7FH (-64...0...+63)
34H rr	mm --	Drum EQ Bass Frequency mm : 04H - 28H (32...2.0k[Hz])
35H rr	mm --	Drum EQ Treble Frequency mm : 1CH - 3AH (500...16.0k[Hz])

MSB 14H-35H (for drum) is received when the Multi Part parameter PART MODE = DRUMS1...4.

*1 See 1.2.4

*2 '-' indicates that the value is ignored.

*3 Adjusts the time at which the vibrato effect begins after a note is played. Lower values will cause the effect to begin applying sooner, and higher values will cause the effect to begin applying later.

This has no effect when Bank Select MSB=127 is selected.

*4 This has no effect when the Multi Part parameter PART MODE = DRUM or DRUMS1...4.

1.2.2.2 RPN (Registered Parameter Number)

These messages make part settings such as Pitch Bend Sensitivity and Tuning.

The RPN MSB and RPN LSB are transmitted to specify the parameter which is to be controlled, and subsequently Data Entry (see 1.2.4) is used to set the value of the specified parameter.

Control#	Parameter	Data Range
100	RPN LSB	0..127
101	RPN MSB	0..127

If the Multi Part parameter Rcv RPN = OFF, that part will not receive this message.

The following RPN messages can be received.

RPN	Data Entry *1	
MSB LSB	MSB LSB	Parameter name and range of values
00H 00H	mm -- *2	Pitch Bend Sensitivity mm:00H - 18H (0...+24 semitones) Set in semitone units up to two octaves
00H 01H	mm ll	Fine Tuning mm ll: 00H 00H -100 cents : mm ll: 40H 00H0 cents : mm ll: 7FH 7FH +100 cents [Note] After mm ll: 00H 7FH (= -87.5) cents comes 01H 00H (= -87.4 cents)
00H 02H	mm --	Coarse Tuning mm:28H - 40H - 58H (-24...0...+24 semitones)
7FH 7FH	-- --	RPN Null Puts the RPN and NRPN numbers in an un-set condition. The internal setting values will not change.

*1 Refer to 1.2.4.

*2 '-' indicates that the setting value is ignored.

1.2.2.3 Assignable Controller

By specifying a control change number of 0..95 for a part, you can control the way in which an effect is applied.

For each part, this instrument allows two control change numbers to be specified: AC1 and AC2.

The following parameters specify the effects that are controlled by AC1 and AC2.

- Multi Part Parameter
 1. ACLAC2 PITCH CONTROL
 2. ACLAC2 FILTER CONTROL
 3. ACLAC2 AMPLITUDE CONTROL
 4. ACLAC2 LFO PMOD DEPTH
 5. ACLAC2 LFO FMOD DEPTH
 6. ACLAC2 LFO AMOD DEPTH
- Effect Parameter
 7. ACLAC2 VARIATION CONTROL DEPTH
(Valid when Variation Effect is assigned to a part as Insertion.)

The AC1 control change number is specified by the Multi Part parameter or A/D Part parameter AC1 CONTROLLER NUMBER.

The AC2 control change number is specified by the Multi Part parameter or A/D Part parameter AC2 CONTROLLER NUMBER.

1.3 Channel Mode messages

These messages specify the basic operation of each part.

1.3.1 All Sound Off

Silences all currently sounding notes on the corresponding channel.

However the status of channel messages such as Note-on or Hold On is preserved.

Control#	Parameter	Data Range
120	All Sound Off	0

1.3.2 Reset All Controllers

The values of the following controllers will change.

Controller	Value
Pitch Bend Change	+/-0 (center)
Channel Pressure	0 (off)
Polyphonic Key Pressure	0 (off)
Modulation	0 (off)
Expression	127 (maximum)
Hold	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft Pedal	0 (off)
Portamento Control	Reset the Portamento Source Note Number that was received
RPN	Number un-set, internal data will not change.
NRPN	Number un-set, internal data will not change.

The following data will not change

Program Change, Bank Select MSB/LSB, Volume, Pan, Effect Send Levels 1/3/4, and the value of parameters which were set using RPN and NRPN.

Control#	Parameter	Data Range
121	Reset All Controllers	0

1.3.3 All Note Off

Turns off all notes which are currently "note-on" for the corresponding channel.

However if Hold1 or Sostenuto are ON, the notes will continue sounding until these are turned off.

Control#	Parameter	Data Range
123	All Note Off	0

1.3.4 Omni Off

Performs the same processing as when All Note Off is received.

Control#	Parameter	Data Range
124	Omni Off	0

1.3.5 Omni On

Performs the same processing as when All Sound Off is received.

Control#	Parameter	Data Range
125	Omni On	0

1.3.6 Mono

Performs the same processing as when All Sound Off is received, and if the value (mono number) is within the range of 0..16, sets the corresponding channel to Mode4* (m=1).

Control#	Parameter	Data Range
126	Mono	0..16

* Mode4 is when only the messages of the specified channel are received, and notes are sounded monophonically.

1.3.7 Poly

Performs the same processing as when All Note Off is received, and sets the corresponding channel to Mode3*.

Control#	Parameter	Data Range
127	Poly	0

* Mode3 is when only the messages of the specified channel are received, and notes are sounded polyphonically.

1.4 Program Change

This message selects sounds.

This changes the program number of the receiving channel. If the voice bank is also to be changed, transmit this message together with the Bank Select message (see 1.2.1).

If the Multi Part parameter Rcv PROGRAM CHANGE = OFF, that part will not receive Program Change messages.

If Sound Module Mode = C/M, the Drum Part will not receive Program Change messages.

1.5 Pitch Bend

This message conveys pitch bend operations.

In general this message modifies the pitch of a part, but it can also control the depth of the following seven effects.

The result of this message can be changed by the following parameters.

- Multi Part Parameter
 1. BEND PITCH CONTROL
 2. BEND FILTER CONTROL
 3. BEND AMPLITUDE CONTROL
 4. BEND LFO PMOD DEPTH
 5. BEND LFO FMOD DEPTH
 6. BEND LFO AMOD DEPTH
- Effect1 Parameter
 7. BEND VARIATION CONTROL DEPTH
(Valid when Variation Effect is assigned to a part as Insertion.)

By default this will function as Pitch Control.

If the receive channel is a drum part, effects 5 and 6 will not apply.

If the Multi Part parameter Rcv PITCH BEND CHANGE = OFF, that part will not receive Pitch Bend messages.

1.6 Channel Aftertouch

This message conveys the force with which the keyboard is pressed after notes are played (for an entire MIDI channel).

The pressure can be controlled for each part. This message will create changes in the currently-sounding notes.

The effect of this message can be specified by the following parameters.

- Multi Part Parameter
 1. CAT PITCH CONTROL
 2. CAT FILTER CONTROL
 3. CAT AMOLITUDE CONTROL
 4. CAT LFO PMOD DEPTH
 5. CAT LFO FMOD DEPTH
 6. CAT LFO AMOD DEPTH
- Effect1 Parameter
 7. CAT VARIATION CONTROL DEPTH
(Valid when Variation Effect is assigned to a part as Insertion.)

By default there will be no effect.

If the receive channel is a drum part, effects 5 and 6 will not apply.

If the Multi Part parameter Rcv CHANNEL AFTER TOUCH = OFF, that part will not receive Channel Aftertouch messages.

1.7 Polyphonic Aftertouch

This message conveys the force with which a key is pressed after a note is played (for an individual note).

The pressure can be controlled independently for each note. This message will create changes in the currently-sounding note.

The effect of this message can be specified by the following Multi Part parameters.

1. PAT PITCH CONTROL
2. PAT FILTER CONTROL
3. PAT AMPLITUDE CONTROL
4. PAT LFO PMOD DEPTH
5. PAT LFO FMOD DEPTH
6. PAT LFO AMOD DEPTH

By default there will be no effect.

The effect will apply to note numbers 36...97.

In the case of the following Multi Part parameter settings, that part will not receive Polyphonic Aftertouch messages.

Rcv CHANNEL AFTER TOUCH = OFF
PART MODE = DRUM, DRUMSL...4

2. System Exclusive messages

2.1 Parameter change

This instrument uses the following parameter changes.

- [UNIVERSAL REALTIME MESSAGE]
 - 1) Master Volume
- [UNIVERSAL NON REALTIME MESSAGE]
 - 1) General MIDI System On
 - 2) Identity Request (INQUIRY MESSAGE)
 - 3) Identity Reply (INQUIRY MESSAGE)
- [XG PARAMETER CHANGE]
 - 1) XG System on
 - 2) XG System parameter change
 - 3) Multi Effect1 parameter change
 - 4) Multi EQ parameter change
 - 5) Multi Effect2 parameter change
 - 6) Display parameter change
 - 7) Multi Part parameter change
 - 8) AD Part parameter change
 - 9) AD System parameter change
 - 10) Drums Setup parameter change

- [MU80 NATIVE PARAMETER CHANGE]
 - 1) System parameter change
 - 2) Remote switch

- [MU90,MU90R NATIVE PARAMETER CHANGE]
 - 1) Current Performance parameter change

- [Other]
 - 1) Master tuning
 - 2) TG300 System parameter change
 - 3) TG300 Multi Effect parameter change
 - 4) TG300 Multi Part parameter change

2.1.1 Universal realtime messages

2.1.1.1 Master Volume

11110000	F0H	= Exclusive status
01111111	7FH	= Universal Real Time
01111111	7FH	= ID of target device
00001000	04H	= Sub-ID #1=Device Control Mes sage
00000001	01H	= Sub-ID #2=Master Volume
* 0sssssss	SSH	= Volume LSB
0ttttttt	TTH	= Volume MSB
11110111	F7H	= End of Exclusive
or		
11110000	F0H	= Exclusive status
01111111	7FH	= Universal Real Time
0xxxxnnn	XNH	= Device Number, xxx = don't care
00001000	04H	= Sub-ID #1=Device Control Message
00000001	01H	= Sub-ID #2=Master Volume
0sssssss	SSH	= Volume LSB
0ttttttt	TTH	= Volume MSB
11110111	F7H	= End of Exclusive

When this is received, the Volume MSB will be reflected in the System parameter MASTER VOLUME.

* This indicates that SSH is the hexadecimal expression of the binary 0sssssss. The same applies for other cases.

2.1.2 Universal non-realtime messages

2.1.2.1 General MIDI System On

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
01111111	7FH	= ID of target device
00001001	09H	= Sub-ID #1=General MIDI Message
00000001	01H	= Sub-ID #2=General MIDI On
11110111	F7H	= End of Exclusive
or		
11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
0xxxxnnn	XNH	= N:Device Number, X:don't care
00001001	09H	= Sub-ID #1=General MIDI Message
00000001	01H	= Sub-ID #2=General MIDI On
11110111	F7H	= End of Exclusive

When this message is received, the SOUND MODULE MODE will be set to XG, and all settings except for MIDI Master Tuning will be reset to their default values. However in the following cases this is not received.

- SOUND MODULE MODE = C/M
- When the XG Model System parameter (see table 2-2) Rcv GM EXCLUSIVE MESSAGE=OFF.

Since approximately 50 ms is required to execute this message, an appropriate interval must be left before the next message.

MIDI Data Format

2.1.2.2 Identity Request

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
0mmmmmmm	MMH	= Device Number
00000110	06H	= Sub-ID #1=General Information
00000001	01H	= Sub-ID #2=Identity Request
11110111	F7H	= End of Exclusive

When this message is received, this instrument will transmit the following 2.1.2.3 Identity Reply message.

2.1.2.3 Identity Reply

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
0mmmmmmm	MMH	= Device Number
00000110	06H	= Sub-ID #1=General Information
00000010	02H	= Sub-ID #2=Identity Reply
01000011	43H	= YAMAHA ID
00000000	00H	= Device Family Code LSB
		MU90R ID #1
01000001	41H	= Device Family Code MSB
		MU90R ID #2
01010010	52H	= Device Number Code LSB
		MU90R ID #3
00000010	02H	= Device Number Code MSB
		MU90R ID #4
00000000	00H	
00000000	00H	
00000000	00H	
00000001	01H	= Tone Generator Code=XG
11110111	F7H	= End of Exclusive

When this instrument receives a 2.1.2.2 Identity Request message, it will transmit this message.

2.1.3 XG Parameter Change

This message sets XG-related parameters. One parameter can be modified by each message. The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
01001100	4CH	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0sssssss	SSH	Data
:	:	
11110111	F7H	End of Exclusive

For parameters with a data size of 2 or 4, the corresponding number of data bytes will be transmitted.

2.1.3.1 XG System On

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
01001100	4CH	Model ID
00000000	00H	Address High
00000000	00H	Address Mid
01111110	7EH	Address Low
00000000	00H	Data
11110111	F7H	End of Exclusive

When On is received, SOUND MODULE MODE will be set to XG. Since approximately 50 ms is required to execute this message, an appropriate interval must be left before the next message.

2.1.3.2 XG System parameter change

This message sets the XG SYSTEM block (see tables <1-1> and <1-2>).

2.1.3.3 Multi Effect1 parameter change

This message sets the MULTI EFFECT1 block (see tables <1-1> and <1-4>).

2.1.3.4 Multi EQ parameter change

This message sets the MULTI EQ block (see tables <1-1> and <1-5>).

2.1.3.5 Multi Effect2 parameter change

This message sets the MULTI EFFECT2 block (see tables <1-1> and <1-6>).

2.1.3.6 Display parameter change

This message sets the DISPLAY block (see tables <1-1> and <1-7>).

2.1.3.7 Multi Part parameter change

This message sets the MULTI PART block (see tables <1-1> and <1-8>).

2.1.3.8 AD Part parameter change

This message sets the AD PART block (see tables <1-1> and <1-9>).

2.1.3.9 AD Part parameter change

This message sets the AD SYSTEM block (see tables <1-1> and <1-10>).

2.1.3.10 Drums Setup parameter change

This message sets the DRUMS SETUP block (see tables <1-1> and <1-11>).

2.1.4 MU80 Native parameter change

These messages set parameters unique to the MU80. One parameter can be modified by each message. The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:Device Number
01001001	49H	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	
11110111	F7H	End of Exclusive

For parameters with a data size of 2 or 4, the corresponding number of data bytes will be transmitted.

2.1.4.1 System parameter change

This message sets the SYSTEM block (see tables <2-1> and <2-2>).

2.1.4.2 Remote switch

This message sets the REMOTE SWITCH block (see tables <2-1> and <2-3>).

2.1.5 MU90/MU90R Native parameter changes

These messages set parameters unique to the MU90/MU90R. One parameter can be modified by each message. The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:Device Number
01011001	59H	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	
11110111	F7H	End of Exclusive

For parameters with a data size of 2 or 4, the corresponding number of data bytes will be transmitted.

2.1.5.1 Current Performance parameter change

This message sets the CURRENT PERFORMANCE block (see tables <3-1> and <3-2>).

2.1.6 Other parameter changes

2.1.6.1 Master Tuning

This message simultaneously modifies the pitch of all channels.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
00100111	27H	Model ID
00110000	30H	Address High
00000000	00H	Address Mid
00000000	00H	Address Low
0mmmmmmm	MMH	Master Tune MSB
01111111	LLH	Master Tune LSB
0xxxxxxx	XXH	don't care
11110111	F7H	End of Exclusive

Normally the XG SYSTEM parameter MASTER TUNE should be used (see table <1-2>).

2.2 Bulk Dump

This instrument uses the following bulk dumps.

[XG BULK DUMP]

- 1) XG System bulk dump
- 2) System Information bulk dump
- 3) Multi Effect1 bulk dump
- 4) Multi EQ bulk dump
- 5) Multi Effect2 bulk dump
- 6) Multi Part bulk dump
- 7) AD Part bulk dump
- 8) Drums Setup bulk dump

[MU80 NATIVE BULK DUMP]

- 1) System bulk dump
- 2) MU80, MU50 Internal Performance bulk dump

[MU90, MU90R NATIVE BULK DUMP]

- 1) Internal Performance bulk dump

MIDI Data Format

2.2.1 XG Bulk Dump

These messages set XG-related parameters. Unlike parameter changes, a single message can set multiple parameters. The message format is as follows.

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0000nnnn	0NH	N:Device Number
01001100	4CH	Model ID
0sssssss	SSH	ByteCountMSB
0ttttttt	TTH	ByteCountLSB
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	:
0kkkkkkk	KKH	Check-sum
11110111	F7H	End of Exclusive

Address and Byte Count are given in tables 1-n. Byte Count indicates the total size of the data in tables 1-n.

Bulk Dump and Dump Request messages are received when the beginning of the block is specified as the address.

"Block" indicates the unit size of the data string included in the total size in tables 1-n. Check sum is the value which produces a lower 7 bits of 0 when the Start Address, Byte Count, and the Check Sum itself are added.

2.2.1.1 XG System bulk dump

This message sets the XG SYSTEM block (see tables <1-1> and <1-2>).

2.2.1.2 System Information bulk dump

This message indicates the contents of the SYSTEM INFORMATION block (see tables <1-1> and <1-3>).

This message is transmitted in response to a dump request, but will be ignored if it is received.

2.2.1.3 Multi Effect1 bulk dump

This message sets the MULTI EFFECT1 block (see tables <1-1> and <1-4>).

2.2.1.4 Multi EQ bulk dump

This message sets the MULTI EQ block (see tables <1-1> and <1-5>).

2.2.1.5 Multi Effect2 bulk dump

This message sets the MULTI EFFECT2 block (see tables <1-1> and <1-6>).

2.2.1.6 Multi Part bulk dump

This message sets the MULTI PART block (see tables <1-1> and <1-8>).

2.2.1.7 A/D Part bulk dump

This message sets the A/D PART block (see tables <1-1> and <1-9>).

2.2.1.8 Drums Setup bulk dump

This message sets the DRUMS SETUP block (see tables <1-1> and <1-11>).

2.2.2 MU80 Native bulk dump

These messages set parameters unique to the MU80. Unlike parameter changes, a single message can set multiple parameters.

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0000nnnn	0NH	N:Device Number
01001001	49H	Model ID
0sssssss	SSH	ByteCountMSB
0ttttttt	TTH	ByteCountLSB
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	:
0kkkkkkk	KKH	Check-sum
11110111	F7H	End of Exclusive

The details are the same for 2.2.1 XG Bulk Dump. However for the address, byte count and block, refer to tables 2-n.

2.2.2.1 System bulk dump

This message sets the SYSTEM block (see tables <2-1> and <2-2>).

2.2.2.2 MU80/MU50 Internal Performance bulk dump

This message is in MU80/MU50 data format. It sets the INTERNAL PERFORMANCE block (see tables <2-1> and <2-4>).

2.2.3 MU90/MU90R Native bulk dump

This message sets parameters that are unique to the MU90/MU90R. Unlike parameter changes, a single message can set multiple parameters.

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0000nnnn	0NH	N:Device Number
01011001	59H	Model ID
0sssssss	SSH	ByteCountMSB
0ttttttt	TTH	ByteCountLSB
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	:
0kkkkkkk	KKH	Check-sum
11110111	F7H	End of Exclusive

The details are the same for 2.2.1 XG Bulk Dump. However for the address, byte count and block, refer to tables 3-n.

2.2.3.1 Internal Performance bulk dump

This message sets the INTERNAL PERFORMANCE block (see tables <3-1> and <3-3>).

2.3 Parameter Request

These messages request that parameter values be transmitted.

The transmitted data will be in the format of parameter change messages (see 2.1.3 and 2.1.4).

2.3.1 XG parameter request

This message requests that XG parameter settings be transmitted.

The transmitted data will be in the format of an XG Parameter Change (see 2.1.3).

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0011nnnn	3NH	N:device Number
01001100	4CH	Model ID
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

2.3.2 MU80 Native parameter request

This message requests that parameters unique to the MU80 be transmitted.

The transmitted data will be in the format of an XG Model Native Parameter Change (see 2.1.4).

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0011nnnn	3NH	N:Device Number
01001001	49H	Model ID
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

2.3.3 MU90/MU90R Native parameter request

This message requests that parameters unique to the MU90/MU90R be transmitted.

The transmitted data will be in the format of a MU90/MU90R Native Parameter Change (see 2.1.4).

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0011nnnn	3NH	N:Device Number
01011001	59H	Model ID
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

2.4 Dump Request

These messages request that parameter values of the specified block be transmitted.

The transmitted data will be in bulk dump format.

2.4.1 XG dump request

This message requests that all parameter values of the specified block of XG parameters be transmitted. The transmitted data will be in XG Bulk Dump format (see 2.2.1).

11110000	FOH	Exclusive status
01000011	43H	YAMAHA ID
0010nnnn	2NH	N:device Number
01001100	4CH	Model ID
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

The address is valid if the beginning of the block is specified. Transmission/reception of dump requests cannot be turned off by a MIDI switch other than Exclusive = off.

2.4.2 MU80 Native dump request

This message requests that all parameter values of the specified block of MU80 native parameters be transmitted. The transmitted data will be in MU80 Native Bulk Dump format (see 2.2.2).

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0010nnnn	2NH	N:Device Number
01001001	49H	Model ID
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

Details are the same as 2.4.1 XG Bulk Dump Request.

2.4.2 MU90/MU90R Native dump request

This message requests that all parameter values of the specified block of MU90/MU90R native parameters be transmitted. The transmitted data will be in MU90/MU90R Native Bulk Dump format (see 2.2.3).

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0010nnnn	2NH	N:Device Number
01011001	59H	Model ID
0ggggggg	GGH	Address High
0mmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

Details are the same as 2.4.1 XG Bulk Dump Request.

3. Realtime messages

3.1 Active Sensing

- a) Transmission
Not transmitted.
- b) Reception

Once FE has been received, if no MIDI messages are received for an interval of approximately 300 msec, the same processing will be performed as when ALL SOUND OFF, ALL NOTE OFF, and RESET ALL CONTROLLERS are received, and the instrument will return to a status of never having received FE.

MIDI Data Format

<Table 1-1>

Parameter Base Address
MODEL ID = 4C

Parameter	Address			Description
	(H)	(M)	(L)	
XG SYSTEM	00	00	00	System
	00	00	7D	Drum setup Reset
	00	00	7E	XG System On
	00	00	7F	All Parameter Reset
	01	00	00	System Information
EFFECT 1	02	01	00	Effect1 (Reverb, Chorus, Variation)
EFFECT 2	02	40	00	Multi EQ
	03	00	00	Insertion Effect 1
DISPLAY	03	01	00	Insertion Effect 2
	06	00	00	Display Letter
MULTI PART	07	00	00	Display Bit Map
	08	00	00	Multi Part 1
MULTI PART (additional)				:
	08	0F	00	Multi Part 16
	08	10	00	Multi Part 17
				:
	08	1F	00	Multi Part 32
A/D PART	0A	00	00	Multi Part 1
				:
	0A	0F	00	Multi Part 16
A/D SYSTEM	0A	10	00	Multi Part 17
				:
	0A	1F	00	Multi Part 32
DRUM	10	00	00	A/D Part 1
	10	01	00	A/D Part 2
DRUM	11	00	00	A/D System
	30	0D	00	Drum Setup 1
	31	0D	00	Drum Setup 2
	32	0D	00	Drum Setup 3
	33	0D	00	Drum Setup 4

Address	Parameter
3n 0D 00	note number 13
3n 0E 00	note number 14
:	:
3n 5B 00	note number 91

<Table 1-2>

MIDI Parameter Change table (XG SYSTEM)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
00 00	00	00 - 0F	MASTER TUNE	-102.4...0...+102.3[cent]	00 04 00 00
	01	00 - 0F		1st bit3-0→bit15-12	
	02	00 - 0F		2nd bit3-0→bit11-8	
	03	00 - 0F		3rd bit3-0→bit7-4 4th bit3-0→bit3-0	
	04	1	MASTER VOLUME	0...127	7F
	05	1	MASTER ATTENUATOR	0...127	00
	06	1	TRANPOSE	-24...0...+24[semitones]	40
	7D	1	DRUM SETUP RESET	N: Drum setup number(receive only)	--
	7E	1	XG SYSTEM ON	00=XG system ON (receive only)	--
	7F	1	ALL PARAMETER RESET	00=ON (receive only)	--
TOTAL SIZE		07			

<Table 1-3>

MIDI Parameter Change table (SYSTEM INFORMATION)

Address (H)	Size (H)	Data (H)	Parameter	Description
01 00	00	E	20 - 7F	Model Name 1
	:	:	:	:
	0D	1	20 - 7F	Model Name 14
	0E	1	00 - 7F	XG Level 1
	0F	1	00 - 7F	XG Level 2
TOTAL SIZE		10		

Transmitted in response to a dump request, but not received.

MIDI Data Format

<Table 1-4>

MIDI Parameter Change table (EFFECT 1)						
Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)	
02 01 00	2	00 - 7F	REVERB TYPE MSB	Refer to the Effect Program List	01(=HALL1)	
		00 - 7F	REVERB TYPE LSB	"	00	
02	1	00 - 7F	REVERB PARAMETER 1	"	12(depends on reverb type)	
03	1	00 - 7F	REVERB PARAMETER 2	"	0A(°)	
04	1	00 - 7F	REVERB PARAMETER 3	"	08(°)	
05	1	00 - 7F	REVERB PARAMETER 4	"	0D(°)	
06	1	00 - 7F	REVERB PARAMETER 5	"	31(°)	
07	1	00 - 7F	REVERB PARAMETER 6	"	00(°)	
08	1	00 - 7F	REVERB PARAMETER 7	"	00(°)	
09	1	00 - 7F	REVERB PARAMETER 8	"	00(°)	
0A	1	00 - 7F	REVERB PARAMETER 9	"	00(°)	
0B	1	00 - 7F	REVERB PARAMETER 10	"	00(°)	
0C	1	00 - 7F	REVERB RETURN	-∞dB...0dB...+6dB(0...96...127)	40	
0D	1	01 - 7F	REVERB PAN	L63...C...R63	40	
TOTAL SIZE 0E						
02 01 10	1	00 - 7F	REVERB PARAMETER 11	Refer to the Effect Parameter List	00(depends on reverb type)	
11	1	00 - 7F	REVERB PARAMETER 12	"	04(°)	
12	1	00 - 7F	REVERB PARAMETER 13	"	32(°)	
13	1	00 - 7F	REVERB PARAMETER 14	"	08(°)	
14	1	00 - 7F	REVERB PARAMETER 15	"	40(°)	
15	1	00 - 7F	REVERB PARAMETER 16	"	00(°)	
TOTAL SIZE 6						
02 01 20	2	00 - 7F	CHORUS TYPE MSB	Refer to the Effect Program List	41(=CHORUS1)	
		00 - 7F	CHORUS TYPE LSB	"	00	
22	1	00 - 7F	CHORUS PARAMETER 1	"	06(depends on chorus type)	
23	1	00 - 7F	CHORUS PARAMETER 2	"	36(°)	
24	1	00 - 7F	CHORUS PARAMETER 3	"	4D(°)	
25	1	00 - 7F	CHORUS PARAMETER 4	"	6A(°)	
26	1	00 - 7F	CHORUS PARAMETER 5	"	00(°)	
27	1	00 - 7F	CHORUS PARAMETER 6	"	1C(°)	
28	1	00 - 7F	CHORUS PARAMETER 7	"	40(°)	
29	1	00 - 7F	CHORUS PARAMETER 8	"	2E(°)	
2A	1	00 - 7F	CHORUS PARAMETER 9	"	40(°)	
2B	1	00 - 7F	CHORUS PARAMETER 10	"	40(°)	
2C	1	00 - 7F	CHORUS RETURN	-∞dB...0dB...+6dB(0...96...127)	40	
2D	1	01 - 7F	CHORUS PAN	L63...C...R63(1...64...127)	40	
2E	1	00 - 7F	SEND CHORUS TO REVERB	-∞dB...0dB...+6dB(0...96...127)	00	
TOTAL SIZE 0F						
02 01 30	1	00 - 7F	CHORUS PARAMETER 11	Refer to the Effect Parameter List	2E(depends on chorus type)	
31	1	00 - 7F	CHORUS PARAMETER 12	"	40(°)	
32	1	00 - 7F	CHORUS PARAMETER 13	"	0A(°)	
33	1	00 - 7F	CHORUS PARAMETER 14	"	00(°)	
34	1	00 - 7F	CHORUS PARAMETER 15	"	00(°)	
35	1	00 - 7F	CHORUS PARAMETER 16	"	00(°)	
TOTAL SIZE 6						
02 01 40	2	00 - 7F	VARIATION TYPE MSB	Refer to the Effect Program List	05(=DELAY L,C,R)	
		00 - 7F	VARIATION TYPE LSB	"	00	
42	2	00 - 7F	VARIATION PARAMETER 1 MSB	"	1A(depends on variation type)	
		00 - 7F	VARIATION PARAMETER 1 LSB	"	05(°)	
44	2	00 - 7F	VARIATION PARAMETER 2 MSB	"	0D(°)	
		00 - 7F	VARIATION PARAMETER 2 LSB	"	03(°)	
46	2	00 - 7F	VARIATION PARAMETER 3 MSB	"	27(°)	
		00 - 7F	VARIATION PARAMETER 3 LSB	"	08(°)	
48	2	00 - 7F	VARIATION PARAMETER 4 MSB	"	27(°)	
		00 - 7F	VARIATION PARAMETER 4 LSB	"	08(°)	
4A	2	00 - 7F	VARIATION PARAMETER 5 MSB	"	00(°)	
		00 - 7F	VARIATION PARAMETER 5 LSB	"	4A(°)	
4C	2	00 - 7F	VARIATION PARAMETER 6 MSB	"	00(°)	
		00 - 7F	VARIATION PARAMETER 6 LSB	"	64(°)	
4E	2	00 - 7F	VARIATION PARAMETER 7 MSB	"	00(°)	
		00 - 7F	VARIATION PARAMETER 7 LSB	"	0A(°)	
50	2	00 - 7F	VARIATION PARAMETER 8 MSB	"	00(°)	
		00 - 7F	VARIATION PARAMETER 8 LSB	"	00(°)	
52	2	00 - 7F	VARIATION PARAMETER 9 MSB	"	00(°)	
		00 - 7F	VARIATION PARAMETER 9 LSB	"	00(°)	
54	2	00 - 7F	VARIATION PARAMETER 10 MSB	"	00(°)	
		00 - 7F	VARIATION PARAMETER 10 LSB	"	20(°)	
56	1	00 - 7F	VARIATION RETURN	-∞dB...0dB...+6dB(0...96...127)	40	
57	1	01 - 7F	VARIATION PAN	L63...C...R63(1...64...127)	40	
58	1	00 - 7F	SEND VARIATION TO REVERB	-∞dB...0dB...+6dB(0...96...127)	00	
59	1	00 - 7F	SEND VARIATION TO CHORUS	-∞dB...0dB...+6dB(0...96...127)	00	
5A	1	00 - 01	VARIATION CONNECTION	INSERTION , SYSTEM	00	
5B	1	00 - 7F	VARIATION PART NUMBER	Part1...32(0...31)	7F	
				AD1, AD2(64, 65)		
				OFF(127)		
5C	1	00 - 7F	MW VARIATION CONTROL DEPTH	-64...0...+63	40	
5D	1	00 - 7F	BEND VARIATION CONTROL DEPTH	-64...0...+63	40	
5E	1	00 - 7F	CAT VARIATION CONTROL DEPTH	-64...0...+63	40	
5F	1	00 - 7F	AC1 VARIATION CONTROL DEPTH	-64...0...+63	40	
60	1	00 - 7F	AC2 VARIATION CONTROL DEPTH	-64...0...+63	40	
TOTAL SIZE 21						

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02 01 70	1	00 - 7F	VARIATION PARAMETER 11	Refer to the Effect Parameter List	00(depends on variation type)
71	1	00 - 7F	VARIATION PARAMETER 12	"	3C(")
72	1	00 - 7F	VARIATION PARAMETER 13	"	1C(")
73	1	00 - 7F	VARIATION PARAMETER 14	"	40(")
74	1	00 - 7F	VARIATION PARAMETER 15	"	2E(")
75	1	00 - 7F	VARIATION PARAMETER 16	"	40(")
TOTAL SIZE 6					

<Table 1-5>

MIDI Parameter Change table (MULTI EQ)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
02 40 00	1	00 - 04	EQ TYPE	flat, jazz, pops, rock, classic	00
01	1	34 - 4C	EQ GAIN1	-12...0...+12[dB]	40(depends on EQ type)
02	1	04 - 28	EQ FREQUENCY1	32...2.0k[Hz]	0C(")
03	1	01 - 78	EQ Q1	0.1...12.0	07(")
04	1	00 - 01	EQ SHAPE1	shelving , peaking	00(")
05	1	34 - 4C	EQ GAIN2	-12...0...+12[dB]	40(")
06	1	0E - 36	EQ FREQUENCY2	100...10.0k[Hz]	1C(")
07	1	01 - 78	EQ Q2	0.1...12.0	07(")
08	1		NOT USED		--
09	1	34 - 4C	EQ GAIN3	-12...0...+12[dB]	40(")
0A	1	0E - 36	EQ FREQUENCY3	100...10.0k[Hz]	22(")
0B	1	01 - 78	EQ Q3	0.1...12.0	07(")
0C	1		NOT USED		--
0D	1	34 - 4C	EQ GAIN4	-12...0...+12[dB]	40(")
0E	1	0E - 36	EQ FREQUENCY4	100...10.0k[Hz]	2E(")
0F	1	01 - 78	EQ Q4	0.1...12.0	07(")
10	1		NOT USED		--
11	1	34 - 4C	EQ GAIN5	-12...0...+12[dB]	40(")
12	1	1C - 3A	EQ FREQUENCY5	0.5k...16.0k[Hz]	34(")
13	1	01 - 78	EQ Q5	0.1...12.0	07(")
14	1	00 - 01	EQ SHAPE5	shelving , peaking	00(")
TOTAL SIZE 15					

<Table 1-6>

MIDI Parameter Change table (EFFECT 2)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
03 00 00	2	00 - 7F	INSERTION EFFECT1 TYPE MSB	Refer to the Effect Program List	49(=DISTORTION)
		00 - 7F	INSERTION EFFECT1 TYPE LSB	"	00
02	1	00 - 7F	INSERTION EFFECT1 PARAMETER1	"	28(depends on insertion effect1 type)
03	1	00 - 7F	INSERTION EFFECT1 PARAMETER2	"	14(")
04	1	00 - 7F	INSERTION EFFECT1 PARAMETER3	"	48(")
05	1	00 - 7F	INSERTION EFFECT1 PARAMETER4	"	35(")
06	1	00 - 7F	INSERTION EFFECT1 PARAMETER5	"	40(")
07	1	00 - 7F	INSERTION EFFECT1 PARAMETER6	"	00(")
08	1	00 - 7F	INSERTION EFFECT1 PARAMETER7	"	2B(")
09	1	00 - 7F	INSERTION EFFECT1 PARAMETER8	"	4A(")
0A	1	00 - 7F	INSERTION EFFECT1 PARAMETER9	"	0A(")
0B	1	00 - 7F	INSERTION EFFECT1 PARAMETER10	"	7F(")
0C	1	00 - 7F	INSERTION EFFECT1 PART NUMBER	Part1...32(0...31) AD1, AD2(64, 65) OFF(127)	7F
0D	1	00 - 7F	MW INSERTION CONTROL DEPTH	-64...0...+63	40
0E	1	00 - 7F	BEND INSERTION CONTROL DEPTH	-64...0...+63	40
0F	1	00 - 7F	CAT INSERTION CONTROL DEPTH	-64...0...+63	40
10	1	00 - 7F	AC1 INSERTION CONTROL DEPTH	-64...0...+63	40
11	1	00 - 7F	AC2 INSERTION CONTROL DEPTH	-64...0...+63	40
TOTAL SIZE 12					
20	1	00 - 7F	INSERTION EFFECT1 PARAMETER11	Refer to the Effect Parameter List	78(depends on insertion effect1 type)
21	1	00 - 7F	INSERTION EFFECT1 PARAMETER12	"	00(")
22	1	00 - 7F	INSERTION EFFECT1 PARAMETER13	"	00(")
23	1	00 - 7F	INSERTION EFFECT1 PARAMETER14	"	00(")
24	1	00 - 7F	INSERTION EFFECT1 PARAMETER15	"	00(")
25	1	00 - 7F	INSERTION EFFECT1 PARAMETER16	"	00(")
TOTAL SIZE 6					

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30	2	00 - 7F	INSERTION EFFECT1 PARAMETER1 MSB	Refer to the Effect Parameter List	00(depends on insertion effect1 type)
		00 - 7F	INSERTION EFFECT1 PARAMETER1 LSB	"	28(")
32	2	00 - 7F	INSERTION EFFECT1 PARAMETER2 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER2 LSB	"	14(")
34	2	00 - 7F	INSERTION EFFECT1 PARAMETER3 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER3 LSB	"	48(")
36	2	00 - 7F	INSERTION EFFECT1 PARAMETER4 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER4 LSB	"	35(")
38	2	00 - 7F	INSERTION EFFECT1 PARAMETER5 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER5 LSB	"	40(")
3A	2	00 - 7F	INSERTION EFFECT1 PARAMETER6 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER6 LSB	"	00(")
3C	2	00 - 7F	INSERTION EFFECT1 PARAMETER7 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER7 LSB	"	2B(")
3E	2	00 - 7F	INSERTION EFFECT1 PARAMETER8 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER8 LSB	"	4A(")
40	2	00 - 7F	INSERTION EFFECT1 PARAMETER9 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER9 LSB	"	0A(")
42	2	00 - 7F	INSERTION EFFECT1 PARAMETER10 MSB	"	00(")
		00 - 7F	INSERTION EFFECT1 PARAMETER10 LSB	"	7F(")
TOTAL SIZE 14					

When using an EFFECT TYPE for which MSB is not required, the parameters of addresses 02-0B are received, and the parameters of addresses 30-42 are not received.
 When using an EFFECT TYPE for which MSB is required, the parameters of addresses 30-42 are received, and the parameters of addresses 02-0B are not received.

For bulk transmission which includes EFFECT TYPE data, the parameters of addresses 02-0B will always be transmitted. However for an EFFECT TYPE which requires MSB, the parameters of addresses 02-0B are not received when bulk data is received.

03	01	00	2	00 - 7F	INSERTION EFFECT2 TYPE MSB	Refer to the Effect Program List	49(=DISTORTION)
				00 - 7F	INSERTION EFFECT2 TYPE LSB	"	00
02	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER1	"	28(depends on insertion effect2 type)
03	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER2	"	14(")
04	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER3	"	48(")
05	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER4	"	35(")
06	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER5	"	40(")
07	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER6	"	00(")
08	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER7	"	2B(")
09	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER8	"	4A(")
0A	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER9	"	0A(")
0B	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER10	"	7F(")
0C	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PART NUMBER	Part1...32(0...31) AD1, AD2(64, 65) OFF(127)	7F
0D	1	00 - 7F		00 - 7F	MW INSERTION CONTROL DEPTH	-64...0...+63	40
0E	1	00 - 7F		00 - 7F	BEND INSERTION CONTROL DEPTH	-64...0...+63	40
0F	1	00 - 7F		00 - 7F	CAT INSERTION CONTROL DEPTH	-64...0...+63	40
10	1	00 - 7F		00 - 7F	AC1 INSERTION CONTROL DEPTH	-64...0...+63	40
11	1	00 - 7F		00 - 7F	AC2 INSERTION CONTROL DEPTH	-64...0...+63	40
TOTAL SIZE 12							
20	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER11	Refer to the Effect Parameter List	78(depends on insertion effect2 type)
21	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER12	"	00(")
22	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER13	"	00(")
23	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER14	"	00(")
24	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER15	"	00(")
25	1	00 - 7F		00 - 7F	INSERTION EFFECT2 PARAMETER16	"	00(")
TOTAL SIZE 6							

30	2	00 - 7F	INSERTION EFFECT2 PARAMETER1 MSB	Refer to the Effect Parameter List	00(depends on insertion effect2 type)
		00 - 7F	INSERTION EFFECT2 PARAMETER1 LSB	"	28(")
32	2	00 - 7F	INSERTION EFFECT2 PARAMETER2 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER2 LSB	"	14(")
34	2	00 - 7F	INSERTION EFFECT2 PARAMETER3 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER3 LSB	"	48(")
36	2	00 - 7F	INSERTION EFFECT2 PARAMETER4 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER4 LSB	"	35(")
38	2	00 - 7F	INSERTION EFFECT2 PARAMETER5 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER5 LSB	"	40(")
3A	2	00 - 7F	INSERTION EFFECT2 PARAMETER6 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER6 LSB	"	00(")
3C	2	00 - 7F	INSERTION EFFECT2 PARAMETER7 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER7 LSB	"	2B(")
3E	2	00 - 7F	INSERTION EFFECT2 PARAMETER8 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER8 LSB	"	4A(")
40	2	00 - 7F	INSERTION EFFECT2 PARAMETER9 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER9 LSB	"	0A(")
42	1	00 - 7F	INSERTION EFFECT2 PARAMETER10 MSB	"	00(")
		00 - 7F	INSERTION EFFECT2 PARAMETER10 LSB	"	7F(")
TOTAL SIZE 14					

When using an EFFECT TYPE for which MSB is not required, the parameters of addresses 02-0B are received, and the parameters of addresses 30-42 are not received.
 When using an EFFECT TYPE for which MSB is required, the parameters of addresses 30-42 are received, and the parameters of addresses 02-0B are not received.

For bulk transmission which includes EFFECT TYPE data, the parameters of addresses 02-0B will always be transmitted. However for an EFFECT TYPE which requires MSB, the parameters of addresses 02-0B are not received when bulk data is received.

MIDI Data Format

<Table 1-7>

MIDI Parameter Change table (DISPLAY DATA)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
06 00 00	20	20 - 7F	DISPLAY LETTER Data1	32...127(ASCII CHARACTER)	--
:	:	:	:	:	:
:	1F	:	DISPLAY LETTER Data32	32...127(ASCII CHARACTER)	--
TOTAL SIZE	20				
07 00 00	30	00 - 7F	DISPLAY BITMAP Data1 *	0...127	--
:	:	:	:	:	:
:	2F	:	DISPLAY BITMAP Data48	0...127	--
TOTAL SIZE	30				

* How DISPLAY BITMAP data and the screen display are related

In the horizontal direction, seven pixels form one byte of data.

To display a pixel, set its data bit to 1. To turn off the pixel, set its data bit to 0.

This data is arranged in the screen as follows.

	b7	b6	b5	b4	b3	b2	b1	b0		b7	b6	b5	b4	b3	b2	b1	b0("b" indicates "bit")	
Data1	0	*	*	*	*	*	*	*	Data17	0	*	*	*	*	*	*	*	Data33
Data2									Data18									Data34
Data3									Data19									Data35
Data4									Data20									Data36
Data5									Data21									Data37
Data6									Data22									Data38
Data7									Data23									Data39
Data8									Data24									Data40
Data9									Data25									Data41
Data10									Data26									Data42
Data11									Data27									Data43
Data12									Data28									Data44
Data13									Data29									Data45
Data14									Data30									Data46
Data15									Data31									Data47
Data16									Data32									Data48

Only bit 6 and bit 5 are used for Data33-Data48.

Bitmap data can also be received just for a specific pixel. In this case, the other pixels will display their previous status. Display Data parameter changes can transmit data continuously from a desired location.

<Table 1-8>

MIDI Parameter Change table (MULTI PART)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
08 nn 00	1	00 - 40	ELEMENT RESERVE	0...64	part10, 26=0 other parts =2
nn 01	1	00 - 7F	BANK SELECT MSB	0...127	part10,26=7F other parts=0
nn 02	1	00 - 7F	BANK SELECT LSB	0...127	00
nn 03	1	00 - 7F	PROGRAM NUMBER	1...128	00
nn 04	1	00-1F,7F	Rev CHANNEL	A1...A16, B1...B16, OFF	Part No.
nn 05	1	00 - 01	MONO/POLY MODE	MONO , POLY	01
nn 06	1	00 - 02	SAME NOTE NUMBER KEY ON ASSIGN	SINGLE, MULTI, INST(for DRUM)	01
nn 07	1	00 - 05	PART MODE	NORMAL, DRUM, DRUMS1...4	Part10=2, Part26=4 other parts=0
nn 08	1	28 - 58	NOTE SHIFT	-24...0...+24[semitones]	40
nn 09	2	00 - 0F	DETUNE	-12.8...0...+12.7[Hz]	08 00
nn 0A		00 - 0F		1st bit3-0→bit7-4 2nd bit3-0→bit3-0	
nn 0B	1	00 - 7F	VOLUME	0...127	64
nn 0C	1	00 - 7F	VELOCITY SENSE DEPTH	0...127	40
nn 0D	1	00 - 7F	VELOCITY SENSE OFFSET	0...127	40
nn 0E	1	00 - 7F	PAN	RND, L63...C...R63	40
nn 0F	1	00 - 7F	NOTE LIMIT LOW	C-2...G8	00
nn 10	1	00 - 7F	NOTE LIMIT HIGH	C-2...G8	7F
nn 11	1	00 - 7F	DRY LEVEL	0...127	7F
nn 12	1	00 - 7F	CHORUS SEND	0...127	00
nn 13	1	00 - 7F	REVERB SEND	0...127	28
nn 14	1	00 - 7F	VARIATION SEND	0...127	00
nn 15	1	00 - 7F	VIBRATO RATE	-64...0...+63	40
nn 16	1	00 - 7F	VIBRATO DEPTH	-64...0...+63	40
nn 17	1	00 - 7F	VIBRATO DELAY	-64...0...+63	40
nn 18	1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...+63	40
nn 19	1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...+63	40
nn 1A	1	00 - 7F	EG ATTACK TIME	-64...0...+63	40
nn 1B	1	00 - 7F	EG DECAY TIME	-64...0...+63	40
nn 1C	1	00 - 7F	EG RELEASE TIME	-64...0...+63	40
nn 1D	1	28 - 58	MW PITCH CONTROL	-24...0...+24[semitones]	40
nn 1E	1	00 - 7F	MW LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
nn 1F	1	00 - 7F	MW AMPLITUDE CONTROL	-100...0...+100[%]	40
nn 20	1	00 - 7F	MW LFO PMOD DEPTH	0...127	0A

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nn 21	1	00 - 7F	MW LFO FMOD DEPTH	0...127	00
nn 22	1	00 - 7F	MW LFO AMOD DEPTH	0...127	00
nn 23	1	28 - 58	BEND PITCH CONTROL	-24...0...+24[semitones]	42
nn 24	1	00 - 7F	BEND LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
nn 25	1	00 - 7F	BEND AMPLITUDE CONTROL	-100...0...+100[%]	40
nn 26	1	00 - 7F	BEND LFO PMOD DEPTH	0...127	00
nn 27	1	00 - 7F	BEND LFO FMOD DEPTH	0...127	00
nn 28	1	00 - 7F	BEND LFO AMOD DEPTH	0...127	00
TOTAL SIZE 29					
nn 30	1	00 - 01	Rev PITCH BEND	OFF, ON	01
nn 31	1	00 - 01	Rev CH AFTER TOUCH(CAT)	OFF, ON	01
nn 32	1	00 - 01	Rev PROGRAM CHANGE	OFF, ON	01
nn 33	1	00 - 01	Rev CONTROL CHANGE	OFF, ON	01
nn 34	1	00 - 01	Rev POLY AFTER TOUCH(PAT)	OFF, ON	01
nn 35	1	00 - 01	Rev NOTE MESSAGE	OFF, ON	01
nn 36	1	00 - 01	Rev RPN	OFF, ON	01
nn 37	1	00 - 01	Rev NRPN	OFF, ON	XGmode=01, GMmode=00
nn 38	1	00 - 01	Rev MODURATION	OFF, ON	01
nn 39	1	00 - 01	Rev VOLUME	OFF, ON	01
nn 3A	1	00 - 01	Rev PAN	OFF, ON	01
nn 3B	1	00 - 01	Rev EXPRESSION	OFF, ON	01
nn 3C	1	00 - 01	Rev HOLD1	OFF, ON	01
nn 3D	1	00 - 01	Rev PORTAMENTO	OFF, ON	01
nn 3E	1	00 - 01	Rev SOSTENUTO	OFF, ON	01
nn 3F	1	00 - 01	Rev SOFT PEDAL	OFF, ON	01
nn 40	1	00 - 01	Rev BANK SELECT	OFF, ON	XGmode=01, GMmode=00
nn 41	1	00 - 7F	SCALE TUNING C	-64...0...+63[cent]	40
nn 42	1	00 - 7F	SCALE TUNING C#	-64...0...+63[cent]	40
nn 43	1	00 - 7F	SCALE TUNING D	-64...0...+63[cent]	40
nn 44	1	00 - 7F	SCALE TUNING D#	-64...0...+63[cent]	40
nn 45	1	00 - 7F	SCALE TUNING E	-64...0...+63[cent]	40
nn 46	1	00 - 7F	SCALE TUNING F	-64...0...+63[cent]	40
nn 47	1	00 - 7F	SCALE TUNING F#	-64...0...+63[cent]	40
nn 48	1	00 - 7F	SCALE TUNING G	-64...0...+63[cent]	40
nn 49	1	00 - 7F	SCALE TUNING G#	-64...0...+63[cent]	40
nn 4A	1	00 - 7F	SCALE TUNING A	-64...0...+63[cent]	40
nn 4B	1	00 - 7F	SCALE TUNING A#	-64...0...+63[cent]	40
nn 4C	1	00 - 7F	SCALE TUNING B	-64...0...+63[cent]	40
nn 4D	1	28 - 58	CAT PITCH CONTROL	-24...0...+24[semitones]	40
nn 4E	1	00 - 7F	CAT LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
nn 4F	1	00 - 7F	CAT AMPLITUDE CONTROL	-100...0...+100[%]	40
nn 50	1	00 - 7F	CAT LFO PMOD DEPTH	0...127	00
nn 51	1	00 - 7F	CAT LFO FMOD DEPTH	0...127	00
nn 52	1	00 - 7F	CAT LFO AMOD DEPTH	0...127	00
nn 53	1	28 - 58	PAT PITCH CONTROL	-24...0...+24[semitones]	40
nn 54	1	00 - 7F	PAT LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
nn 55	1	00 - 7F	PAT AMPLITUDE CONTROL	-100...0...+100[%]	40
nn 56	1	00 - 7F	PAT LFO PMOD DEPTH	0...127	00
nn 57	1	00 - 7F	PAT LFO FMOD DEPTH	0...127	00
nn 58	1	00 - 7F	PAT LFO AMOD DEPTH	0...127	00
nn 59	1	00 - 5F	AC1 CONTROLLER NUMBER	0...95	10
nn 5A	1	28 - 58	AC1 PITCH CONTROL	-24...0...+24[semitones]	40
nn 5B	1	00 - 7F	AC1 LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
nn 5C	1	00 - 7F	AC1 AMPLITUDE CONTROL	-100...0...+100[%]	40
nn 5D	1	00 - 7F	AC1 LFO PMOD DEPTH	0...127	00
nn 5E	1	00 - 7F	AC1 LFO FMOD DEPTH	0...127	00
nn 5F	1	00 - 7F	AC1 LFO AMOD DEPTH	0...127	00
nn 60	1	00 - 5F	AC2 CONTROLLER NUMBER	0...95	11
nn 61	1	28 - 58	AC2 PITCH CONTROL	-24...0...+24[semitones]	40
nn 62	1	00 - 7F	AC2 LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
nn 63	1	00 - 7F	AC2 AMPLITUDE CONTROL	-100...0...+100[%]	40
nn 64	1	00 - 7F	AC2 LFO PMOD DEPTH	0...127	00
nn 65	1	00 - 7F	AC2 LFO FMOD DEPTH	0...127	00
nn 66	1	00 - 7F	AC2 LFO AMOD DEPTH	0...127	00
nn 67	1	00 - 01	PORTAMENTO SWITCH	OFF, ON	00
nn 68	1	00 - 7F	PORTAMENTO TIME	0...127	00
nn 69	1	00 - 7F	PITCH EG INITIAL LEVEL	-64...0...+63	40
nn 6A	1	00 - 7F	PITCH EG ATTACK TIME	-64...0...+63	40
nn 6B	1	00 - 7F	PITCH EG RELEASE LEVEL	-64...0...+63	40
nn 6C	1	00 - 7F	PITCH EG RELEASE TIME	-64...0...+63	40
nn 6D	1	01 - 7F	VELOCITY LIMIT LOW	1...127	01
nn 6E	1	01 - 7F	VELOCITY LIMIT HIGH	1...127	7F
TOTAL SIZE 3F					
nn 70	1		NOT USED		--
nn 71	1		NOT USED		--
nn 72	1	00 - 7F	EQ BASS GAIN	-12 - +12[dB]	40
nn 73	1	00 - 7F	EQ TREBLE GAIN	-12 - +12[dB]	40
TOTAL SIZE 4					

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nn 74	1		NOT USED		--
nn 75	1		NOT USED		--
nn 76	1	04 - 28	EQ BASS FREQUENCY	32...2.0k[Hz]	0C
nn 77	1	1C - 3A	EQ TREBLE FREQUENCY	500...16.0k[Hz]	36
nn 78	1		NOT USED		--
nn 79	1		NOT USED		--
nn 7A	1		NOT USED		--
nn 7B	1		NOT USED		--
nn 7C	1		NOT USED		--
nn 7D	1		NOT USED		--
nn 7E	1		NOT USED		--
nn 7F	1		NOT USED		--
TOTAL SIZE	0C				

0A nn 10	1	00, 08, 28, 29	OUTPUT SELECT	0:stereo out, 8:indiv1+2 40:indiv1,41:indiv2	0
----------	---	----------------	---------------	---	---

TOTAL SIZE 1
When data other than the above is received, 0: Stereo Out will be selected.

0A nn 20	1	00 - 7F	HIGH PASS FILTER CUTOFF FREQUENCY	-64...0...+63	40
nn 21	1		NOT USED		--
TOTAL SIZE	2				

nn = PART NUMBER

In the case of the DRUM PART, there will be no effect for the following parameters.

- BANK SELECT LSB
- MONO/POLY MODE
- SCALE TUNING
- PORTAMENTO
- PITCH EG
- FILTER MODURATION DEPTH(FMOD DEPTH)
- AMPLITUDE MODURATION DEPTH(AMOD DEPTH)
- OUTPUT SELECT

<Table 1-9>

MIDI Parameter Change table (A/D PART)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
10 0n 00	1	00 - 01	INPUT GAIN	MIC , LINE	00
01	1	00 - 7F	BANK SELECT MSB	0...127	00
02	1	00 - 7F	BANK SELECT LSB	0...127	00
03	1	00 - 7F	PROGRAM NUMBER	1...128	00
04	1	00-1F, 7F	Rev CHANNEL	A1...A16,B1...B16, OFF	7F
05	1		NOT USED		--
06	1		NOT USED		--
07	1		NOT USED		--
08	1		NOT USED		--
09	1		NOT USED		--
0A	1		NOT USED		--
0B	1	00 - 7F	VOLUME	0...127	00
0C	1		NOT USED		--
0D	1		NOT USED		--
0E	1	01 - 7F	PAN	L63...C...R63	40
0F	1		NOT USED		--
10	1		NOT USED		--
11	1	00 - 7F	DRY LEVEL	0...127	7F
12	1	00 - 7F	CHORUS SEND	0...127	00
13	1	00 - 7F	REVERB SEND	0...127	00
14	1	00 - 7F	VARIATION SEND	0...127	00
TOTAL SIZE	15				
10 0n 30	1		NOT USED		--
31	1		NOT USED		--
32	1	00 - 01	Rev PROGRAM CHANGE	OFF , ON	00
33	1	00 - 01	Rev CONTROL CHANGE	OFF , ON	01
34	1		NOT USED		--
35	1	00 - 01	MUTE	ON, OFF	01
36	1		NOT USED		--
37	1		NOT USED		--
38	1		NOT USED		--
39	1	00 - 01	Rev VOLUME	OFF , ON	01
3A	1	00 - 01	Rev PAN	OFF , ON	01
3B	1	00 - 01	Rev EXPRESSION	OFF , ON	01
3C	1		NOT USED		--
3D	1		NOT USED		--
3E	1		NOT USED		--
3F	1		NOT USED		--
40	1	00 - 01	Rev BANK SELECT	OFF , ON	00
41	1		NOT USED		--
42	1		NOT USED		--
43	1		NOT USED		--
44	1		NOT USED		--
45	1		NOT USED		--
46	1		NOT USED		--
47	1		NOT USED		--
48	1		NOT USED		--
49	1		NOT USED		--
4A	1		NOT USED		--

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4B	1		NOT USED		--
4C	1		NOT USED		--
4D	1		NOT USED		--
4E	1		NOT USED		--
4F	1		NOT USED		--
50	1		NOT USED		--
51	1		NOT USED		--
52	1		NOT USED		--
53	1		NOT USED		--
54	1		NOT USED		--
55	1		NOT USED		--
56	1		NOT USED		--
57	1		NOT USED		--
58	1		NOT USED		--
59	1	00 - 5F	AC1 CONTROLLER NUMBER	0...95	10
5A	1		NOT USED		--
5B	1		NOT USED		--
5C	1		NOT USED		--
5D	1		NOT USED		--
5E	1		NOT USED		--
5F	1		NOT USED		--
60	1	00 - 5F	AC2 CONTROLLER NUMBER	0...95	11
TOTAL SIZE 31					

n:A/D Part number(0 - 1)

<Table 1-10>

MIDI Parameter Change table (A/D System)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
11 00 00	1	00 - 01	A/D1,2 MONO/STEREO MODE	MONO/STEREO	00
TOTAL SIZE 1					

<Table 1-11>

MIDI Parameter Change table (DRUM SETUP)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
3n rr 00	1	00 - 7F	PITCH COARSE	-64...0...+63	40
01	1	00 - 7F	PITCH FINE	-64...0...+63[cent]	40
02	1	00 - 7F	LEVEL	0...127	depend on the note
03	1	00 - 7F	ALTERNATE GROUP	OFF,1...127	"
04	1	00 - 7F	PAN	RND,L63...C...R63	"
05	1	00 - 7F	REVERB SEND	0...127	"
06	1	00 - 7F	CHORUS SEND	0...127	"
07	1	00 - 7F	VARIATION SEND	0...127	7F
08	1	00 - 01	KEY ASSIGN	SINGLE , MULTI	00
09	1	00 - 01	Rev NOTE OFF	OFF , ON	depend on the note
0A	1	00 - 01	Rev NOTE ON	OFF , ON	01
0B	1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...63	40
0C	1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...63	40
0D	1	00 - 7F	EG ATTACK RATE	-64...0...63	40
0E	1	00 - 7F	EG DECAY1 RATE	-64...0...63	40
0F	1	00 - 7F	EG DECAY2 RATE	-64...0...63	40
TOTAL SIZE 10					
3n rr 20	1	00 - 7F	EQ BASS GAIN	-12 - +12[dB]	40
21	1	00 - 7F	EQ TREBLE GAIN	-12 - +12[dB]	40
22	1		NOT USED		--
23	1		NOT USED		--
24	1	04 - 28	EQ BASS FREQUENCY	32...2.0k[Hz]	0C
25	1	1C - 3A	EQ TREBLE FREQUENCY	500...16.0k[Hz]	36
26	1		NOT USED		--
27	1		NOT USED		--
28	1		NOT USED		--
29	1		NOT USED		--
2A	1		NOT USED		--
2B	1		NOT USED		--
2C	1		NOT USED		--
2D	1		NOT USED		--
TOTAL SIZE 0E					
3n rr 40	1	00, 08, 28, 29	OUTPUT SELECT	0:stereo out, 8:indiv1+2 40:indiv1,41:indiv2	0
TOTAL SIZE 1					

When data other than the above is received, 0: Stereo Out will be selected.

3n rr 50	1	00 - 7F	HIGH PASS FILTER CUTOFF FREQUENCY	-64...0...63	40
51	1		NOT USED		--
TOTAL SIZE 2					
3n rr 60	1	30 - 50	VELOCITY SENSE PITCH	-16...0...16	depend on the note
61	1	30 - 50	VELOCITY SENSE LPF CUTOFF	-16...0...16	"
TOTAL SIZE 2					

MIDI Data Format

n:Drum Setup Number(0 - 3)
r:note number(0D - 5B)

The MU90 will initialize all Drum Setup data in the following cases.
When XG SYSTEM ON is received
When GM SYSTEM ON is received
When DRUM SETUP RESET is received (in XG mode)

[Note]

When a program change is received by a part to which a Drum Setup is assigned, the assigned Drum Setup will be initialized.
If the same Drum Setup is assigned to two or more parts, changes in Drum Setup parameters (including program changes) will be reflected in all parts to which it is assigned.

MIDI Data Format

<Table 2-1>

Parameter Base Address
MODEL ID = 49

Parameter	Address			Description
	(H)	(M)	(L)	
MU80 SYSTEM	00	00	00	System
REMOTE SWITCH	0A	00	00	Remote Switch
MU80 INTERNAL PERFORMANCE	30	00	00	#1 Common
	30	63	00	#100 Common
	31	00	00	#1 Part1
	31	63	00	#100 Part1
	32	00	00	#1 Part2
	32	63	00	#100 Part2
	33	00	00	#1 Part3
	33	63	00	#100 Part3
	34	00	00	#1 Part4
	34	63	00	#100 Part4

MU80 Performance Common INT

Address	(H)	Parameter
30	pp 00	System
	pp 20	Effect
	pp 70	EQ

pp: Performance#

<Table 2-2>

MIDI Parameter Change table (SYSTEM)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
00 00 00	1	00 - 01	MUTE LOCK	OFF , ON	00
01	1	00 - 01	AD LOCK	OFF , ON	00
02	1	00 - 01	EQ LOCK	OFF , ON	00
03	1	00 - 01	Rev GM EXCLUSIVE MESSAGE	OFF , ON	01
04	1	00 - 01	Rev BANK SELECT	OFF , ON	01
05	1	00 - 04	BULK OUT INTERVAL TIME	50, 100, 150, 200, 300	02
06	1	00 - 10	PERFORMANCE SYSTEM CHANNEL	1...16, all	00
07	1	28 - 58	PERFORMANCE SYSTEM TRANSPOSE	-24...0...+24[semitone]	40
08	1	00 - 07	LCD CONTRAST	1...8	01
09	1	00 - 07	MULTI PORT NUMBER for MIDI OUT	1...8	00
TOTAL SIZE 0A					
00 00 10	1	00 - 01	DRUM EDIT Rev NOTE	OFF , ON	01
TOTAL SIZE 1					
00 00 11	1	00 - 01	OUTPUT SELECT LOCK	OFF , ON	00
TOTAL SIZE 1					

<Table 2-3>

MIDI Parameter Change table (REMOTE SWITCH)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
0A 00 00	1	00-01	PLAY SWITCH	OFF , ON	--
01	1	00-01	UTIL SWITCH	OFF , ON	--
02	1	00-01	MODE SWITCH	OFF , ON	--
03	1	00-01	EDIT SWITCH	OFF , ON	--
04	1	00-01	EFFECT SWITCH	OFF , ON	--
05	1	00-01	EQ SWITCH	OFF , ON	--
06	1	00-01	MUTE/SOLO SWITCH	OFF , ON	--
07	1	00-01	ENTER SWITCH	OFF , ON	--
08	1	00-01	EXIT SWITCH	OFF , ON	--
09	1	00-01	PART- SWITCH	OFF , ON	--
0A	1	00-01	SELECT- SWITCH	OFF , ON	--
0B	1	00-01	VALUE- SWITCH	OFF , ON	--
0C	1	00-01	PART+ SWITCH	OFF , ON	--
0D	1	00-01	SELECT+ SWITCH	OFF , ON	--
0E	1	00-01	VALUE+ SWITCH	OFF , ON	--
TOTAL SIZE 0F					

<Table 2-4>

MIDI Parameter Change table (MU80, MU50 INTERNAL PERFORMANCE)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
30 pp 00	0C	20 - 7F	PERFORMANCE NAME	32...127(ASCII CHARACTER)	depends on performance number
pp 0C	01	00 - 7F	PERFORMANCE VOLUME	0...127	"
pp 0D	01	01 - 7F	PERFORMANCE PAN	L63...C...R63(1...64...127)	"
pp 0E	01	00 - 60	AC1 CC NUMBER	0...95, CAT(96)	"
pp 0F	01	00 - 01	A/D INPUT	OFF , ON	"
TOTAL SIZE 10					

MIDI Data Format

30	pp 20	2	00-7F	REVERB TYPE MSB	Refer to the Effect Program List	depends on performance number
	pp 21		00-7F	REVERB TYPE LSB	"	"
	pp 22	1	00-7F	REVERB PARAMETER 1	"	"
	pp 23	1	00-7F	REVERB PARAMETER 2	"	"
	pp 24	1	00-7F	REVERB PARAMETER 3	"	"
	pp 25	1	00-7F	REVERB PARAMETER 4	"	"
	pp 26	1	00-7F	REVERB PARAMETER 5	"	"
	pp 27	1	00-7F	REVERB RETURN	-->dB...0dB...+6dB(0...96...127)	"
	pp 28	1	01-7F	REVERB PAN	L63...C...R63	"
	pp 29	2	00-7F	CHORUS TYPE MSB	Refer to the Effect Program List	"
	pp 2A		00-7F	CHORUS TYPE LSB	"	"
	pp 2B	1	00-7F	CHORUS PARAMETER 1	"	"
	pp 2C	1	00-7F	CHORUS PARAMETER 2	"	"
	pp 2D	1	00-7F	CHORUS PARAMETER 3	"	"
	pp 2E	1	00-7F	CHORUS PARAMETER 4	"	"
	pp 2F	1	00-7F	CHORUS PARAMETER 5	"	"
	pp 30	1	00-7F	CHORUS RETURN	-->dB...0dB...+6dB(0...96...127)	"
	pp 31	1	01-7F	CHORUS PAN	L63...C...R63	"
	pp 32	1	00-7F	SEND CHORUS TO REVERB	-->dB...0dB...+6dB(0...96...127)	"
	pp 33	2	00-7F	VARIATION TYPE MSB	Refer to the Effect Program List	"
	pp 34		00-7F	VARIATION TYPE LSB	"	"
	pp 35	2	00-7F	VARIATION PARAMETER 1 MSB	"	"
	pp 36		00-7F	VARIATION PARAMETER 1 LSB	"	"
	pp 37	2	00-7F	VARIATION PARAMETER 2 MSB	"	"
	pp 38		00-7F	VARIATION PARAMETER 2 LSB	"	"
	pp 39	2	00-7F	VARIATION PARAMETER 3 MSB	"	"
	pp 3A		00-7F	VARIATION PARAMETER 3 LSB	"	"
	pp 3B	2	00-7F	VARIATION PARAMETER 4 MSB	"	"
	pp 3C		00-7F	VARIATION PARAMETER 4 LSB	"	"
	pp 3D	2	00-7F	VARIATION PARAMETER 5 MSB	"	"
	pp 3E		00-7F	VARIATION PARAMETER 5 LSB	"	"
	pp 3F	2	00-7F	VARIATION PARAMETER 10 MSB	"	"
	pp 40		00-7F	VARIATION PARAMETER 10 LSB	"	"
	pp 41	1	00-7F	VARIATION RETURN	-->dB...0dB...+6dB(0...96...127)	"
	pp 42	1	01-7F	VARIATION PAN	L63...C...R63(1...64...127)	"
	pp 43	1	00-7F	SEND VARIATION TO REVERB	-->dB...0dB...+6dB(0...96...127)	"
	pp 44	1	00-7F	SEND VARIATION TO CHORUS	-->dB...0dB...+6dB(0...96...127)	"
	pp 45	1	00-7F	AC1 VARIATION CONTROL DEPTH	0...127	"
	pp 46	1	00-01	VARIATION CONNECTION	INSERTION , SYSTEM	"
	pp 47	1	00-03,7F	VARIATION PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)	"
	pp 48	2	00-7F	INSERTION EFFECT 1 TYPE MSB	Refer to the Effect Program List	"
	pp 49		00-7F	INSERTION EFFECT 1 TYPE LSB	"	"
	pp 4A	1	00-7F	INSERTION EFFECT 1 PARAMETER1	"	"
	pp 4B	1	00-7F	INSERTION EFFECT 1 PARAMETER2	"	"
	pp 4C	1	00-7F	INSERTION EFFECT 1 PARAMETER3	"	"
	pp 4D	1	00-7F	INSERTION EFFECT 1 PARAMETER4	"	"
	pp 4E	1	00-7F	INSERTION EFFECT 1 PARAMETER5	"	"
	pp 4F	1	00-7F	INSERTION EFFECT 1 PARAMETER10	"	"
	pp 50	1	00-7F	INSERTION EFFECT 1 PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)	"
TOTAL SIZE 31						
30	pp 70	1	00 - 04	EQ TYPE	flat,jazz,pops,rock,concert	depends on performance number
	pp 71	1	34 - 4C	EQ GAIN1	-12...0...+12[dB]	"
	pp 72	1	34 - 4C	EQ GAIN2	-12...0...+12[dB]	"
	pp 73	1	34 - 4C	EQ GAIN3	-12...0...+12[dB]	"
	pp 74	1	34 - 4C	EQ GAIN4	-12...0...+12[dB]	"
	pp 75	1	34 - 4C	EQ GAIN5	-12...0...+12[dB]	"
TOTAL SIZE 06						
3n	pp 00	1	00 - 7F	PROGRAM NUMBER	1...128	depends on performance number
3n	pp 01	1	00 - 7F	BANK SELECT	0...127 (Refer to the XG voice map)	"
3n	pp 02	1	00 - 7F	VOLUME	0...127	"
3n	pp 03	1	00, 01 - 7F	PAN	RND, L63...C...R63	"
3n	pp 04	1	00 - 7F	DRY SEND LEVEL	0...127	"
3n	pp 05	1	00 - 7F	CHORUS SEND	0...127	"
3n	pp 06	1	00 - 7F	REVERB SEND	0...127	"
3n	pp 07	1	00 - 7F	VARIATION SEND	0...127	"
3n	pp 08	1	28 - 58	NOTE SHIFT	-24...0...+24[semitones]	"
3n	pp 09	1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...+63	"
3n	pp 0A	1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...+63	"
3n	pp 0B	1	00 - 7F	EG ATTACK TIME	-64...0...+63	"
3n	pp 0C	1	00 - 7F	EG DECAY TIME	-64...0...+63	"
3n	pp 0D	1	00 - 7F	EG RELEASE TIME	-64...0...+63	"
3n	pp 0E	1	00 - 7F	VIBRATO RATE	-64...0...+63	"
3n	pp 0F	1	00 - 7F	VIBRATO DEPTH	-64...0...+63	"
3n	pp 10	1	00 - 7F	VIBRATO DELAY	-64...0...+63	"
3n	pp 11	2	00 - 0F	DETUNE	-12.8...0...+12.7[Hz]	"
3n	pp 11		00 - 0F		1st bit3-0->bit7-4 2nd bit3-0->bit3-0	"
				Rcv NOTE MESSAGE	1st bit6 : OFF,ON(0,1)	"
				MONO/POLY MODE	1st bit5 : MONO,POLY(0,1)	"
				PORTAMENTO SWITCH *	1st bit4 : OFF,ON(0,1)	"
3n	pp 13	1	00 - 7F	PITCH EG INITIAL LEVEL	0...127	"
3n	pp 14	1	00 - 7F	PITCH EG ATTACK TIME	0...127	"
3n	pp 15	1	00 - 7F	PITCH EG RELEASE LEVEL	0...127	"
3n	pp 16	1	00 - 7F	PITCH EG RELEASE TIME	0...127	"
3n	pp 17	1	00 - 7F	MW LFO PMOD DEPTH *	0...127	"

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3n pp 18	1	00 - 7F	MW LFO FMOD DEPTH *	0...127	"
3n pp 19	1	28 - 58	PITCH BEND CONTROL *	-24...0...+24[semitones]	"
3n pp 1A	1	00 - 7F	AC1 LOW PASS FILTER CONTROL *	-64...0...63	"
3n pp 1B	1	00 - 7F	AC1 AMPLITUDE CONTROL *	-100...0...+100[%]	"
3n pp 1C	1	00 - 7F	VELOCITY SENSE DEPTH	0...127	"
3n pp 1D	1	00 - 7F	VELOCITY SENSE OFFSET	0...127	"
3n pp 1E	1	00 - 7F	NOTE LIMIT LOW	C-2...G8	"
3n pp 1F	1	00 - 7F	NOTE LIMIT HIGH	C-2...G8	"
3n pp 20	1	00 - 7F	PORTAMENTO TIME *	0...127	"
3n pp 21	1	01 - 7F	VELOCITY LIMIT LOW	1...127	"
3n pp 22	1	01 - 7F	VELOCITY LIMIT HIGH	1...127	"
TOTAL SIZE	23				

n: performance part number (01-04)

pp:performance number (00-63)

For parameters marked by an *, only the data of n=1 is received as common data, and the data of n=2-4 is not received.

MIDI Data Format

<Table 3-1>

Parameter Base Address
MODEL ID = 59

Parameter	Address			Description
	(H)	(M)	(L)	
CURRENT PERFORMANCE	09	00	00	Part1
	09	01	00	Part2
	09	02	00	Part3
	09	03	00	Part4
	0B	00	00	Common
	0C	00	00	Insertion1 Effect
	0C	01	00	Insertion2 Effect
	INTERNAL PERFORMANCE	30	00	00
:		:	:	:
30		63	00	#100 Part1
31		00	00	#1 Part2
:		:	:	:
31		63	00	#100 Part2
32		00	00	#1 Part3
:		:	:	:
32		63	00	#100 Part3
33		00	00	#1 Part4
:		:	:	:
33		63	00	#100 Part4
40		00	00	#1 Common
:		:	:	:
40		63	00	#100 Common
50	00	00	#1 Insertion1 Effect	
:	:	:	:	
50	63	00	#100 Insertion1 Effect	
51	00	00	#1 Insertion2 Effect	
:	:	:	:	
51	63	00	#100 Insertion2 Effect	

Performance Common CUR		
Address	(H)	Parameter
0B	00	00 System
	00	20 Effect
	00	70 EQ

Performance Common INT		
Address	(H)	Parameter
40	pp	00 System
	pp	20 Effect
	pp	70 EQ

pp: Performance#

<Table 3-2>

MIDI Parameter Change table (CURRENT PERFORMANCE)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
09 0n 00	1	00 - 7F	PROGRAM NUMBER	1...128	depends on performance number
0n 01	1	00 - 7F	BANK SELECT	0...127 (Refer to the XG voice map)	"
0n 02	1	00 - 7F	VOLUME	0...127	"
0n 03	1	00 - 7F	PAN	RND,L63...C...R63(0, 1...64...127)	"
0n 04	1	00 - 7F	DRY SEND LEVEL	0...127	"
0n 05	1	00 - 7F	CHORUS SEND	0...127	"
0n 06	1	00 - 7F	REVERB SEND	0...127	"
0n 07	1	00 - 7F	VARIATION SEND	0...127	"
0n 08	1	28 - 58	NOTE SHIFT	-24...0...+24[semitones]	"
0n 09	1	00 - 01	Rev NOTE MESSAGE(MUTE)	OFF , ON(0, 1)	"
0n 0A	1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...+63	"
0n 0B	1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...+63	"
0n 0C	1	00 - 7F	EG ATTACK TIME	-64...0...+63	"
0n 0D	1	00 - 7F	EG DECAY TIME	-64...0...+63	"
0n 0E	1	00 - 7F	EG RELEASE TIME	-64...0...+63	"
0n 0F	1	00 - 7F	VIBRATO RATE	-64...0...+63	"
0n 10	1	00 - 7F	VIBRATO DEPTH	-64...0...+63	"
0n 11	1	00 - 7F	VIBRATO DELAY	-64...0...+63	"
0n 12	2	00 - 0F	DETUNE	-12.8...0...+12.7[Hz]	"
0n 13		00 - 0F		1st bit3-0→bit7-4 2nd bit3-0→bit3-0	"
0n 14	1	00 - 7F	PITCH EG INITIAL LEVEL	-64...0...+63	"
0n 15	1	00 - 7F	PITCH EG ATTACK TIME	-64...0...+63	"
0n 16	1	00 - 7F	PITCH EG RELEASE LEVEL	-64...0...+63	"
0n 17	1	00 - 7F	PITCH EG RELEASE TIME	-64...0...+63	"
0n 18	1	00 - 01	MONO/POLY MODE	MONO , POLY(0, 1)	"
0n 19	1	00 - 7F	VELOCITY SENSE DEPTH	0...127	"
0n 1A	1	00 - 7F	VELOCITY SENSE OFFSET	0...127	"
0n 1B	1	00 - 7F	NOTE LIMIT LOW	C-2...G8(0...127)	"
0n 1C	1	00 - 7F	NOTE LIMIT HIGH	C-2...G8(0...127)	"
0n 1D	1	01 - 7F	VELOCITY LIMIT LOW	1...127	"
0n 1E	1	01 - 7F	VELOCITY LIMIT HIGH	1...127	"
0n 1F	1	00 - 7F	EQ BASS	-64 ...0...+63(-12 - +12[dB])	"
0n 20	1	00 - 7F	EQ TREBLE	-64...0...+63(-12 - +12[dB])	"
0n 21	1	04 - 28	EQ BASS frequency	32...2.0k[Hz]	"
0n 22	1	1C - 3A	EQ TREBLE frequency	500...16.0k[Hz]	"
0n 23	1	00 - 7F	HIGH PASS FILTER CUTOFF FREQUENCY	-64...0...+63	"

TOTAL SIZE 24

n: performance part number (00-03)

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0B 00 00	0C	20 - 7F	PERFORMANCE NAME	32...127(ASCII CHARACTER)	depends on performance number
	0C 01	00 - 7F	PERFORMANCE VOLUME	0...127	"
	0D 01	01 - 7F	PERFORMANCE PAN	L63...C...R63	"
	0E 01	00 - 60	AC1 CC NUMBER	0...95,CAT	"
	0F 01	00 - 01	A/D INPUT	OFF , ON	"
	10 01	00 - 7F	MW LFO PMOD DEPTH	0...127	"
	11 01	00 - 7F	MW LFO FMOD DEPTH	0...127	"
	12 01	28 - 58	BEND PITCH CONTROL	-24..0..+24[semitones]	"
	13 01	00 - 7F	AC1 LOW PASS FILTER CONTROL	-64 ...0...+63	"
	14 01	00 - 7F	AC1 AMPLITUDE CONTROL	-64 ...0...+63	"
	15 01	00 - 7F	AC1 LFO FMOD DEPTH	0...127	"
	16 01	00 - 01	PORTAMENTO SWITCH	OFF , ON(0, 1)	"
	17 01	00 - 7F	PORTAMENTO TIME	0...127	"
TOTAL SIZE 18					

0B 00 20	2	00-7F	REVERB TYPE MSB	Refer to the Effect Program List	depends on performance number
	21	00-7F	REVERB TYPE LSB	"	"
	22	1	00-7F	REVERB PARAMETER 1	"
	23	1	00-7F	REVERB PARAMETER 2	"
	24	1	00-7F	REVERB PARAMETER 3	"
	25	1	00-7F	REVERB PARAMETER 4	"
	26	1	00-7F	REVERB PARAMETER 5	"
	27	1	00-7F	REVERB RETURN	-∞dB...0dB...+6dB(0...96...127)
	28	1	01-7F	REVERB PAN	L63...C...R63
	29	2	00-7F	CHORUS TYPE MSB	Refer to the Effect Program List
	2A		00-7F	CHORUS TYPE LSB	"
	2B	1	00-7F	CHORUS PARAMETER 1	"
	2C	1	00-7F	CHORUS PARAMETER 2	"
	2D	1	00-7F	CHORUS PARAMETER 3	"
	2E	1	00-7F	CHORUS PARAMETER 4	"
	2F	1	00-7F	CHORUS PARAMETER 5	"
	30	1	00-7F	CHORUS RETURN	-∞dB...0dB...+6dB(0...96...127)
	31	1	01-7F	CHORUS PAN	L63...C...R63(1...64...127)
	32	1	00-7F	SEND CHORUS TO REVERB	-∞dB...0dB...+6dB(0...96...127)
	33	2	00-7F	VARIATION TYPE MSB	Refer to the Effect Program List
	34		00-7F	VARIATION TYPE LSB	"
	35	2	00-7F	VARIATION PARAMETER 1 MSB	"
	36		00-7F	VARIATION PARAMETER 1 LSB	"
	37	2	00-7F	VARIATION PARAMETER 2 MSB	"
	38		00-7F	VARIATION PARAMETER 2 LSB	"
	39	2	00-7F	VARIATION PARAMETER 3 MSB	"
	3A		00-7F	VARIATION PARAMETER 3 LSB	"
	3B	2	00-7F	VARIATION PARAMETER 4 MSB	"
	3C		00-7F	VARIATION PARAMETER 4 LSB	"
	3D	2	00-7F	VARIATION PARAMETER 5 MSB	"
	3E		00-7F	VARIATION PARAMETER 5 LSB	"
	3F	2	00-7F	VARIATION PARAMETER 10 MSB	"
	40		00-7F	VARIATION PARAMETER 10 LSB	"
	41	1	00-7F	VARIATION RETURN	-∞dB...0dB...+6dB(0...96...127)
	42	1	01-7F	VARIATION PAN	L63...C...R63
	43	1	00-7F	SEND VARIATION TO REVERB	-∞dB...0dB...+6dB(0...96...127)
	44	1	00-7F	SEND VARIATION TO CHORUS	-∞dB...0dB...+6dB(0...96...127)
	45	1	00-7F	AC1 VARIATION CONTROL DEPTH	0...127
	46	1	00-01	VARIATION CONNECTION	INSERTION , SYSTEM
	47	1	00-7F	VARIATION PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)
TOTAL SIZE 28					

0B 00 70	1	00 - 04	EQ TYPE	flat,jazz,pops,rock,concert	depends on performance number
	71	1	34 - 4C	EQ GAIN1	-12...0...+12[dB]
	72	1	34 - 4C	EQ GAIN2	-12...0...+12[dB]
	73	1	34 - 4C	EQ GAIN3	-12...0...+12[dB]
	74	1	34 - 4C	EQ GAIN4	-12...0...+12[dB]
	75	1	34 - 4C	EQ GAIN5	-12...0...+12[dB]
TOTAL SIZE 06					

0C 00 00	2	00-7F	INSERTION EFFECT 1 TYPE MSB	Refer to the Effect Program List	depends on performance number
	01	00-7F	INSERTION EFFECT 1 TYPE LSB	"	"
	02	2	00-7F	INSERTION EFFECT 1 PARAMETER1 MSB	"
	03		00-7F	INSERTION EFFECT 1 PARAMETER1 LSB	"
	04	2	00-7F	INSERTION EFFECT 1 PARAMETER2 MSB	"
	05		00-7F	INSERTION EFFECT 1 PARAMETER2 LSB	"
	06	2	00-7F	INSERTION EFFECT 1 PARAMETER3 MSB	"
	07		00-7F	INSERTION EFFECT 1 PARAMETER3 LSB	"
	08	2	00-7F	INSERTION EFFECT 1 PARAMETER4 MSB	"
	09		00-7F	INSERTION EFFECT 1 PARAMETER4 LSB	"
	0A	2	00-7F	INSERTION EFFECT 1 PARAMETER5 MSB	"
	0B		00-7F	INSERTION EFFECT 1 PARAMETER5 LSB	"
	0C	2	00-7F	INSERTION EFFECT 1 PARAMETER10 MSB	"
	0D		00-7F	INSERTION EFFECT 1 PARAMETER10 LSB	"
	0E	1	00-7F	INSERTION EFFECT 1 PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)
TOTAL SIZE 0F					

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0C 01 00	2	00-7F	INSERTION EFFECT 2 TYPE MSB	Refer to the Effect Program List	depends on performance number
01		00-7F	INSERTION EFFECT 2 TYPE LSB	"	"
02	2	00-7F	INSERTION EFFECT 2 PARAMETER1 MSB	"	"
03		00-7F	INSERTION EFFECT 2 PARAMETER1 LSB	"	"
04	2	00-7F	INSERTION EFFECT 2 PARAMETER2 MSB	"	"
05		00-7F	INSERTION EFFECT 2 PARAMETER2 LSB	"	"
06	2	00-7F	INSERTION EFFECT 2 PARAMETER3 MSB	"	"
07		00-7F	INSERTION EFFECT 2 PARAMETER3 LSB	"	"
08	2	00-7F	INSERTION EFFECT 2 PARAMETER4 MSB	"	"
09		00-7F	INSERTION EFFECT 2 PARAMETER4 LSB	"	"
0A	2	00-7F	INSERTION EFFECT 2 PARAMETER5 MSB	"	"
0B		00-7F	INSERTION EFFECT 2 PARAMETER5 LSB	"	"
0C	2	00-7F	INSERTION EFFECT 2 PARAMETER10 MSB	"	"
0D		00-7F	INSERTION EFFECT 2 PARAMETER10 LSB	"	"
0E	1	00-7F	INSERTION EFFECT 2 PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)	"

TOTAL SIZE 0F

<Table 3-3>

MIDI Parameter Change table (INTERNAL PERFORMANCE)

Address (H)	Size (H)	Data (H)	Parameter	Description	Initial value (H)
3n pp 00	1	00 - 7F	PROGRAM NUMBER	1...128	depends on performance number
3n pp 01	1	00 - 7F	BANK SELECT	0...127 (Refer to the XG voice map)	"
3n pp 02	1	00 - 7F	VOLUME	0...127	"
3n pp 03	1	00, 01 - 7F	PAN	RND, L63...C...R63	"
3n pp 04	1	00 - 7F	DRY SEND LEVEL	0...127	"
3n pp 05	1	00 - 7F	CHORUS SEND	0...127	"
3n pp 06	1	00 - 7F	REVERB SEND	0...127	"
3n pp 07	1	00 - 7F	VARIATION SEND	0...127	"
3n pp 08	1	28 - 58	NOTE SHIFT	-24...0...+24[semitones]	"
3n pp 09	1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...+63	"
3n pp 0A	1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...+63	"
3n pp 0B	1	00 - 7F	EG ATTACK TIME	-64...0...+63	"
3n pp 0C	1	00 - 7F	EG DECAY TIME	-64...0...+63	"
3n pp 0D	1	00 - 7F	EG RELEASE TIME	-64...0...+63	"
3n pp 0E	1	00 - 7F	VIBRATO RATE	-64...0...+63	"
3n pp 0F	1	00 - 7F	VIBRATO DEPTH	-64...0...+63	"
3n pp 10	1	00 - 7F	VIBRATO DELAY	-64...0...+63	"
3n pp 11	2	00 - 0F	DETUNE	-12.8...0...+12.7[Hz]	"
3n pp 12		00 - 7F		1st bit3-0→bit7-4 2nd bit3-0→bit3-0 1st bit6 : OFF,ON(0,1) 1st bit5 : MONO,POLY(0,1)	"
			Rev NOTE MESSAGE		
			MONO/POLY MODE		
3n pp 13	1	00 - 7F	PITCH EG INITIAL LEVEL	0...127	"
3n pp 14	1	00 - 7F	PITCH EG ATTACK TIME	0...127	"
3n pp 15	1	00 - 7F	PITCH EG RELEASE LEVEL	0...127	"
3n pp 16	1	00 - 7F	PITCH EG RELEASE TIME	0...127	"
3n pp 17	1	00 - 7F	VELOCITY SENSE DEPTH	0...127	"
3n pp 18	1	00 - 7F	VELOCITY SENSE OFFSET	0...127	"
3n pp 19	1	00 - 7F	NOTE LIMIT LOW	C-2...G8	"
3n pp 1A	1	00 - 7F	NOTE LIMIT HIGH	C-2...G8	"
3n pp 1B	1	01 - 7F	VELOCITY LIMIT LOW	1...127	"
3n pp 1C	1	01 - 7F	VELOCITY LIMIT HIGH	1...127	"
3n pp 1D	1	00 - 7F	EQ BASS	-64 ...0...+63(-12 - +12[dB])	"
3n pp 1E	1	00 - 7F	EQ TREBLE	-64...0...+63(-12 - +12[dB])	"
3n pp 1F	1	04 - 28	EQ BASS frequency	32...2.0k[Hz]	"
3n pp 20	1	1C - 3A	EQ TREBLE frequency	500...16.0k[Hz]	"
3n pp 21	1	00 - 7F	HIGH PASS FILTER CUTOFF FREQUENCY	-64...0...+63	"

n: performance part number (00-03)
pp:performance number (00-63)

40 pp 00	0C	20 - 7F	PERFORMANCE NAME	32...127(ASCII CHARACTER)	depends on performance number
pp 0C	01	00 - 7F	PERFORMANCE VOLUME	0...127	"
pp 0D	01	01 - 7F	PERFORMANCE PAN	L63...C...R63(1...64...127)	"
pp 0E	01	00 - 60	AC1 CC NUMBER	0...95.CAT	"
pp 0F	01	00 - 01	A/D INPUT	OFF, ON	"
pp 10	01	00 - 7F	MW LFO PMOD DEPTH	0...127	"
pp 11	01	00 - 7F	MW LFO FMOD DEPTH	0...127	"
pp 12	01	28 - 58	BEND PITCH CONTROL	-24...0...+24[semitones]	"
pp 13	01	00 - 7F	AC1 FILTER CONTROL	-64 ...0...+63	"
pp 14	01	00 - 7F	AC1 AMPLITUDE CONTROL	-100...0...+100[%]	"
pp 15	01	00 - 7F	AC1 LFO FMOD DEPTH	0...127	"
pp 16	01	00 - 01	PORTAMENTO SWITCH	OFF, ON(0, 1)	"
pp 17	01	00 - 7F	PORTAMENTO TIME	0...127	"

TOTAL SIZE 18

MIDI Data Format

40	pp 20	2	00-7F	REVERB TYPE MSB	Refer to the Effect Program List	depends on performance number
	pp 21		00-7F	REVERB TYPE LSB	"	"
	pp 22	1	00-7F	REVERB PARAMETER 1	"	"
	pp 23	1	00-7F	REVERB PARAMETER 2	"	"
	pp 24	1	00-7F	REVERB PARAMETER 3	"	"
	pp 25	1	00-7F	REVERB PARAMETER 4	"	"
	pp 26	1	00-7F	REVERB PARAMETER 5	"	"
	pp 27	1	00-7F	REVERB RETURN	--dB...0dB...+6dB(0...96...127)	"
	pp 28	1	01-7F	REVERB PAN	L63...C...R63	"
	pp 29	2	00-7F	CHORUS TYPE MSB	Refer to the Effect Program List	"
	pp 2A		00-7F	CHORUS TYPE LSB	"	"
	pp 2B	1	00-7F	CHORUS PARAMETER 1	"	"
	pp 2C	1	00-7F	CHORUS PARAMETER 2	"	"
	pp 2D	1	00-7F	CHORUS PARAMETER 3	"	"
	pp 2E	1	00-7F	CHORUS PARAMETER 4	"	"
	pp 2F	1	00-7F	CHORUS PARAMETER 5	"	"
	pp 30	1	00-7F	CHORUS RETURN	--dB...0dB...+6dB(0...96...127)	"
	pp 31	1	01-7F	CHORUS PAN	L63...C...R63	"
	pp 32	1	00-7F	SEND CHORUS TO REVERB	--dB...0dB...+6dB(0...96...127)	"
	pp 33	2	00-7F	VARIATION TYPE MSB	Refer to the Effect Program List	"
	pp 34		00-7F	VARIATION TYPE LSB	"	"
	pp 35	2	00-7F	VARIATION PARAMETER 1 MSB	"	"
	pp 36		00-7F	VARIATION PARAMETER 1 LSB	"	"
	pp 37	2	00-7F	VARIATION PARAMETER 2 MSB	"	"
	pp 38		00-7F	VARIATION PARAMETER 2 LSB	"	"
	pp 39	2	00-7F	VARIATION PARAMETER 3 MSB	"	"
	pp 3A		00-7F	VARIATION PARAMETER 3 LSB	"	"
	pp 3B	2	00-7F	VARIATION PARAMETER 4 MSB	"	"
	pp 3C		00-7F	VARIATION PARAMETER 4 LSB	"	"
	pp 3D	2	00-7F	VARIATION PARAMETER 5 MSB	"	"
	pp 3E		00-7F	VARIATION PARAMETER 5 LSB	"	"
	pp 3F	2	00-7F	VARIATION PARAMETER 10 MSB	"	"
	pp 40		00-7F	VARIATION PARAMETER 10 LSB	"	"
	pp 41	1	00-7F	VARIATION RETURN	--dB...0dB...+6dB(0...96...127)	"
	pp 42	1	01-7F	VARIATION PAN	L63...C...R63(1...64...127)	"
	pp 43	1	00-7F	SEND VARIATION TO REVERB	--dB...0dB...+6dB(0...96...127)	"
	pp 44	1	00-7F	SEND VARIATION TO CHORUS	--dB...0dB...+6dB(0...96...127)	"
	pp 45	1	00-7F	AC1 VARIATION CONTROL DEPTH	0...127	"
	pp 46	1	00-01	VARIATION CONNECTION	INSERTION , SYSTEM	"
	pp 47	1	00-03,7F	VARIATION PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)	"
TOTAL SIZE 28						

40	pp 70	1	00 - 04	EQ TYPE	flat,jazz,pops,rock,concert	depends on performance number
	pp 71	1	34 - 4C	EQ GAIN1	-12...0...+12[dB]	"
	pp 72	1	34 - 4C	EQ GAIN2	-12...0...+12[dB]	"
	pp 73	1	34 - 4C	EQ GAIN3	-12...0...+12[dB]	"
	pp 74	1	34 - 4C	EQ GAIN4	-12...0...+12[dB]	"
	pp 75	1	34 - 4C	EQ GAINS	-12...0...+12[dB]	"
TOTAL SIZE 06						

50	pp 00	2	00-7F	INSERTION EFFECT 1 TYPE MSB	Refer to the Effect Program List	depends on performance number
	pp 01		00-7F	INSERTION EFFECT 1 TYPE LSB	"	"
	pp 02	2	00-7F	INSERTION EFFECT 1 PARAMETER1 MSB	"	"
	pp 03		00-7F	INSERTION EFFECT 1 PARAMETER1 LSB	"	"
	pp 04	2	00-7F	INSERTION EFFECT 1 PARAMETER2 MSB	"	"
	pp 05		00-7F	INSERTION EFFECT 1 PARAMETER2 LSB	"	"
	pp 06	2	00-7F	INSERTION EFFECT 1 PARAMETER3 MSB	"	"
	pp 07		00-7F	INSERTION EFFECT 1 PARAMETER3 LSB	"	"
	pp 08	2	00-7F	INSERTION EFFECT 1 PARAMETER4 MSB	"	"
	pp 09		00-7F	INSERTION EFFECT 1 PARAMETER4 LSB	"	"
	pp 0A	2	00-7F	INSERTION EFFECT 1 PARAMETER5 MSB	"	"
	pp 0B		00-7F	INSERTION EFFECT 1 PARAMETER5 LSB	"	"
	pp 0C	2	00-7F	INSERTION EFFECT 1 PARAMETER10 MSB	"	"
	pp 0D		00-7F	INSERTION EFFECT 1 PARAMETER10 LSB	"	"
	pp 0E	1	00-7F	INSERTION EFFECT 1 PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)	"
TOTAL SIZE 0F						

51	pp 00	2	00-7F	INSERTION EFFECT 2 TYPE MSB	Refer to the Effect Program List	depends on performance number
	pp 01		00-7F	INSERTION EFFECT 2 TYPE LSB	"	"
	pp 02	2	00-7F	INSERTION EFFECT 2 PARAMETER1 MSB	"	"
	pp 03		00-7F	INSERTION EFFECT 2 PARAMETER1 LSB	"	"
	pp 04	2	00-7F	INSERTION EFFECT 2 PARAMETER2 MSB	"	"
	pp 05		00-7F	INSERTION EFFECT 2 PARAMETER2 LSB	"	"
	pp 06	2	00-7F	INSERTION EFFECT 2 PARAMETER3 MSB	"	"
	pp 07		00-7F	INSERTION EFFECT 2 PARAMETER3 LSB	"	"
	pp 08	2	00-7F	INSERTION EFFECT 2 PARAMETER4 MSB	"	"
	pp 09		00-7F	INSERTION EFFECT 2 PARAMETER4 LSB	"	"
	pp 0A	2	00-7F	INSERTION EFFECT 2 PARAMETER5 MSB	"	"
	pp 0B		00-7F	INSERTION EFFECT 2 PARAMETER5 LSB	"	"
	pp 0C	2	00-7F	INSERTION EFFECT 2 PARAMETER10 MSB	"	"
	pp 0D		00-7F	INSERTION EFFECT 2 PARAMETER10 LSB	"	"
	pp 0E	1	00-7F	INSERTION EFFECT 2 PART	Part1...4(0...3) AD1, AD2(64, 65) OFF(127)	"
TOTAL SIZE 0F						

pp:performance number

(00-63)

Memo

MIDI Implementation Chart

Prog Change : True #	X *****	O 0 - 127	
System Exclusive	O *3	O *3	
: Song Pos.	X	X	
: Song Sel.	X	X	
: Tune	X	X	
System : Clock	X	X	
Real Time: Commands	X	X	
Aux : Local ON/OFF	X	X	
: All Notes OFF	X	O(123-127)	
Mes- : Active Sense	X	O	
sages : Reset	X	X	
Notes:	*1 receive if switch is on. *2 m is always treated as "1" regardless of its value. *3 transmit/receive if exclusive switch is on.		

Mode 1 : OMNI ON , POLY Mode 2 : OMNI ON , MONO O : Yes
 Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO X : No

MU90 XG Voice List

Bank Select LSB	Bank 0	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10	Bank 11	Bank 12	Bank 13	Bank 14	Bank 15	Bank 16	Bank 17	Bank 18	Bank 19	Bank 20	Bank 21	Bank 22	Bank 23	Bank 24	Bank 25	Bank 26	Bank 27	
Piano	GrandPno	1	GrandPnoK	1																									
	BriePno	2	BriePnoK	2																									
	ElGrand	3	ElGrand	2	ElGrandPnoK	2																							
	HnyPnoK	4	HnyPnoK	2	HnyPnoK	2																							
	E.Piano1	5	E.Piano1	2	E.Piano1K	2																							
	E.Piano2	6	E.Piano2	2	E.Piano2K	2																							
	Harp1	7	Harp1	1	Harp1K	1																							
	Clavi	8	Clavi	2	Clavi K	1																							
Chromatic Percussion	Celista	9	Celista	1																									
	Glocken	10	Glocken	1																									
Organ	MuscBox	11	MuscBox	2																									
	Vibes K	12	Vibes K	1																									
	Marimba	13	Marimba	1	MarimbaK	1																							
	Xylophon	14	Xylophon	1																									
	TubulBel	15	TubulBel	1																									
	Dulcimer	16	Dulcimer	1																									
	DrawOrgn	17	DrawOrgn	1																									
	PerOrgn	18	PerOrgn	1																									
	RockOrgn	19	RockOrgn	2																									
	ChurchOrg	20	ChurchOrg	2																									
	ReedOrgn	21	ReedOrgn	1																									
	Accordion	22	Accordion	2																									
	Harmonica	23	Harmonica	1																									
	LangAcid	24	LangAcid	2																									
	Guitar	NylonGtr	25	NylonGtr	1																								
		SteelGtr	26	SteelGtr	1																								
Jazz Gtr		27	Jazz Gtr	1																									
CleanGtr		28	CleanGtr	1																									
Mute Gtr		29	Mute Gtr	1																									
Overdrive		30	Overdrive	1																									
Dist.Gtr		31	Dist.Gtr	1																									
GtrHarmo		32	GtrHarmo	1																									
Aco.Bass		33	Aco.Bass	1																									
FourBass		34	FourBass	1																									
PckBass	35	PckBass	1																										
Feeless	36	Feeless	1																										
SlapBass1	37	SlapBass1	1																										
SlapBass2	38	SlapBass2	1																										
SynBass1	39	SynBass1	1																										
SynBass2	40	SynBass2	2																										
Strings	Vrln	41	Vrln	1																									
	Vrln	42	Vrln	1																									
	Cello	43	Cello	1																									
	Contrabs	44	Contrabs	1																									
	Trm.Sr	45	Trm.Sr	1																									
	Pizz.Sr	46	Pizz.Sr	1																									
	Harp	47	Harp	1																									
	Trmpet	48	Trmpet	1																									
	Strngs1	49	Strngs1	2																									
	Strngs2	50	Strngs2	2																									
S.Sr	51	S.Sr	1																										
Sr.Sr2	52	Sr.Sr2	2																										
ChoirAah	53	ChoirAah	1																										
VoiceObh	54	VoiceObh	1																										
SynVoice	55	SynVoice	1																										
Orch.Hit	56	Orch.Hit	2																										
Brass	Trmpet	57	Trmpet	1																									
	Trombone	58	Trombone	1																									
	Tuba	59	Tuba	1																									
	Mute Trp	60	Mute Trp	1																									
	Fr. Horn	61	Fr. Horn	1																									
	BrsSect	62	BrsSect	2																									

:Some as Bank
E: Number of elements

MU90 XG Voice List

Bank Select LSB Instrument Group	Muted		Detune 1		Detune 2		Detune 3		Octave 1		Octave 2		6th 1		6th 2		Tutti		Vibrato Switch		Vibrato Chorus Fx		Other Waves		
	Bank 28	Bank 32	Bank 33	Bank 34	Bank 35	Bank 36	Bank 37	Bank 38	Bank 39	Bank 40	Bank 41	Bank 42	Bank 43	Bank 44	Bank 45	Bank 46	Bank 47	Bank 48	Bank 49	Bank 50	Bank 51	Bank 52	Bank 53	Bank 54	Bank 55
Reed	65																								
	66																								
	67																								
	68																								
	69																								
	70																								
	71																								
	72																								
Pipe	73																								
	74																								
	75																								
	76																								
	77																								
	78																								
	79																								
	80																								
Synth Lead	81																								
	82																								
	83																								
	84																								
	85																								
	86																								
	87																								
	88																								
Synth Pad	89																								
	90																								
	91																								
	92																								
	93																								
	94																								
	95																								
	96																								
	97																								
Synth Effects	98																								
	99																								
	100																								
	101																								
	102																								
	103																								
	104																								
Ethnic	105																								
	106																								
	107																								
	108																								
	109																								
	110																								
	111																								
	112																								
	113																								
	114																								
	115																								
	116																								
	117																								
	118																								
	119																								
	120																								
	121																								
	122																								
	123																								
	124																								
	125																								
	126																								
	127																								
	128																								

Some as Bank 0
E: Number of elements

MU90 TG300B Voice List

Bank Select LSB Instrument Group	Bank 0 Group (1-28)	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank 9	Bank 10	Bank 11	Bank 16	Bank 17	Bank 18	Bank 19
Reed	55	Soprano Sax														
	56	Alto Sax							HyprAlto							
	57	Tenor Sax							BrnTnSx							
	58	Bari Sax														
	59	Other Sax														
	60	Eng Horn														
	71	Euphonium														
	72	Clarinett														
	73	Bassoon														
	74	Flute														
	75	Recorder														
	76	PanFlute														
77	Banjo															
78	Shakuhachi															
79	Whistle															
80	Ocarina															
Synth Lead	81	SoundLd														
	82	SynthLd														
	83	SynthLd														
	84	ChiffLd														
	85	ChurnLd														
	86	Voice Ld														
	87	Fifth Ld														
	88	BackLd														
	89	NewVoiceLd														
	90	WarmPad														
	91	Polysynth														
	Synth Pad	01	Polysynth													
02		ChorPad														
03		BrassPad														
04		MaracPad														
05		Harp Pad														
06		StringPad														
07		RainPad														
08		SoftFX														
09		Crescent														
10		Crescent														
11		BigDrum														
Synth Effects		01	BigDrum													
	02	Chorus														
	03	Chorus														
	04	Ser-Fi														
	05	Star 2														
	06	Star 2														
	07	Star 2														
	08	Star 2														
	09	Star 2														
	10	Star 2														
	11	Star 2														
	Ethnic	01	Banjo													
02		Banjo														
03		Banjo														
04		Banjo														
05		Banjo														
06		Banjo														
07		Banjo														
08		Banjo														
09		Banjo														
10		Banjo														
11		Banjo														
Percussive		11	Banjo													
	12	Banjo														
	13	Banjo														
	14	Banjo														
	15	Banjo														
	16	Banjo														
	17	Banjo														
	18	Banjo														
	19	Banjo														
	20	Banjo														
	21	Banjo														
	Sound Effects	21	Banjo													
22		Banjo														
23		Banjo														
24		Banjo														
25		Banjo														
26		Banjo														
27		Banjo														
28		Banjo														
29		Banjo														
30		Banjo														
31		Banjo														

MU90 TG300B Voice List

Bank Select LSB Instrument Group	Bank 24	Bank 25	Bank 26	Bank 32	Bank 33	Bank 40	Bank 126	Bank 127	
Piano	1						A. Piano1	2 e.piano1	
	2						A. Piano2	2 e.piano2	
	3						A. Piano3	2 e.piano3	
	4						A. Piano4	2 e.piano4	
	5	GMELP1	1 HandLP	2 MelLoFP1	1 El.ProsK			A. Piano5	2 e.piano5
	6	DX.Hard	2		El.ProsK			A. Piano6	2 e.piano6
	7	Harpic2	2					A. Piano7	2 e.piano7
	8							El.Piano1	2 e.piano8
Chromatic Percussion	9						El.Piano2	2 e.piano9	
	10						El.Piano3	2 e.piano10	
	11						El.Piano4	2 e.piano11	
	12						A. Guilt1	2 e.organ1	
	13	LogDrum	2				A. Guilt2	2 e.organ2	
	14						A. Guilt3	2 e.organ3	
	15						El.Guilt1	2 e.piano12	
	16						El.Guilt2	2 e.piano13	
	17	ChezOrg	2				Slarp1	2 e.piano14	
	18						Slarp2	2 e.piano15	
Organ	19	EstBtar	2				Slarp3	2 e.piano16	
	20	OrgFlute	2				Slarp4	2 e.piano17	
	21						Slarp5	2 e.piano18	
	22						Slarp6	2 e.piano19	
	23						Slarp7	2 e.piano20	
	24						Slarp8	2 e.piano21	
	25	VelcFlam	2				Slarp9	2 e.piano22	
	26						Slarp10	2 e.piano23	
	27						Slarp11	2 e.piano24	
	28						Slarp12	2 e.piano25	
Guitar	29						Slarp13	2 e.piano26	
	30						Slarp14	2 e.piano27	
	31	RekRitm1	2				Slarp15	2 e.piano28	
	32						Slarp16	2 e.piano29	
	33						Slarp17	2 e.piano30	
	34						Slarp18	2 e.piano31	
	35	VelcFlam	2				Slarp19	2 e.piano32	
	36						Slarp20	2 e.piano33	
	37						Slarp21	2 e.piano34	
	38						Slarp22	2 e.piano35	
Bass	39						Slarp23	2 e.piano36	
	40						Slarp24	2 e.piano37	
	41						Slarp25	2 e.piano38	
	42						Slarp26	2 e.piano39	
	43						Slarp27	2 e.piano40	
	44						Slarp28	2 e.piano41	
	45						Slarp29	2 e.piano42	
	46						Slarp30	2 e.piano43	
	47						Slarp31	2 e.piano44	
	48						Slarp32	2 e.piano45	
Strings	49	VelcStr	2				Slarp33	2 e.piano46	
	50						Slarp34	2 e.piano47	
	51						Slarp35	2 e.piano48	
	52						Slarp36	2 e.piano49	
	53						Slarp37	2 e.piano50	
	54						Slarp38	2 e.piano51	
	55						Slarp39	2 e.piano52	
	56						Slarp40	2 e.piano53	
	57						Slarp41	2 e.piano54	
	58						Slarp42	2 e.piano55	
Ensemble	59						Slarp43	2 e.piano56	
	60						Slarp44	2 e.piano57	
	61						Slarp45	2 e.piano58	
	62						Slarp46	2 e.piano59	
	63						Slarp47	2 e.piano60	
	64						Slarp48	2 e.piano61	
	Brass	65						Slarp49	2 e.piano62
		66						Slarp50	2 e.piano63
		67						Slarp51	2 e.piano64
		68						Slarp52	2 e.piano65
69							Slarp53	2 e.piano66	
70							Slarp54	2 e.piano67	
71							Slarp55	2 e.piano68	
72							Slarp56	2 e.piano69	
73							Slarp57	2 e.piano70	
74							Slarp58	2 e.piano71	

About the 128 GM sounds

Group	Pgm# (1-128)	Instrument name	Display	Explanation of voice
Piano	1	Grand Piano	GrandPno	Grand piano
	2	Bright Piano	BritePno	Bright and crisp grand piano
	3	Electric Grand Piano	El.Grand	Electric grand piano (CP80)
	4	Honky-tonk Piano	HnkyTonk	Ragtime-style piano
	5	Electric Piano 1	E.Piano1	Electric piano
	6	Electric Piano 2	E.Piano2	Electric piano with metallic resonance (DX)
	7	Harpsichord	Harpsi.	Harpsichord
	8	Clavi	Clavi	Clavi
Chromatic Percussion	9	Celesta	Celesta	Celesta
	10	Glockenspiel	Glocken	Glockenspiel
	11	Music Box	MusicBox	Music box
	12	Vibraphone	Vibes	Vibraphone (metal bars with resonator tubes)
	13	Marimba	Marimba	Marimba (wooden bars with resonator tubes)
	14	Xylophone	Xylophon	Xylophone (wooden bars)
	15	Tubular Bells	TubulBel	Tubular bells
	16	Dulcimer	Dulcimer	Dulcimer (struck string instrument)
Organ	17	Drawbar Organ	DrawOrgn	Drawbar organ
	18	Percussive Organ	PercOrgn	Electronic organ with strong attack
	19	Rock Organ	RockOrgn	Rock-style organ
	20	Church Organ	ChrchOrg	Pipe organ
	21	Reed Organ	ReedOrgn	Bright and light organ
	22	Accordion	Acordion	Accordion
	23	Hamonica	Harmnica	Harmonica
	24	Tango Accordion	TangoAcid	Tango accordion
Guitar	25	Nylon Guitar	NylonGtr	Classical guitar
	26	Steel Guitar	SteelGtr	Folk guitar
	27	Jazz Guitar	Jazz Gtr	Electric guitar (jazz)
	28	Clean Guitar	CleanGtr	Electric guitar
	29	Muted Guitar	Mute Gtr	Muted guitar
	30	Overdriven Guitar	Ovrdrive	Overdriven guitar
	31	Distortion Guitar	Dist.Gtr	Distorted guitar
	32	Guitar Harmonics	GtrHarmo	Harmonics
Bass	33	Acoustic Bass	Aco.Bass	Upright bass
	34	Finger Bass	FngrBass	Electric bass (finger plucked)
	35	Pick Bass	PickBass	Electric bass (played with a pick)
	36	Fretless Bass	Fretless	Fretless bass
	37	Slap Bass 1	SlapBas1	Slapped bass
	38	Slap Bass 2	SlapBas2	Slapped bass with soft attack
	39	Synth Bass 1	SynBass1	Synth bass with "sweep"
	40	Synth Bass 2	SynBass2	Synth bass
Strings	41	Violin	Violin	Violin
	42	Viola	Viola	Viola
	43	Cello	Cello	Cello
	44	Contrabass	Contrabs	Contrabass
	45	Tremolo Strings	Trem.Str	Strings played with tremolo
	46	Pizzicato Strings	Pizz.Str	Strings played pizzicato
	47	Orchestral Harp	Harp	Harp
	48	Timpani	Timpani	Timpani
Ensemble	49	Strings 1	Strings1	Strings
	50	Strings 2	Strings2	Strings with gentle attack
	51	Synth Strings 1	Syn Str1	Synth strings
	52	Synth Strings 2	Syn Str2	Synth strings with gentle attack
	53	Choir Aahs	ChoirAah	Choir singing "aah"
	54	Voice Oohs	VoiceOoh	Choir singing "ooh"
	55	Synth Voice	SynVoice	Vocoder-type chorus
	56	Orchestra Hit	Orch.Hit	Orchestra hit
Brass	57	Trumpet	Trumpet	Trumpet
	58	Trombone	Trombone	Trombone
	59	Tuba	Tuba	Tuba
	60	Muted Trumpet	Mute Trp	Muted trumpet
	61	French Horn	Fr. Horn	French horn
	62	Brass Section	BrssSect	Brass section
	63	Synth Brass 1	SynBrss1	Synth brass
	64	Synth Brass 2	SynBrss2	Synth brass with gentle attack

About the 128 GM sounds

Reed	65	Soprano Sax	SprnoSax	Soprano sax
	66	Alto Sax	Alto Sax	Alto sax
	67	Tenor Sax	TenorSax	Tenor sax
	68	Baritone Sax	Bari.Sax	Baritone sax
	69	Oboe	Oboe	Oboe
	70	English Horn	Eng.Horn	English horn
	71	Bassoon	Bassoon	Bassoon
	72	Clarinet	Clarinet	Clarinet
Pipe	73	Piccolo	Piccolo	Piccolo
	74	Flute	Flute	Flute
	75	Recorder	Recorder	Recorder
	76	Pan Flute	PanFlute	Pan flute
	77	Blown Bottle	Bottle	Blown bottle
	78	Shakuhachi	Shakhchi	Shakuhachi
	79	Whistle	Whistle	Whistle
	80	Ocarina	Ocarina	Ocarina
Synth Lead	81	Square Lead	SquareLd	Analog synth lead (square wave)
	82	Sawtooth Lead	Saw Ld	Analog synth lead (sawtooth wave)
	83	Calliope Lead	CalliopLd	Pan flute-type lead
	84	Chiff Lead	Chiff Ld	Synth brass-type lead
	85	Charang Lead	CharanLd	Distortion guitar-type lead
	86	Voice Lead	Voice Ld	Chorus lead
	87	Fifths Lead	Fifth Ld	Synth lead + perfect 4th below
	88	Bass & Lead	Bass&Ld	Synth bass + synth lead
Synth Pad	89	New Age Pad	NewAgePd	Bell + chorus
	90	Warm Pad	Warm Pad	Pad with gentle attack
	91	Poly Synth Pad	PolySyPd	Synth brass-style pad
	92	Choir Pad	ChoirPad	Chorus pad
	93	Bowed Pad	BowedPad	Glass harp-style pad
	94	Metallic Pad	MetalPad	Pad with hard synth strings
	95	Halo Pad	Halo Pad	Pad with breath noise
	96	Sweep Pad	SweepPad	Sweep pad with gentle attack
Synth Effects	97	Rain	Rain	Warm and transparent synth sound
	98	Sound Track	SoundTrk	Analog synth pad + perfect 4th above
	99	Crystal	Crystal	Music box, bell
	100	Atmosphere	Atmosphr	Harp + strings
	101	Brightness	Bright	Synth chorus with strong attack and rapid decay
	102	Goblins	Goblins	Sweep sound with gentle attack + murmuring
	103	Echoes	Echoes	Pad with definite attack + release echo
	104	Sci-Fi	Sci-Fi	Metallic synth pad
Ethnic	105	Sitar	Sitar	Sitar
	106	Banjo	Banjo	Banjo
	107	Shamisen	Shamisen	Shamisen
	108	Koto	Koto	Koto
	109	Kalimba	Kalimba	Kalimba
	110	Bagpipe	Bagpipe	Bagpipe
	111	Fiddle	Fiddle	Fiddle (violin)
	112	Shanai	Shanai	Ethnic woodwind
Percussive	113	Tinkle Bell	TnklBell	Bell
	114	Agogo	Agogo	Agogo
	115	Steel Drums	SteelDrum	Steel drums
	116	Woodblock	WoodBlok	Woodblock
	117	Taiko Drum	TaikoDrum	Japanese taiko drum
	118	Melodic Tom	MelodTom	Melodic tom
	119	Synth Drum	Syn Drum	Synth drum
	120	Reverse Cymbal	RevCymbal	Reversed cymbal
Sound Effects	121	Fret Noise	FretNoiz	Fret noise
	122	Breath Noise	BrthNoiz	Breath noise
	123	Seashore	Seashore	Waves
	124	Bird Tweet	Tweet	Birds chirping
	125	Telephone Ring	Telephone	Telephone ringing
	126	Helicopter	Helicptr	Helicopter
	127	Applause	Applause	Audience applauding
	128	Gunshot	Gunshot	Gunshot

C/M Voice List

pgm# (1-128)	TYPE1 Part1-9			TYPE2 Part11-16		
	(full name)	(display)	E	(full name)	(display)	E
1	acoustic piano 1	a.piano1	1	Acoustic Piano 1	A-Piano1	2
2	acoustic piano 2	a.piano2	1	Acoustic Piano 2	A-Piano2	2
3	acoustic piano 3	a.piano3	1	Acoustic Piano 3	A-Piano3	2
4	electric piano 1	e.piano1	1	Acoustic Piano 4	A-Piano4	2
5	electric piano 2	e.piano2	1	Acoustic Piano 5	A-Piano5	1
6	electric piano 3	e.piano3	1	Acoustic Piano 6	A-Piano6	1
7	electric piano 4	e.piano4	1	Acoustic Piano 7	A-Piano7	1
8	honky-tonk piano	hnkytnk	2	Electric Piano 1	E-Piano1	2
9	electric organ 1	e.organ1	2	Electric Piano 2	E-Piano2	2
10	electric organ 2	e.organ2	2	Electric Piano 3	E-Piano3	2
11	electric organ 3	e.organ3	1	Acoustic Guitar 1	A-Guitr1	1
12	electric organ 4	e.organ4	1	Acoustic Guitar 2	A-Guitr2	2
13	pipe organ 1	pipeorg1	2	Acoustic Guitar 3	A-Guitr3	2
14	pipe organ 2	pipeorg2	2	Electric Guitar 1	E-Guitr1	2
15	pipe organ 3	pipeorg3	2	Electric Guitar 2	E-Guitr2	1
16	accordion	acordion	2	Slap Bass 1	Slap-1	2
17	harpichord 1	harpsi1	1	Slap Bass 2	Slap-2	2
18	harpichord 2	harpsi2	2	Slap Bass 3	Slap-3	2
19	harpichord 3	harpsi3	1	Slap Bass 4	Slap-4	2
20	clavi 1	clavi1	1	Slap Bass 5	Slap-5	2
21	clavi 2	clavi2	1	Slap Bass 6	Slap-6	2
22	clavi 3	clavi3	1	Slap Bass 7	Slap-7	2
23	celesta 1	celesta1	1	Slap Bass 8	Slap-8	2
24	celesta 2	celesta2	1	Finger Bass 1	Finger-1	1
25	synth brass 1	synbras1	2	Finger Bass 2	Finger-2	2
26	synth brass 2	synbras2	2	Picked Bass 1	Picked-1	1
27	synth brass 3	synbras3	2	Picked Bass 2	Picked-2	2
28	synth brass 4	synbras4	2	Fretless Bass	FretlBs	1
29	synth bass 1	synbass1	1	Acoustic Bass	A-Bass	2
30	synth bass 2	synbass2	1	Choir 1	Choir-1	1
31	synth bass 3	synbass3	2	Choir 2	Choir-2	1
32	synth bass 4	synbass4	1	Choir 3	Choir-3	2
33	new age pad	newagepd	2	Choir 4	Choir-4	2
34	synth harmo	synharmo	2	Strings 1	Strngs-1	2
35	choir pad	choir pd	2	Strings 2	Strngs-2	2
36	bowed pad	bowed pd	2	Strings 3	Strngs-3	2
37	sound track	soundtrk	2	Strings 4	Strngs-4	2
38	atmosphere	atmosphr	2	Electric Organ 1	E-Organ1	2
39	synth warm	syn warm	2	Electric Organ 2	E-Organ2	2
40	synth funny	synfunny	1	Electric Organ 3	E-Organ3	2
41	synth echo 1	synecho1	2	Electric Organ 4	E-Organ4	2
42	rain	rain	2	Electric Organ 5	E-Organ5	2
43	synth oboe	synoboe	2	Electric Organ 6	E-Organ6	2
44	synth echo 2	synecho2	2	Electric Organ 7	E-Organ7	2
45	synth solo	synsolo	2	Electric Organ 8	E-Organ8	2
46	synth reed organ	synrdorg	2	Electric Organ 9	E-Organ9	2
47	synth bell	synbell	1	Soft Trumpet 1	SoftTP-1	1
48	square lead	squareld	2	Soft Trumpet 2	SoftTP-2	1
49	string section 1	strsect1	2	Trumpet/Trombone 1	TP/TRB-1	1
50	string section 2	strsect2	2	Trumpet/Trombone 2	TP/TRB-2	1
51	string section 3	strsect3	2	Trumpet/Trombone 3	TP/TRB-3	1
52	pizzicato strings	pizz.str	1	Trumpet/Trombone 4	TP/TRB-4	1
53	violin 1	violin 1	2	Trumpet/Trombone 5	TP/TRB-5	2
54	violin 2	violin 2	1	Trumpet/Trombone 6	TP/TRB-6	2
55	cello 1	cello 1	1	Sax 1	Sax-1	1
56	cello 2	cello 2	1	Sax 2	Sax-2	1
57	contrabass	contrabs	1	Sax 3	Sax-3	1
58	harp 1	harp 1	1	Sax 4	Sax-4	2
59	harp 2	harp 2	1	Brass 1	Brass-1	1
60	guitar 1	guitar 1	1	Brass 2	Brass-2	1
61	guitar 2	guitar 2	1	Brass 3	Brass-3	2
62	electric guitar 1	elecgr1	2	Brass 4	Brass-4	2
63	electric guitar 2	elecgr2	2	Brass 5	Brass-5	2
64	sitar	sitar	1	Orchestra Hit	Orch-Hit	1

C/M Voice List

pgm# (1-128)	TYPE1 Part1~9			TYPE2 Part11~16		
	(full name)	(display)	E	(full name)	(display)	E
65	acoustic bass 1	a.bass 1	1	Silence	Silence	
66	acoustic bass 2	a.bass 2	1	Silence	Silence	
67	electric bass 1	e.bass 1	1	Silence	Silence	
68	electric bass 2	e.bass 2	1	Silence	Silence	
69	slap bass 1	slapbas1	1	Silence	Silence	
70	slap bass 2	slapbas2	1	Silence	Silence	
71	fretless bass 1	fretles1	1	Silence	Silence	
72	fretless bass 2	fretles2	1	Silence	Silence	
73	flute 1	flute1	1	Silence	Silence	
74	flute 2	flute2	1	Silence	Silence	
75	piccolo 1	piccolo1	1	Silence	Silence	
76	piccolo 2	piccolo2	2	Silence	Silence	
77	recorder	recorder	1	Silence	Silence	
78	pan pipes	panpipes	2	Silence	Silence	
79	sax 1	sax1	2	Silence	Silence	
80	sax 2	sax2	1	Silence	Silence	
81	sax 3	sax3	1	Silence	Silence	
82	sax 4	sax4	1	Silence	Silence	
83	clarinet 1	clarint1	1	Silence	Silence	
84	clarinet 2	clarint2	1	Silence	Silence	
85	oboe	oboe	1	Silence	Silence	
86	english horn	eng.horn	1	Silence	Silence	
87	bassoon	bassoon	1	Silence	Silence	
88	harmonica	harmnica	1	Silence	Silence	
89	trumpet 1	trumpet1	1	Silence	Silence	
90	trumpet 2	trumpet2	1	Silence	Silence	
91	trombone 1	trmbone1	2	Silence	Silence	
92	trombone 2	trmbone2	2	Silence	Silence	
93	flugel horn 1	fr.horn1	1	Silence	Silence	
94	flugel horn 2	fr.horn2	2	Silence	Silence	
95	tuba	tuba	2	Silence	Silence	
96	brass section 1	brssect1	1	Silence	Silence	
97	brass section 2	brssect2	2	Silence	Silence	
98	vibraphone 1	vibe1	1	Silence	Silence	
99	vibraphone 2	vibe2	1	Silence	Silence	
100	synth mallet	symallet	1	Silence	Silence	
101	mallet windbell	maletwin	2	Silence	Silence	
102	glockenspiel	glocken	2	Silence	Silence	
103	tublar bells	tubulbel	1	Silence	Silence	
104	xylophone	xylophen	1	Silence	Silence	
105	marimba	marimba	2	Silence	Silence	
106	koto	koto	1	Silence	Silence	
107	sho	sho	2	Silence	Silence	
108	shakuhachi	shakhchi	2	Silence	Silence	
109	whistle 1	whistle1	2	Silence	Silence	
110	whistle 2	whistle2	1	Silence	Silence	
111	bottle	bottle	2	Silence	Silence	
112	breath pipe	breath	2	Silence	Silence	
113	timpani	timpani	1	Silence	Silence	
114	melodi tom	melotom	1	Silence	Silence	
115	deep snare	deepsnar	1	Silence	Silence	
116	electric percussion 1	e.perc1	1	Silence	Silence	
117	electric percussion 2	e.perc2	1	Silence	Silence	
118	taiko	taiko	1	Silence	Silence	
119	taiko rim	taikorim	1	Silence	Silence	
120	cymbal	cymbal	2	Silence	Silence	
121	castanet	castanet	1	Silence	Silence	
122	triangle	triangle	1	Silence	Silence	
123	orchestra hit	orchehit	1	Silence	Silence	
124	telephone	telephone	1	Silence	Silence	
125	bird tweet	bird	1	Silence	Silence	
126	one note jam	jam	1	Silence	Silence	
127	effect water	efctwatr	2	Silence	Silence	
128	effect jungle	efctjngl	2	Silence	Silence	

MU90 Performance List

Preset Performance List (MSB=001, LSB=000)

Pgm#	Category	Performance Name	Comment
1	FX	Heavens Door	Warm effect sound. MW controls the filter.
2	PF	Rich Piano	A robust concert grand.
3	BR	Saw Classic	Analog sawtooth brass. Delay effect.
4	FX	Analog Age	Warm and transparent analog synth pad. Aftertouch controls the filter.
5	PD	Big Atmos	Distinctive synth pad. MW controls the filter.
6	KS	Two Flutish	Left hand is pad, right hand is pan flute.
7	BA	Session Bass	Velocity switches between a fingered-plucked bass and slap bass.
8	OR	70s Organ AT	Organ of the 70's. Aftertouch controls the rotary speed.
9	SL	Touch Line	Sawtooth with fuzz. Move the filter and use for techno sequences.
10	SC	Rave Mecca	Dance sound for chording. MW controls the filter.
11	EN	Superstrings	Warm analog synth sound. MW controls the filter.
12	PF	EP Street	Solid electric piano. Deep chorus.
13	LD	Fat Lead	Classic saucy bass. Four oscillators.
14	PD	Fancy Pad	Pad with atmosphere. Aftertouch controls the filter.
15	SC	Dikk Tekk	Use on hard sequence phrases. MW controls the filter.
16	ST	Laser Harp	Synth with deep phasing.
17	GT	Gary Guitar	Good old distortion guitar of yesterday.
18	OR	Full Organ	Bright electric organ. MW controls the filter.
19	LD	Dyno Lead	Classical analog synth. Portamento is effective.
20	PF	CP70 On Stage	The well-known Yamaha electric grand.
21	BR	Super Brass	Powerful straight-ahead brass section. MW controls the filter.
22	FX	Ethnograph	Memorable new-age sound collage.
23	SL	Tecspiration	Analog techno sound with fuzz.
24	CO	Vox Pop	Tight synth chorus. Use on rapid passages.
25	PD	Dark Pad	Dark synth pad. MW controls the filter.
26	FX	Sparkle Pad	Sparkling pad. MW creates a surprising change.
27	BR	Jump-off	Classic synth brass.
28	OR	Overdrive OR	Organ with overdrive.
29	GT	Ricky Guitar	Clean electric guitar for lead parts.
30	SC	Euro Hook	Thick analog sound for percussive sequences.
31	RD	Groovin' Baritone	Baritone sax.
32	FX	Alien Peace	Beautiful digital synth that uses two completely different elements.
33	KS	Hit House	A novel split. Four brass shots.
34	GT	6-string Guitar	Steel-stringed acoustic guitar.
35	EN	Phase Strings	Analog synth strings with phaser. MW controls the filter.
36	KS	Minstrel	Split with phased synth hi-hat and calliope lead.
37	OR	Early Bird	Organ with symphonic effect. Use for dance music.
38	CO	Orchestral Suite	Orchestral combination of strings, horn and bell.
39	SC	Fat Hook	The ultimate synth for Euro-sound.
40	KS	R&B Gig	Split with piano/strings and organ.
41	OR	Deep Harp	Clear harmonica. Great for solos.
42	FX	Almost Heaven	Distinctive bell pad.
43	SL	Digi Bizzar	Intense digital synth sound. For electronic music.
44	OR	Euro Accordion	Accordion with European flavor.
45	EN	2 Octaves Strings	Bright analog strings. Two-octave layer.
46	PF	New House Piano	Piano for the new music scene.
47	OR	Crisp Organ	Percussive electric organ.
48	GT	Rich Jazz Guitar	Rich-sounding guitar for jazz.
49	BA	Flangi Baze	Simulation of a monophonic analog bass. MW controls the filter.
50	KS	1st Violin	Split with string ensemble and solo violin.
51	EN	Deep Choir	Mixed choir with long reverb.
52	PF	Old Clavi	Old clavi with dynamic wah.
53	SC	Dance Chord	Thick analog synth for chordal backing of dance music.
54	FX	White Train	Soporific pad. Aftertouch controls the filter.
55	BR	Power Synth Brass	Powerful synth brass.
56	BA	Deep Port	Thick synth bass with sustain. Portamento is applied.
57	SC	Floor Tack	Synth for dance music chord work. MW controls the filter.
58	GT	Rich Nylon Guitar	Rich nylon-stringed acoustic guitar.
59	OR	Solemn Organ	Solemn pipe organ.
60	CO	Piano & Strings	Layered acoustic piano and stereo strings.
61	RD	Rich Bass Clarinet	Richly expressive bass clarinet for soloists.
62	BR	Slap Switch	Slap bass with velocity switching.
63	EN	Hi Strings	Hybrid strings, mixed acoustic and synth.
64	PD	Soft Sweep	Spacious pad. MW modifies the tone.
65	OR	Draw Organ MW	Drawbar organ. MW changes the rotary speed.
66	SL	Porta Line MW	Synth lead with a simple feeling. MW controls the filter.
67	FX	Crypt	A sound effect that uses portamento effectively. Raise MW for further changes.
68	PF	Easy Seven	Classical-sounding FM electric piano. Layered with synth strings.
69	KS	Guitar & Sax	Split sound with soft-feeling guitar and breathy tenor sax.
70	PF	Gut EP	Layered sound with DX electric piano and acoustic guitar. MW brings in a pad.
71	BA	SQ2003 Wheel	Fuzz synth with strong filter modulation. MW controls the filter.
72	PD	Easter	Ethnic-style pad sound, also playable as lead.
73	SC	Dance Comp	Rhythm synth sound suitable for chord sequences.
74	ET	Ethnic Seq	Sound with velocity split between kalimba and shamisen.
75	BR	Trombonist	Expressive brass sound suitable for solos.
76	FX	Orion	Mysterious sound effect. MW controls the filter.
77	BR	Remix Brass	Sound with velocity split between strings/brass section and brass fall.
78	PF	Specter EP	An electric piano where moving the MW allows you to play a variety of tonalities.
79	SC	Tech Chord 1	Dance sound with layered minor third and fifth. MW controls the filter.
80	KS	Bass + Piano/Brass	Split sound between a velocity-split piano and brass, and bass.
81	BA	SQ-Bass	Synth bass suitable for techno/dance sequences.
82	EN	Rich Strings	Strings in which velocity will change the attack and depth.
83	BR	Hybrid Brass	Punch brass which combines acoustic and synth.
84	PF	Phaze Clavi	Analog clavi. MW controls the phaser effect.
85	SC	Toy SQ	Analog sound for step-recording, with cross delay applied.
86	SE	MUtopia	Futuristic pad. Aftertouch controls the filter.
87	PD	Float Pad	Soft-feeling pad. MW controls the filter.
88	OR	Tiny Pipe	Small pipe organ.

MU90 Performance List

Pgm#	Category	Performance Name	Comment
89	SC	Sweet Wine	Synth sound suitable for electronic music.
90	PD	Pad Swell	Bright-feeling synth pad with filter change effect.
91	FX	Aquarius 90	Sound effect consisting of underwater sounds, voice, and struck glass.
92	ET	Perc Shamisen	Percussive shamisen.
93	PF	Clav-babe	Synth clavi with distinctive auto-wah.
94	PD	Space Wall	Synth pad with deep modulation.
95	CP	Door Bell	Music box with a bell-like sound.
96	SC	FAT*SQ	Fat synth lead with just a touch of portamento.
97	PF	Clavinova	Layered sound with piano, electric piano and strings.
98	KS	Volksmusik	Split sound between accordion and brass ensemble.
99	KS	Jfunk Jammin	Split sound between a solid electric piano and bass.
100	KS	Alpen Echo	Split sound between tuba and trumpet. MW controls the delay effect.

PF : piano CP : chromatic percussion OR : organ, accordion, harmonica GT : guitar BA : bass ST : strings EN : ensemble BR : brass
 RD : reed PI : pipe LD : synth lead PD : synth pad FX : synth effects ET : ethnics PC : percussive SE : sound effects CO : combinations
 KS : keyboard splits

MU90 Performance List

Internal Performance List (MSB=002, LSB=000)

Pgm#	Category	Performance Name	Comment
1	PF	Concert Grand	Rich full concert grand piano that simulates even the resonances
2	PF	MIDI Grand	Layered electric piano and piano. Raise MW for piano and pad.
3	PF	60s Piano	Old stage electric piano with a bit of distortion effect.
4	PF	CP Pad	Pad layer that brings out the character of the Yamaha CP80.
5	PF	Phase EP	Electric piano with sharp phaser.
6	PF	Rich DX EP	Electric piano sound of the famous DX7.
7	PD	Grand Pad	Gentle and dark synth pad. Two-octave layer.
8	PD	Pictures	Synth pad with a layered 5th interval. MW controls the filter.
9	PD	Movie Pad	Big and rich string-type pad.
10	PD	Aquamarine	Pad suggestive of underwater.
11	PD	Polypad	Classic analog synth pad of yesterday.
12	PD	Blonk Y	Combination of analog sound and voice pad. Aftertouch controls the filter.
13	PD	Dark Pad	Dark pad suitable for pop.
14	SC	Analog SQ 1	Analog synth with decay, suitable for sequenced phrases.
15	SC	Analog SQ 2	Analog synth with short decay, suitable for sequenced phrases.
16	SC	Rave Chord	Typical chord synth, suitable for rave.
17	SC	Short SQ	Analog synth with extremely short decay, suitable for sequenced phrases.
18	SC	Fat Poly	Fat synth sound suitable for dance.
19	OR	Backyard Organ	Jazz-type organ suitable for accompaniment.
20	OR	Old Days Organ	Percussive organ. MW controls rotary speed.
21	OR	Stereo Field Organ	Organ with a sense of stereo.
22	OR	Drawbars 1 AT	Drawbar organ of the 70's. Aftertouch controls the rotary speed.
23	OR	Drawbars 2 MW	Sentimental organ. MW controls rotary speed.
24	OR	Full Church	Church-style pipe organ.
25	OR	Old Rock Organ	Electric organ of the 60's.
26	OR	Progressive Organ	Organ typical of progressive rock. MW has rotary speaker effect.
27	Gt	12-string Fantasy	Twelve-string guitar sound, with pad added to sustained notes.
28	GT	Wah Guitar	Funky electric guitar with auto-wah.
29	GT	Arpeggio EG	Clean electric guitar suitable for playing arpeggios.
30	GT	Rich 12-string Guitar	Acoustic twelve-string guitar.
31	GT	Pedal Steel Wheeler	Pedal steel guitar. Try using the pitch bend wheel.
32	GT	Chorus Guitar	Electric guitar with chorus applied.
33	BA	Hip Bass	Synth bass with wah. MW controls the filter.
34	BA	Rezy Bass	Synth bass with strong resonance, suitable for sequenced techno phrases.
35	BA	Fuzzline	Synth bass with distortion. MW controls the filter.
36	BA	Bassline 1	Synth bass suitable for dance or techno.
37	BA	Bassline 2	Synth bass with short decay.
38	EN	Pink Bass MW	Synth bass with distortion and portamento.
39	EN	Vienna Strings	String ensemble with an acoustic feel.
40	EN	Orchestra Plus	Orchestral sound with timpani on strongly played notes.
41	EN	Synth Ensemble	String ensemble synth sound.
42	EN	Mello Strings	Strings sound using fabled instruments.
43	EN	Ooh Choir	Chorus with spaciousness produced by an effect.
44	EN	Compu Vox	Use on sequenced phrases. MW controls the auto-pan speed.
45	BR	Cutting Brass	Sharp brass section.
46	BR	Tijuana Brass	Soft brass section of the 60's.
47	BR	CS80 Mind	Brass sound of the classic Yamaha CS80 synthesizer.
48	BR	Fat Ensemble	Warm analog synth-type pad.
49	BR	Tech Brass	Synth bass with distortion, suitable for techno.
50	BR	Thin Brass	Classic synth bass of yesterday.
51	LD	Mono Wire Lead	Mild synth lead.
52	LD	Vintage Lead	Old-style analog solo synth.
53	LD	Sticky Lead	Synth lead characterized by velocity controlling the tonal change of the attack.
54	LD	Saww Lead	Percussive synth lead with detuning.
55	LD	Fat Glide	Fat-sounding synth lead.
56	LD	Early Lead	Mild synth lead with attack. MW controls the filter.
57	FX	Dreamer	Sweepled synth lead with gentle attack. MW controls the filter.
58	FX	Slow Sweep	Synth sound with slow filter change.
59	FX	Flower	Layered sound of harp and chorus.
60	FX	High Light	Synth sound that layers a variety of sounds.
61	PF	DX Lower	Rich electric piano that blends great DX-type sounds.
62	PF	Clav Western	Old-feeling clavi-type sound.
63	PF	TX802 EP	FM-type electric piano. A versatile sound usable in a variety of styles.
64	PF	Chorus DX EP	DX electric piano with chorus.
65	PF	EP Velo SW	Old-feeling electric piano where velocity changes the tone.
66	CP	Cool Vibes	Percussive vibraphone with reverb.
67	SC	Poly Syn	The great analog poly synth.
68	SC	Tech Chord 2	Dance sound with layered minor third and fifth. MW controls the filter.
69	SC	Hi Pass SQ 1	Synth sound using a high pass filter.
70	SC	Eight Oscis	Thick-sounding synth brass.
71	SC	HPF Flight	Light-feeling synth lead suitable for sequenced phrases.
72	SC	Acid Hook	Percussive synth sound. Also usable as synth bass.
73	SC	Fat Comp	Versatile comping sound that can be played either as brass or as lead.
74	OR	70s Rock Organ	Rock organ typical of the 70's.
75	OR	Click Organ MW	Electronic organ with key click sound. MW changes the rotary speed.
76	OR	Nice Organ	Bright-feeling organ of the 80's.
77	OR	Sacral Organ	Full digital organ. MW changes the rotary speed.
78	OR	Baroque Feel	Solemn pipe organ with layered strings.
79	OR	Plain Pipe	Simple-feeling pipe organ.
80	OR	French Accordion	Accordion with a French touch.
81	OR	Lambada Accordion	Accordion suitable for tango or lambada.
82	BA	Vacuum Bass	Thick bass with phaser.
83	BA	Water Phase Bass	Thick bass with distinctive tonal changes controlled by velocity.
84	BA	Frankfurt Bass	Synth bass with deep resonance, suitable for sequenced phrases.
85	KS	Pizza Time	Split ensemble strings and pizzicato.
86	RD	Soft Sax Section	Mild sax section with four saxes combined.
87	ET	Banjo Man	Banjo sound suitable for Dixie style.
88	ET	Kanoonics	Kanoon (an instrument sounding similar to a koto) with a percussive feel.

MU90 Performance List

Pgm#	Category	Performance Name	Comment
89	SE	Devil's House	Sound effect evocative of the devil's house. Play strongly around C3 for devil's voice and screams.
90	SE	Alien	A mysterious creature from space. Hear wailing with strong velocities.
91	SE	Sea View	Imagine that you are traveling through the ocean depths.
92	KS	Phat & Funky	Split sound with strings and wah guitar.
93	CO	Horn & Strings	Versatile strings sound with horn mixed in.
94	CO	Clavorgue	A blend of clavi and organ.
95	CO	1950's Jazz	Split sound with golden oldie upright bass and piano
96	CO	Mari Voice	Combination of marimba and voice sounds.
97	FX	Sweepy Line	Percussive synth with a feeling of resonance.
98	FX	Blue & Blue	Transparent pad.
99	FX	Space Legend	Chorus-type pad with spacy feeling.
100	FX	Z-Hole	Pad sound that draws you into an unknown world.

With the factory settings, the internal performances will be occupied by the above sounds.

PF : piano CP : chromatic percussion OR : organ, accordion, harmonica GT : guitar BA : bass ST : strings EN : ensemble BR : brass
RD : reed PI : pipe LD : synth lead PD : synth pad FX : synth effects ET : ethnics PC : percussive SE : sound effects CO : combinations
KS : keyboard splits

XG Drum Map

Bank MSB#	127				127	127	127	127	127				
Program#	1				2	3	4	9					
Note#	Note	Key off	Alternate assign	Standard Kit	Standard Kit 2	Dry Kit	Brilliant Kit	Room Kit					
					E	E	E	E	E				
13	C#	-1	3	Surdo Mute	1		Surdo Mute V	1	Surdo Mute B	1			
14	D	-1	3	Surdo Open	1		Surdo Open V	1	Surdo Open B	1			
15	D#	-1		Hi Q	1				Hi Q B	1			
16	E	-1		Whip Slap	1				Whip Slap B	1			
17	F	-1	4	Scratch H	1				Scratch H B	1			
18	F#	-1	4	Scratch L	1				Scratch L B	1			
19	G	-1		Finger Snap	1				Finger Snap B	1			
20	G#	-1		Click Noise	1				Click Noise B	1			
21	A	-1		Metronome Click	1				Metronome Click B	1			
22	A#	-1		Metronome Bell	1				Metronome Bell B	1			
23	B	-1		Seq Click L	1				Seq Click L B	1			
24	C	0		Seq Click H	1				Seq Click H B	1			
25	C#	0		Brush Tap	1		Brush Tap V	1	Brush Tap B	1			
26	D	0	O	Brush Swirl	1		Brush Swirl V	1	Brush Swirl B	1			
27	D#	0		Brush Slap	1		Brush Slap V	1	Brush Slap B	1			
28	E	0	O	Brush Tap Swirl	1		Brush Tap Swirl V	1	Brush Tap Swirl B	1			
29	F	0	O	Snare Roll	1	Snare Roll 2	1	Snare Roll V	1	Snare Roll B	1		
30	F#	0		Castanet	1				Castanet B	1			
31	G	0		Snare Soft	1	Snare Soft 2	1	Snare Dry Soft	1	Snare Soft B	1		
32	G#	0		Sticks	1				Sticks B	1			
33	A	0		Kick Soft	1		Kick Dry Soft	1	Kick Soft B	1			
34	A#	0		Open Rim Shot	1	Open Rim Shot H Short	1	Open Rim Shot Dry V	1	Open Rim Shot B	1		
35	B	0		Kick Tight	1	Kick Tight Short	1	Kick Dry Tight	1	Kick Tight B	1		
36	C	1		Kick	1	Kick Short	1	Kick Dry Mute	1	Kick B	1	Kick Room	1
37	C#	1		Side Stick	1		Side Stick Dry	1	Side Stick B	1			
38	D	1		Snare	1	Snare Short	1	Snare Dry	1	Snare B	1	Snare Snappy	1
39	D#	1		Hand Clap	1				Hand Clap B	1			
40	E	1		Snare Tight	1	Snare Tight H	1	Snare Dry Mute	1	Snare Tight B	1	Snare Tight Snappy	1
41	F	1		Floor Tom L	1		Floor Tom L Short	1	Floor Tom L B	1	Tom Room 1	1	
42	F#	1	1	Hi-Hat Closed	1				Hi-Hat Closed L B	1			
43	G	1		Floor Tom H	1		Floor Tom H Short	1	Floor Tom H B	1	Tom Room 2	1	
44	G#	1	1	Hi-Hat Pedal	1				Hi-Hat Pedal B	1			
45	A	1		Low Tom	1		Low Tom Short	1	Low Tom B	1	Tom Room 3	1	
46	A#	1	1	Hi-Hat Open	1				Hi-Hat Open B	1			
47	B	1		Mid Tom L	1		Mid Tom L Short	1	Mid Tom L B	1	Tom Room 4	1	
48	C	2		Mid Tom H	1		Mid Tom H Short	1	Mid Tom H B	1	Tom Room 5	1	
49	C#	2		Crash Cymbal 1	1		Crash Cymbal 1 V	1	Crash Cymbal 1 B	1			
50	D	2		High Tom	1		High Tom Short	1	High Tom B	1	Tom Room 6	1	
51	D#	2		Ride Cymbal 1	1		Ride Cymbal 1 V	1	Ride Cymbal 1 B	1			
52	E	2		Chinese Cymbal	1		Chinese Cymbal V	1	Chinese Cymbal B	1			
53	F	2		Ride Cymbal Cup	1				Ride Cymbal Cup Short	1			
54	F#	2		Tambourine	1				Tambourine B	1			
55	G	2		Splash Cymbal	1		Splash Cymbal V	1	Splash Cymbal B	1			
56	G#	2		Cowbell	1				Cowbell L	1			
57	A	2		Crash Cymbal 2	1		Crash Cymbal 2 V	1	Crash Cymbal 2 B	1			
58	A#	2		Vibraslap	1				Vibraslap B	1			
59	B	2		Ride Cymbal 2	1		Ride Cymbal 2 V	1	Ride Cymbal 2 B	1			

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127		127		127		127		127	
Program#				10		17		18		25		26	
Note#	Note	Key off	Alternate assign	Dark Room Kit		Rock Kit		Rock Kit 2		Electro Kit		Analog Kit	
13	C# -1		3	Surdo Mute V	1			Surdo Mute V	1				
14	D -1		3	Surdo Open V	1			Surdo Open V	1				
15	D# -1												
16	E -1												
17	F -1		4										
18	F# -1		4										
19	G -1												
20	G# -1												
21	A -1												
22	A# -1												
23	B -1												
24	C 0												
25	C# 0			Brush Tap V	1			Brush Tap V	1				
26	D 0	O		Brush Swirl V	1			Brush Swirl V	1				
27	D# 0			Brush Slap V	1			Brush Slap V	1				
28	E 0	O		Brush Tap Swirl V	1			Brush Tap Swirl V	1	Reverse Cymbal	1	Reverse Cymbal	1
29	F 0	O		Snare Roll V	1			Snare Roll V	1				
30	F# 0									Hi Q 2	1	Hi Q 2	1
31	G 0					Snare Noisy	1	Snare Noisy 5	1	Snare Snappy Electro	1	Snare Noisy 4	1
32	G# 0												
33	A 0					Kick Tight 2	1	Kick Tight 3	1	Kick 3	1	Kick Tight 2	1
34	A# 0												
35	B 0			Kick Dark	1	Kick 2	1	Kick 4	1	Kick Gate	1	Kick Analog Short	1
36	C 1			Kick Room Gate	1	Kick Gate	1	Kick Gate 2	1	Kick Gate Heavy	1	Kick Analog	1
37	C# 1											Side Stick Analog	1
38	D 1			Snare Snappy 2	1	Snare Rock	1	Snare Rock 2	1	Snare Noisy 2	1	Snare Analog	1
39	D# 1												
40	E 1			Snare Tight Snappy 2	1	Snare Rock Rim	1	Snare Rock Rim Q	1	Snare Noisy 3	1	Snare Analog 2	1
41	F 1			Tom Room 1 Q	1	Tom Rock 1	1	Tom Rock 1 H	1	Tom Electro 1	1	Tom Analog 1	1
42	F# 1		1	Hi-Hat Closed Q	1			Hi-Hat Closed 2	1			Hi-Hat Closed Analog	1
43	G 1			Room Tom 2 Q	1	Tom Rock 2	1	Tom Rock 2 H	1	Tom Electro 2	1	Tom Analog 2	1
44	G# 1		1	Hi-Hat Pedal Q	1			Hi-Hat Pedal 2	1			Hi-Hat closed Analog 2	1
45	A 1			Room Tom 3 Q	1	Tom Rock 3	1	Tom Rock 3 L Short	1	Tom Electro 3	1	Tom Analog 3	1
46	A# 1		1	Hi-Hat Open L	1			Hi-Hat Open 2	1			Hi-Hat Open Analog	1
47	B 1			Tom Room 4 Dark	1	Tom Rock 4	1	Tom Rock 4 L Short	1	Tom Electro 4	1	Tom Analog 4	1
48	C 2			Tom Room 5 L Dark	1	Tom Rock 5	1	Tom Rock 5 L Short	1	Tom Electro 5	1	Tom Analog 5	1
49	C# 2											Crash Analog	
50	D 2			Tom Room 6 L Dark	1	Tom Rock 6	1	Tom Rock 6 L Short	1	Tom Electro 6	1	Tom Analog 6	1
51	D# 2			Ride Cymbal 1 V	1			Ride Cymbal 1 V	1				
52	E 2			Chinese Cymbal V	1			Chinese Cymbal V	1				
53	F 2												
54	F# 2												
55	G 2			Splash Cymbal V	1			Splash Cymbal V	1				
56	G# 2											Cowbell Analog	1
57	A 2			Crash Cymbal 2 V	1			Crash Cymbal 2 V	1				
58	A# 2												
59	B 2			Ride Cymbal 2 V	1			Ride Cymbal 2 V	1				

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127	127	127	127	127	
Program#				27	28	29	30	33	
Note#	Note	Key off	Alternate assign	Analog Kit 2	Dance Kit	Hip Hop Kit	Jungle Kit	Jazz Kit	
				E	E	E	E	E	
13	C#	-1	3	Surdo Mute V	1	Surdo Mute V	1	Surdo Mute V	1
14	D	-1	3	Surdo Open V	1	Surdo Open V	1	Surdo Open V	1
15	D#	-1							
16	E	-1							
17	F	-1	4						
18	F#	-1	4						
19	G	-1							
20	G#	-1							
21	A	-1							
22	A#	-1							
23	B	-1							
24	C	0							
25	C#	0		Brush Tap V	1	Brush Tap V	1	Brush Tap V	1
26	D	0	O	Brush Swirl V	1	Brush Swirl V	1	Brush Swirl V	1
27	D#	0		Brush Slap V	1	Brush Slap V	1	Brush Slap V	1
28	E	0	O	Reverse Cymbal	1	Reverse Cymbal	1	Brush Tap Swirl V	1
29	F	0	O	Snare Roll V	1	Snare Roll V	1	Snare Roll V	1
30	F#	0		Hi Q 2	1	Hi Q 2	1		
31	G	0		Snare Analog 3	1	Snare Techno 3	1	Open Rim Shot 2 Soft	1
32	G#	0						Rim Gate 2	1
33	A	0		Kick Techno Soft	1	Kick Techno Q	1	Kick Dry Soft 2	1
34	A#	0		Open Rim Short Dry V	1	Rim Gate	1	Open Rim Shot 2	1
35	B	0		Kick Techno Tight	1	Kick Techno L	1	Kick Dim	1
36	C	1		Kick Techno	1	Kick Techno 2	1	Kick Boon	1
37	C#	1		Side Stick Analog	1	Side Stick Analog	1	Kick Dawn	1
38	D	1		Snare Techno	1	Snare Clap	2	Side Stick Dry	1
39	D#	1				Snare Dry Mute	1	Side Stick Dry	1
40	E	1		Snare Techno 2	1	Snare Dry 2	1	Snare Tin	1
41	F	1		Tom Analog 1	1	Snare White	1	Snare Can	1
42	F#	1	1	Hi-Hat Closed Analog	1	Floor Tom L Short	1	Floor Tom L Short	1
43	G	1		Tom Analog 2	1	Hi-Hat Closed 3	1	Hi-Hat Closed 2 Sloft	1
44	G#	1	1	Hi-Hat Closed Analog 2	1	Hi-Hat Closed 2 H	1	Floor Tom H Short	1
45	A	1		Tom Analog 3	1	Floor Tom H Short	1	Hi-Hat Pedal 2 H	1
46	A#	1	1	Hi-Hat Open Analog	1	Hi-Hat Pedal 2 H	1	Hi-Hat Pedal 2 Soft	1
47	B	1		Tom Analog 4	1	Low Tom Short	1	Low Tom Short	1
48	C	2		Tom Analog 5	1	Hi-Hat Open 3	1	Hi-Hat Open 2 L	1
49	C#	2		Crash Analog	1	Hi-Hat Open 2 L	1	Hi-Hat Open 2 Soft	1
50	D	2		Tom Analog 6	1	Mid Tom L Short	1	Mid Tom L Short	1
51	D#	2		Ride Cymbal 1 V	1	Mid Tom H Short	1	Mid Tom H Short	1
52	E	2		Chinese Cymbal V	1	Crash Analog	1	Crash Cymbal 1 V	1
53	F	2				Crash Cymbal 1 V	1	Crash Cymbal 1 V	1
54	F#	2				High Tom Short	1	High Tom Short	1
55	G	2		Splash Cymbal V	1	High Tom Short	1	Tom Jazz 6	1
56	G#	2		Cowbell Analog	1	Ride Cymbal 1 V	1	Ride Cymbal 1 V	1
57	A	2		Crash Cymbal 2 V	1	Chinese Cymbal V	1	Chinese Cymbal V	1
58	A#	2							
59	B	2		Ride Cymbal 2 V	1				

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127	127	127	126	126	
Program#				34	41	49	1	2	
Note#	Note	Key off	Alternate assign	Jazz Kit 2	Brush Kit	Symphony Kit	SFX Kit 1	SFX Kit 2	
13	C#	-1	3	Surdo Mute V	1				
14	D	-1	3	Surdo Open V	1				
15	D#	-1							
16	E	-1							
17	F	-1	4						
18	F#	-1	4						
19	G	-1							
20	G#	-1							
21	A	-1							
22	A#	-1							
23	B	-1							
24	C	0							
25	C#	0		Brush Tap V	1				
26	D	0	O	Brush Swirl V	1				
27	D#	0		Brush Slap V	1				
28	E	0	O	Brush Tap Swirl V	1				
29	F	0	O	Snare Roll V	1				
30	F#	0							
31	G	0			Brush Slap 2	1			
32	G#	0							
33	A	0				Kick Soft 2	1		
34	A#	0							
35	B	0				Gran Cassa	1		
36	C	1		Kick Jazz L	1	Kick Small	1	Gran Cassa Mute	1
37	C#	1						Cutting Noise	1
38	D	1		Snare H	1	Brush Slap 3	1	Band Snare	1
39	D#	1						Cutting Noise 2	2
40	E	1		Snare Tight L	1	Brush Tap 2	1	Band Snare 2	1
41	F	1		Tom Jazz 7	1	Tom Brush 1	1	Tom Jazz 1	1
42	F#	1	1	Hi-Hat Closed L	1				
43	G	1		Tom Jazz 8	1	Tom Brush 2	1	Tom Jazz 2	1
44	G#	1	1	Hi-Hat Pedal L	1				
45	A	1		Tom Jazz 9	1	Tom Brush 3	1	Tom Jazz 3	1
46	A#	1	1	Hi-Hat Open L	1				
47	B	1		Tom Jazz 10	1	Tom Brush 4	1	Tom Jazz 4	1
48	C	2		Tom Jazz 11	1	Tom Brush 5	1	Tom Jazz 5	1
49	C#	2						Hand Cymbal	1
50	D	2		Tom Jazz 12	1	Tom Brush 6	1	Tom Jazz 6	1
51	D#	2		Ride Cymbal 1 V	1			Hand Cymbal Short	1
52	E	2		Chinese Cymbal V	1			Flute Key Click	1
53	F	2		Ride Cymbal Cup L	1				Ignition
54	F#	2							Squeal
55	G	2		Splash Cymbal V	1				Exhaust
56	G#	2							Crash
57	A	2		Crash Cymbal 2 V	1		Hand Cymbal 2	1	Siren
58	A#	2							Train
59	B	2		Ride Cymbal 2 V	1		Hand Cymbal 2 Short	1	Jet Plane
									Starship

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127		127		127		127		127	
Program#				1		2		3		4		9	
Note#	Note	Key off	Alternate assign	Standard Kit	E	Standard Kit 2	E	Dry Kit	E	Brilliant Kit	E	Room Kit	E
60	C	3		Bongo H	1			Bongo H V	1	Bongo H B	1		
61	C#	3		Bong L	1			Bongo L V	1	Bongo L B	1		
62	D	3		Conga H Mute	1			Conga H Mute V	1	Conga H Mute B	1		
63	D#	3		Conga H Open	1			Conga H Open V	1	Conga H Open B	1		
64	E	3		Conga L	1			Conga L V	1	Conga L B	1		
65	F	3		Timbale H	1			Timbale H V	1	Timbale H B	1		
66	F#	3		Timbale L	1			Timbale L V	1	Timbale L B	1		
67	G	3		Agogo H	1			Agogo H V	1	Agogo H B	1		
68	G#	3		Agogo L	1			Agogo L V	1	Agogo L B	1		
69	A	3		Cabasa	1					Cabasa B	1		
70	A#	3		Maracas	1					Maracas B	1		
71	B	3	O	Samba Whistle H	1			Samba Whistle H V	1	Samba Whistle H B	1		
72	C	4	O	Samba Whistle L	1			Samba Whistle L V	1	Samba Whistle L B	1		
73	C#	4		Guiro Short	1					Guiro Short B	1		
74	D	4	O	Guiro Long	1					Guiro Long B	1		
75	D#	4		Claves	1					Claves B	1		
76	E	4		Wood Block H	1					Wood Block H B	1		
77	F	4		Wood Block L	1					Wood Block L B	1		
78	F#	4		Cuica Mute	1			Cuica Mute V	1	Cuica Mute B	1		
79	G	4		Cuica Open	1			Cuica Open V	1	Cuica Open B	1		
80	G#	4	2	Triangle Mute	1					Triangle Mute B	1		
81	A	4	2	Triangle Open	1					Triangle Open B	1		
82	A#	4		Shaker	1					Shaker B	1		
83	B	4		Jingle Bells	1					Jingle Bells B	1		
84	C	5		Bell Tree	1					Bell Tree B	1		
85	C#	5											
86	D	5											
87	D#	5											
88	E	5											
89	F	5											
90	F#	5											
91	G	5											

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127		127		127		127		127	
Program#				10		17		18		25		26	
Note#	Note	Key off	Alternate assign	Dark Room Kit		Rock Kit		Rock Kit 2		Electro Kit		Analog Kit	
					E		E		E		E		E
60	C	3		Bongo H V	1			Bongo H V	1				
61	C#	3		Bongo L V	1			Bongo L V	1				
62	D	3		Conga H Mute V	1			Conga H Mute V	1			Conga Analog H	1
63	D#	3		Conga H Open V	1			Conga H Open V	1			Conga Analog M	1
64	E	3		Conga L V	1			Conga L V	1			Conga Analog L	1
65	F	3		Timbale H V	1			Timbale H V	1				
66	F#	3		Timbale L V	1			Timbale L V	1				
67	G	3		Agogo H V	1			Agogo H V	1				
68	G#	3		Agogo L V	1			Agogo L V	1				
69	A	3											
70	A#	3										Maracas 2	1
71	B	3	O	Samba Whistle H V	1			Samba Whistle H V	1				
72	C	4	O	Samba Whistle L V	1			Samba Whistle L V	1				
73	C#	4											
74	D	4	O										
75	D#	4										Claves 2	1
76	E	4											
77	F	4											
78	F#	4		Cuica Mute V	1			Cuica Mute V	1	Scratch H 2	1	Scratch H 2	1
79	G	4		Cuica Open V	1			Cuica Open V	1	Scratch L 2	1	Scratch L 3	1
80	G#	4	2										
81	A	4	2										
82	A#	4											
83	B	4											
84	C	5											
85	C#	5											
86	D	5											
87	D#	5											
88	E	5											
89	F	5											
90	F#	5											
91	G	5											

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127		127		127		127		127	
Program#				27		28		29		30		33	
Note#	Note	Key off	Alternate assign	Analog Kit 2	E	Dance Kit	E	Hip Hop Kit	E	Jungle Kit	E	Jazz Kit	E
60	C	3		Bongo H V	1			Bongo H V	1	Bongo H V	1		
61	C#	3		Bongo L V	1			Bongo L V	1	Bongo L V	1		
62	D	3		Conga Analog H	1	Conga Analog H	1	Conga H Mute V	1	Conga H Mute V	1		
63	D#	3		Conga Analog M	1	Conga Analog M	1	Conga H Open V	1	Conga H Open V	1		
64	E	3		Conga Analog L	1	Conga Analog L	1	Conga L V	1	Conga L V	1		
65	F	3		Timbale H V	1			Timbale H V	1	Timbale H V	1		
66	F#	3		Timbale L V	1			Timbale L V	1	Timbale L V	1		
67	G	3		Agogo H V	1			Agogo H V	1	Agogo H V	1		
68	G#	3		Agogo L V	1			Agogo L V	1	Agogo L V	1		
69	A	3											
70	A#	3		Maracas 2	1	Maracas 2	1						
71	B	3	O	Samba Whistle H V	1			Samba Whistle H V	1	Samba Whistle H V	1		
72	C	4	O	Samba Whistle L V	1			Samba Whistle L V	1	Samba Whistle L V	1		
73	C#	4											
74	D	4	O										
75	D#	4		Claves 2	1	Claves 2	1						
76	E	4											
77	F	4											
78	F#	4		Scratch H 2	1	Scratch H 2	1	Cuica Mute V	1	Cuica Mute V	1		
79	G	4		Scratch L 3	1	Scratch L 3	1	Cuica Open V	1	Cuica Open V	1		
80	G#	4	2										
81	A	4	2										
82	A#	4											
83	B	4											
84	C	5											
85	C#	5											
86	D	5											
87	D#	5											
88	E	5											
89	F	5											
90	F#	5											
91	G	5											

: Same as standard Kit
 : No sound

XG Drum Map

Bank MSB#				127		127		127		126		126	
Program#				34		41		49		1		2	
Note#	Note	Key off	Alternate assign	Jazz Kit 2		Brush Kit		Symphony Kit		SFX Kit 1		SFX Kit 2	
60	C	3		Bongo H V	1							Burst	2
61	C#	3		Bongo L V	1							Roller coaster	2
62	D	3		Conga H Mute V	1							Submarine	2
63	D#	3		Conga H Open V	1								
64	E	3		Conga L V	1								
65	F	3		Timbale H V	1								
66	F#	3		Timbale L V	1								
67	G	3		Agogo H V	1								
68	G#	3		Agogo L V	1					Shower	2	Laugh	1
69	A	3								Thunder	1	Scream	1
70	A#	3								Wind	1	Punch	1
71	B	3	O	Samba Whistle H V	1					Stream	2	Heart Beat	1
72	C	4	O	Samba Whistle L V	1					Bubble	2	Foot Steps	1
73	C#	4								Feed	2	Applause 2	1
74	D	4	O										
75	D#	4											
76	E	4											
77	F	4											
78	F#	4		Cuica Mute V	1								
79	G	4		Cuica Open V	1								
80	G#	4	2										
81	A	4	2										
82	A#	4											
83	B	4											
84	C	5								Dog	1	Machine Gun	1
85	C#	5								Horse	1	Laser Gun	2
86	D	5								Bird Tweet 2	1	Explosion	2
87	D#	5								Kitty	1	Firework	2
88	E	5								Growl	1		
89	F	5								Haunted	2		
90	F#	5								Ghost	2		
91	G	5								Maou	2		

: Same as standard Kit
 : No sound

TG300B Drum Map

Program#			1	9	17	25	26	
Note#	Note	Alternate assign	Standard Kit	Room Kit	Power Kit	Electro Kit	Analog Kit	
				E		E	E	E
25	C# 0		Snare Roll TG	1				
26	D 0		Finger Snap TG	1				
27	D# 0		Hi Q TG	1				
28	E 0		Whip Slap TG	1				
29	F 0	7	Scratch H TG	1				
30	F# 0	7	Scratch L TG	1				
31	G 0		Sticks TG	1				
32	G# 0		Click Noise TG	1				
33	A 0		Metronome Click TG	1				
34	A# 0		Metronome Bell TG	1				
35	B 0		Kick Tight	1				
36	C 1		Kick	1	Kick Room	1	Kick Power	1
							Kick Electro TG	1
37	C# 1		Side Stick	1				Side Stick Analog
								Side Stick Analog
38	D 1		Snare	1		Snare Power	1	Snare Electro TG
								Snare Analog
39	D# 1		Hand Clap	1				
40	E 1		Snare Tight	1			Snare Power 2	1
41	F 1		Floor Tom L	1	Tom Room 1	1	Tom Room 1	1
							Tom Electro 1	1
42	F# 1	1	Hi-Hat Closed	1				Hi-Hat Closed Analog
								Hi-Hat Closed Analog
43	G 1		Floor Tom H	1	Tom Room 2	1	Tom Room 2	1
							Tom Electro 2	1
44	G# 1	1	Hi-Hat Pedal	1				Hi-Hat Closed Analog 2
								Hi-Hat Closed Analog 2
45	A 1		Low Tom	1	Tom Room 3	1	Tom Room 3	1
							Tom Electro 3	1
46	A# 1	1	Hi-Hat Open	1				Hi-Hat Open Analog
								Hi-Hat Open Analog
47	B 1		Mid Tom L	1	Tom Room 4	1	Tom Room 4	1
							Tom Electro 4	1
48	C 2		Mid Tom H	1	Tom Room 5	1	Tom Room 5	1
							Tom Electro 5	1
49	C# 2		Crash Cymbal 1	1				Crash Analog
								Crash Analog
50	D 2		High Tom	1	Tom Room 6	1	Tom Room 6	1
							Tom Electro 6	1
51	D# 2		Ride Cymbal 1	1				Tom Analog 6
								Tom Analog 6
52	E 2		Chinese Cymbal	1			Reverse Cymbal TG	1
								Reverse Cymbal TG
53	F 2		Ride Cymbal Cup	1				
54	F# 2		Tambourine	1				
55	G 2		Splash Cymbal	1				
56	G# 2		Cowbell	1				Cowbell Analog
								Cowbell Analog
57	A 2		Crash Cymbal 2	1				
58	A# 2		Vibraslap	1				
59	B 2		Ride Cymbal 2	1				
60	C 3		Bongo H	1				
61	C# 3		Bongo L	1				
62	D 3		Conga H Mute	1				Conga Analog H
								Conga Analog H
63	D# 3		Conga H Open	1				Conga Analog M
								Conga Analog M
64	E 3		Conga L	1				Conga Analog L
								Conga Analog L
65	F 3		Timbale H	1				
66	F# 3		Timbale L	1				
67	G 3		Agogo H	1				
68	G# 3		Agogo L	1				
69	A 3		Cabasa	1				

: Same as standard Kit
 : No sound

TG300B Drum Map

Program#			33	41	49	57	128	
Note#	Note	Alternate assign	Jazz Kit	Brush Kit	Orchestra Kit	SFX Set	C/M Kit	
				E	E		E	E
25	C# 0							
26	D 0							
27	D# 0							
28	E 0				Hi-Hat Closed Orchestra	1		
29	F 0	7			Hi-Hat Pedal Orchestra	1		
30	F# 0	7			Hi-Hat Open Orchestra	1		
31	G 0				Ride Cymbal 1 Orchestra	1		
32	G# 0							
33	A 0							
34	A# 0							
35	B 0		Kick Tight Jazz TG	1	Kick Tight Jazz TG	1	Kick Orchestra	1
36	C 1		Kick Jazz	1	Kick Small	1	Gran Cassa Orchestra	1
37	C# 1							Side Stick CM
38	D 1				Brush Tap TG	1	Band Snare TG	1
39	D# 1				Brush Slap TG	1	Castanet TG 2	1
40	E 1				Brush Swirl TG	1	Band Snare TG	1
41	F 1		Tom Jazz 1	1	Tom Jazz 1	1	Timpani F	1
42	F# 1	1					Scratch L TG	1
43	G 1		Tom Jazz 2	1	Tom Jazz 2	1	Timpani G	1
44	G# 1	1					Timpani G#	1
45	A 1		Tom Jazz 3	1	Tom Jazz 3	1	Timpani A	1
46	A# 1	1					Timpani A#	1
47	B 1		Tom Jazz 4	1	Tom Jazz 4	1	Timpani B	1
48	C 2		Tom Jazz 5	1	Tom Jazz 5	1	Timpani C	1
49	C# 2						Timpani C#	1
50	D 2		Tom Jazz 6	1	Tom Jazz 6	1	Timpani D	1
51	D# 2						Timpani D#	1
52	E 2						Timpani E	1
53	F 2						Timpani F	1
54	F# 2							1
55	G 2							1
56	G# 2							1
57	A 2							1
58	A# 2							1
59	B 2							1
60	C 3							1
61	C# 3							1
62	D 3							1
63	D# 3							1
64	E 3							1
65	F 3							1
66	F# 3							1
67	G 3							1
68	G# 3							1
69	A 3							1

: Same as standard Kit
 : No sound

TG300B Drum Map

Program#			1	9	17	25	26
Note#	Note	Alternate assign	Standard Kit	Room Kit	Power Kit	Electro Kit	Analog Kit
70	A# 3		Maracas	1			Maracas 2
71	B 3	2	Samba Whistle H TG	1			
72	C 4	2	Samba Whistle L TG	1			
73	C# 4	3	Guiro Short TG	1			
74	D 4	3	Guiro Long TG	1			
75	D# 4		Claves	1			Claves 2
76	E 4		Wood Block H	1			
77	F 4		Wood Block L	1			
78	F# 4	4	Cuica Mute TG	1			
79	G 4	4	Cuica Open TG	1			
80	G# 4	5	Triangle Mute TG	1			
81	A 4	5	Triangle Open TG	1			
82	A# 4		Shaker	1			
83	B 4		Jingle Bells	1			
84	C 5		Bell Tree	1			
85	C# 5		Castanet TG	1			
86	D 5	6	Surdo Mute TG	1			
87	D# 5	6	Surdo Open TG	1			
88	E 5						
89	F 5						
90	F# 5						
91	G 5						
92	G# 5						
93	A 5						
94	A# 5						
95	B 5						
96	C 6						
97	C# 6						
98	D 6						
99	D# 6						
100	E 6						
101	F 6						
102	F# 6						
103	G 6						
104	G# 6						
105	A 6						
106	A# 6						
107	B 6						
108	C 7						

: Same as standard Kit
 : No sound

TG300B Drum Map

Program#			33		41		49		57		128	
Note#	Note	Alternate assign	Jazz Kit	E	Brush Kit	E	Orchestra Kit	E	SFX Set	E	C/M Kit	E
70	A# 3								Helicopter	1	Maracas CM	1
71	B 3	2							Starship	2	Samba Whistle H TG CM	1
72	C 4	2							Gunshot	1	Samba Whistle L TG CM	1
73	C# 4	3							Machine Gun	1	Vibraslap CM	1
74	D 4	3							Laser Gun	2		
75	D# 4								Explosion	2	Claves CM	1
76	E 4								Dog	1	Laugh	1
77	F 4								Horse	1	Scream	1
78	F# 4	4							Bird Tweet	2	Punch	1
79	G 4	4							Shower	2	Heartbeat	1
80	G# 4	5							Thunder	1	Footsteps	1
81	A 4	5							Wind	1	Footsteps	1
82	A# 4								Seashore	2	Applause	1
83	B 4								Stream	2	Door Squeak	1
84	C 5								Bubble	2	Door Slam	1
85	C# 5										Scratch Cut	1
86	D 5	6									Wind Chime	1
87	D# 5	6									Ignition	1
88	E 5						Applause	1			Squeal	1
89	F 5										Exhaust	1
90	F# 5										Crash	1
91	G 5										Siren	2
92	G# 5										Train	1
93	A 5										Jet Plane	2
94	A# 5										Helicopter	1
95	B 5										Starship	2
96	C 6										Gunshot	1
97	C# 6										Machine Gun	1
98	D 6										Laser Gun	2
99	D# 6										Explosion	2
100	E 6										Dog	1
101	F 6										Horse	1
102	F# 6										Bird Tweet	2
103	G 6										Shower	2
104	G# 6										Thunder	1
105	A 6										Wind	1
106	A# 6										Seashore	2
107	B 6										Stream	2
108	C 7										Bubble	2

: Same as standard Kit
 : No sound

C/M Drum Map

Note#	Note	Alternate Assign	C/M Kit	E
35	B0		Kick Tight CM	1
36	C1		Kick CM	1
37	C#1		Side Stick CM	1
38	D1		Snare CM	1
39	D#1		Hand Clap CM	1
40	E1		Snare Electro CM	1
41	F1		Floor Tom L CM	1
42	F#1	1	Hi-Hat Closed CM	1
43	G1		Floor Tom H CM	1
44	G#1	1	Hi-Hat Open Short CM	1
45	A1		Low Tom CM	1
46	A#1	1	Hi-Hat Open CM	1
47	B1		Mid Tom L CM	1
48	C2		Mid Tom H CM	1
49	C#2		Crash Cymbal CM	1
50	D2		High Tom CM	1
51	D#2		Ride Cymbal CM	1
52	E2			
53	F2			
54	F#2		Tambourine CM	1
55	G2			
56	G#2		Cowbell CM	1
57	A2			
58	A#2			
59	B2			
60	C3		Bongo H CM	1
61	C#3		Bongo L CM	1
62	D3		Conga H Mute CM	1
63	D#3		Conga H Open CM	1
64	E3		Conga L CM	1
65	F3		Timbale H CM	1
66	F#3		Timbale L CM	1
67	G3		Agogo H CM	1
68	G#3		Agogo L CM	1
69	A3		Cabasa CM	1
70	A#3		Maracas CM	1
71	B3	2	Samba Whistle H TG CM	1
72	C4	2	Samba Whistle L TG CM	1
73	C#4	3	Vibraslap CM	1
74	D4	3		
75	D#4		Claves CM	1
76	E4		Laugh	1
77	F4		Scream	1
78	F#4	4	Punch	1
79	G4	4	Heartbeat	1
80	G#4	5	Footsteps	1
81	A4	5	Footsteps	1
82	A#4		Applause	1
83	B4		Door Squeak	1
84	C5		Door Slam	1
85	C#5		Scratch Cut	1
86	D5	6	Wind Chime	1
87	D#5	6	Ignition	1
88	E5		Squeal	1
89	F5		Exhaust	1
90	F#5		Crash	1
91	G5		Siren	2
92	G#5		Train	1
93	A5		Jet Plane	2
94	A#5		Helicopter	1
95	B5		Starship	2
96	C6		Gunshot	1
97	C#6		Machine Gun	1
98	D6		Laser Gun	2
99	D#6		Explosion	2
100	E6		Dog	1
101	F6		Horse	1
102	F#6		Bird Tweet	2
103	G6		Shower	2
104	G#6		Thunder	1
105	A6		Wind	1
106	A#6		Seashore	2
107	B6		Stream	2
108	C7		Bubble	2

 : No Sound

YAMAHA