MIDI Implementation

Model: FANTOM-6/7/8
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Version : 1.00

1. Data Reception (Sound Source Section)

■Channel Voice Messages
* Not received when the Zone Receive Switch parameter (ZONE EDIT:LEVEL/PAN) is OFF.

●Note off
Status   2nd byte   3rd byte
8nH   kkH   vvH
9nH   kkH   00H
n = MIDI channel number: OH - FH (ch.1 - 16)
kk = note number: 00H - 7FH (0 - 127)
vv = note off velocity: 00H - 7FH (0 - 127)

* Not received when the Tone Env Mode parameter (PATCH EDIT:CTRL:Env Mode or DRUM KIT EDIT:COMMON:Tone Env Mode) is NO-SUS.

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

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

* Not received when the Receive Poly Key Pressure(PA) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.

●Control Change
* If the corresponding Controller number is selected for the MFX Control Source1, 2, 3 or 4 parameter (TONE EDIT:MFX CTRL) or
the Tone Matrix Control1, 2, 3 or 4 Source parameter (TONE EDIT:MATRIX CTRL1-4), the corresponding effect will occur.
* When the Control Source Select parameter (SYSTEM:CONTROL) is set to SYS, if a controller number that corresponds to the
System Control Source1, 2, 3 or 4 parameter (SYSTEM:CONTROL) is selected, the specified effect will apply if the MFX Control
Source1, 2, 3 or 4 parameter (TONE EDIT:MFX CTRL) or the Tone Matrix Control1, 2, 3 or 4 Source parameter (TONE EDIT:MATRIX
CTRL1-4) is set to SYS-CTRL1, SYS-CTRL2, SYS-CTRL3 or SYS-CTRL4.
* When the Control Source Select parameter (SYSTEM:CONTROL) is set to SCENE, if a controller number that corresponds to the
Tone Control Source1, 2, 3 or 4 parameter (SCENE EDIT:CONTROL) is selected, the specified effect will apply if the MFX Control
Source1, 2, 3 or 4 parameter (TONE EDIT:MFX CTRL) or the Tone Matrix Control1, 2, 3 or 4 Source parameter (TONE EDIT:MATRIX
CTRL1-4) is set to SYS-CTRL1, SYS-CTRL2, SYS-CTRL3 or SYS-CTRL4.

○Bank Select (Controller number 0, 32)
Status   2nd byte   3rd byte
BnH   00H   mmH
BnH   20H   llH
n = MIDI channel number: OH - FH (ch.1 - 16)
mm, ll = Bank number: 00 00H - 7F 7FH (bank.1 - bank.16384)

* Not received when the Receive Bank Select parameter (SYSTEM:MIDI) is OFF.
* Not received when the Receive Bank Select(BS) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.

The Scenes corresponding to each Bank Select are as follows.

| BANK SELECT | | PROGRAM | GROUP | NUMBER |
MSB	LSB	NUMBER		
085	000	001 - 128	Scene	A001 - A128
	001	001 - 128	Scene	B001 - B128
	:	:	:	:

The Tones corresponding to each Bank Select are as follows.

| BANK SELECT | | PROGRAM | GROUP | NUMBER |
MSB	LSB	NUMBER		
087	000	001 - 128	User Tone	0001 - 0128
	:		:	:
	064	001 - 128	Preset Tone (B)	0001 - 0128
	:		:	:
	068	001 - 128	Preset Tone (C)	0001 - 0128
	069	001 - 128	Preset Tone (D)	0001 - 0128
	:		:	:
	078	001 - 128	Preset Tone (E)	0001 - 0128
	:		:	:
	085	001 - 128	Preset Tone (CMN)	0001 - 0128
	:		:	:
	092	001 - 128	Preset Tone (A)	0001 - 0128
	:		:	:
089	000	001 -	User SN-A Tone	0001 -
	065	001 -	Preset SN-A Tone	0001 -
090	000	001 -	User V-Piano Tone	0001 -
	064	001 -	Preset V-Piano Tone	0001 -
093		001 -	EXZ Tone	0001 -
101		001 -	EXZ Tone	0001 -
105		001 -	EXSN Tone	0001 -

The Drum Kits corresponding to each Bank Select are as follows.

BANK SELECT		PROGRAM	GROUP	NUMBER
MSB	LSB	NUMBER		
086	000	001 – 128	User Drum Kit	0001 – 0128
	064	001 –	Preset Drum Kit (A)	0001 –
	065	001 –	Preset Drum Kit (CMN)	0001 –
092		001 –	EXZ Drum Kit	0001 –
100		001 –	EXZ Drum Kit	0001 –

○Modulation (Controller number 1)
```
Status           2nd byte         3rd byte
BnH              01H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Modulation depth:                  OOH – 7FH (0 – 127)
```

* Not received when the Receive Modulation(MD) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.

○Breath type (Controller number 2)
```
Status           2nd byte         3rd byte
BnH              02H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Control value:                     OOH – 7FH (0 – 127)
```

○Foot type (Controller number 4)
```
Status           2nd byte         3rd byte
BnH              04H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Control value:                     OOH – 7FH (0 – 127)
```

○Portamento Time (Controller number 5)
```
Status           2nd byte         3rd byte
BnH              05H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Portamento Time:                   OOH – 7FH (0 – 127)
```

* The Zone Portamento Time parameter (ZONE EDIT:PITCH) will change.

○Data Entry (Controller number 6, 38)
```
Status           2nd byte         3rd byte
BnH              06H              mmH
BnH              26H              llH
n = MIDI channel number:                OH – FH (ch.1 – 16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB
```

○Volume (Controller number 7)
```
Status           2nd byte         3rd byte
BnH              07H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Volume:                            OOH – 7FH (0 – 127)
```

* Not received when the Receive Volume(VO) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.
* The Zone Level parameter (ZONE EDIT:LEVEL/PAN) will change.

○Panpot (Controller number 10)
```
Status           2nd byte         3rd byte
BnH              0AH              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Panpot:                            OOH – 40H – 7FH (Left – Center – Right)
```

* Not received when the Receive Pan(PN) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.
* The Zone Pan parameter (ZONE EDIT:LEVEL/PAN) will change.

○Expression (Controller number 11)
```
Status           2nd byte         3rd byte
BnH              0BH              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Expression:                        OOH – 7FH (0 – 127)
```

* Not received when the Receive Expression(EX) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.
* Not received when the Receive Expression parameter (TONE EDIT:CONTROL) is OFF.

○General Purpose Controller 1 (Controller number 16)
```
Status           2nd byte         3rd byte
BnH              10H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Control value:                     OOH – 7FH (0 – 127)
```

○General Purpose Controller 2 (Controller number 17)
```
Status           2nd byte         3rd byte
BnH              11H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Control value:                     OOH – 7FH (0 – 127)
```

○General Purpose Controller 3 (Controller number 18)
```
Status           2nd byte         3rd byte
BnH              12H              vvH
n = MIDI channel number:                OH – FH (ch.1 – 16)
vv = Control value:                     OOH – 7FH (0 – 127)
```

○General Purpose Controller 4 (Controller number 19)
```
Status           2nd byte         3rd byte
```

```
BnH              13H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Control value:                   OOH - 7FH (0 - 127)


○Hold 1 (Controller number 64)
Status           2nd byte         3rd byte
BnH              40H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Control value:                   OOH - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

* Not received when the Receive Hold-1(HD) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.
* Not received when the Receive Hold-1 parameter (TONE EDIT:CONTROL) is OFF.


○Portamento (Controller number 65)
Status           2nd byte         3rd byte
BnH              41H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Control value:                   OOH - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON

* The Zone Portamento Switch parameter (ZONE EDIT:PITCH) will change.


○Sostenuto (Controller number 66)
Status           2nd byte         3rd byte
BnH              42H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Control value:                   OOH - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON


○Soft (Controller number 67)
Status           2nd byte         3rd byte
BnH              43H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Control value:                   OOH - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON


○Legato Foot Switch (Controller number 68)
Status           2nd byte         3rd byte
BnH              44H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Control value:                   OOH - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON


○Resonance (Controller number 71)
Status           2nd byte         3rd byte
BnH              47H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv= Resonance value (relative change):     OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Resonance Offset parameter (ZONE EDIT:OFFSET) will change.


○Release Time (Controller number 72)
Status           2nd byte         3rd byte
BnH              48H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Release Time value (relative change):  OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Release Time Offset parameter (ZONE EDIT:OFFSET) will change.


○Attack time (Controller number 73)
Status           2nd byte         3rd byte
BnH              49H              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Attack time value (relative change):   OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Attack Time Offset parameter (ZONE EDIT:OFFSET) will change.


○Cutoff (Controller number 74)
Status           2nd byte         3rd byte
BnH              4AH              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Cutoff value (relative change):       OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Cutoff Offset parameter (ZONE EDIT:OFFSET) will change.


○Decay Time (Controller number 75)
Status           2nd byte         3rd byte
BnH              4BH              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Decay Time value (relative change):   OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Decay Time Offset parameter (ZONE EDIT:OFFSET) will change.


○Vibrato Rate (Controller number 76)
Status           2nd byte         3rd byte
BnH              4CH              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Vibrato Rate value (relative change):  OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Vibrato Rate parameter (ZONE EDIT:VIBRATO) will change.


○Vibrato Depth (Controller number 77)
Status           2nd byte         3rd byte
BnH              4DH              vvH
n = MIDI channel number:              OH - FH (ch.1 - 16)
vv = Vibrato Depth Value (relative change): OOH - 40H - 7FH (-64 - 0 - +63)

* The Zone Vibrato Depth parameter (ZONE EDIT:VIBRATO) will change.
```

○Vibrato Delay (Controller number 78)
```
Status          2nd byte        3rd byte
BnH             4EH             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Vibrato Delay value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

* The Zone Vibrato Delay parameter (ZONE EDIT:VIBRATO) will change.

○General Purpose Controller 5 (Controller number 80)
```
Status          2nd byte        3rd byte
BnH             50H             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○General Purpose Controller 6 (Controller number 81)
```
Status          2nd byte        3rd byte
BnH             51H             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○General Purpose Controller 7 (Controller number 82)
```
Status          2nd byte        3rd byte
BnH             52H             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○General Purpose Controller 8 (Controller number 83)
```
Status          2nd byte        3rd byte
BnH             53H             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○Portamento control (Controller number 84)
```
Status          2nd byte        3rd byte
BnH             54H             kkH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
kk = source note number: 00H - 7FH (0 - 127)

* A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.
* If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.
* The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.

○High Resolution Velocity Prefix (Controller number 88)
```
Status          2nd byte        3rd byte
BnH             58H             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = High Resolution Velocity Prefix: 00H - 7FH (0 - 127)

* V-Piano Tone will receive it.

○General Purpose Effect 1 (Reverb Send Level) (Controller number 91)
```
Status          2nd byte        3rd byte
BnH             5BH             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Reverb Send Level: 00H - 7FH (0 - 127)

* The Zone Reverb Send Level parameter (ZONE EDIT:LEVEL/PAN) will change.

○General Purpose Effect 3 (Chorus Send Level) (Controller number 93)
```
Status          2nd byte        3rd byte
BnH             5DH             vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Chorus Send Level: 00H - 7FH (0 - 127)

* The Zone Chorus Send Level parameter (ZONE EDIT:LEVEL/PAN) will change.

○RPN MSB/LSB (Controller number 100, 101)
```
Status          2nd byte        3rd byte
BnH             65H             mmH
BnH             64H             llH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
mm = upper byte (MSB) of parameter number specified by RPN
ll = lower byte (LSB) of parameter number specified by RPN

<<< RPN >>>
Control Changes include RPN (Registered Parameter Numbers), which are extended.
When using RPNs, first RPN (Controller numbers 100 and 101; they can be sent in any order) should be sent in order to select the parameter, then Data Entry (Controller numbers 6 and 38) should be sent to set the value. Once RPN messages are received, Data Entry messages that is received at the same MIDI channel after that are recognized as changing toward the value of the RPN messages. In order not to make any mistakes, transmitting RPN Null is recommended after setting parameters you need.

This device receives the following RPNs.

```
RPN             Data entry
MSB, LSB        MSB, LSB        Notes
00H, 00H        mmH, llH        Pitch Bend Sensitivity
                                mm: 00H - 18H (0 - 24 semitones)
                                ll: ignored (processed as 00H)
                                Up to 2 octave can be specified in semitone steps.
```
* The Zone Bend Range parameter (ZONE EDIT:PITCH) will change.

```
00H, 01H    mmH, llH        Channel Fine Tuning
                            mm, ll: 20 00H - 40 00H - 60 00H
                            (-4096 x 100 / 8192 - 0 - +4096 x 100 / 8192 cent)
* The Zone Fine Tune parameter (ZONE EDIT:PITCH) will change.

00H, 02H    mmH, llH        Channel Coarse Tuning
                            mm: 10H - 40H - 70H (-48 - 0 - +48 semitones)
                            ll: ignored (processed as 00H)
* The Zone Coarse Tune parameter (ZONE EDIT:PITCH) will change.

7FH, 7FH    ---, ---        RPN null
                            RPN and NRPN will be set as "unspecified." Once this setting has been made, subsequent Parameter
values that were previously set will not change.
                            mm, ll: ignored
```

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

* Not received when the Receive Program Change parameter (SYSTEM:MIDI) is OFF.
* Not received when the Receive Program Change(PC) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.

●Channel Pressure
```
Status          2nd byte
DnH             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Channel Pressure:                  00H - 7FH (0 - 127)
```

* Not received when the Receive Channel Pressure(CA) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.

●Pitch Bend Change
```
Status          2nd byte        3rd byte
EnH             llH             mmH
n = MIDI channel number:                OH - FH (ch.1 - 16)
mm, ll = Pitch Bend value:              00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)
```

* Not received when the Receive Bender(PB) parameter (ZONE EDIT:MIDIRxFILTER) is OFF.
* Not received when the Receive Bender parameter (TONE EDIT:CONTROL) is OFF.

■Channel Mode Messages
* Not received when the Zone Receive Switch parameter (ZONE EDIT:LEVEL/PAN) is OFF.

●All Sounds Off (Controller number 120)
```
Status          2nd byte        3rd byte
BnH             78H             00H
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

* When this message is received, all notes currently sounding on the corresponding channel will be turned off.

●Reset All Controllers (Controller number 121)
```
Status          2nd byte        3rd byte
BnH             79H             00H
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

* When this message is received, the following controllers will be set to their reset values.

```
Controller                  Reset value
Pitch Bend Change           +/-0 (center)
Polyphonic Key Pressure     0 (off)
Channel Pressure            0 (off)
Modulation                  0 (off)
Breath Type                 0 (min)
Foot Type                   0 (min)
Expression                  127 (max)
                            However the controller will be at minimum.
Hold 1                      0 (off)
Sostenuto                   0 (off)
Soft                        0 (off)
RPN                         unset; previously set data will not change
NRPN                        unset; previously set data will not change
```

●All Notes Off (Controller number 123)
```
Status          2nd byte        3rd byte
BnH             7BH             00H
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

* When All Notes Off is received, all notes on the corresponding channel will be turned off. However, if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

●OMNI OFF (Controller number 124)
```
Status          2nd byte        3rd byte
BnH             7CH             00H
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

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

●OMNI ON (Controller number 125)
```
Status          2nd byte        3rd byte
BnH             7DH             00H
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

* The same processing will be carried out as when All Notes Off is received. OMNI ON will not be turned on.

●MONO (Controller number 126)
```
Status          2nd byte        3rd byte
BnH             7EH             mmH
n = MIDI channel number:                OH - FH (ch.1 - 16)
mm = mono number:                       OOH - 10H (0 - 16)
```

* The same processing will be carried out as when All Notes Off is received.
* The Zone Mono/Poly parameter (ZONE EDIT:MONO/POLY) will change.

●POLY (Controller number 127)
```
Status          2nd byte        3rd byte
BnH             7FH             OOH
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

* The same processing will be carried out as when All Notes Off is received.
* The Zone Mono/Poly parameter (ZONE EDIT:MONO/POLY) will change.

■System Realtime Messages

●Timing Clock
```
Status
F8H
```

* Received when Sync Mode parameter (SYSTEM:SYNC/TEMPO) is set to SLAVE.

●Active Sensing
```
Status
FEH
```

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 500 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

■System Exclusive Message
```
Status  Data byte                       Status
FOH     iiH, ddH, ......,eeH            F7H
```

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

Of the System Exclusive messages received by this device, the Universal Non-realtime messages and the Universal Realtime messages and the Data Request (RQ1) messages and the Data Set (DT1) messages will be set automatically.

●Universal Non-realtime System Exclusive Messages

○Identity Request Message
```
Status  Data byte                       Status
FOH     7EH, dev, 06H, 01H              F7H
```

```
Byte    Explanation
FOH     Exclusive status
7EH     ID number (Universal Non-realtime Message)
dev     Device ID (dev: 10H - 1FH, 7FH)
06H     Sub ID#1 (General Information)
01H     Sub ID#2 (Identity Request)
F7H     EOX (End Of Exclusive)
```

* When this message is received, Identity Reply message will be transmitted.

●Universal Realtime System Exclusive Messages

○Master Volume
```
Status  Data byte                       Status
FOH     7FH, 7FH, 04H, 01H, llH, mmH    F7H
```

```
Byte    Explanation
FOH     Exclusive status
7FH     ID number (universal realtime message)
7FH     Device ID (Broadcast)
04H     Sub ID#1 (Device Control)
01H     Sub ID#2 (Master Volume)
llH     Master Volume lower byte
mmH     Master Volume upper byte
F7H     EOX (End Of Exclusive)
```

* The lower byte (llH) of Master Volume will be handled as OOH.
* The Master Level parameter (SYSTEM:SOUND) will change.

○Master Fine Tuning
```
Status  Data byte                       Status
FOH     7FH, 7FH, 04H, 03H, llH, mmH    F7H
```

```
Byte    Explanation
FOH     Exclusive status
7FH     ID number (universal realtime message)
7FH     Device ID (Broadcast)
04H     Sub ID#1 (Device Control)
03H     Sub ID#2 (Master Fine Tuning)
llH     Master Fine Tuning LSB
```

```
mmH      Master Fine Tuning MSB
F7H      EOX (End Of Exclusive)

mm, ll: 00 00H - 40 00H - 7F 7FH (-100 - 0 - +99.9 [cents])

* The Master Tune parameter (SYSTEM:SOUND) will change.


○Master Coarse Tuning
Status  Data byte                        Status
F0H     7FH, 7FH, 04H, 04H, llH, mmH     F7

Byte    Explanation
F0H     Exclusive status
7FH     ID number (universal realtime message)
7FH     Device ID (Broadcast)
04H     Sub ID#1 (Device Control)
04H     Sub ID#2 (Master Coarse Tuning)
llH     Master Coarse Tuning LSB
mmH     Master Coarse Tuning MSB
F7H     EOX (End Of Exclusive)

mmH: 28H - 40H - 58H (-24 - 0 - +24 [semitones])
llH: ignored (processed as 00H)

* The Master Key Shift parameter (SYSTEM:SOUND) will change.

●Global Parameter Control

○Scale/Octave Tuning Adjust
Status  Data byte                                    Status
F0H     7EH, 7FH, 08H, 08H, ffH, ggH, hhH, ssH...    F7

Byte    Explanation
F0H     Exclusive status
7EH     ID number (Universal Non-realtime Message)
7FH     Device ID (Broadcast)
08H     Sub ID#1 (MIDI Tuning Standard)
08H     Sub ID#2 (scale/octave tuning 1-byte form)
ffH     Channel/Option byte 1
        bits 0 to 1 = channel 15 to 16
        bit 2 to 6 = Undefined
ggH     Channel byte 2
        bits 0 to 6 = channel 8 to 14
hhH     Channel byte 3
        bits 0 to 6 = channel 1 to 7
ssH     12 byte tuning offset of 12 semitones from C to B
        00H = -64 [cents]
        40H = 0 [cents] (equal temperament)
        7FH = +63 [cents]
F7H     EOX (End Of Exclusive)

●Data Transmission
This instrument can use exclusive messages to exchange many varieties of internal settings with other devices.
The model ID of the exclusive messages used by this instrument is 00H 00H 00H 5BH.

○Data Request 1 (RQ1)
This message requests the other device to transmit data. The address and size indicate the type and amount of data that is
requested.
When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address
and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met,
nothing is transmitted.

Status  Data byte                              Status
F0H     41H, dev, 00H, 00H, 00H, 5BH, 11H, aaH, bbH,    F7H
        ccH, ddH, ssH, ttH, uuH, vvH, sum

Byte    Remarks
F0H     Exclusive status
41H     ID number (Roland)
dev     device ID (dev: 10H - 1FH, 7FH)
00H     model ID #1 (FANTOM-6/7/8)
00H     model ID #2 (FANTOM-6/7/8)
00H     model ID #3 (FANTOM-6/7/8)
5BH     model ID #4 (FANTOM-6/7/8)
11H     command ID (RQ1)
aaH     address MSB
bbH     address
ccH     address
ddH     address LSB
ssH     size MSB
ttH     size
uuH     size
vvH     size LSB
sum     checksum
F7H     EOX (End Of Exclusive)

* The size of data that can be transmitted at one time is fixed for each type of data. And data requests must be made with a
fixed starting address and size. Refer to the address and size given in "Parameter Address Map".
* For the checksum, refer to "How to calculate the checksum".
* Not received when the Receive Exclusive parameter (SYSTEM:MIDI) is OFF.

○Data set 1 (DT1)
This is the message that actually performs data transmission, and is used when you wish to transmit the data.
```

```
Status   Data byte                                     Status
F0H      41H, dev, 00H, 00H, 00H, 5BH, 12H, aaH, bbH,  F7H
         ccH, ddH, eeH, ... ffH, sum

Byte     Explanation
F0H      Exclusive status
41H      ID number (Roland)
dev      Device ID (dev: 10H - 1FH, 7FH)
00H      Model ID #1 (FANTOM-6/7/8)
00H      Model ID #2 (FANTOM-6/7/8)
00H      model ID #3 (FANTOM-6/7/8)
5BH      model ID #4 (FANTOM-6/7/8)
12H      Command ID (DT1)
aaH      Address MSB: upper byte of the starting address of the data to be sent
bbH      Address: upper middle byte of the starting address of the data to be sent
ccH      Address: lower middle byte of the starting address of the data to be sent
ddH      Address LSB: lower byte of the starting address of the data to be sent.
eeH      Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:
ffH      Data
sum      Checksum
F7H      EOX (End Of Exclusive)
```

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in "Parameter Address Map".
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.
* Regarding the checksum, please refer to "How to calculate the checksum".
* Not received when the Receive Exclusive parameter (SYSTEM:MIDI) is OFF.

2. Data Transmission (Sound Source Section)

■Channel Voice Messages

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

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

●Control Change
* By selecting a controller number that corresponds to the setting of parameters of controllers, the FANTOM-6/7/8 can transmit any control change message.

○Bank Select (Controller number 0, 32)
```
Status        2nd byte      3rd byte
BnH           00H           mmH
BnH           20H           llH
n = MIDI channel number:              0H - FH (ch.1 - 16)
mm, ll = Bank number:                 00 00H - 7F 7FH (bank.1 - bank.16384)
```

* These messages are transmitted when Scene or Tone is selected. But not transmitted when Transmit Program Change (SYSTEM:MIDI) or Transmit Bank Select parameter (SYSTEM:MIDI) is OFF.

○Modulation (Controller number 1)
```
Status        2nd byte      3rd byte
BnH           01H           vvH
n = MIDI channel number:              0H - FH (ch.1 - 16)
vv = Modulation depth:                00H - 7FH (0 - 127)
```

○Breath type (Controller number 2)
```
Status        2nd byte      3rd byte
BnH           02H           vvH
n = MIDI channel number:              0H - FH (ch.1 - 16)
vv = Control value:                   00H - 7FH (0 - 127)
```

○Portamento Time (Controller number 5)
```
Status        2nd byte      3rd byte
BnH           05H           vvH
n = MIDI channel number:              0H - FH (ch.1 - 16)
vv = Portamento Time:                 00H - 7FH (0 - 127)
```

○Data Entry (Controller number 6, 38)
```
Status        2nd byte      3rd byte
BnH           06H           mmH
BnH           26H           llH
n = MIDI channel number:              0H - FH (ch.1 - 16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB
```

○Volume (Controller number 7)
```
Status        2nd byte      3rd byte
BnH           07H           vvH
n = MIDI channel number:              0H - FH (ch.1 - 16)
vv = Volume:                          00H - 7FH (0 - 127)
```

○Panpot (Controller number 10)
```
Status      2nd byte    3rd byte
BnH         0AH         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Panpot: 00H - 40H - 7FH (Left - Center - Right)

○Expression (Controller number 11)
```
Status      2nd byte    3rd byte
BnH         0BH         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Expression: 00H - 7FH (0 - 127)

○General Purpose Controller 1 (Controller number 16)
```
Status      2nd byte    3rd byte
BnH         10H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○General Purpose Controller 2 (Controller number 17)
```
Status      2nd byte    3rd byte
BnH         11H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○General Purpose Controller 3 (Controller number 18)
```
Status      2nd byte    3rd byte
BnH         12H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○General Purpose Controller 4 (Controller number 19)
```
Status      2nd byte    3rd byte
BnH         13H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○Hold 1 (Controller number 64)
```
Status      2nd byte    3rd byte
BnH         40H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

* If the Continuous Hold Pedal parameter (SYSTEM:PEDAL) is set to OFF, only 00H (OFF) or 7FH (ON) can be transmitted as the value of the control.

○Portamento (Controller number 65)
```
Status      2nd byte    3rd byte
BnH         41H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○Sostenuto (Controller number 66)
```
Status      2nd byte    3rd byte
BnH         42H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○Soft (Controller number 67)
```
Status      2nd byte    3rd byte
BnH         43H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○Legato Foot Switch (Controller number 68)
```
Status      2nd byte    3rd byte
BnH         44H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Control value: 00H - 7FH (0 - 127)

○Resonance (Controller number 71)
```
Status      2nd byte    3rd byte
BnH         47H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv= Resonance value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

○Release Time (Controller number 72)
```
Status      2nd byte    3rd byte
BnH         48H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Release Time value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

○Attack time (Controller number 73)
```
Status      2nd byte    3rd byte
BnH         49H         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Attack time value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

○Cutoff (Controller number 74)
```
Status      2nd byte    3rd byte
BnH         4AH         vvH
```
n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Cutoff value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

○General Purpose Controller 5 (Controller number 80)

```
Status          2nd byte        3rd byte
BnH             50H             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Control value:                     OOH - 7FH (0 - 127)

○General Purpose Controller 6 (Controller number 81)
Status          2nd byte        3rd byte
BnH             51H             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Control value:                     OOH - 7FH (0 - 127)

○General Purpose Controller 7 (Controller number 82)
Status          2nd byte        3rd byte
BnH             52H             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Control value:                     OOH - 7FH (0 - 127)

○General Purpose Controller 8 (Controller number 83)
Status          2nd byte        3rd byte
BnH             53H             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Control value:                     OOH - 7FH (0 - 127)

○Portamento control (Controller number 84)
Status          2nd byte        3rd byte
BnH             54H             kkH
n = MIDI channel number:                OH - FH (ch.1 - 16)
kk = source note number:                OOH - 7FH (0 - 127)

○High Resolution Velocity Prefix (Controller number 88)
Status          2nd byte        3rd byte
BnH             58H             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = High Resolution Velocity Prefix:   OOH - 7FH (0 - 127)

○General Purpose Effect 1 (Reverb Send Level) (Controller number 91)
Status          2nd byte        3rd byte
BnH             5BH             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Reverb Send Level:                 OOH - 7FH (0 - 127)

○General Purpose Effect 3 (Chorus Send Level) (Controller number 93)
Status          2nd byte        3rd byte
BnH             5DH             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Chorus Send Level:                 OOH - 7FH (0 - 127)

○General Controller
Status          2nd byte        3rd byte
BnH             kkH             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
kk = Controller number:                 OOH - 77H (0 - 31, 33 - 95)
vv = Control value:                     OOH - 7FH (0 - 127)

●Program Change
Status          2nd byte
CnH             ppH
n = MIDI channel number:                OH - FH (ch.1 - 16)
pp = Program number:                    OOH - 7FH (prog.1 - prog.128)

* These messages are transmitted when Scene or Tone is selected. But not transmitted when Transmit Program Change parameter
(SYSTEM:MIDI) is OFF.

●Channel Pressure
Status          2nd byte
DnH             vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = Channel Pressure:                  OOH - 7FH (0 - 127)

●Pitch Bend Change
Status          2nd byte        3rd byte
EnH             llH             mmH
n = MIDI channel number:                OH - FH (ch.1 - 16)
mm, ll = Pitch Bend value:              00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

■Channel Mode Messages

●MONO (Controller number 126)
Status          2nd byte        3rd byte
BnH             7EH             mmH
n = MIDI channel number:                OH - FH (ch.1 - 16)
mm = mono number:                       OOH - 10H (0 - 16)

●POLY (Controller number 127)
Status          2nd byte        3rd byte
BnH             7FH             OOH
n = MIDI channel number:                OH - FH (ch.1 - 16)

■System Realtime Messages

●Active Sensing
Status
FEH
```

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

■System Exclusive Messages
Universal Non-realtime System Exclusive Message and Data Set 1 (DT1) are the only System Exclusive messages transmitted by the FANTOM-6/7/8

●Universal Non-realtime System Exclusive Message

○Identity Reply Message (FANTOM-6)
Receiving Identity Request Message, the FANTOM-6 send this message.

```
Status  Data byte                      Status
F0H     7EH, dev, 06H, 02H, 41H, 5BH, 03H,  F7H
        00H, 00H, 00H, 03H, 00H, 00H
```

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
10H	Device ID (dev: 10H - 1FH)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
5BH 03H	Device family code
00H 00H	Device family number code
00H 03H 00H 00H	Software revision level
F7H	EOX (End of Exclusive)

○Identity Reply Message (FANTOM-7)
Receiving Identity Request Message, the FANTOM-7 send this message.

```
Status  Data byte                      Status
F0H     7EH, dev, 06H, 02H, 41H, 5BH, 03H,  F7H
        00H, 00H, 01H, 03H, 00H, 00H
```

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
10H	Device ID (dev: 10H - 1FH)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
5BH 03H	Device family code
00H 00H	Device family number code
01H 03H 00H 00H	Software revision level
F7H	EOX (End of Exclusive)

○Identity Reply Message (FANTOM-8)
Receiving Identity Request Message, the FANTOM-8 send this message.

```
Status  Data byte                      Status
F0H     7EH, dev, 06H, 02H, 41H, 5BH, 03H,  F7H
        00H, 00H, 02H, 03H, 00H, 00H
```

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
10H	Device ID (dev: 10H - 1FH)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
5BH 03H	Device family code
00H 00H	Device family number code
02H 03H 00H 00H	Software revision level
F7H	EOX (End of Exclusive)

●Data Transmission

○Data set 1 (DT1)
```
Status  Data byte                                Status
F0H     41H, dev, 00H, 00H, 00H, 5BH, 12H, aaH, bbH,  F7H
        ccH, ddH, eeH, ... ffH, sum
```

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 10H - 1FH, 7FH)
00H	Model ID #1 (FANTOM-6/7/8)
00H	Model ID #2 (FANTOM-6/7/8)
00H	model ID #3 (FANTOM-6/7/8)
5BH	model ID #4 (FANTOM-6/7/8)
12H	Command ID (DT1)
aaH	Address MSB: upper byte of the starting address of the data to be sent
bbH	Address: upper middle byte of the starting address of the data to be sent
ccH	Address: lower middle byte of the starting address of the data to be sent
ddH	Address LSB: lower byte of the starting address of the data to be sent.
eeH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:
ffH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

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

about 20 ms.

3. Data Reception (Sequencer Section)

3.1 Messages recorded during recording

■Channel Voice Messages

●Note off
Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number: 0H – FH (ch.1 – 16)
kk = note number: 00H – 7FH (0 – 127)
vv = note off velocity: 00H – 7FH (0 – 127)

* Not recorded when the NOTE parameter (REC EVENT window) is OFF.

●Note on
Status	2nd byte	3rd byte
9nH	kkH	vvH

n = MIDI channel number: 0H – FH (ch.1 – 16)
kk = note number: 00H – 7FH (0 – 127)
vv = note on velocity: 01H – 7FH (1 – 127)

* Not recorded when the NOTE parameter (REC EVENT window) is OFF.

●Polyphonic Aftertouch
Status	2nd byte	3rd byte
AnH	kkH	vvH

n = MIDI channel number: 0H – FH (ch.1 – 16)
kk = note number: 00H – 7FH (0 – 127)
vv = Polyphonic Aftertouch: 00H – 7FH (0 – 127)

* Not recorded when the POLY AFTER parameter (REC EVENT window) is OFF.

●Control Change
Status	2nd byte	3rd byte
BnH	kkH	vvH

n = MIDI channel number: 0H – FH (ch.1 – 16)
kk = Control number: 00H – 78H (0 – 120)
vv = value: 00H – 7FH (0 – 127)

* Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.
* kk = 00H and kk = 20H are not recorded.

●Channel Aftertouch
Status	2nd byte
DnH	vvH

n = MIDI channel number: 0H – FH (ch.1 – 16)
vv = Channel Aftertouch: 00H – 7FH (0 – 127)

* Not recorded when the CHANNEL AFTER parameter (REC EVENT window) is OFF.

●Pitch Bend Change
Status	2nd byte	3rd byte
EnH	llH	mmH

n = MIDI channel number: 0H – FH (ch.1 – 16)
mm, ll = Pitch Bend value: 00 00H – 40 00H – 7F 7FH (–8192 – 0 – +8191)

* Not recorded when the PITCH BEND parameter (REC EVENT window) is OFF.

■Channel Mode Messages

●All Sounds Off (Controller number 120)
Status	2nd byte	3rd byte
BnH	78H	00H

n = MIDI channel number: 0H – FH (ch.1 – 16)

* The same processing will be done as when an All Note Off message is received.
  Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.

●Reset All Controllers (Controller number 121)
Status	2nd byte	3rd byte
BnH	79H	00H

n = MIDI channel number: 0H – FH (ch.1 – 16)

* Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.

●Omni Off (Controller number 124)
Status	2nd byte	3rd byte
BnH	7CH	00H

n = MIDI channel number: 0H – FH (ch.1 – 16)

* The same processing will be done as when an All Note Off message is received.
  Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.

●Omni On (Controller number 125)
Status	2nd byte	3rd byte
BnH	7DH	00H

n = MIDI channel number: 0H – FH (ch.1 – 16)

* The same processing will be done as when an All Note Off message is received.
  Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.

●Mono (Controller number 126)
```
Status          2nd byte          3rd byte
BnH             7EH               mmH
n = MIDI channel number:                OH - FH (ch.1 - 16)
mm = mono number:                       OOH - 10H (0 - 16)
```

* The same processing will be done as when an All Note Off message is received.
  Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.

●Poly (Controller number 127)
```
Status          2nd byte          3rd byte
BnH             7FH               OOH
n = MIDI channel number:                OH - FH (ch.1 - 16)
```

* The same processing will be done as when an All Note Off message is received.
  Not recorded when the CONTROL CHANGE parameter (REC EVENT window) is OFF.

3.2 Messages not recorded during recording

■Channel Voice Messages

●Program Change
```
Status          2nd byte
CnH             ppH
n = MIDI channel number:                OH - FH (ch.1 - 16)
pp = Program number:                    OOH - 7FH (prog.1 - prog.128)
```

■System Exclusive Messages
```
Status   Data byte                      Status
FOH      iiH, ddH, ......, eeH          F7H
```

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

■Channel Mode Messages

●Local On/Off (Controller number 122)
```
Status          2nd byte          3rd byte
BnH             7AH               vvH
n = MIDI channel number:                OH - FH (ch.1 - 16)
vv = value:                             OOH, 7FH (Local Off, Local On)
```

●All Notes Off (Controller number 123)
```
Status          2nd byte          3rd byte
BnH             7BH               OOH
n = MIDI channel number:                OH - FH (ch.1 - 16)
```


3.3 Messages acknowledged for synchronization

■System Realtime Messages

●Timing Clock
```
Status
F8H
```

* Received when Sync Mode parameter (SYSTEM:SYNC/TEMPO) is set to SLAVE.

●Start
```
Status
FAH
```

* Received when Sync Mode parameter (SYSTEM:SYNC/TEMPO) is set to SLAVE or REMOTE.

●Continue
```
Status
FBH
```

* Received when Sync Mode parameter (SYSTEM:SYNC/TEMPO) is set to SLAVE or REMOTE.

●Stop
```
Status
FCH
```

* Received when Sync Mode parameter (SYSTEM:SYNC/TEMPO) is set to SLAVE or REMOTE.

4. Data transmission (Sequencer Section)

4.1 Messages transmitted during playing
Recorded messages are transmitted during playback.

4.2 Messages that are generated and transmitted
Messages are generated and transmitted to synchronize with other devices.

■System Realtime Messages
* Sent when Sync Output parameter (SYSTEM:SYNC/TEMPO) is set to ON.

●Timing Clock

Status
F8H

●Start
Status
FAH

●Stop
Status
FCH

5. Parameter Address Map

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

FANTOM-6/7/8 (ModelID = 00H 00H 00H 5BH)

```
+--------------------------------------------------------------------------+
| Start        |                                                           |
|    Address   |                  Description                              |
|--------------+-----------------------------------------------------------|
| 00 00 00 00  | System                                           [System] |
|--------------+-----------------------------------------------------------|
| 01 00 00 00  | Setup                                             [Setup] |
|--------------+-----------------------------------------------------------|
| 01 00 02 00  | Vocoder                                         [Vocoder] |
|--------------+-----------------------------------------------------------|
| 02 00 00 00  | Temporary Scene                                   [Scene] |
|--------------+-----------------------------------------------------------|
| 02 10 00 00  | Temporary Z-Core Tone (zone 1)              [Z-Core Tone] |
| 02 11 00 00  | Temporary Z-Core Tone (zone 2)              [Z-Core Tone] |
|            : |                                                           |
| 02 1F 00 00  | Temporary Z-Core Tone (zone 16)             [Z-Core Tone] |
|--------------+-----------------------------------------------------------|
| 02 30 00 00  | Temporary Drum Kit (zone 1)                    [Drum Kit] |
| 02 32 00 00  | Temporary Drum Kit (zone 2)                    [Drum Kit] |
|            : |                                                           |
| 02 4E 00 00  | Temporary Drum Kit (zone 16)                   [Drum Kit] |
|--------------+-----------------------------------------------------------|
| 03 00 00 00  | Temporary Drum Kit Inst Set (zone 1)  [Drum Kit Inst Set] |
| 03 04 00 00  | Temporary Drum Kit Inst Set (zone 2)  [Drum Kit Inst Set] |
|            : |                                                           |
| 03 3C 00 00  | Temporary Drum Kit Inst Set (zone 16) [Drum Kit Inst Set] |
|--------------+-----------------------------------------------------------|
| 04 00 00 00  | Temporary SN-A Tone (zone 1)                  [SN-A Tone] |
| 04 01 00 00  | Temporary SN-A Tone (zone 2)                  [SN-A Tone] |
|            : |                                                           |
| 04 0F 00 00  | Temporary SN-A Tone (zone 16)                 [SN-A Tone] |
|--------------+-----------------------------------------------------------|
| 04 20 00 00  | Temporary V-Piano Tone                    [V-Piano Tone] |
|--------------+-----------------------------------------------------------|
| 05 00 00 00  | Temporary EXSN Tone (zone 1)                  [EXSN Tone] |
| 05 01 00 00  | Temporary EXSN Tone (zone 2)                  [EXSN Tone] |
|            : |                                                           |
| 05 0F 00 00  | Temporary EXSN Tone (zone 16)                 [EXSN Tone] |
+--------------------------------------------------------------------------+
```

* [System]

```
+--------------------------------------------------------------------------+
| Offset       |                                                           |
|    Address   |                  Description                              |
|--------------+-----------------------------------------------------------|
| 00 00 00 00  | System Common                             [System Common] |
|--------------+-----------------------------------------------------------|
| 00 00 02 00  | System Controller                     [System Controller] |
|--------------+-----------------------------------------------------------|
| 00 00 04 00  | Master Comp                                 [Master Comp] |
|--------------+-----------------------------------------------------------|
| 00 00 06 00  | Master EQ                                     [Master EQ] |
|--------------+-----------------------------------------------------------|
| 00 00 09 00  | Input EQ 1                                     [Input EQ] |
| 00 00 0A 00  | Input EQ 2                                     [Input EQ] |
|--------------+-----------------------------------------------------------|
| 00 00 0B 00  | Input Reverb                                     [Reverb] |
|--------------+-----------------------------------------------------------|
| 00 00 10 00  | TFX                                                 [MFX] |
|--------------+-----------------------------------------------------------|
| 00 00 12 00  | Input MFX 1                                         [MFX] |
| 00 00 14 00  | Input MFX 2                                         [MFX] |
+--------------------------------------------------------------------------+
```

* [Scene]

```
+--------------------------------------------------------------------------+
| Offset       |                                                           |
|    Address   |                  Description                              |
|--------------+-----------------------------------------------------------|
|   00 00 00   | Scene Common                               [Scene Common] |
|--------------+-----------------------------------------------------------|
|   00 02 00   | Scene Chorus                                     [Chorus] |
|--------------+-----------------------------------------------------------|
|   00 03 00   | Scene Reverb                                     [Reverb] |
|--------------+-----------------------------------------------------------|
|   00 04 00   | Scene IFX 1                                         [MFX] |
|   00 06 00   | Scene IFX 2                                         [MFX] |
```

```
+------------+----------------------------------+------------------+
|  00 10 00  | Scene Zone (Zone 1)              |     [Scene Zone] |
|  00 11 00  | Scene Zone (Zone 2)              |     [Scene Zone] |
|      :     |                                  |                  |
|  00 1F 00  | Scene Zone (Zone 16)             |     [Scene Zone] |
+------------+----------------------------------+------------------+
|  00 20 00  | Scene Zone EQ (Zone 1)           |        [Zone EQ] |
|  00 21 00  | Scene Zone EQ (Zone 2)           |        [Zone EQ] |
|      :     |                                  |                  |
|  00 2F 00  | Scene Zone EQ (Zone 16)          |        [Zone EQ] |
+------------+----------------------------------+------------------+
|  00 30 00  | Scene Zone Control (Zone 1)      |   [Zone Control] |
|  00 31 00  | Scene Zone Control (Zone 2)      |   [Zone Control] |
|      :     |                                  |                  |
|  00 3F 00  | Scene Zone Control (Zone 16)     |   [Zone Control] |
+------------+----------------------------------+------------------+
|  00 40 00  | Scene Controller         [Scene Controller]         |
+------------+----------------------------------+------------------+
|  00 43 00  | Scene Analog Filter          [Analog Filter]        |
+------------+----------------------------------+------------------+
```

* [Z-Core Tone]

```
+------------+----------------------------------------------------+
| Offset     |                                                    |
|   Address  |                   Description                       |
+------------+----------------------------------------------------+
|  00 00 00  | Tone Common                         [Tone Common]  |
+------------+----------------------------------------------------+
|  00 01 00  | Tone MFX                                    [MFX]   |
+------------+----------------------------------------------------+
|  00 10 00  | Tone PMT                               [Tone PMT]  |
+------------+----------------------------------------------------+
|  00 20 00  | Tone Partial 1                      [Tone Partial] |
|  00 21 00  | Tone Partial 2                      [Tone Partial] |
|      :     |                                                    |
|  00 23 00  | Tone Partial 4                      [Tone Partial] |
+------------+----------------------------------------------------+
|  00 24 00  | Partial Pitch Env 1            [Partial Pitch Env] |
|  00 25 00  | Partial Pitch Env 2            [Partial Pitch Env] |
|      :     |                                                    |
|  00 27 00  | Partial Pitch Env 4            [Partial Pitch Env] |
+------------+----------------------------------------------------+
|  00 28 00  | Partial Filter Env 1         [Partial Filter Env] |
|  00 29 00  | Partial Filter Env 2         [Partial Filter Env] |
|      :     |                                                    |
|  00 2B 00  | Partial Filter Env 4         [Partial Filter Env] |
+------------+----------------------------------------------------+
|  00 2C 00  | Partial Amp Env 1               [Partial Amp Env] |
|  00 2D 00  | Partial Amp Env 2               [Partial Amp Env] |
|      :     |                                                    |
|  00 2F 00  | Partial Amp Env 4               [Partial Amp Env] |
+------------+----------------------------------------------------+
|  00 30 00  | Partial LFO 1                       [Partial LFO] |
|  00 32 00  | Partial LFO 2                       [Partial LFO] |
|      :     |                                                    |
|  00 36 00  | Partial LFO 4                       [Partial LFO] |
+------------+----------------------------------------------------+
|  00 38 00  | Partial EQ 1                         [Partial EQ] |
|  00 39 00  | Partial EQ 2                         [Partial EQ] |
|      :     |                                                    |
|  00 3B 00  | Partial EQ 4                         [Partial EQ] |
+------------+----------------------------------------------------+
|  00 3C 00  | Synth Common                   [Tone Synth Common] |
+------------+----------------------------------------------------+
|  00 3D 00  | Synth PMT                         [Tone Synth PMT] |
+------------+----------------------------------------------------+
|  00 3E 00  | Synth Partial 1               [Tone Synth Partial] |
|  00 3F 00  | Synth Partial 2               [Tone Synth Partial] |
|      :     |                                                    |
|  00 41 00  | Synth Partial 4               [Tone Synth Partial] |
+------------+----------------------------------------------------+
```

* [SN-A Tone]

```
+------------+----------------------------------------------------+
| Offset     |                                                    |
|   Address  |                   Description                       |
+------------+----------------------------------------------------+
|  00 00 00  | SN-A Tone Common                [SN-A Tone Common] |
+------------+----------------------------------------------------+
|  00 01 00  | SN-A Tone MFX                               [MFX]  |
+------------+----------------------------------------------------+
```

* [V-Piano Tone]

```
+------------+----------------------------------------------------+
| Offset     |                                                    |
|   Address  |                   Description                       |
+------------+----------------------------------------------------+
|  00 00 00  | V-Piano Tone Common          [V-Piano Tone Common] |
+------------+----------------------------------------------------+
|  00 01 00  | V-Piano Tone MFX                            [MFX]  |
+------------+----------------------------------------------------+
|  00 03 00  | Piano Designer Basic        [Piano Designer Basic]|
+------------+----------------------------------------------------+
|  00 04 00  | Piano Designer Tuning      [Piano Designer Tuning]|
```

```
+----------------------------------------------------------------------+
|  00 08 00 | Piano Designer Level                [Piano Designer Level] |
+----------------------------------------------------------------------+
|  00 09 00 | Piano Designer Character        [Piano Designer Character] |
+----------------------------------------------------------------------+
```

* [EXSN Tone]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                   Description                            |
|-----------+----------------------------------------------------------|
|  00 00 00 | EXSN Tone Common                       [EXSN Tone Common] |
|-----------+----------------------------------------------------------|
|  00 01 00 | EXSN Tone MFX                                       [MFX] |
+----------------------------------------------------------------------+
```

* [Drum Kit]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                   Description                            |
|-----------+----------------------------------------------------------|
|  00 00 00 | Drum Kit Common                       [Drum Kit Common]   |
|-----------+----------------------------------------------------------|
|  00 01 00 | Drum Kit MFX                                        [MFX] |
|-----------+----------------------------------------------------------|
|  00 10 00 | Drum Kit Comp 1                       [Drum Kit Comp]     |
|  00 11 00 | Drum Kit Comp 2                       [Drum Kit Comp]     |
|      :    |                                                          |
|  00 15 00 | Drum Kit Comp 6                       [Drum Kit Comp]     |
|-----------+----------------------------------------------------------|
|  00 16 00 | Drum Kit Partial  (Key# 21)          [Drum Kit Partial]   |
|  00 17 00 | Drum Kit Partial  (Key# 22)          [Drum Kit Partial]   |
|      :    |                                                          |
|  00 6D 00 | Drum Kit Partial  (Key# 108)         [Drum Kit Partial]   |
|-----------+----------------------------------------------------------|
|  00 6E 00 | Drum Kit Partial EQ (Key# 21)             [Partial EQ]    |
|  00 6F 00 | Drum Kit Partial EQ (Key# 22)             [Partial EQ]    |
|      :    |                                                          |
|  01 45 00 | Drum Kit Partial EQ (Key# 108)            [Partial EQ]    |
+----------------------------------------------------------------------+
```

* [Drum Kit Inst Set]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                   Description                            |
|-----------+----------------------------------------------------------|
|  00 00 00 | Drum Kit Inst (Key# 21)                          [Inst]   |
|  00 05 00 | Drum Kit Inst (Key# 22)                          [Inst]   |
|      :    |                                                          |
|  03 33 00 | Drum Kit Inst (Key# 108)                         [Inst]   |
+----------------------------------------------------------------------+
```

* [Inst]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                   Description                            |
|-----------+----------------------------------------------------------|
|  00 00 00 | Inst Common                             [Inst Common]    |
|-----------+----------------------------------------------------------|
|  00 02 00 | Inst Pitch Env                        [Inst Pitch Env]    |
|-----------+----------------------------------------------------------|
|  00 03 00 | Inst Filter Env                      [Inst Filter Env]    |
|-----------+----------------------------------------------------------|
|  00 04 00 | Inst Amp Env                            [Inst Amp Env]    |
+----------------------------------------------------------------------+
```

* [Setup]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                   Description                            |
|-----------+----------------------------------------------------------|
|     00 00 | 0aaa aaaa | Scene BS MSB (CC# 0)            (0 - 127)     |
|     00 01 | 0aaa aaaa | Scene BS LSB (CC# 32)           (0 - 127)     |
|     00 02 | 0aaa aaaa | Scene PC (PC)                   (0 - 127)     |
|     00 03 | 0aaa aaaa | Transpose Value               (59 - 70)      |
|           |           |                                 -5 - 6       |
|     00 04 | 0aaa aaaa | Octave Shift                  (61 - 67)      |
|           |           |                                 -3 - 3       |
|-----------+----------------------------------------------------------|
| 00 00 00 05 |Total Size                                              |
+----------------------------------------------------------------------+
```

* [System Common]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                   Description                            |
|-----------+----------------------------------------------------------|
|#    00 00 | 0000 aaaa |                                              |
|     00 01 | 0000 bbbb |                                              |
|     00 02 | 0000 cccc |                                              |
|     00 03 | 0000 dddd | Master Tune                   (24 - 2024)     |
|           |           |                              -1000 - 1000     |
|     00 04 | 0aaa aaaa | Master Key Shift              (40 - 88)      |
|           |           |                                -24 - 24      |
```

```
             | 00 05 | 0aaa aaaa | Master Level                          (0 - 127)
             | 00 06 | 000a aaaa | Scene Control Channel                  (0 - 16)
             |       |           |      1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, OFF
             | 00 07 | 0000 000a | ScaleTune Sw                            (0 - 1)
             |       |           |                                       OFF, ON
             | 00 08 | 0aaa aaaa | Reserved
             | 00 09 | 0000 000a | Control Source Select                   (0 - 1)
             |       |           |                                      SYS, SCENE
             | 00 0A | 0aaa aaaa | System Control Source 1                 (0 - 96)
             |       |           |            OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
             |       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
             |       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
             |       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
             |       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
             |       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
             |       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
             |       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
             |       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
             |       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
             | 00 0B | 0aaa aaaa | System Control Source 2                 (0 - 96)
             |       |           |            OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
             |       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
             |       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
             |       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
             |       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
             |       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
             |       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
             |       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
             |       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
             |       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
             | 00 0C | 0aaa aaaa | System Control Source 3                 (0 - 96)
             |       |           |            OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
             |       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
             |       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
             |       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
             |       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
             |       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
             |       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
             |       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
             |       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
             |       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
             | 00 0D | 0aaa aaaa | System Control Source 4                 (0 - 96)
             |       |           |            OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
             |       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
             |       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
             |       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
             |       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
             |       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
             |       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
             |       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
             |       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
             |       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
             | 00 0E | 0aaa aaaa | Reserved
             :       :           :
             | 00 11 | 0000 000a | Receive Program Change                  (0 - 1)
             |       |           |                                       OFF, ON
             | 00 12 | 0000 000a | Receive Bank Select                     (0 - 1)
             |       |           |                                       OFF, ON
             +-------------------+--------------------------------------------------
| 00 00 00 13 |Total Size
+-------------+-------------------------------------------------------------------
```

* [System Control]

```
+------------+-------------------------------------------------------------------+
| Offset     |                                                                   |
|   Address  |                    Description                                    |
|------------+-------------------------------------------------------------------|
| 00 00 | 0000 000a | Transmit Program Change                 (0 - 1)
|       |           |                                       OFF, ON
| 00 01 | 0000 000a | Transmit Bank Select                    (0 - 1)
|       |           |                                       OFF, ON
| 00 02 | 0aaa aaaa | Keyboard Velocity                       (0 - 127)
|       |           |                                    REAL, 1 - 127
| 00 03 | 0000 00aa | Keyboard Velocity Curve                 (0 - 2)
|       |           |                             LIGHT, MEDIUM, HEAVY
| 00 04 | 0aaa aaaa | Keyboard Velocity Curve Offset         (54 - 73)
|       |           |                                       -10 - 9
| 00 05 | 0aaa aaaa | Reserved
| 00 06 | 0000 000a | Hold Pedal Polarity                     (0 - 1)
|       |           |                             STANDARD, REVERSE
| 00 07 | 0000 000a | Continuous Hold Pedal                   (0 - 1)
|       |           |                                       OFF, ON
| 00 08 | 0000 000a | Pedal 1 Polarity                        (0 - 1)
|       |           |                             STANDARD, REVERSE
| 00 09 | 0000 000a | Pedal 2 Polarity                        (0 - 1)
|       |           |                             STANDARD, REVERSE
| 00 0A | 0000 000a | Pedal 3 Polarity                        (0 - 1)
|       |           |                             STANDARD, REVERSE
| 00 0B | 0aaa aaaa | Reserved
| 00 0C | 0aaa aaaa | Pedal 1 Assign                         (0 - 108)
|       |           |           OFF,  CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08,
|       |           | CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18,
|       |           | CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28,
|       |           | CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39,
```

```
|           |           | CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49,
|           |           | CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59,
|           |           | CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69,
|           |           | CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79,
|           |           | CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89,
|           |           |   CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP,
|           |           |       AFT, START/STOP, TAP TEMPO, SCENE DOWN, SCENE UP,
|           |           |  OCT DOWN, OCT UP, ARPEGGIO SW, CHORD MEM SW, DEC, INC,
|           |           |                                                 VOCODER SW
| 00 0D     | 0aaa aaaa | Pedal 1 Range Min                           (0 - 127)
| 00 0E     | 0aaa aaaa | Pedal 1 Range Max                           (0 - 127)
| 00 0F     | 0aaa aaaa | Pedal 2 Assign                              (0 - 108)
|           |           |      OFF,  CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08,
|           |           | CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18,
|           |           | CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28,
|           |           | CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39,
|           |           | CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49,
|           |           | CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59,
|           |           | CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69,
|           |           | CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79,
|           |           | CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89,
|           |           |   CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP,
|           |           |       AFT, START/STOP, TAP TEMPO, SCENE DOWN, SCENE UP,
|           |           |  OCT DOWN, OCT UP, ARPEGGIO SW, CHORD MEM SW, DEC, INC,
|           |           |                                                 VOCODER SW
| 00 10     | 0aaa aaaa | Pedal 2 Range Min                           (0 - 127)
| 00 11     | 0aaa aaaa | Pedal 2 Range Max                           (0 - 127)
| 00 12     | 0aaa aaaa | Pedal 3 Assign                              (0 - 108)
|           |           |      OFF,  CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08,
|           |           | CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18,
|           |           | CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28,
|           |           | CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39,
|           |           | CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49,
|           |           | CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59,
|           |           | CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69,
|           |           | CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79,
|           |           | CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89,
|           |           |   CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP,
|           |           |       AFT, START/STOP, TAP TEMPO, SCENE DOWN, SCENE UP,
|           |           |  OCT DOWN, OCT UP, ARPEGGIO SW, CHORD MEM SW, DEC, INC,
|           |           |                                                 VOCODER SW
| 00 13     | 0aaa aaaa | Pedal 3 Range Min                           (0 - 127)
| 00 14     | 0aaa aaaa | Pedal 3 Range Max                           (0 - 127)
| 00 15     | 0aaa aaaa | Reserved
:
| 00 18     | 0aaa aaaa | Knob 1 Assign                               (0 - 96)
|           |           |      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|           |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|           |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|           |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|           |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|           |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|           |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|           |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|           |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|           |           |   CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 19     | 0aaa aaaa | Knob 1 Range Min                            (0 - 127)
| 00 1A     | 0aaa aaaa | Knob 1 Range Max                            (0 - 127)
| 00 1B     | 0aaa aaaa | Knob 2 Assign                               (0 - 96)
|           |           |      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|           |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|           |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|           |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|           |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|           |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|           |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|           |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|           |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|           |           |   CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 1C     | 0aaa aaaa | Knob 2 Range Min                            (0 - 127)
| 00 1D     | 0aaa aaaa | Knob 2 Range Max                            (0 - 127)
| 00 1E     | 0aaa aaaa | Knob 3 Assign                               (0 - 96)
|           |           |      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|           |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|           |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|           |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|           |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|           |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|           |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|           |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|           |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|           |           |   CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 1F     | 0aaa aaaa | Knob 3 Range Min                            (0 - 127)
| 00 20     | 0aaa aaaa | Knob 3 Range Max                            (0 - 127)
| 00 21     | 0aaa aaaa | Knob 4 Assign                               (0 - 96)
|           |           |      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|           |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|           |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|           |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|           |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|           |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|           |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|           |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|           |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
```

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                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 22  | 0aaa aaaa | Knob 4 Range Min                                (0 - 127)
  00 23  | 0aaa aaaa | Knob 4 Range Max                                (0 - 127)
  00 24  | 0aaa aaaa | Knob 5 Assign                                   (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 25  | 0aaa aaaa | Knob 5 Range Min                                (0 - 127)
  00 26  | 0aaa aaaa | Knob 5 Range Max                                (0 - 127)
  00 27  | 0aaa aaaa | Knob 6 Assign                                   (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 28  | 0aaa aaaa | Knob 6 Range Min                                (0 - 127)
  00 29  | 0aaa aaaa | Knob 6 Range Max                                (0 - 127)
  00 2A  | 0aaa aaaa | Knob 7 Assign                                   (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 2B  | 0aaa aaaa | Knob 7 Range Min                                (0 - 127)
  00 2C  | 0aaa aaaa | Knob 7 Range Max                                (0 - 127)
  00 2D  | 0aaa aaaa | Knob 8 Assign                                   (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 2E  | 0aaa aaaa | Knob 8 Range Min                                (0 - 127)
  00 2F  | 0aaa aaaa | Knob 8 Range Max                                (0 - 127)
  00 30  | 0aaa aaaa | Slider 1 Assign                                 (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 31  | 0aaa aaaa | Slider 1 Range Min                              (0 - 127)
  00 32  | 0aaa aaaa | Slider 1 Range Max                              (0 - 127)
  00 33  | 0aaa aaaa | Slider 2 Assign                                 (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 34  | 0aaa aaaa | Slider 2 Range Min                              (0 - 127)
  00 35  | 0aaa aaaa | Slider 2 Range Max                              (0 - 127)
  00 36  | 0aaa aaaa | Slider 3 Assign                                 (0 - 96)
                         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                         CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 37  | 0aaa aaaa | Slider 3 Range Min                              (0 - 127)
  00 38  | 0aaa aaaa | Slider 3 Range Max                              (0 - 127)
```

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| 00 39 | 0aaa aaaa | Slider 4 Assign                          (0 - 96)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 3A | 0aaa aaaa | Slider 4 Range Min                      (0 - 127)
| 00 3B | 0aaa aaaa | Slider 4 Range Max                      (0 - 127)
| 00 3C | 0aaa aaaa | Slider 5 Assign                          (0 - 96)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 3D | 0aaa aaaa | Slider 5 Range Min                      (0 - 127)
| 00 3E | 0aaa aaaa | Slider 5 Range Max                      (0 - 127)
| 00 3F | 0aaa aaaa | Slider 6 Assign                          (0 - 96)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 40 | 0aaa aaaa | Slider 6 Range Min                      (0 - 127)
| 00 41 | 0aaa aaaa | Slider 6 Range Max                      (0 - 127)
| 00 42 | 0aaa aaaa | Slider 7 Assign                          (0 - 96)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 43 | 0aaa aaaa | Slider 7 Range Min                      (0 - 127)
| 00 44 | 0aaa aaaa | Slider 7 Range Max                      (0 - 127)
| 00 45 | 0aaa aaaa | Slider 8 Assign                          (0 - 96)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|       |           |  CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
| 00 46 | 0aaa aaaa | Slider 8 Range Min                      (0 - 127)
| 00 47 | 0aaa aaaa | Slider 8 Range Max                      (0 - 127)
| 00 48 | 0aaa aaaa | Reserved

| 00 66 | 0aaa aaaa | S1 Sw Assign                            (0 - 120)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|       |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|       |           | CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN,
|       |           | BEND UP, AFT, MONO/POLY, MFX SW, EQ SW, IFX1 SW, IFX2 SW,
|       |           |   CHORUS SW, REVERB SW, MASTER COMP SW, MASTER EQ SW,
|       |           |      VOCODER SW, SCENE DOWN, SCENE UP, DEC, INC,
|       |           |   SEQ START/STOP, GROUP PLAY DOWN, GROUP PLAY UP,
|       |           | SONG LOOP SW, TFX SW, MASTER KEY DOWN, MASTER KEY UP,
|       |           |             SCALE TUNE SW, ANALOG DRV
| 00 67 | 0000 000a | S1 Sw Mode                               (0 - 1)
|       |           |                     MOMENTARY, LATCH
| 00 68 | 0aaa aaaa | S2 Sw Assign                            (0 - 120)
|       |           |                OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|       |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|       |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|       |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|       |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|       |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|       |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
```

Address	Data	Description	Value
		CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP, AFT, MONO/POLY, MFX SW, EQ SW, IFX1 SW, IFX2 SW, CHORUS SW, REVERB SW, MASTER COMP SW, MASTER EQ SW, VOCODER SW, SCENE DOWN, SCENE UP, DEC, INC, SEQ START/STOP, GROUP PLAY DOWN, GROUP PLAY UP, SONG LOOP SW, TFX SW, MASTER KEY DOWN, MASTER KEY UP, SCALE TUNE SW, ANALOG DRV	
00 69	0000 000a	S2 Sw Mode	(0 – 1)
			MOMENTARY, LATCH
00 6A	0aaa aaaa	Wheel 1 Assign	(0 – 96)
		OFF, CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT	
00 6B	0aaa aaaa	Wheel 1 Range Min	(0 – 127)
00 6C	0aaa aaaa	Wheel 1 Range Max	(0 – 127)
00 6D	0aaa aaaa	Wheel 2 Assign	(0 – 96)
		OFF, CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT	
00 6E	0aaa aaaa	Wheel 2 Range Min	(0 – 127)
00 6F	0aaa aaaa	Wheel 2 Range Max	(0 – 127)
00 70	0aaa aaaa	S3 Sw Assign	(0 – 120)
		OFF, CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP, AFT, MONO/POLY, MFX SW, EQ SW, IFX1 SW, IFX2 SW, CHORUS SW, REVERB SW, MASTER COMP SW, MASTER EQ SW, VOCODER SW, SCENE DOWN, SCENE UP, DEC, INC, SEQ START/STOP, GROUP PLAY DOWN, GROUP PLAY UP, SONG LOOP SW, TFX SW, MASTER KEY DOWN, MASTER KEY UP, SCALE TUNE SW, ANALOG DRV	
00 71	0000 000a	S3 Sw Mode	(0 – 1)
			MOMENTARY, LATCH
00 72	0aaa aaaa	Reserved	
00 73	0aaa aaaa	Reserved	
00 74	0000 000a	Pedal Assign Source	(0 – 1)
			SYS, SCENE
00 75	0aaa aaaa	Reserved	
00 76	0aaa aaaa	Reserved	
00 77	0aaa aaaa	Reserved	
00 78	0000 000a	S1-S3 Assign Source	(0 – 1)
			SYS, SCENE
00 79	0000 000a	Wheel Assign Source	(0 – 1)
			SYS, SCENE
00 7A	0aaa aaaa	Reserved	
00 7B	0aaa aaaa	Reserved	
00 7C	0000 000a	Slider Mode	(0 – 1)
			DIRECT, CATCH
00 7D	0aaa aaaa	Reserved	
00 7E	0000 000a	Hi-Res Velocity Out	(0 – 1)
			OFF, ON
00 7F	0aaa aaaa	Aftertouch Sens	(0 – 127)
01 00	0000 000a	Pad Note Switch	(0 – 1)
			OFF, ON
01 01	0000 aaaa	Pad1 Zone	(0 – 15)
01 02	0000 aaaa	Pad2 Zone	(0 – 15)
01 03	0000 aaaa	Pad3 Zone	(0 – 15)
01 04	0000 aaaa	Pad4 Zone	(0 – 15)
01 05	0000 aaaa	Pad5 Zone	(0 – 15)
01 06	0000 aaaa	Pad6 Zone	(0 – 15)
01 07	0000 aaaa	Pad7 Zone	(0 – 15)
01 08	0000 aaaa	Pad8 Zone	(0 – 15)
01 09	0000 aaaa	Pad9 Zone	(0 – 15)
01 0A	0000 aaaa	Pad10 Zone	(0 – 15)
01 0B	0000 aaaa	Pad11 Zone	(0 – 15)
01 0C	0000 aaaa	Pad12 Zone	(0 – 15)
01 0D	0000 aaaa	Pad13 Zone	(0 – 15)
01 0E	0000 aaaa	Pad14 Zone	(0 – 15)
01 0F	0000 aaaa	Pad15 Zone	(0 – 15)
01 10	0000 aaaa	Pad16 Zone	(0 – 15)
01 11	0aaa aaaa	Pad1 Note Number	(0 – 127)

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| 01 12 | 0aaa aaaa | Pad2 Note Number                    (0 - 127)
| 01 13 | 0aaa aaaa | Pad3 Note Number                    (0 - 127)
| 01 14 | 0aaa aaaa | Pad4 Note Number                    (0 - 127)
| 01 15 | 0aaa aaaa | Pad5 Note Number                    (0 - 127)
| 01 16 | 0aaa aaaa | Pad6 Note Number                    (0 - 127)
| 01 17 | 0aaa aaaa | Pad7 Note Number                    (0 - 127)
| 01 18 | 0aaa aaaa | Pad8 Note Number                    (0 - 127)
| 01 19 | 0aaa aaaa | Pad9 Note Number                    (0 - 127)
| 01 1A | 0aaa aaaa | Pad10 Note Number                   (0 - 127)
| 01 1B | 0aaa aaaa | Pad11 Note Number                   (0 - 127)
| 01 1C | 0aaa aaaa | Pad12 Note Number                   (0 - 127)
| 01 1D | 0aaa aaaa | Pad13 Note Number                   (0 - 127)
| 01 1E | 0aaa aaaa | Pad14 Note Number                   (0 - 127)
| 01 1F | 0aaa aaaa | Pad15 Note Number                   (0 - 127)
| 01 20 | 0aaa aaaa | Pad16 Note Number                   (0 - 127)
| 01 21 | 0aaa aaaa | Pad1 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 22 | 0aaa aaaa | Pad2 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 23 | 0aaa aaaa | Pad3 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 24 | 0aaa aaaa | Pad4 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 25 | 0aaa aaaa | Pad5 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 26 | 0aaa aaaa | Pad6 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 27 | 0aaa aaaa | Pad7 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 28 | 0aaa aaaa | Pad8 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 29 | 0aaa aaaa | Pad9 Velocity                       (0 - 127)
                                                      OFF, 1 - 127
| 01 2A | 0aaa aaaa | Pad10 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 2B | 0aaa aaaa | Pad11 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 2C | 0aaa aaaa | Pad12 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 2D | 0aaa aaaa | Pad13 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 2E | 0aaa aaaa | Pad14 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 2F | 0aaa aaaa | Pad15 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 30 | 0aaa aaaa | Pad16 Velocity                      (0 - 127)
                                                      OFF, 1 - 127
| 01 31 | 0000 000a | CV/Gate 1 Assign Source             (0 - 1)
                                                       SYS, SCENE
| 01 32 | 000a aaaa | CV/Gate 1 Control Zone              (0 - 16)
                            1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, OFF
| 01 33 | 0aaa aaaa | CV 1 Assign                         (0 - 97)
                        NOTE, CC01, CC02, CC03, CC04, CC05, CC06, CC07,
                    CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17,
                    CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27,
                    CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38,
                    CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48,
                    CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58,
                    CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68,
                    CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78,
                    CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88,
                     CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT, VELO
| 01 34 | 0000 0aaa | CV 1 Reference Note                 (0 - 4)
                                                   C0, C1, C2, C3, C4
| 01 35 | 0aaa aaaa | CV 1 Scale                          (1 - 127)
                                                        -63 - 63
| 01 36 | 0aaa aaaa | CV 1 Fine Tune for 0V              (14 - 114)
                                                        -50 - 50
| 01 37 | 0aaa aaaa | Reserved
| 01 38 | 0000 000a | CV/Gate 2 Assign Source             (0 - 1)
                                                       SYS, SCENE
| 01 39 | 000a aaaa | CV/Gate 2 Control Zone              (0 - 16)
                            1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, OFF
| 01 3A | 0aaa aaaa | CV 2 Assign                         (0 - 97)
                        NOTE, CC01, CC02, CC03, CC04, CC05, CC06, CC07,
                    CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17,
                    CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27,
                    CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38,
                    CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48,
                    CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58,
                    CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68,
                    CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78,
                    CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88,
                     CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT, VELO
| 01 3B | 0000 0aaa | CV 2 Reference Note                 (0 - 4)
                                                   C0, C1, C2, C3, C4
| 01 3C | 0aaa aaaa | CV 2 Scale                          (1 - 127)
                                                        -63 - 63
| 01 3D | 0aaa aaaa | CV 2 Fine Tune for 0V              (14 - 114)
                                                        -50 - 50
| 01 3E | 0aaa aaaa | Reserved
| 01 3F | 0000 000a | Gate 2 Port Mode                    (0 - 1)
                                                      GATE2, CV3
| 01 40 | 0aaa aaaa | CV 3 Assign                         (0 - 97)
```

```
|             |           |       NOTE,  CC01, CC02, CC03, CC04, CC05, CC06, CC07,   |
|             |           | CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, |
|             |           | CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, |
|             |           | CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, |
|             |           | CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, |
|             |           | CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, |
|             |           | CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, |
|             |           | CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, |
|             |           | CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, |
|             |           |  CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT, VELO  |
+-------------+-----------+------------------------------------------------------------+
| 00 00 01 41 |Total Size |                                                            |
+-------------+-----------+------------------------------------------------------------+
```

* [Master Comp]

```
+-------------+------------------------------------------------------------------+
| Offset      |                                                                  |
|     Address |                      Description                                 |
+-------------+------------------------------------------------------------------+
|       00 00 | 0000 000a | Switch                                    (0 - 1)     |
|             |           |                                       OFF, ON        |
|       00 01 | 0aaa aaaa | Low Attack Time                           (0 - 100)   |
|             |           |                                  0.1, 1, 2, 3, 4, 5, 6,           |
|             |    7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,|
|             |    24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39,|
|             |    40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55,|
|             |    56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71,|
|             |    72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87,|
|             |         88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100[ms]   |
|       00 02 | 0aaa aaaa | Low Release Time                          (0 - 99)   |
|             |           |                                        10 - 1000[ms] |
|       00 03 | 0aaa aaaa | Low Threshold                             (4 - 64)   |
|             |           |                                          -60 - 0[dB] |
|       00 04 | 0000 0aaa | Low Ratio                                 (0 - 7)    |
|             |           |      1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1      |
|       00 05 | 000a aaaa | Low Knee                                  (0 - 30)   |
|             |           |                                         0 - 30 [dB]  |
|       00 06 | 0aaa aaaa | Low Output Gain                           (16 - 112) |
|             |           |                                     -24.0 - +24.0 [dB]|
|       00 07 | 0aaa aaaa | Mid Attack Time                           (0 - 100)  |
|             |           |                                  0.1, 1, 2, 3, 4, 5, 6,           |
|             |    7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,|
|             |    24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39,|
|             |    40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55,|
|             |    56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71,|
|             |    72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87,|
|             |         88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100[ms]   |
|       00 08 | 0aaa aaaa | Mid Release Time                          (0 - 99)   |
|             |           |                                        10 - 1000[ms] |
|       00 09 | 0aaa aaaa | Mid Threshold                             (4 - 64)   |
|             |           |                                          -60 - 0[dB] |
|       00 0A | 0000 0aaa | Mid Ratio                                 (0 - 7)    |
|             |           |      1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1      |
|       00 0B | 000a aaaa | Mid Knee                                  (0 - 30)   |
|             |           |                                         0 - 30 [dB]  |
|       00 0C | 0aaa aaaa | Mid Output Gain                           (16 - 112) |
|             |           |                                     -24.0 - +24.0 [dB]|
|       00 0D | 0aaa aaaa | High Attack Time                          (0 - 100)  |
|             |           |                                  0.1, 1, 2, 3, 4, 5, 6,           |
|             |    7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,|
|             |    24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39,|
|             |    40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55,|
|             |    56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71,|
|             |    72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87,|
|             |         88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100[ms]   |
|       00 0E | 0aaa aaaa | High Release Time                         (0 - 99)   |
|             |           |                                        10 - 1000[ms] |
|       00 0F | 0aaa aaaa | High Threshold                            (4 - 64)   |
|             |           |                                          -60 - 0[dB] |
|       00 10 | 0000 0aaa | High Ratio                                (0 - 7)    |
|             |           |      1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1      |
|       00 11 | 000a aaaa | High Knee                                 (0 - 30)   |
|             |           |                                         0 - 30 [dB]  |
|       00 12 | 0aaa aaaa | High Output Gain                          (16 - 112) |
|             |           |                                     -24.0 - +24.0 [dB]|
|       00 13 | 000a aaaa | Split Freq Low                            (0 - 30)   |
|             |           |             16, 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,  |
|             |   250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,    |
|             |     3150, 4000, 5000, 6300, 8000, 10000, 12500, 16000 [Hz]       |
|       00 14 | 000a aaaa | Split Freq Hi                             (0 - 30)   |
|             |           |             16, 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,  |
|             |   250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,    |
|             |     3150, 4000, 5000, 6300, 8000, 10000, 12500, 16000 [Hz]       |
+-------------+------------------------------------------------------------------+
| 00 00 00 15 |Total Size                                                        |
+-------------+------------------------------------------------------------------+
```

* [Master EQ]

```
+-------------+------------------------------------------------------------------+
| Offset      |                                                                  |
|     Address |                      Description                                 |
+-------------+------------------------------------------------------------------+
|       00 00 | 0aaa aaaa | EQ Input Gain                             (40 - 88)   |
|             |           |                                        -24 - +24 [dB]|
```

```
|    00 01 | 0aaa aaaa | EQ Low Gain                              (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 02 | 0aaa aaaa | EQ Mid1 Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 03 | 0aaa aaaa | EQ Mid2 Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 04 | 0aaa aaaa | EQ Mid3 Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 05 | 0aaa aaaa | EQ High Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 06 | 000a aaaa | EQ Low Frequency                         (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 07 | 000a aaaa | EQ Mid1 Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 08 | 000a aaaa | EQ Mid2 Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 09 | 000a aaaa | EQ Mid3 Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 0A | 000a aaaa | EQ High Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 0B | 0000 0aaa | EQ Mid1 Q                                (0 - 5)
|          |           |                       0.5,  1.0,  2.0,  4.0,  8.0,  16.0
|    00 0C | 0000 0aaa | EQ Mid2 Q                                (0 - 5)
|          |           |                       0.5,  1.0,  2.0,  4.0,  8.0,  16.0
|    00 0D | 0000 0aaa | EQ Mid3 Q                                (0 - 5)
|          |           |                       0.5,  1.0,  2.0,  4.0,  8.0,  16.0
|    00 0E | 0000 000a | EQ Switch                                (0 - 1)
|          |           |                                          OFF, ON
|----------+-----------------------------------------------------------------
| 00 00 00 0F |Total Size                                                   |
+-----------------------------------------------------------------------------+
```

* [Input EQ]

```
+-----------------------------------------------------------------------------+
| Offset    |                                                                 |
|  Address  |                    Description                                  |
|-----------+-----------------------------------------------------------------|
|    00 00 | 0aaa aaaa | EQ Input Gain                            (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 01 | 0aaa aaaa | EQ Low Gain                              (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 02 | 0aaa aaaa | EQ Mid1 Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 03 | 0aaa aaaa | EQ Mid2 Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 04 | 0aaa aaaa | EQ Mid3 Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 05 | 0aaa aaaa | EQ High Gain                             (40 - 88)
|          |           |                                  -24 - +24 [dB]
|    00 06 | 000a aaaa | EQ Low Frequency                         (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 07 | 000a aaaa | EQ Mid1 Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 08 | 000a aaaa | EQ Mid2 Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 09 | 000a aaaa | EQ Mid3 Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 0A | 000a aaaa | EQ High Frequency                        (0 - 29)
|          |           |                 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200,
|          |           |      250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500,
|          |           |      3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz]
|    00 0B | 0000 0aaa | EQ Mid1 Q                                (0 - 5)
|          |           |                       0.5,  1.0,  2.0,  4.0,  8.0,  16.0
|    00 0C | 0000 0aaa | EQ Mid2 Q                                (0 - 5)
|          |           |                       0.5,  1.0,  2.0,  4.0,  8.0,  16.0
|    00 0D | 0000 0aaa | EQ Mid3 Q                                (0 - 5)
|          |           |                       0.5,  1.0,  2.0,  4.0,  8.0,  16.0
|    00 0E | 0000 000a | EQ Switch                                (0 - 1)
|          |           |                                          OFF, ON
|----------+-----------------------------------------------------------------
| 00 00 00 0F |Total Size                                                   |
+-----------------------------------------------------------------------------+
```

* [Vocoder]

```
+-----------------------------------------------------------------------------+
| Offset    |                                                                 |
```

```
        Address |                  Description
  ------------+------------------------------------------------------------
        00 00 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 01 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 02 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 03 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 04 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 05 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 06 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 07 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 08 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 09 | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 0A | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 0B | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 0C | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 0D | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 0E | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 0F | 0aaa aaaa  Vocoder Setting Name                (32 - 127)
        00 10 | 0aaa aaaa  Recommended Tone Bank Select MSB (CC#0)  (0 - 127)
        00 11 | 0aaa aaaa  Recommended Tone Bank Select LSB (CC#32) (0 - 127)
        00 12 | 0aaa aaaa  Recommended Tone Program Number (PC)    (0 - 127)
        00 13 | 0000 000a  Carrier Input2                      (0 - 1)
                                                            OFF, ON
        00 14 | 0aaa aaaa  Carrier Level                       (0 - 127)
        00 15 | 0000 00aa  Envelope                            (0 - 2)
                                                   SHARP, SOFT, LONG
        00 16 | 0aaa aaaa  Mic Sens                            (0 - 127)
        00 17 | 00aa aaaa  Mic HPF                             (0 - 33)
                           BYPASS, 200, 224, 250, 280, 315, 355, 400,
                             450, 500, 560, 630, 710, 800, 900, 1000,
                             1100, 1300, 1400, 1600, 1800, 2000, 2200,
                             2500, 2800, 3200, 3600, 4000, 4500, 5000,
                                       5600, 6300, 7100, 8000 [Hz]
        00 18 | 0aaa aaaa  Mic Mix Level                       (0 - 127)
        00 19 | 0aaa aaaa  Level                               (0 - 127)
        00 1A | 0000 000a  Stereo Switch                       (0 - 1)
                                                       MONO, STEREO
        00 1B | 0000 00aa  Vocoder Type                        (0 - 2)
                                                13Band, 20Band, 32Band
        00 1C | 0aaa aaaa  Band 1                              (0 - 127)
        00 1D | 0aaa aaaa  Band 2                              (0 - 127)
        00 1E | 0aaa aaaa  Band 3                              (0 - 127)
        00 1F | 0aaa aaaa  Band 4                              (0 - 127)
        00 20 | 0aaa aaaa  Band 5                              (0 - 127)
        00 21 | 0aaa aaaa  Band 6                              (0 - 127)
        00 22 | 0aaa aaaa  Band 7                              (0 - 127)
        00 23 | 0aaa aaaa  Band 8                              (0 - 127)
        00 24 | 0aaa aaaa  Band 9                              (0 - 127)
        00 25 | 0aaa aaaa  Band 10                             (0 - 127)
        00 26 | 0aaa aaaa  Band 11                             (0 - 127)
        00 27 | 0aaa aaaa  Band 12                             (0 - 127)
        00 28 | 0aaa aaaa  Band 13                             (0 - 127)
        00 29 | 0aaa aaaa  Band 14                             (0 - 127)
        00 2A | 0aaa aaaa  Band 15                             (0 - 127)
        00 2B | 0aaa aaaa  Band 16                             (0 - 127)
        00 2C | 0aaa aaaa  Band 17                             (0 - 127)
        00 2D | 0aaa aaaa  Band 18                             (0 - 127)
        00 2E | 0aaa aaaa  Band 19                             (0 - 127)
        00 2F | 0aaa aaaa  Band 20                             (0 - 127)
        00 30 | 0aaa aaaa  Band 21                             (0 - 127)
        00 31 | 0aaa aaaa  Band 22                             (0 - 127)
        00 32 | 0aaa aaaa  Band 23                             (0 - 127)
        00 33 | 0aaa aaaa  Band 24                             (0 - 127)
        00 34 | 0aaa aaaa  Band 25                             (0 - 127)
        00 35 | 0aaa aaaa  Band 26                             (0 - 127)
        00 36 | 0aaa aaaa  Band 27                             (0 - 127)
        00 37 | 0aaa aaaa  Band 28                             (0 - 127)
        00 38 | 0aaa aaaa  Band 29                             (0 - 127)
        00 39 | 0aaa aaaa  Band 30                             (0 - 127)
        00 3A | 0aaa aaaa  Band 31                             (0 - 127)
        00 3B | 0aaa aaaa  Band 32                             (0 - 127)
  ------------+------------------------------------------------------------
  00 00 00 3C |Total Size
  +-------------------------------------------------------------------------
```

* [Drum Kit Comp]

```
  +-------------------------------------------------------------------------
  | Offset     |
  |   Address  |                  Description
  |----------+------------------------------------------------------------
        00 00 | 0000 000a  Comp Switch                         (0 - 1)
                                                            OFF, ON
        00 01 | 0aaa aaaa  Comp Attack Time                    (0 - 100)
                                             0. 1, 1, 2, 3, 4, 5, 6,
                    7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
                    24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39,
                    40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55,
                    56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71,
                    72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87,
                           88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100[ms]
        00 02 | 0aaa aaaa  Comp Release Time                   (0 - 99)
                                                       10 - 1000[ms]
        00 03 | 0aaa aaaa  Comp Threshold                      (4 - 64)
                                                         -60 - 0[dB]
```

```
|       00 04 | 0000 0aaa | Comp Ratio                          (0 - 7)   |
|             |           |     1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1 |
|       00 05 | 000a aaaa | Comp Knee                          (0 - 30)  |
|             |           |                                 0 - 30 [dB]   |
|       00 06 | 0aaa aaaa | Comp Output Gain                   (16 - 112) |
|             |           |                              -24.0 - +24.0 [dB] |
|       00 07 | 0000 0aaa | Comp Output Assign                 (0 - 5)   |
|             |           |          DRY, MFX, MAIN, SUB1, SUB2, AFX    |
+-------------+-----------------------------------------------------------+
| 00 00 00 08 |Total Size                                                 |
+-------------+-----------------------------------------------------------+
```

* [Analog Filter]
```
+-----------------------------------------------------------------------+
| Offset      |                                                         |
|   Address   |                  Description                            |
|-------------+---------------------------------------------------------|
|       00 00 | 0aaa aaaa | Reserved                                    |
|       00 01 | 0000 000a | Analog Filter Amp Sw               (0 - 1)   |
|             |           |                                  OFF, ON     |
|       00 02 | 0000 000a | Analog Filter Drive Sw             (0 - 1)   |
|             |           |                                  OFF, ON     |
|       00 03 | 0000 0aaa | Analog Filter Type                 (0 - 5)   |
|             |           |            OFF, LPF1, LPF2, LPF3, HPF, BPF  |
| #     00 04 | 0000 aaaa |                                             |
|       00 05 | 0000 bbbb |                                             |
|       00 06 | 0000 cccc |                                             |
|       00 07 | 0000 dddd | Analog Filter Cutoff 1             (0 - 1023)|
| #     00 08 | 0000 aaaa |                                             |
|       00 09 | 0000 bbbb |                                             |
|       00 0A | 0000 cccc |                                             |
|       00 0B | 0000 dddd | Analog Filter Cutoff 2             (0 - 1023)|
| #     00 0C | 0000 aaaa |                                             |
|       00 0D | 0000 bbbb |                                             |
|       00 0E | 0000 cccc |                                             |
|       00 0F | 0000 dddd | Analog Filter Resonance 1          (0 - 1023)|
| #     00 10 | 0000 aaaa |                                             |
|       00 11 | 0000 bbbb |                                             |
|       00 12 | 0000 cccc |                                             |
|       00 13 | 0000 dddd | Analog Filter Resonance 2          (0 - 1023)|
|       00 14 | 0aaa aaaa | Analog Filter Drive Depth 1        (0 - 127) |
|       00 15 | 0aaa aaaa | Analog Filter Drive Depth 2        (0 - 127) |
|       00 16 | 0aaa aaaa | Analog Filter Level 1              (0 - 127) |
|       00 17 | 0aaa aaaa | Analog Filter Level 2              (0 - 127) |
|       00 18 | 0aaa aaaa | Analog Filter Pan 1                (0 - 127) |
|             |           |                                  L64 - 63R   |
|       00 19 | 0aaa aaaa | Analog Filter Pan 2                (0 - 127) |
|             |           |                                  L64 - 63R   |
|       00 1A | 0aaa aaaa | Analog Filter Send Level 1         (0 - 127) |
|       00 1B | 0aaa aaaa | Analog Filter Send Level 2         (0 - 127) |
|       00 1C | 0aaa aaaa | Analog Filter Chorus Send 1        (0 - 127) |
|       00 1D | 0aaa aaaa | Analog Filter Chorus Send 2        (0 - 127) |
|       00 1E | 0aaa aaaa | Analog Filter Reverb Send 1        (0 - 127) |
|       00 1F | 0aaa aaaa | Analog Filter Reverb Send 2        (0 - 127) |
|       00 20 | 0000 000a | Analog Filter Return Sw 1          (0 - 1)   |
|             |           |                                  OFF, ON     |
|       00 21 | 0000 000a | Analog Filter Return Sw 2          (0 - 1)   |
|             |           |                                  OFF, ON     |
|       00 22 | 0000 000a | Analog Filter Noise Suppressor Sw  (0 - 1)   |
|             |           |                                  OFF, ON     |
|       00 23 | 0aaa aaaa | Reserved                                    |
:             :           :                                             :
|-------------+---------------------------------------------------------|
| 00 00 00 28 |Total Size                                                 |
+-----------------------------------------------------------------------+
```

* [Scene Common]
```
+-----------------------------------------------------------------------+
| Offset      |                                                         |
|   Address   |                  Description                            |
|-------------+---------------------------------------------------------|
|       00 00 | 0aaa aaaa | Scene Name 1                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 01 | 0aaa aaaa | Scene Name 2                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 02 | 0aaa aaaa | Scene Name 3                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 03 | 0aaa aaaa | Scene Name 4                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 04 | 0aaa aaaa | Scene Name 5                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 05 | 0aaa aaaa | Scene Name 6                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 06 | 0aaa aaaa | Scene Name 7                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 07 | 0aaa aaaa | Scene Name 8                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 08 | 0aaa aaaa | Scene Name 9                      (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 09 | 0aaa aaaa | Scene Name 10                     (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 0A | 0aaa aaaa | Scene Name 11                     (32 - 127) |
|             |           |                             32 - 127 [ASCII] |
|       00 0B | 0aaa aaaa | Scene Name 12                     (32 - 127) |
```

```
                                                                    32 - 127 [ASCII]
00 0C  | 0aaa aaaa | Scene Name 13                                       (32 - 127)
                                                                    32 - 127 [ASCII]
00 0D  | 0aaa aaaa | Scene Name 14                                       (32 - 127)
                                                                    32 - 127 [ASCII]
00 0E  | 0aaa aaaa | Scene Name 15                                       (32 - 127)
                                                                    32 - 127 [ASCII]
00 0F  | 0aaa aaaa | Scene Name 16                                       (32 - 127)
                                                                    32 - 127 [ASCII]
00 10  | 0aaa aaaa | Scene Level                                          (0 - 127)
00 11  | 0aaa aaaa | Reserved
00 12  | 0000 aaaa | Current Zone                                          (0 - 15)
                                                                        1 - 16
00 13  | 000a aaaa | Solo Zone                                            (0 - 16)
                       OFF, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
00 14  | 0aaa aaaa | Tone Control Source 1                                (0 - 96)
                          OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                     CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                     CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                     CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                     CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                     CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                     CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                     CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                     CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                      CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 15  | 0aaa aaaa | Tone Control Source 2                                (0 - 96)
                          OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                     CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                     CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                     CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                     CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                     CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                     CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                     CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                     CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                      CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 16  | 0aaa aaaa | Tone Control Source 3                                (0 - 96)
                          OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                     CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                     CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                     CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                     CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                     CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                     CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                     CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                     CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                      CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 17  | 0aaa aaaa | Tone Control Source 4                                (0 - 96)
                          OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                     CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                     CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                     CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                     CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                     CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                     CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                     CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                     CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                      CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 18  | 0aaa aaaa | Voice Reserve 1                                      (0 - 64)
00 19  | 0aaa aaaa | Voice Reserve 2                                      (0 - 64)
00 1A  | 0aaa aaaa | Voice Reserve 3                                      (0 - 64)
00 1B  | 0aaa aaaa | Voice Reserve 4                                      (0 - 64)
00 1C  | 0aaa aaaa | Voice Reserve 5                                      (0 - 64)
00 1D  | 0aaa aaaa | Voice Reserve 6                                      (0 - 64)
00 1E  | 0aaa aaaa | Voice Reserve 7                                      (0 - 64)
00 1F  | 0aaa aaaa | Voice Reserve 8                                      (0 - 64)
00 20  | 0aaa aaaa | Voice Reserve 9                                      (0 - 64)
00 21  | 0aaa aaaa | Voice Reserve 10                                     (0 - 64)
00 22  | 0aaa aaaa | Voice Reserve 11                                     (0 - 64)
00 23  | 0aaa aaaa | Voice Reserve 12                                     (0 - 64)
00 24  | 0aaa aaaa | Voice Reserve 13                                     (0 - 64)
00 25  | 0aaa aaaa | Voice Reserve 14                                     (0 - 64)
00 26  | 0aaa aaaa | Voice Reserve 15                                     (0 - 64)
00 27  | 0aaa aaaa | Voice Reserve 16                                     (0 - 64)
00 28  | 0000 000a | Rhythm Comp Sw                                        (0 - 1)
                                                                        OFF, ON
00 29  | 0000 aaaa | Rhythm Comp Zone                                     (0 - 15)
                                                                        1 - 16
00 2A  | 0aaa aaaa | Reserved

00 30  | 0000 00aa | IFX1 Output Assign                                    (0 - 3)
                                                                MAIN, SUB1, SUB2, AFX
00 31  | 0aaa aaaa | Reserved
00 32  | 0000 00aa | IFX2 Output Assign                                    (0 - 3)
                                                                MAIN, SUB1, SUB2, AFX
00 33  | 0aaa aaaa | Reserved
00 34  | 0000 000a | IFX Structure                                        (0 - 1)
                                                                  SERIAL, PARALLEL
00 35  | 0000 00aa | Chorus Output Assign                                 (0 - 2)
                                                                   MAIN, SUB1, SUB2
00 36  | 0000 00aa | Reverb Output Assign                                 (0 - 2)
                                                                   MAIN, SUB1, SUB2
00 37  | 0aaa aaaa | Reserved
```

#	00 38	0000 aaaa			
	00 39	0000 bbbb			
	00 3A	0000 cccc			
	00 3B	0000 dddd	Scene Tempo	(500 - 30000)	
				5. 00 - 300. 00	
	00 3C	0aaa aaaa	Reserved		
	00 42	0aaa aaaa	Scene Memo 1	(32 - 127)	
				32 - 127 [ASCII]	
	00 43	0aaa aaaa	Scene Memo 2	(32 - 127)	
				32 - 127 [ASCII]	
	00 44	0aaa aaaa	Scene Memo 3	(32 - 127)	
				32 - 127 [ASCII]	
	00 45	0aaa aaaa	Scene Memo 4	(32 - 127)	
				32 - 127 [ASCII]	
	00 46	0aaa aaaa	Scene Memo 5	(32 - 127)	
				32 - 127 [ASCII]	
	00 47	0aaa aaaa	Scene Memo 6	(32 - 127)	
				32 - 127 [ASCII]	
	00 48	0aaa aaaa	Scene Memo 7	(32 - 127)	
				32 - 127 [ASCII]	
	00 49	0aaa aaaa	Scene Memo 8	(32 - 127)	
				32 - 127 [ASCII]	
	00 4A	0aaa aaaa	Scene Memo 9	(32 - 127)	
				32 - 127 [ASCII]	
	00 4B	0aaa aaaa	Scene Memo 10	(32 - 127)	
				32 - 127 [ASCII]	
	00 4C	0aaa aaaa	Scene Memo 11	(32 - 127)	
				32 - 127 [ASCII]	
	00 4D	0aaa aaaa	Scene Memo 12	(32 - 127)	
				32 - 127 [ASCII]	
	00 4E	0aaa aaaa	Scene Memo 13	(32 - 127)	
				32 - 127 [ASCII]	
	00 4F	0aaa aaaa	Scene Memo 14	(32 - 127)	
				32 - 127 [ASCII]	
	00 50	0aaa aaaa	Scene Memo 15	(32 - 127)	
				32 - 127 [ASCII]	
	00 51	0aaa aaaa	Scene Memo 16	(32 - 127)	
				32 - 127 [ASCII]	
	00 52	0aaa aaaa	Scene Memo 17	(32 - 127)	
				32 - 127 [ASCII]	
	00 53	0aaa aaaa	Scene Memo 18	(32 - 127)	
				32 - 127 [ASCII]	
	00 54	0aaa aaaa	Scene Memo 19	(32 - 127)	
				32 - 127 [ASCII]	
	00 55	0aaa aaaa	Scene Memo 20	(32 - 127)	
				32 - 127 [ASCII]	
	00 56	0aaa aaaa	Scene Memo 21	(32 - 127)	
				32 - 127 [ASCII]	
	00 57	0aaa aaaa	Scene Memo 22	(32 - 127)	
				32 - 127 [ASCII]	
	00 58	0aaa aaaa	Scene Memo 23	(32 - 127)	
				32 - 127 [ASCII]	
	00 59	0aaa aaaa	Scene Memo 24	(32 - 127)	
				32 - 127 [ASCII]	
	00 5A	0aaa aaaa	Scene Memo 25	(32 - 127)	
				32 - 127 [ASCII]	
	00 5B	0aaa aaaa	Scene Memo 26	(32 - 127)	
				32 - 127 [ASCII]	
	00 5C	0aaa aaaa	Scene Memo 27	(32 - 127)	
				32 - 127 [ASCII]	
	00 5D	0aaa aaaa	Scene Memo 28	(32 - 127)	
				32 - 127 [ASCII]	
	00 5E	0aaa aaaa	Scene Memo 29	(32 - 127)	
				32 - 127 [ASCII]	
	00 5F	0aaa aaaa	Scene Memo 30	(32 - 127)	
				32 - 127 [ASCII]	
	00 60	0aaa aaaa	Scene Memo 31	(32 - 127)	
				32 - 127 [ASCII]	
	00 61	0aaa aaaa	Scene Memo 32	(32 - 127)	
				32 - 127 [ASCII]	
	00 62	0aaa aaaa	Scene Memo 33	(32 - 127)	
				32 - 127 [ASCII]	
	00 63	0aaa aaaa	Scene Memo 34	(32 - 127)	
				32 - 127 [ASCII]	
	00 64	0aaa aaaa	Scene Memo 35	(32 - 127)	
				32 - 127 [ASCII]	
	00 65	0aaa aaaa	Scene Memo 36	(32 - 127)	
				32 - 127 [ASCII]	
	00 66	0aaa aaaa	Scene Memo 37	(32 - 127)	
				32 - 127 [ASCII]	
	00 67	0aaa aaaa	Scene Memo 38	(32 - 127)	
				32 - 127 [ASCII]	
	00 68	0aaa aaaa	Scene Memo 39	(32 - 127)	
				32 - 127 [ASCII]	
	00 69	0aaa aaaa	Scene Memo 40	(32 - 127)	
				32 - 127 [ASCII]	
	00 6A	0aaa aaaa	Scene Memo 41	(32 - 127)	
				32 - 127 [ASCII]	
	00 6B	0aaa aaaa	Scene Memo 42	(32 - 127)	
				32 - 127 [ASCII]	
	00 6C	0aaa aaaa	Scene Memo 43	(32 - 127)	
				32 - 127 [ASCII]	
	00 6D	0aaa aaaa	Scene Memo 44	(32 - 127)	

```
                                                                32 - 127 [ASCII]
       00 6E  | 0aaa aaaa | Scene Memo 45                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 6F  | 0aaa aaaa | Scene Memo 46                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 70  | 0aaa aaaa | Scene Memo 47                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 71  | 0aaa aaaa | Scene Memo 48                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 72  | 0aaa aaaa | Scene Memo 49                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 73  | 0aaa aaaa | Scene Memo 50                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 74  | 0aaa aaaa | Scene Memo 51                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 75  | 0aaa aaaa | Scene Memo 52                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 76  | 0aaa aaaa | Scene Memo 53                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 77  | 0aaa aaaa | Scene Memo 54                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 78  | 0aaa aaaa | Scene Memo 55                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 79  | 0aaa aaaa | Scene Memo 56                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 7A  | 0aaa aaaa | Scene Memo 57                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 7B  | 0aaa aaaa | Scene Memo 58                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 7C  | 0aaa aaaa | Scene Memo 59                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 7D  | 0aaa aaaa | Scene Memo 60                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 7E  | 0aaa aaaa | Scene Memo 61                         (32 - 127)
                                                                32 - 127 [ASCII]
       00 7F  | 0aaa aaaa | Scene Memo 62                         (32 - 127)
                                                                32 - 127 [ASCII]
       01 00  | 0aaa aaaa | Scene Memo 63                         (32 - 127)
                                                                32 - 127 [ASCII]
       01 01  | 0aaa aaaa | Scene Memo 64                         (32 - 127)
                                                                32 - 127 [ASCII]
  #    01 02  | 0000 aaaa |
       01 03  | 0000 bbbb |
       01 04  | 0000 cccc |
       01 05  | 0000 dddd | Selected Zone                        (0 - 65535)
       01 06  | 0000 aaaa | Scene Color                          (0 - 15)
                                                                  0 - 15
       01 07  | 0000 00aa | Scene Rating                         (0 - 3)
                                                                  0 - 3
       01 08  | 0000 aaaa | Pad Mode                             (0 - 11)
                              SYSTEM, SAMPLE PAD, NOTE PAD, PARTIAL SW/SEL,
                              DAW CONTROL, ZONE MUTE, ZONE SOLO, KBD SW GROUP,
                                      RHYTHM PATTERN, PATTERN, VARIATION PLAY,
                                                                GROUP PLAY
       01 09  | 0aaa aaaa | Reserved
       01 0A  | 0aaa aaaa | Reserved
       01 0B  | 0000 000a | Vocoder Switch                       (0 - 1)
                                                                OFF, ON
       01 0C  | 0000 000a | Vocoder Setting Bank                 (0 - 1)
                                                              PRESET, USER
       01 0D  | 0aaa aaaa | Vocoder Setting Number               (0 - 127)
  #    01 0E  | 0000 aaaa |
       01 0F  | 0000 bbbb |
       01 10  | 0000 cccc |
       01 11  | 0000 dddd | Vocoder Zone Select                  (0 - 65535)
       01 12  | 0aaa aaaa | Reserved
       :                  :
  +------------+----------------------------------------------------
  | 00 00 01 16 | Total Size
  +-------------+
```

* [Scene Zone]

```
  +-------------------------------------------------------------------+
  | Offset      |
  |   Address   |                   Description
  +-------------+-----------------------------------------------------
       00 00  | 0aaa aaaa | Tone Bank Select MSB (CC#0)          (0 - 127)
       00 01  | 0aaa aaaa | Tone Bank Select LSB (CC#32)         (0 - 127)
       00 02  | 0aaa aaaa | Tone Program Change (PC)             (0 - 127)
       00 03  | 0000 aaaa | Receive Channel                      (0 - 15)
                                                                  1 - 16
       00 04  | 0000 000a | Zone Receive Switch                  (0 - 1)
                                                                OFF, ON
       00 05  | 0000 000a | Mute Switch                          (0 - 1)
                                                              OFF, MUTE
       00 06  | 0aaa aaaa | Reserved
       00 07  | 0aaa aaaa | Zone Level (CC#7)                    (0 - 127)
       00 08  | 0aaa aaaa | Zone Pan (CC#10)                     (0 - 127)
                                                               L64 - 63R
       00 09  | 0aaa aaaa | Zone Coarse Tune (RPN#2)             (16 - 112)
                                                                -48 - 48
       00 0A  | 0aaa aaaa | Zone Fine Tune (RPN#1)               (14 - 114)
                                                                -50 - 50
       00 0B  | 0000 00aa | Zone Mono/Poly                       (0 - 2)
```

```
|       | 00 0C | 0000 00aa | Zone Legato Switch                MONO, POLY, TONE
|       |       |           |                                         (0 - 2)
|       |       |           |                                  OFF, ON, TONE
|       | 00 0D | 000a aaaa | Zone Bend Range (RPN#0)                 (0 - 25)
|       |       |           |                 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,
|       |       |           |       11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, TONE
|       | 00 0E | 0000 00aa | Zone Portamento Switch (CC#65)          (0 - 2)
|       |       |           |                                  OFF, ON, TONE
| #     | 00 0F | 0000 aaaa |
|       | 00 10 | 0000 bbbb | Zone Portamento Time (CC#5)           (0 - 128)
|       |       |           |                                    0 - 127, TONE
|       | 00 11 | 0aaa aaaa | Zone Cutoff Offset (CC#74)            (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 12 | 0aaa aaaa | Zone Resonance Offset (CC#71)         (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 13 | 0aaa aaaa | Zone Attack Time Offset (CC#73)       (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 14 | 0aaa aaaa | Zone Decay Time Offset (CC#75)        (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 15 | 0aaa aaaa | Zone Release Time Offset (CC#72)      (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 16 | 0aaa aaaa | Zone Vibrato Rate (CC#76)             (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 17 | 0aaa aaaa | Zone Vibrato Depth (CC#77)            (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 18 | 0aaa aaaa | Zone Vibrato Delay (CC#78)            (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 19 | 0aaa aaaa | Zone Octave Shift                      (61 - 67)
|       |       |           |                                          -3 - 3
|       | 00 1A | 0aaa aaaa | Zone Velocity Sens Offset              (1 - 127)
|       |       |           |                                        -63 - 63
|       | 00 1B | 0aaa aaaa | Reserved
: : :
|       | 00 23 | 0aaa aaaa | Zone Chorus Send Level (CC#93)        (0 - 127)
|       | 00 24 | 0aaa aaaa | Zone Reverb Send Level (CC#91)        (0 - 127)
|       | 00 25 | 0000 0aaa | Zone Output Assign                      (0 - 5)
|       |       |           |                   MAIN, IFX1, IFX2, SUB1, SUB2, AFX
|       | 00 26 | 0aaa aaaa | Reserved
|       | 00 27 | 0000 00aa | Voice Assign Mode                       (0 - 2)
|       |       |           |                              SINGLE, LIMIT, FULL
|       | 00 28 | 0000 00aa | Bend Mode                               (0 - 2)
|       |       |           |                               NORMAL, C+L, TONE
|       | 00 29 | 0000 aaaa | Zone Scale Tune Type                    (0 - 8)
|       |       |           |     CUSTOM, EQUAL, JUST-MAJ, JUST-MIN, PYTHAGORE,
|       |       |           |         KIRNBERGE, MEANTONE, WERCKMEIS, ARABIC
|       | 00 2A | 0000 aaaa | Zone Scale Tune Key                    (0 - 11)
|       |       |           |       C, C#, D, D#, E, F, F#, G, G#, A, A#, B
|       | 00 2B | 0aaa aaaa | Zone Scale Tune for C                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 2C | 0aaa aaaa | Zone Scale Tune for C#                (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 2D | 0aaa aaaa | Zone Scale Tune for D                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 2E | 0aaa aaaa | Zone Scale Tune for D#                (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 2F | 0aaa aaaa | Zone Scale Tune for E                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 30 | 0aaa aaaa | Zone Scale Tune for F                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 31 | 0aaa aaaa | Zone Scale Tune for F#                (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 32 | 0aaa aaaa | Zone Scale Tune for G                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 33 | 0aaa aaaa | Zone Scale Tune for G#                (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 34 | 0aaa aaaa | Zone Scale Tune for A                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 35 | 0aaa aaaa | Zone Scale Tune for A#                (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 36 | 0aaa aaaa | Zone Scale Tune for B                 (0 - 127)
|       |       |           |                                        -64 - 63
|       | 00 37 | 0000 000a | Receive Program Change                  (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 38 | 0000 000a | Receive Bank Select                     (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 39 | 0000 000a | Receive Pitch Bend                      (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 3A | 0000 000a | Receive Poly Key Pressure               (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 3B | 0000 000a | Receive Channel Pressure                (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 3C | 0000 000a | Receive Modulation                      (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 3D | 0000 000a | Receive Volume                          (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 3E | 0000 000a | Receive Pan                             (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 3F | 0000 000a | Receive Expression                      (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 40 | 0000 000a | Receive Hold-1                          (0 - 1)
|       |       |           |                                         OFF, ON
|       | 00 41 | 0000 0aaa | Velocity Curve Type                     (0 - 4)
|       |       |           |                               OFF, 1, 2, 3, 4
|       | 00 42 | 0000 000a | Hold Type                               (0 - 1)
```

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|                                          STACK, LEGATO  |
|       00 43 | 0000 000a | Bend Hold Notes Sw         (0 - 1) |
|             |           |                          OFF, ON |
|       00 44 | 0aaa aaaa | Reserved                          |
|             :           :                                 : |
|-------------+-------------------------------------------------|
| 00 00 00 49 |Total Size                                     |
+---------------------------------------------------------------+
```

* [Zone EQ]
```
+---------------------------------------------------------------+
| Offset      |                                                 |
|   Address   |              Description                        |
|-------------+-------------------------------------------------|
|       00 00 | 0aaa aaaa | EQ Input Gain            (40 - 88) |
|             |           |                        -24 - +24 [dB] |
|       00 01 | 0aaa aaaa | EQ Low Gain             (40 - 88) |
|             |           |                        -24 - +24 [dB] |
|       00 02 | 0aaa aaaa | EQ Mid Gain             (40 - 88) |
|             |           |                        -24 - +24 [dB] |
|       00 03 | 0aaa aaaa | EQ High Gain            (40 - 88) |
|             |           |                        -24 - +24 [dB] |
|       00 04 | 000a aaaa | EQ Low Frequency          (0 - 29) |
|             |           | 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200, |
|             |           | 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, |
|             |           | 3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz] |
|       00 05 | 000a aaaa | EQ Mid Frequency          (0 - 29) |
|             |           | 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200, |
|             |           | 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, |
|             |           | 3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz] |
|       00 06 | 000a aaaa | EQ High Frequency         (0 - 29) |
|             |           | 20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200, |
|             |           | 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, |
|             |           | 3150, 4000, 5000, 6300, 8000, 10000, 12600, 16000 [Hz] |
|       00 07 | 0000 0aaa | EQ Mid Q                   (0 - 5) |
|             |           |        0.5, 1.0, 2.0, 4.0, 8.0, 16.0 |
|       00 08 | 0000 000a | EQ Switch                 (0 - 1) |
|             |           |                          OFF, ON |
|-------------+-------------------------------------------------|
| 00 00 00 09 |Total Size                                     |
+---------------------------------------------------------------+
```

* [Zone Control]
```
+---------------------------------------------------------------+
| Offset      |                                                 |
|   Address   |              Description                        |
|-------------+-------------------------------------------------|
|       00 00 | 0000 000a | Keyboard Switch           (0 - 1) |
|             |           |                          OFF, ON |
|       00 01 | 0000 000a | Arpeggio Switch           (0 - 1) |
|             |           |                          OFF, ON |
|       00 02 | 0000 00aa | Internal/External         (0 - 2) |
|             |           |                    INT, EXT, BOTH |
|       00 03 | 0aaa aaaa | Reserved                          |
|       00 04 | 0aaa aaaa | Keyboard Control Range Lower    (0 - 127) |
|       00 05 | 0aaa aaaa | Keyboard Control Range Upper    (0 - 127) |
|       00 06 | 0aaa aaaa | Velocity Control Range Lower    (1 - 127) |
|       00 07 | 0aaa aaaa | Velocity Control Range Upper    (1 - 127) |
|       00 08 | 0aaa aaaa | Zone Transpose          (16 - 112) |
|             |           |                          -48 - 48 |
|       00 09 | 0aaa aaaa | Velocity Max            (1 - 127) |
|       00 0A | 0aaa aaaa | Reserved                          |
|       00 0B | 0aaa aaaa | Reserved                          |
|       00 0C | 0000 000a | Control Bender            (0 - 1) |
|             |           |                          OFF, ON |
|       00 0D | 0000 000a | Control Aftertouch        (0 - 1) |
|             |           |                          OFF, ON |
|       00 0E | 0000 000a | Control Modulation        (0 - 1) |
|             |           |                          OFF, ON |
|       00 0F | 0000 000a | Control Hold Pedal        (0 - 1) |
|             |           |                          OFF, ON |
|       00 10 | 0000 000a | Control Pedal 1           (0 - 1) |
|             |           |                          OFF, ON |
|       00 11 | 0000 000a | Control Pedal 2           (0 - 1) |
|             |           |                          OFF, ON |
|       00 12 | 0000 000a | Control Pedal 3           (0 - 1) |
|             |           |                          OFF, ON |
|       00 13 | 0aaa aaaa | Reserved                          |
|       00 14 | 0000 000a | Control Knob 1            (0 - 1) |
|             |           |                          OFF, ON |
|       00 15 | 0000 000a | Control Knob 2            (0 - 1) |
|             |           |                          OFF, ON |
|       00 16 | 0000 000a | Control Knob 3            (0 - 1) |
|             |           |                          OFF, ON |
|       00 17 | 0000 000a | Control Knob 4            (0 - 1) |
|             |           |                          OFF, ON |
|       00 18 | 0000 000a | Control Knob 5            (0 - 1) |
|             |           |                          OFF, ON |
|       00 19 | 0000 000a | Control Knob 6            (0 - 1) |
|             |           |                          OFF, ON |
|       00 1A | 0000 000a | Control Knob 7            (0 - 1) |
|             |           |                          OFF, ON |
|       00 1B | 0000 000a | Control Knob 8            (0 - 1) |
|             |           |                          OFF, ON |
```

	00 1C	0000 000a	Control Slider 1	(0 - 1)
				OFF, ON
	00 1D	0000 000a	Control Slider 2	(0 - 1)
				OFF, ON
	00 1E	0000 000a	Control Slider 3	(0 - 1)
				OFF, ON
	00 1F	0000 000a	Control Slider 4	(0 - 1)
				OFF, ON
	00 20	0000 000a	Control Slider 5	(0 - 1)
				OFF, ON
	00 21	0000 000a	Control Slider 6	(0 - 1)
				OFF, ON
	00 22	0000 000a	Control Slider 7	(0 - 1)
				OFF, ON
	00 23	0000 000a	Control Slider 8	(0 - 1)
				OFF, ON
	00 24	0aaa aaaa	Reserved	
	00 2C	0000 000a	Control S1	(0 - 1)
				OFF, ON
	00 2D	0000 000a	Control S2	(0 - 1)
				OFF, ON
	00 2E	0000 000a	Control Wheel 1	(0 - 1)
				OFF, ON
	00 2F	0000 000a	Control Wheel 2	(0 - 1)
				OFF, ON
	00 30	0000 000a	Control S3	(0 - 1)
				OFF, ON
	00 31	0aaa aaaa	Reserved	
	00 32	0aaa aaaa	Reserved	
	00 33	0000 00aa	External MIDI Port	(0 - 3)
				ALL, OUT1, OUT2, USB
	00 34	0000 aaaa	External Zone Tx Channel	(0 - 15)
				1 - 16
#	00 35	0000 aaaa		
	00 36	0000 bbbb	External Bank MSB (CC#0)	(0 - 128)
				---, 0 - 127
#	00 37	0000 aaaa		
	00 38	0000 bbbb	External Bank LSB (CC#32)	(0 - 128)
				---, 0 - 127
#	00 39	0000 aaaa		
	00 3A	0000 bbbb	External Program Change (PC)	(0 - 128)
				---, 1 - 128
#	00 3B	0000 aaaa		
	00 3C	0000 bbbb	External Volume (CC#7)	(0 - 128)
				---, 0 - 127
#	00 3D	0000 aaaa		
	00 3E	0000 bbbb	External Pan (CC#10)	(0 - 128)
				---, L64 - L01, 0, 01R - 63R
	00 3F	0aaa aaaa	External Coarse Tune (RPN#2)	(15 - 112)
				---, -48 - +48
	00 40	0aaa aaaa	External Fine Tune (RPN#1)	(13 - 114)
				---, -50 - +50
	00 41	0000 00aa	External Mono/Poly (CC#126/127)	(0 - 2)
				---, MONO, POLY
	00 42	0000 00aa	External Portamento Sw (CC#65)	(0 - 2)
				---, OFF, ON
#	00 43	0000 aaaa		
	00 44	0000 bbbb	External Portamento Time (CC#5)	(0 - 128)
				---, 0 - 127
#	00 45	0000 aaaa		
	00 46	0000 bbbb	External Cutoff Offset (CC#74)	(0 - 128)
				---, 0 - 127
#	00 47	0000 aaaa		
	00 48	0000 bbbb	External Resonance Offset (CC#71)	(0 - 128)
				---, 0 - 127
#	00 49	0000 aaaa		
	00 4A	0000 bbbb	External Attack Time Offset (CC#73)	(0 - 128)
				---, 0 - 127
#	00 4B	0000 aaaa		
	00 4C	0000 bbbb	External Decay Time Offset (CC#75)	(0 - 128)
				---, 0 - 127
#	00 4D	0000 aaaa		
	00 4E	0000 bbbb	External Release Time Offset (CC#72)	(0 - 128)
				---, 0 - 127
	00 4F	00aa aaaa	External Bend Range (RPN#0)	(0 - 49)
				---, 0 - 127
#	00 50	0000 aaaa		
	00 51	0000 bbbb	External Modulation Depth (RPN#5)	(0 - 128)
				---, 0 - 127
#	00 52	0000 aaaa		
	00 53	0000 bbbb	External Chorus Send (CC#93)	(0 - 128)
				---, 0 - 127
#	00 54	0000 aaaa		
	00 55	0000 bbbb	External Reverb Send (CC#91)	(0 - 128)
				---, 0 - 127
	00 56	0aaa aaaa	Reserved	
	00 5C	0aaa aaaa	External Name 1	(32 - 127)
				32 - 127 [ASCII]
	00 5D	0aaa aaaa	External Name 2	(32 - 127)
				32 - 127 [ASCII]
	00 5E	0aaa aaaa	External Name 3	(32 - 127)
				32 - 127 [ASCII]

```
|       00 5F | 0aaa aaaa | External Name 4                        (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 60 | 0aaa aaaa | External Name 5                        (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 61 | 0aaa aaaa | External Name 6                        (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 62 | 0aaa aaaa | External Name 7                        (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 63 | 0aaa aaaa | External Name 8                        (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 64 | 0aaa aaaa | External Name 9                        (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 65 | 0aaa aaaa | External Name 10                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 66 | 0aaa aaaa | External Name 11                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 67 | 0aaa aaaa | External Name 12                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 68 | 0aaa aaaa | External Name 13                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 69 | 0aaa aaaa | External Name 14                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 6A | 0aaa aaaa | External Name 15                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 6B | 0aaa aaaa | External Name 16                       (32 - 127) |
|             |           |                              32 - 127 [ASCII]    |
|       00 6C | 0aaa aaaa | Reserved                                          |
:                                                                            :
|-------------+---------------------------------------------------------------|
| 00 00 00 70 |Total Size                                                     |
+----------------------------------------------------------------------------+

* [Scene Controller]
+----------------------------------------------------------------------------+
| Offset      |                                                               |
|   Address   |                      Description                              |
|-------------+---------------------------------------------------------------|
|       00 00 | 0000 000a | Zone1-8/Zone9-16 Select                  (0 - 1)  |
|             |           |                                     1-8, 9-16      |
|       00 01 | 0000 00aa | Function Select                          (0 - 3)  |
|             |           |                  PAN/LEVEL, ASSIGN1, ASSIGN2, DAW CTRL |
|       00 02 | 0aaa aaaa | Reserved                                          |
|       00 03 | 0aaa aaaa | Reserved                                          |
|       00 04 | 0aaa aaaa | Pedal 1 Assign                        (0 - 108)   |
|             |           |         OFF,  CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08, |
|             |           | CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18, |
|             |           | CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28, |
|             |           | CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39, |
|             |           | CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49, |
|             |           | CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59, |
|             |           | CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69, |
|             |           | CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, |
|             |           | CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, |
|             |           |   CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP, |
|             |           |     AFT, START/STOP, TAP TEMPO, SCENE DOWN, SCENE UP, |
|             |           | OCT DOWN, OCT UP, ARPEGGIO SW, CHORD MEM SW, DEC, INC, |
|             |           |                                           VOCODER SW |
|       00 05 | 0aaa aaaa | Pedal 1 Range Min                     (0 - 127)   |
|       00 06 | 0aaa aaaa | Pedal 1 Range Max                     (0 - 127)   |
|       00 07 | 0aaa aaaa | Pedal 2 Assign                        (0 - 108)   |
|             |           |         OFF,  CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08, |
|             |           | CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18, |
|             |           | CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28, |
|             |           | CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39, |
|             |           | CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49, |
|             |           | CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59, |
|             |           | CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69, |
|             |           | CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, |
|             |           | CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, |
|             |           |   CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP, |
|             |           |     AFT, START/STOP, TAP TEMPO, SCENE DOWN, SCENE UP, |
|             |           | OCT DOWN, OCT UP, ARPEGGIO SW, CHORD MEM SW, DEC, INC, |
|             |           |                                           VOCODER SW |
|       00 08 | 0aaa aaaa | Pedal 2 Range Min                     (0 - 127)   |
|       00 09 | 0aaa aaaa | Pedal 2 Range Max                     (0 - 127)   |
|       00 0A | 0aaa aaaa | Pedal 3 Assign                        (0 - 108)   |
|             |           |         OFF,  CC01, CC02, CC03, CC04, CC05, CC06, CC07, CC08, |
|             |           | CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17, CC18, |
|             |           | CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27, CC28, |
|             |           | CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38, CC39, |
|             |           | CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48, CC49, |
|             |           | CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58, CC59, |
|             |           | CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68, CC69, |
|             |           | CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78, CC79, |
|             |           | CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88, CC89, |
|             |           |   CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN, BEND UP, |
|             |           |     AFT, START/STOP, TAP TEMPO, SCENE DOWN, SCENE UP, |
|             |           | OCT DOWN, OCT UP, ARPEGGIO SW, CHORD MEM SW, DEC, INC, |
|             |           |                                           VOCODER SW |
|       00 0B | 0aaa aaaa | Pedal 3 Range Min                     (0 - 127)   |
|       00 0C | 0aaa aaaa | Pedal 3 Range Max                     (0 - 127)   |
|       00 0D | 0aaa aaaa | Reserved                                          |
:                                                                            :
|       00 10 | 0aaa aaaa | Knob 1 Assign                         (0 - 96)    |
```

```
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 11 | 0aaa aaaa | Knob 1 Range Min                                    (0 - 127)
00 12 | 0aaa aaaa | Knob 1 Range Max                                    (0 - 127)
00 13 | 0aaa aaaa | Knob 2 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 14 | 0aaa aaaa | Knob 2 Range Min                                    (0 - 127)
00 15 | 0aaa aaaa | Knob 2 Range Max                                    (0 - 127)
00 16 | 0aaa aaaa | Knob 3 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 17 | 0aaa aaaa | Knob 3 Range Min                                    (0 - 127)
00 18 | 0aaa aaaa | Knob 3 Range Max                                    (0 - 127)
00 19 | 0aaa aaaa | Knob 4 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 1A | 0aaa aaaa | Knob 4 Range Min                                    (0 - 127)
00 1B | 0aaa aaaa | Knob 4 Range Max                                    (0 - 127)
00 1C | 0aaa aaaa | Knob 5 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 1D | 0aaa aaaa | Knob 5 Range Min                                    (0 - 127)
00 1E | 0aaa aaaa | Knob 5 Range Max                                    (0 - 127)
00 1F | 0aaa aaaa | Knob 6 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 20 | 0aaa aaaa | Knob 6 Range Min                                    (0 - 127)
00 21 | 0aaa aaaa | Knob 6 Range Max                                    (0 - 127)
00 22 | 0aaa aaaa | Knob 7 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|                                CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|                                CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|                                CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|                                CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|                                CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|                                CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|                                 CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
00 23 | 0aaa aaaa | Knob 7 Range Min                                    (0 - 127)
00 24 | 0aaa aaaa | Knob 7 Range Max                                    (0 - 127)
00 25 | 0aaa aaaa | Knob 8 Assign                                       (0 - 96)
|                                      OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|                                CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|                                CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
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                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 26 | 0aaa aaaa | Knob 8 Range Min                            (0 - 127)
  00 27 | 0aaa aaaa | Knob 8 Range Max                            (0 - 127)
  00 28 | 0aaa aaaa | Slider 1 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 29 | 0aaa aaaa | Slider 1 Range Min                          (0 - 127)
  00 2A | 0aaa aaaa | Slider 1 Range Max                          (0 - 127)
  00 2B | 0aaa aaaa | Slider 2 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 2C | 0aaa aaaa | Slider 2 Range Min                          (0 - 127)
  00 2D | 0aaa aaaa | Slider 2 Range Max                          (0 - 127)
  00 2E | 0aaa aaaa | Slider 3 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 2F | 0aaa aaaa | Slider 3 Range Min                          (0 - 127)
  00 30 | 0aaa aaaa | Slider 3 Range Max                          (0 - 127)
  00 31 | 0aaa aaaa | Slider 4 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 32 | 0aaa aaaa | Slider 4 Range Min                          (0 - 127)
  00 33 | 0aaa aaaa | Slider 4 Range Max                          (0 - 127)
  00 34 | 0aaa aaaa | Slider 5 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 35 | 0aaa aaaa | Slider 5 Range Min                          (0 - 127)
  00 36 | 0aaa aaaa | Slider 5 Range Max                          (0 - 127)
  00 37 | 0aaa aaaa | Slider 6 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                               CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                               CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                               CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                                CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 38 | 0aaa aaaa | Slider 6 Range Min                          (0 - 127)
  00 39 | 0aaa aaaa | Slider 6 Range Max                          (0 - 127)
  00 3A | 0aaa aaaa | Slider 7 Assign                             (0 -  96)
                               OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                               CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                               CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                               CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                               CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                               CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
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                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                          CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                            CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 3B | 0aaa aaaa | Slider 7 Range Min                             (0 - 127)
  00 3C | 0aaa aaaa | Slider 7 Range Max                             (0 - 127)
  00 3D | 0aaa aaaa | Slider 8 Assign                                 (0 - 96)
                          OFF, CC01, CC02, CC03, CC04, CC05, CC06,
                          CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                          CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                          CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                          CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                          CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                          CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                            CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 3E | 0aaa aaaa | Slider 8 Range Min                             (0 - 127)
  00 3F | 0aaa aaaa | Slider 8 Range Max                             (0 - 127)
  00 40 | 0aaa aaaa | Reserved

  00 5E | 0aaa aaaa | S1 Sw Assign                                   (0 - 120)
                          OFF, CC01, CC02, CC03, CC04, CC05, CC06,
                          CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                          CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                          CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                          CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                          CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                          CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                          CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN,
                          BEND UP, AFT, MONO/POLY, MFX SW, EQ SW, IFX1 SW, IFX2 SW,
                          CHORUS SW, REVERB SW, MASTER COMP SW, MASTER EQ SW,
                            VOCODER SW, SCENE DOWN, SCENE UP, DEC, INC,
                            SEQ START/STOP, GROUP PLAY DOWN, GROUP PLAY UP,
                          SONG LOOP SW, TFX SW, MASTER KEY DOWN, MASTER KEY UP,
                                      SCALE TUNE SW, ANALOG DRV
  00 5F | 0000 000a | S1 Sw Mode                                       (0 - 1)
                                      MOMENTARY, LATCH
  00 60 | 0aaa aaaa | S2 Sw Assign                                   (0 - 120)
                          OFF, CC01, CC02, CC03, CC04, CC05, CC06,
                          CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                          CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                          CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                          CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                          CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                          CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                          CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN,
                          BEND UP, AFT, MONO/POLY, MFX SW, EQ SW, IFX1 SW, IFX2 SW,
                          CHORUS SW, REVERB SW, MASTER COMP SW, MASTER EQ SW,
                            VOCODER SW, SCENE DOWN, SCENE UP, DEC, INC,
                            SEQ START/STOP, GROUP PLAY DOWN, GROUP PLAY UP,
                          SONG LOOP SW, TFX SW, MASTER KEY DOWN, MASTER KEY UP,
                                      SCALE TUNE SW, ANALOG DRV
  00 61 | 0000 000a | S2 Sw Mode                                       (0 - 1)
                                      MOMENTARY, LATCH
  00 62 | 0aaa aaaa | Wheel 1 Assign                                  (0 - 96)
                          OFF, CC01, CC02, CC03, CC04, CC05, CC06,
                          CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                          CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                          CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                          CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                          CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                          CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                            CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 63 | 0aaa aaaa | Wheel 1 Range Min                              (0 - 127)
  00 64 | 0aaa aaaa | Wheel 1 Range Max                              (0 - 127)
  00 65 | 0aaa aaaa | Wheel 2 Assign                                  (0 - 96)
                          OFF, CC01, CC02, CC03, CC04, CC05, CC06,
                          CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                          CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                          CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                          CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                          CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                          CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                            CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT
  00 66 | 0aaa aaaa | Wheel 2 Range Min                              (0 - 127)
  00 67 | 0aaa aaaa | Wheel 2 Range Max                              (0 - 127)
  00 68 | 0aaa aaaa | S3 Sw Assign                                   (0 - 120)
                          OFF, CC01, CC02, CC03, CC04, CC05, CC06,
                          CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                          CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                          CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                          CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                          CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                          CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                          CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
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|    |       |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|    |       |           | CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND DOWN,
|    |       |           | BEND UP, AFT, MONO/POLY, MFX SW, EQ SW, IFX1 SW, IFX2 SW,
|    |       |           | CHORUS SW, REVERB SW, MASTER COMP SW, MASTER EQ SW,
|    |       |           | VOCODER SW, SCENE DOWN, SCENE UP, DEC, INC,
|    |       |           | SEQ START/STOP, GROUP PLAY DOWN, GROUP PLAY UP,
|    |       |           | SONG LOOP SW, TFX SW, MASTER KEY DOWN, MASTER KEY UP,
|    |       |           | SCALE TUNE SW, ANALOG DRV
|    | 00 69 | 0000 000a | S3 Sw Mode                      (0 - 1)
|    |       |           | MOMENTARY, LATCH
|    | 00 6A | 0aaa aaaa | Reserved
|    | 00 6B | 0aaa aaaa | Reserved
|    | 00 6C | 0000 000a | Arpeggio Switch                (0 - 1)
|    |       |           | OFF, ON
|    | 00 6D | 0000 000a | Arpeggio Hold                  (0 - 1)
|    |       |           | OFF, ON
|    | 00 6E | 0aaa aaaa | Reserved
|    | 00 6F | 0aaa aaaa | Arpeggio Style               (0 - 127)
|    | 00 70 | 0aaa aaaa | Arpeggio Variation           (0 - 127)
|    | 00 71 | 0000 aaaa | Arpeggio Motif                 (0 - 9)
|    |       |           | UP, DOWN, UP&DOWN, RANDOM, NOTE ORDER,
|    |       |           | GLISSANDO, CHORD, AUTO1, AUTO2, PHRASE
|    | 00 72 | 0aaa aaaa | Arpeggio Accent Rate         (0 - 100)
|    | 00 73 | 0aaa aaaa | Arpeggio Shuffle Rate        (0 - 100)
|    | 00 74 | 0000 000a | Arpeggio Shuffle Resolution    (0 - 1)
|    |       |           | 16TH, 8TH
|    | 00 75 | 0aaa aaaa | Arpeggio Keyboard Velocity   (0 - 127)
|    |       |           | REAL, 1 - 127
|    | 00 76 | 0aaa aaaa | Arpeggio Octave Range        (61 - 67)
|    |       |           | -3 - 3
|    | 00 77 | 0000 000a | Arpeggio Key Trigger           (0 - 1)
|    |       |           | OFF, ON
|    | 00 78 | 0000 000a | Chord Memory Switch            (0 - 1)
|    |       |           | OFF, ON
|    | 00 79 | 000a aaaa | Chord Memory Form             (0 - 16)
|    |       |           | 1 - 17
|    | 00 7A | 0aaa aaaa | Chord Memory Key             (59 - 70)
|    |       |           | -5 - 6
|    | 00 7B | 0000 000a | Rolled Chord Sw                (0 - 1)
|    |       |           | OFF, ON
|    | 00 7C | 0000 00aa | Rolled Chord Type              (0 - 2)
|    |       |           | UP, DOWN, ALTERNATE
|    | 00 7D | 0aaa aaaa | Reserved
|    | 00 7E | 0aaa aaaa | Rhythm Pattern Variation     (0 - 127)
|    | 00 7F | 0aaa aaaa | Rhythm Pattern Number        (0 - 127)
|    | 01 00 | 0000 000a | Rhythm Pattern Key Trigger     (0 - 1)
|    |       |           | OFF, ON
|    | 01 01 | 0000 aaaa | Rhythm Pattern Zone           (0 - 15)
|    | 01 02 | 000a aaaa | Pad Zone Select               (0 - 16)
|    |       |           | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, OFF
|    | 01 03 | 0aaa aaaa | Reserved
| #  | 01 04 | 0000 aaaa |
|    | 01 05 | 0000 bbbb |
|    | 01 06 | 0000 cccc |
|    | 01 07 | 0000 dddd | Keyboard Switch Group1     (0 - 65535)
| #  | 01 08 | 0000 aaaa |
|    | 01 09 | 0000 bbbb |
|    | 01 0A | 0000 cccc |
|    | 01 0B | 0000 dddd | Keyboard Switch Group2     (0 - 65535)
| #  | 01 0C | 0000 aaaa |
|    | 01 0D | 0000 bbbb |
|    | 01 0E | 0000 cccc |
|    | 01 0F | 0000 dddd | Keyboard Switch Group3     (0 - 65535)
| #  | 01 10 | 0000 aaaa |
|    | 01 11 | 0000 bbbb |
|    | 01 12 | 0000 cccc |
|    | 01 13 | 0000 dddd | Keyboard Switch Group4     (0 - 65535)
| #  | 01 14 | 0000 aaaa |
|    | 01 15 | 0000 bbbb |
|    | 01 16 | 0000 cccc |
|    | 01 17 | 0000 dddd | Keyboard Switch Group5     (0 - 65535)
| #  | 01 18 | 0000 aaaa |
|    | 01 19 | 0000 bbbb |
|    | 01 1A | 0000 cccc |
|    | 01 1B | 0000 dddd | Keyboard Switch Group6     (0 - 65535)
| #  | 01 1C | 0000 aaaa |
|    | 01 1D | 0000 bbbb |
|    | 01 1E | 0000 cccc |
|    | 01 1F | 0000 dddd | Keyboard Switch Group7     (0 - 65535)
| #  | 01 20 | 0000 aaaa |
|    | 01 21 | 0000 bbbb |
|    | 01 22 | 0000 cccc |
|    | 01 23 | 0000 dddd | Keyboard Switch Group8     (0 - 65535)
| #  | 01 24 | 0000 aaaa |
|    | 01 25 | 0000 bbbb |
|    | 01 26 | 0000 cccc |
|    | 01 27 | 0000 dddd | Keyboard Switch Group9     (0 - 65535)
| #  | 01 28 | 0000 aaaa |
|    | 01 29 | 0000 bbbb |
|    | 01 2A | 0000 cccc |
|    | 01 2B | 0000 dddd | Keyboard Switch Group10    (0 - 65535)
| #  | 01 2C | 0000 aaaa |
|    | 01 2D | 0000 bbbb |
|    | 01 2E | 0000 cccc |
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    | 01 2F | 0000 dddd | Keyboard Switch Group11              (0 - 65535)
#   | 01 30 | 0000 aaaa |
    | 01 31 | 0000 bbbb |
    | 01 32 | 0000 cccc |
    | 01 33 | 0000 dddd | Keyboard Switch Group12              (0 - 65535)
#   | 01 34 | 0000 aaaa |
    | 01 35 | 0000 bbbb |
    | 01 36 | 0000 cccc |
    | 01 37 | 0000 dddd | Keyboard Switch Group13              (0 - 65535)
#   | 01 38 | 0000 aaaa |
    | 01 39 | 0000 bbbb |
    | 01 3A | 0000 cccc |
    | 01 3B | 0000 dddd | Keyboard Switch Group14              (0 - 65535)
#   | 01 3C | 0000 aaaa |
    | 01 3D | 0000 bbbb |
    | 01 3E | 0000 cccc |
    | 01 3F | 0000 dddd | Keyboard Switch Group15              (0 - 65535)
#   | 01 40 | 0000 aaaa |
    | 01 41 | 0000 bbbb |
    | 01 42 | 0000 cccc |
    | 01 43 | 0000 dddd | Keyboard Switch Group16              (0 - 65535)
    | 01 44 | 0000 000a | Motional Pad Switch                  (0 - 1)
    |       |           |                                     OFF, ON
    | 01 45 | 0000 aaaa | Motional Pad Area1 Zone              (0 - 15)
    |       |           |                                     1 - 16
    | 01 46 | 0000 aaaa | Motional Pad Area2 Zone              (0 - 15)
    |       |           |                                     1 - 16
    | 01 47 | 0000 aaaa | Motional Pad Area3 Zone              (0 - 15)
    |       |           |                                     1 - 16
    | 01 48 | 0000 aaaa | Motional Pad Area4 Zone              (0 - 15)
    |       |           |                                     1 - 16
    | 01 49 | 0aaa aaaa | Motional Pad Area1 Min               (0 - 127)
    | 01 4A | 0aaa aaaa | Motional Pad Area2 Min               (0 - 127)
    | 01 4B | 0aaa aaaa | Motional Pad Area3 Min               (0 - 127)
    | 01 4C | 0aaa aaaa | Motional Pad Area4 Min               (0 - 127)
    | 01 4D | 0aaa aaaa | Motional Pad Area1 Max               (0 - 127)
    | 01 4E | 0aaa aaaa | Motional Pad Area2 Max               (0 - 127)
    | 01 4F | 0aaa aaaa | Motional Pad Area3 Max               (0 - 127)
    | 01 50 | 0aaa aaaa | Motional Pad Area4 Max               (0 - 127)
    | 01 51 | 0000 000a | Motional Pad Hold                    (0 - 1)
    |       |           |                                     OFF, ON
    | 01 52 | 0aaa aaaa | Motional Pad Cross Fade Range        (0 - 127)
    | 01 53 | 0000 000a | Motional Pad Auto                    (0 - 1)
    |       |           |                                     OFF, ON
    | 01 54 | 0aaa aaaa | Reserved
    :       :           :
    | 01 5C | 0aaa aaaa | Motional Pad X                       (0 - 127)
    | 01 5D | 0aaa aaaa | Motional Pad Y                       (0 - 127)
    | 01 5E | 0aaa aaaa | Motional Pad Area1 Val               (0 - 127)
    | 01 5F | 0aaa aaaa | Motional Pad Area2 Val               (0 - 127)
    | 01 60 | 0aaa aaaa | Motional Pad Area3 Val               (0 - 127)
    | 01 61 | 0aaa aaaa | Motional Pad Area4 Val               (0 - 127)
    | 01 62 | 0aaa aaaa | Reserved
    | 01 63 | 0aaa aaaa | Reserved
    | 01 64 | 000a aaaa | CV/Gate 1 Control Zone               (0 - 16)
    |       |           |          1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, OFF
    | 01 65 | 0aaa aaaa | CV 1 Assign                          (0 - 97)
    |       |           |          NOTE,  CC01, CC02, CC03, CC04, CC05, CC06, CC07,
    |       |           | CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17,
    |       |           | CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27,
    |       |           | CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38,
    |       |           | CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48,
    |       |           | CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58,
    |       |           | CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68,
    |       |           | CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78,
    |       |           | CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88,
    |       |           |  CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT, VELO
    | 01 66 | 000a aaaa | CV/Gate 2 Control Zone               (0 - 16)
    |       |           |          1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, OFF
    | 01 67 | 0aaa aaaa | CV 2 Assign                          (0 - 97)
    |       |           |          NOTE,  CC01, CC02, CC03, CC04, CC05, CC06, CC07,
    |       |           | CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17,
    |       |           | CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27,
    |       |           | CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38,
    |       |           | CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48,
    |       |           | CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58,
    |       |           | CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68,
    |       |           | CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78,
    |       |           | CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88,
    |       |           |  CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT, VELO
    | 01 68 | 0aaa aaaa | CV 3 Assign                          (0 - 97)
    |       |           |          NOTE,  CC01, CC02, CC03, CC04, CC05, CC06, CC07,
    |       |           | CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16, CC17,
    |       |           | CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26, CC27,
    |       |           | CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37, CC38,
    |       |           | CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47, CC48,
    |       |           | CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57, CC58,
    |       |           | CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67, CC68,
    |       |           | CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77, CC78,
    |       |           | CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87, CC88,
    |       |           |  CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT, VELO
    | 01 69 | 0aaa aaaa | Reserved
    :       :           :
    |-------+-----------+--------------------------------------------------------|
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| 00 00 02 00 |Total Size                                                          |
+-------------------------------------------------------------------------------------+

* [Partial EQ]
+-------------------------------------------------------------------------------------+
| Offset       |                                                                      |
|   Address    |                      Description                                     |
|--------------+------------------------------------------------------------------------
|# 00 00 | 0000 aaaa |                                                                 |
|  00 01 | 0000 bbbb |                                                                 |
|  00 02 | 0000 cccc |                                                                 |
|  00 03 | 0000 dddd | EQ Low Gain                                  (784 - 1264)        |
|        |           |                                          -24.0 - +24.0 [EQGAIN]  |
|# 00 04 | 0000 aaaa |                                                                 |
|  00 05 | 0000 bbbb |                                                                 |
|  00 06 | 0000 cccc |                                                                 |
|  00 07 | 0000 dddd | EQ Mid Gain                                  (784 - 1264)        |
|        |           |                                          -24.0 - +24.0 [EQGAIN]  |
|# 00 08 | 0000 aaaa |                                                                 |
|  00 09 | 0000 bbbb |                                                                 |
|  00 0A | 0000 cccc |                                                                 |
|  00 0B | 0000 dddd | EQ High Gain                                 (784 - 1264)        |
|        |           |                                          -24.0 - +24.0 [EQGAIN]  |
|# 00 0C | 0000 aaaa |                                                                 |
|  00 0D | 0000 bbbb |                                                                 |
|  00 0E | 0000 cccc |                                                                 |
|  00 0F | 0000 dddd | EQ Low Frequency                            (20 - 16000)        |
|        |           |                                            20 - 16000 [EQFREQ]   |
|# 00 10 | 0000 aaaa |                                                                 |
|  00 11 | 0000 bbbb |                                                                 |
|  00 12 | 0000 cccc |                                                                 |
|  00 13 | 0000 dddd | EQ Mid Frequency                            (20 - 16000)        |
|        |           |                                            20 - 16000 [EQFREQ]   |
|# 00 14 | 0000 aaaa |                                                                 |
|  00 15 | 0000 bbbb |                                                                 |
|  00 16 | 0000 cccc |                                                                 |
|  00 17 | 0000 dddd | EQ High Frequency                           (20 - 16000)        |
|        |           |                                            20 - 16000 [EQFREQ]   |
|# 00 18 | 0000 aaaa |                                                                 |
|  00 19 | 0000 bbbb | EQ Mid Q                                    (5 - 160)           |
|        |           |                                            0.5 - 16.0 [EQQ]     |
|  00 1A | 0000 000a | EQ Switch                                   (0 - 1)             |
|        |           |                                               OFF, ON            |
|--------------+------------------------------------------------------------------------
| 00 00 00 1B |Total Size                                                             |
+-------------------------------------------------------------------------------------+

* [Partial LFO]
+-------------------------------------------------------------------------------------+
| Offset       |                                                                      |
|   Address    |                      Description                                     |
|--------------+------------------------------------------------------------------------
|  00 00 | 0000 aaaa | Waveform                                    (0 - 10)            |
|        |           | SIN, TRI, SAW-UP, SAW-DW, SQR, RND, TRP, S&H, CHS, VSIN, STEP    |
|  00 01 | 0000 000a | Rate Sync                                   (0 - 1)             |
|        |           |                                               OFF, ON            |
|  00 02 | 000a aaaa | Rate (note)                                 (0 - 22)            |
|        |           |                               1/64T, 1/64,                      |
|        |           |        1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8,        |
|        |           |        1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2, 4|
|  00 03 | 0000 aaaa | Step Size                                   (0 - 15)            |
|        |           |                                               1 - 16            |
|# 00 04 | 0000 aaaa |                                                                 |
|  00 05 | 0000 bbbb |                                                                 |
|  00 06 | 0000 cccc |                                                                 |
|  00 07 | 0000 dddd | Rate                                        (0 - 1023)          |
|        |           |                                               0 - 1023          |
|# 00 08 | 0000 aaaa |                                                                 |
|  00 09 | 0000 bbbb | Offset                                      (28 - 228)          |
|        |           |                                            -100 - +100          |
|  00 0A | 0aaa aaaa | Rate Detune                                 (0 - 127)           |
|        |           |                                               0 - 127           |
|# 00 0B | 0000 aaaa |                                                                 |
|  00 0C | 0000 bbbb |                                                                 |
|  00 0D | 0000 cccc |                                                                 |
|  00 0E | 0000 dddd | Delay Time                                  (0 - 1023)          |
|        |           |                                               0 - 1023          |
|# 00 0F | 0000 aaaa |                                                                 |
|  00 10 | 0000 bbbb | Delay Time Keyfolow                         (28 - 228)          |
|        |           |                                            -100 - +100          |
|  00 11 | 0000 00aa | Fade Mode                                   (0 - 3)             |
|        |           |                              ON-IN, ON-OUT, OFF-IN, OFF-OUT      |
|# 00 12 | 0000 aaaa |                                                                 |
|  00 13 | 0000 bbbb |                                                                 |
|  00 14 | 0000 cccc |                                                                 |
|  00 15 | 0000 dddd | Fade Time                                   (0 - 1023)          |
|        |           |                                               0 - 1023          |
|  00 16 | 0000 000a | Key Trigger                                 (0 - 1)             |
|        |           |                                               OFF, ON            |
|# 00 17 | 0000 aaaa |                                                                 |
|  00 18 | 0000 bbbb | Pitch Depth                                 (28 - 228)          |
|        |           |                                            -100 - +100          |
|# 00 19 | 0000 aaaa |                                                                 |
|  00 1A | 0000 bbbb | TVF Depth                                   (28 - 228)          |
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				−100 − +100
#	00 1B	0000 aaaa		
	00 1C	0000 bbbb	TVA Depth	(28 − 228)
				−100 − +100
	00 1D	0aaa aaaa	PAN Depth	(1 − 127)
				−63 − +63
	00 1E	0000 00aa	Phase Position	(0 − 3)
				0 − 3
#	00 1F	0000 aaaa		
	00 20	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 21	0000 aaaa		
	00 22	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 23	0000 aaaa		
	00 24	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 25	0000 aaaa		
	00 26	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 27	0000 aaaa		
	00 28	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 29	0000 aaaa		
	00 2A	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 2B	0000 aaaa		
	00 2C	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 2D	0000 aaaa		
	00 2E	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 2F	0000 aaaa		
	00 30	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 31	0000 aaaa		
	00 32	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 33	0000 aaaa		
	00 34	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 35	0000 aaaa		
	00 36	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 37	0000 aaaa		
	00 38	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 39	0000 aaaa		
	00 3A	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 3B	0000 aaaa		
	00 3C	0000 bbbb	Step	(56 − 200)
				−72 − +72
#	00 3D	0000 aaaa		
	00 3E	0000 bbbb	Step	(56 − 200)
				−72 − +72
	00 3F	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 40	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 41	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 42	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 43	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 44	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 45	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 46	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 47	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 48	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 49	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 4A	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 4B	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 4C	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 4D	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 4E	00aa aaaa	Step Curve	(0 − 36)
				0 − 36
	00 4F	0000 aaaa	Waveform	(0 − 10)
			SIN, TRI, SAW−UP, SAW−DW, SQR, RND, TRP, S&H, CHS, VSIN, STEP	
	00 50	0000 000a	Rate Sync	(0 − 1)
				OFF, ON
	00 51	000a aaaa	Rate (note)	(0 − 22)
				1/64T, 1/64,

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|      |       |           | 1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8,
|      |       |           | 1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2, 4
|      | 00 52 | 0000 aaaa | Step Size                           (0 - 15)
|      |       |           |                                      1 - 16
| #    | 00 53 | 0000 aaaa |
|      | 00 54 | 0000 bbbb |
|      | 00 55 | 0000 cccc |
|      | 00 56 | 0000 dddd | Rate                              (0 - 1023)
|      |       |           |                                   0 - 1023
| #    | 00 57 | 0000 aaaa |
|      | 00 58 | 0000 bbbb | Offset                            (28 - 228)
|      |       |           |                                 -100 - +100
|      | 00 59 | 0aaa aaaa | Rate Detune                       (0 - 127)
|      |       |           |                                    0 - 127
| #    | 00 5A | 0000 aaaa |
|      | 00 5B | 0000 bbbb |
|      | 00 5C | 0000 cccc |
|      | 00 5D | 0000 dddd | Delay Time                        (0 - 1023)
|      |       |           |                                   0 - 1023
| #    | 00 5E | 0000 aaaa |
|      | 00 5F | 0000 bbbb | Delay Time Keyfolow               (28 - 228)
|      |       |           |                                 -100 - +100
|      | 00 60 | 0000 00aa | Fade Mode                          (0 - 3)
|      |       |           |                    ON-IN, ON-OUT, OFF-IN, OFF-OUT
| #    | 00 61 | 0000 aaaa |
|      | 00 62 | 0000 bbbb |
|      | 00 63 | 0000 cccc |
|      | 00 64 | 0000 dddd | Fade Time                         (0 - 1023)
|      |       |           |                                   0 - 1023
|      | 00 65 | 0000 000a | Key Trigger                        (0 - 1)
|      |       |           |                                    OFF, ON
| #    | 00 66 | 0000 aaaa |
|      | 00 67 | 0000 bbbb | Pitch Depth                       (28 - 228)
|      |       |           |                                 -100 - +100
| #    | 00 68 | 0000 aaaa |
|      | 00 69 | 0000 bbbb | TVF Depth                         (28 - 228)
|      |       |           |                                 -100 - +100
| #    | 00 6A | 0000 aaaa |
|      | 00 6B | 0000 bbbb | TVA Depth                         (28 - 228)
|      |       |           |                                 -100 - +100
|      | 00 6C | 0aaa aaaa | PAN Depth                         (1 - 127)
|      |       |           |                                  -63 - +63
|      | 00 6D | 0000 00aa | Phase Position                     (0 - 3)
|      |       |           |                                    0 - 3
| #    | 00 6E | 0000 aaaa |
|      | 00 6F | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 70 | 0000 aaaa |
|      | 00 71 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 72 | 0000 aaaa |
|      | 00 73 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 74 | 0000 aaaa |
|      | 00 75 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 76 | 0000 aaaa |
|      | 00 77 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 78 | 0000 aaaa |
|      | 00 79 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 7A | 0000 aaaa |
|      | 00 7B | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 7C | 0000 aaaa |
|      | 00 7D | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 00 7E | 0000 aaaa |
|      | 00 7F | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 00 | 0000 aaaa |
|      | 01 01 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 02 | 0000 aaaa |
|      | 01 03 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 04 | 0000 aaaa |
|      | 01 05 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 06 | 0000 aaaa |
|      | 01 07 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 08 | 0000 aaaa |
|      | 01 09 | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 0A | 0000 aaaa |
|      | 01 0B | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
| #    | 01 0C | 0000 aaaa |
|      | 01 0D | 0000 bbbb | Step                              (56 - 200)
|      |       |           |                                  -72 - +72
|      | 01 0E | 00aa aaaa | Step Curve                         (0 - 36)
|      |       |           |                                    0 - 36
```

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|       01 0F  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 10  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 11  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 12  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 13  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 14  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 15  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 16  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 17  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 18  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 19  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 1A  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 1B  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 1C  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
|       01 1D  | 00aa aaaa | Step Curve                           (0 - 36) |
|              |           |                                      0 - 36  |
+--------------+-----------+---------------------------------------------+
| 00 00 01 1E  |Total Size |                                             |
+--------------+-----------+---------------------------------------------+
```

* [Partial Pitch Env] / [Inst Pitch Env]

```
+---------------------------------------------------------------------+
| Offset       |                                                      |
|     Address  |              Description                             |
|--------------+------------------------------------------------------|
|#      00 00  | 0000 aaaa |                                          |
|       00 01  | 0000 bbbb | Pitch Env Depth               (28 - 228)  |
|              |           |                              -100 - +100  |
|#      00 02  | 0000 aaaa |                                          |
|       00 03  | 0000 bbbb | Pitch Env Velocity Sens       (28 - 228)  |
|              |           |                              -100 - +100  |
|#      00 04  | 0000 aaaa |                                          |
|       00 05  | 0000 bbbb | Pitch Env T1 Velocity Sens    (28 - 228)  |
|              |           |                              -100 - +100  |
|#      00 06  | 0000 aaaa |                                          |
|       00 07  | 0000 bbbb | Pitch Env T4 Velocity Sens    (28 - 228)  |
|              |           |                              -100 - +100  |
|#      00 08  | 0000 aaaa |                                          |
|       00 09  | 0000 bbbb |                                          |
|       00 0A  | 0000 cccc |                                          |
|       00 0B  | 0000 dddd | Pitch Env Time1               (0 - 1023)  |
|              |           |                               0 - 1023   |
|#      00 0C  | 0000 aaaa |                                          |
|       00 0D  | 0000 bbbb |                                          |
|       00 0E  | 0000 cccc |                                          |
|       00 0F  | 0000 dddd | Pitch Env Time2               (0 - 1023)  |
|              |           |                               0 - 1023   |
|#      00 10  | 0000 aaaa |                                          |
|       00 11  | 0000 bbbb |                                          |
|       00 12  | 0000 cccc |                                          |
|       00 13  | 0000 dddd | Pitch Env Time3               (0 - 1023)  |
|              |           |                               0 - 1023   |
|#      00 14  | 0000 aaaa |                                          |
|       00 15  | 0000 bbbb |                                          |
|       00 16  | 0000 cccc |                                          |
|       00 17  | 0000 dddd | Pitch Env Time4               (0 - 1023)  |
|              |           |                               0 - 1023   |
|#      00 18  | 0000 aaaa |                                          |
|       00 19  | 0000 bbbb |                                          |
|       00 1A  | 0000 cccc |                                          |
|       00 1B  | 0000 dddd | Pitch Env Level0            (513 - 1535)  |
|              |           |                              -511 - +511  |
|#      00 1C  | 0000 aaaa |                                          |
|       00 1D  | 0000 bbbb |                                          |
|       00 1E  | 0000 cccc |                                          |
|       00 1F  | 0000 dddd | Pitch Env Level1            (513 - 1535)  |
|              |           |                              -511 - +511  |
|#      00 20  | 0000 aaaa |                                          |
|       00 21  | 0000 bbbb |                                          |
|       00 22  | 0000 cccc |                                          |
|       00 23  | 0000 dddd | Pitch Env Level2            (513 - 1535)  |
|              |           |                              -511 - +511  |
|#      00 24  | 0000 aaaa |                                          |
|       00 25  | 0000 bbbb |                                          |
|       00 26  | 0000 cccc |                                          |
|       00 27  | 0000 dddd | Pitch Env Level3            (513 - 1535)  |
|              |           |                              -511 - +511  |
|#      00 28  | 0000 aaaa |                                          |
|       00 29  | 0000 bbbb |                                          |
|       00 2A  | 0000 cccc |                                          |
```

```
|         00 2B  | 0000 dddd | Pitch Env Level4              (513 - 1535) |
|               |           |                               -511 - +511 |
|         00 2C  | 0000 0aaa | Pitch Env Velocity Curve          (0 - 7) |
|               |           |                                    0 - 7 |
|---------------+-----------+-------------------------------------------|
| 00 00 00 2D   |Total Size |                                          |
+---------------------------------------------------------------------+
```

* [Partial Filter Env] / [Inst Filter Env]

```
+---------------------------------------------------------------------+
| Offset        |           |                                          |
|   Address     |           |        Description                       |
|---------------+-----------+-------------------------------------------|
|         00 00 | 0aaa aaaa | TVF Env Depth                   (1 - 127) |
|               |           |                                 -63 - +63 |
|         00 01 | 0000 0aaa | TVF Env Velocity Curve            (0 - 7) |
|               |           |                                    0 - 7 |
|#        00 02 | 0000 aaaa |                                          |
|         00 03 | 0000 bbbb | TVF Env Velocity Sens          (28 - 228) |
|               |           |                               -100 - +100 |
|#        00 04 | 0000 aaaa |                                          |
|         00 05 | 0000 bbbb | TVF Env T1 Velocity Sens       (28 - 228) |
|               |           |                               -100 - +100 |
|#        00 06 | 0000 aaaa |                                          |
|         00 07 | 0000 bbbb | TVF Env T4 Velocity Sens       (28 - 228) |
|               |           |                               -100 - +100 |
|#        00 08 | 0000 aaaa |                                          |
|         00 09 | 0000 bbbb |                                          |
|         00 0A | 0000 cccc |                                          |
|         00 0B | 0000 dddd | TVF Env Time1                  (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 0C | 0000 aaaa |                                          |
|         00 0D | 0000 bbbb |                                          |
|         00 0E | 0000 cccc |                                          |
|         00 0F | 0000 dddd | TVF Env Time2                  (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 10 | 0000 aaaa |                                          |
|         00 11 | 0000 bbbb |                                          |
|         00 12 | 0000 cccc |                                          |
|         00 13 | 0000 dddd | TVF Env Time3                  (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 14 | 0000 aaaa |                                          |
|         00 15 | 0000 bbbb |                                          |
|         00 16 | 0000 cccc |                                          |
|         00 17 | 0000 dddd | TVF Env Time4                  (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 18 | 0000 aaaa |                                          |
|         00 19 | 0000 bbbb |                                          |
|         00 1A | 0000 cccc |                                          |
|         00 1B | 0000 dddd | TVF Env Level0                 (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 1C | 0000 aaaa |                                          |
|         00 1D | 0000 bbbb |                                          |
|         00 1E | 0000 cccc |                                          |
|         00 1F | 0000 dddd | TVF Env Level1                 (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 20 | 0000 aaaa |                                          |
|         00 21 | 0000 bbbb |                                          |
|         00 22 | 0000 cccc |                                          |
|         00 23 | 0000 dddd | TVF Env Level2                 (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 24 | 0000 aaaa |                                          |
|         00 25 | 0000 bbbb |                                          |
|         00 26 | 0000 cccc |                                          |
|         00 27 | 0000 dddd | TVF Env Level3                 (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 28 | 0000 aaaa |                                          |
|         00 29 | 0000 bbbb |                                          |
|         00 2A | 0000 cccc |                                          |
|         00 2B | 0000 dddd | TVF Env Level4                 (0 - 1023) |
|               |           |                                 0 - 1023 |
|---------------+-----------+-------------------------------------------|
| 00 00 00 2C   |Total Size |                                          |
+---------------------------------------------------------------------+
```

* [Partial Amp Env] / [Inst Amp Env]

```
+---------------------------------------------------------------------+
| Offset        |           |                                          |
|   Address     |           |        Description                       |
|---------------+-----------+-------------------------------------------|
|#        00 00 | 0000 aaaa |                                          |
|         00 01 | 0000 bbbb | TVA Env Time1 Velocity Sens    (28 - 228) |
|               |           |                               -100 - +100 |
|#        00 02 | 0000 aaaa |                                          |
|         00 03 | 0000 bbbb | TVA Env Time4 Velocity Sens    (28 - 228) |
|               |           |                               -100 - +100 |
|#        00 04 | 0000 aaaa |                                          |
|         00 05 | 0000 bbbb |                                          |
|         00 06 | 0000 cccc |                                          |
|         00 07 | 0000 dddd | TVA Env Time1                  (0 - 1023) |
|               |           |                                 0 - 1023 |
|#        00 08 | 0000 aaaa |                                          |
|         00 09 | 0000 bbbb |                                          |
|         00 0A | 0000 cccc |                                          |
```

```
|        00 0B | 0000 dddd | TVA Env Time2                       (0 - 1023)
|              |           |                                     0 - 1023
|#       00 0C | 0000 aaaa |
|        00 0D | 0000 bbbb |
|        00 0E | 0000 cccc |
|        00 0F | 0000 dddd | TVA Env Time3                       (0 - 1023)
|              |           |                                     0 - 1023
|#       00 10 | 0000 aaaa |
|        00 11 | 0000 bbbb |
|        00 12 | 0000 cccc |
|        00 13 | 0000 dddd | TVA Env Time4                       (0 - 1023)
|              |           |                                     0 - 1023
|#       00 14 | 0000 aaaa |
|        00 15 | 0000 bbbb |
|        00 16 | 0000 cccc |
|        00 17 | 0000 dddd | TVA Env Level1                      (0 - 1023)
|              |           |                                     0 - 1023
|#       00 18 | 0000 aaaa |
|        00 19 | 0000 bbbb |
|        00 1A | 0000 cccc |
|        00 1B | 0000 dddd | TVA Env Level2                      (0 - 1023)
|              |           |                                     0 - 1023
|#       00 1C | 0000 aaaa |
|        00 1D | 0000 bbbb |
|        00 1E | 0000 cccc |
|        00 1F | 0000 dddd | TVA Env Level3                      (0 - 1023)
|              |           |                                     0 - 1023
+--------------+-----------+
| 00 00 00 20  |Total Size |
+--------------+-----------+
```

* [Tone Common]

```
+--------------+-----------+
| Offset       |           |
|   Address    |               Description
+--------------+-----------+
|        00 00 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 01 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 02 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 03 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 04 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 05 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 06 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 07 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 08 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 09 | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 0A | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 0B | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 0C | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 0D | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 0E | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 0F | 0aaa aaaa | Name                                 (32 - 127)
|              |           |                              32 - 127 [ASCII]
|        00 10 | 00aa aaaa | Category                             (0 - 49)
|              |           |                                     0 - 49
|        00 11 | 0aaa aaaa | Reserved
:              :           :
|        00 15 | 0aaa aaaa | Level                                (0 - 127)
|              |           |                                     0 - 127
|        00 16 | 0aaa aaaa | Pan                                  (0 - 127)
|              |           |                                     L64 - 63R
|        00 17 | 0000 000a | Priority                             (0 - 1)
|              |           |                                     LAST, LOUDEST
|        00 18 | 0aaa aaaa | Tone Coarse Tune                     (16 - 112)
|              |           |                              -48 - +48 [semitone]
|        00 19 | 0aaa aaaa | Tone Fine Tune                       (14 - 114)
|              |           |                              -50 - +50 [cent]
|        00 1A | 0aaa aaaa | Octave Shift                         (61 - 67)
|              |           |                                     -3 - +3
|        00 1B | 0000 00aa | Stretch Tune Depth                   (0 - 3)
|              |           |                                     OFF, 1, 2, 3
|        00 1C | 0aaa aaaa | Analog Feel                          (0 - 127)
|              |           |                                     0 - 127
|        00 1D | 0000 000a | Mono/Poly                            (0 - 1)
|              |           |                                     MONO, POLY
|        00 1E | 0000 000a | Legato Switch                        (0 - 1)
|              |           |                                     OFF, ON
|        00 1F | 0000 aaaa | Legato Retrigger Interval            (0 - 13)
|              |           |       0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, OFF
```

```
|     00 20 | 0000 000a | Portamento Switch              (0 - 1)
                                                        OFF, ON
|     00 21 | 0000 000a | Portamento Mode                (0 - 1)
                                                  NORMAL, LEGATO
|     00 22 | 0000 000a | Portamento Type                (0 - 1)
                                                     RATE, TIME
|     00 23 | 0000 000a | Portamento Start               (0 - 1)
                                                    PITCH, NOTE
#    00 24 | 0000 aaaa |
     00 25 | 0000 bbbb |
     00 26 | 0000 cccc |
     00 27 | 0000 dddd | Portamento Time             (0 - 1023)
                                                       0 - 1023
|     00 28 | 00aa aaaa | Bend Range Up                 (0 - 48)
                                                         0 - 48
|     00 29 | 00aa aaaa | Bend Range Down               (0 - 48)
                                                         0 - 48
|     00 2A | 0000 000a | Bend Mode                      (0 - 1)
                                              NORMAL, CATCH+LAST
|     00 2B | 0aaa aaaa | Soft Level Sens              (0 - 100)
                                                        0 - 100
|     00 2C | 0aaa aaaa | Reserved
:          :
|     00 34 | 0000 00aa | Portamento Curve Type          (0 - 2)
                                                          1 - 3
|     00 35 | 0aaa aaaa | Reserved
+-----------+-----------------------------------------------------
| 00 00 00 36 |Total Size
+---------------------------------------------------------------+
```

* [Tone PMT(Partial Mix Table)]

```
+---------------------------------------------------------------+
| Offset    |
|   Address |              Description
+-----------+-----------------------------------------------------
|     00 00 | 0000 00aa | Velocity Control               (0 - 3)
                                          OFF, ON, RANDOM, CYCLE
|     00 01 | 0000 000a | PMT Level Curve                (0 - 1)
                                                    EXP, LINEAR
|     00 02 | 0000 000a | Partial Switch                 (0 - 1)
                                                        OFF, ON
|     00 03 | 0aaa aaaa | KeyRange Lower               (0 - 127)
                                                        0 - 127
|     00 04 | 0aaa aaaa | KeyRange Upper               (0 - 127)
                                                        0 - 127
|     00 05 | 0aaa aaaa | KeyFade Lower                (0 - 127)
                                                        0 - 127
|     00 06 | 0aaa aaaa | KeyFade Upper                (0 - 127)
                                                        0 - 127
|     00 07 | 0aaa aaaa | VeloRange Lower              (1 - 127)
                                                        1 - 127
|     00 08 | 0aaa aaaa | VeloRange Upper              (1 - 127)
                                                        1 - 127
|     00 09 | 0aaa aaaa | VeloFade Lower               (0 - 127)
                                                        0 - 127
|     00 0A | 0aaa aaaa | VeloFade Upper               (0 - 127)
                                                        0 - 127
|     00 0B | 0000 000a | Partial Switch                 (0 - 1)
                                                        OFF, ON
|     00 0C | 0aaa aaaa | KeyRange Lower               (0 - 127)
                                                        0 - 127
|     00 0D | 0aaa aaaa | KeyRange Upper               (0 - 127)
                                                        0 - 127
|     00 0E | 0aaa aaaa | KeyFade Lower                (0 - 127)
                                                        0 - 127
|     00 0F | 0aaa aaaa | KeyFade Upper                (0 - 127)
                                                        0 - 127
|     00 10 | 0aaa aaaa | VeloRange Lower              (1 - 127)
                                                        1 - 127
|     00 11 | 0aaa aaaa | VeloRange Upper              (1 - 127)
                                                        1 - 127
|     00 12 | 0aaa aaaa | VeloFade Lower               (0 - 127)
                                                        0 - 127
|     00 13 | 0aaa aaaa | VeloFade Upper               (0 - 127)
                                                        0 - 127
|     00 14 | 0000 000a | Partial Switch                 (0 - 1)
                                                        OFF, ON
|     00 15 | 0aaa aaaa | KeyRange Lower               (0 - 127)
                                                        0 - 127
|     00 16 | 0aaa aaaa | KeyRange Upper               (0 - 127)
                                                        0 - 127
|     00 17 | 0aaa aaaa | KeyFade Lower                (0 - 127)
                                                        0 - 127
|     00 18 | 0aaa aaaa | KeyFade Upper                (0 - 127)
                                                        0 - 127
|     00 19 | 0aaa aaaa | VeloRange Lower              (1 - 127)
                                                        1 - 127
|     00 1A | 0aaa aaaa | VeloRange Upper              (1 - 127)
                                                        1 - 127
|     00 1B | 0aaa aaaa | VeloFade Lower               (0 - 127)
                                                        0 - 127
|     00 1C | 0aaa aaaa | VeloFade Upper               (0 - 127)
                                                        0 - 127
|     00 1D | 0000 000a | Partial Switch                 (0 - 1)
```

```
                                                             OFF, ON
     00 1E │ 0aaa aaaa │ KeyRange Lower              (0 - 127)
                                                          0 - 127
     00 1F │ 0aaa aaaa │ KeyRange Upper              (0 - 127)
                                                          0 - 127
     00 20 │ 0aaa aaaa │ KeyFade Lower               (0 - 127)
                                                          0 - 127
     00 21 │ 0aaa aaaa │ KeyFade Upper               (0 - 127)
                                                          0 - 127
     00 22 │ 0aaa aaaa │ VeloRange Lower             (1 - 127)
                                                          1 - 127
     00 23 │ 0aaa aaaa │ VeloRange Upper             (1 - 127)
                                                          1 - 127
     00 24 │ 0aaa aaaa │ VeloFade Lower              (0 - 127)
                                                          0 - 127
     00 25 │ 0aaa aaaa │ VeloFade Upper              (0 - 127)
                                                          0 - 127
 ─────────────────+──────────────────────────────────────────────
 │ 00 00 00 26 │Total Size
 +──────────────────────────────────────────────────────────────+
```

* [Tone Partial]

```
+──────────────────────────────────────────────────────────────+
│ Offset      │
│   Address   │              Description
+─────────────+────────────────────────────────────────────────
     00 00 │ 0aaa aaaa │ Level                       (0 - 127)
                                                          0 - 127
     00 01 │ 0aaa aaaa │ Coarse Tune                (16 - 112)
                                                         -48 - 48
     00 02 │ 0aaa aaaa │ Fine Tune                  (14 - 114)
                                                      -50 - 50 [cent]
 #   00 03 │ 0000 aaaa │
     00 04 │ 0000 bbbb │
     00 05 │ 0000 cccc │
     00 06 │ 0000 dddd │ Random Pitch Depth        (0 - 1200)
                                                       0 - 1200 [cent]
     00 07 │ 0aaa aaaa │ Pan                         (0 - 127)
                                                        L64 - 63R
 #   00 08 │ 0000 aaaa │
     00 09 │ 0000 bbbb │ Pan Keyfollow             (28 - 228)
                                                      -100 - +100
     00 0A │ 00aa aaaa │ Random Pan Depth            (0 - 63)
                                                          0 - 63
     00 0B │ 0aaa aaaa │ Alternate Pan Depth         (0 - 127)
                                                        L64 - 63R
     00 0C │ 0000 000a │ Envelope Mode               (0 - 1)
                                                      NO-SUS, SUSTAIN
     00 0D │ 0000 00aa │ Delay Mode                  (0 - 3)
                            NORMAL, HOLD, KEYOFF-NORMAL, KEYOFF-DECAY
     00 0E │ 0000 000a │ DelayTime Sync              (0 - 1)
                                                          OFF, ON
     00 0F │ 000a aaaa │ DelayTime (note)            (0 - 21)
                                                       1/64T, 1/64,
                   1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8,
                 1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2
 #   00 10 │ 0000 aaaa │
     00 11 │ 0000 bbbb │
     00 12 │ 0000 cccc │
     00 13 │ 0000 dddd │ DelayTime                 (0 - 1023)
                                                         0 - 1023
     00 14 │ 0aaa aaaa │ Chorus Send Level           (0 - 127)
                                                          0 - 127
     00 15 │ 0aaa aaaa │ Reverb Send Level           (0 - 127)
                                                          0 - 127
     00 16 │ 0000 000a │ Receive Bender              (0 - 1)
                                                          OFF, ON
     00 17 │ 0000 000a │ Receive Expression          (0 - 1)
                                                          OFF, ON
     00 18 │ 0000 000a │ Receive Hold-1              (0 - 1)
                                                          OFF, ON
     00 19 │ 0000 000a │ Redamper Switch             (0 - 1)
                                                          OFF, ON
     00 1A │ 0000 000a │ Output Assign               (0 - 1)
                                                          DRY, MFX
     00 1B │ 0000 00aa │ Wave Group Type             (0 - 3)
                                                   INT, EXP, SAMP, MSAMP
 #   00 1C │ 0000 aaaa │
     00 1D │ 0000 bbbb │
     00 1E │ 0000 cccc │
     00 1F │ 0000 dddd │ Wave Group ID             (0 - 16383)
                                                        0 - 16383
 #   00 20 │ 0000 aaaa │
     00 21 │ 0000 bbbb │
     00 22 │ 0000 cccc │
     00 23 │ 0000 dddd │ Wave Number L             (0 - 16383)
                                                        0 - 16383
 #   00 24 │ 0000 aaaa │
     00 25 │ 0000 bbbb │
     00 26 │ 0000 cccc │
     00 27 │ 0000 dddd │ Wave Number R             (0 - 16383)
                                                        0 - 16383
     00 28 │ 0000 0aaa │ Gain                        (0 - 5)
                                       -18, -12, -6, 0, +6, +12[dB]
```

```
|    | 00 29 | 0000 000a | FXM Switch                        (0 - 1)
|    |       |           |                              OFF, ON
|    | 00 2A | 0000 0aaa | FXM Color                         (1 - 4)
|    |       |           |                                  1 - 4
|    | 00 2B | 000a aaaa | FXM Depth                        (0 - 16)
|    |       |           |                                 0 - 16
|  # | 00 2C | 0000 aaaa |
|    | 00 2D | 0000 bbbb |
|    | 00 2E | 0000 cccc |
|    | 00 2F | 0000 dddd | Pitch Keyfollow             (824 - 1224)
|    |       |           |                            -200 - +200
|    | 00 30 | 0aaa aaaa | Soft EQ Sens                   (0 - 100)
|    |       |           |                                0 - 100
|    | 00 31 | 0000 0aaa | TVF Filter Type                 (0 - 6)
|    |       |           |        OFF, LPF, BPF, HPF, PKG, LPF2, LPF3
|  # | 00 32 | 0000 aaaa |
|    | 00 33 | 0000 bbbb |
|    | 00 34 | 0000 cccc |
|    | 00 35 | 0000 dddd | TVF Cutoff Frequency          (0 - 1023)
|    |       |           |                               0 - 1023
|  # | 00 36 | 0000 aaaa |
|    | 00 37 | 0000 bbbb |
|    | 00 38 | 0000 cccc |
|    | 00 39 | 0000 dddd | TVF Cutoff Keyfollow        (824 - 1224)
|    |       |           |                            -200 - +200
|    | 00 3A | 0000 0aaa | TVF Cutoff Velocity Curve       (0 - 7)
|    |       |           |                                0 - 7
|  # | 00 3B | 0000 aaaa |
|    | 00 3C | 0000 bbbb | TVF Cutoff Velocity Sens      (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 3D | 0000 aaaa |
|    | 00 3E | 0000 bbbb |
|    | 00 3F | 0000 cccc |
|    | 00 40 | 0000 dddd | TVF Resonance                 (0 - 1023)
|    |       |           |                               0 - 1023
|  # | 00 41 | 0000 aaaa |
|    | 00 42 | 0000 bbbb | TVF Resonance Velocity Sens   (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 43 | 0000 aaaa |
|    | 00 44 | 0000 bbbb | Bias Level                    (28 - 228)
|    |       |           |                            -100 - +100
|    | 00 45 | 0aaa aaaa | Bias Position                  (0 - 127)
|    |       |           |                                0 - 127
|    | 00 46 | 0000 00aa | Bias Direction                  (0 - 3)
|    |       |           |         LOWER, UPPER, LOWER&UPPER, ALL
|    | 00 47 | 0000 0aaa | TVA Level Velocity Curve        (0 - 7)
|    |       |           |                                0 - 7
|  # | 00 48 | 0000 aaaa |
|    | 00 49 | 0000 bbbb | TVA Level Velocity Sens       (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 4A | 0000 aaaa |
|    | 00 4B | 0000 bbbb | Pitch Env Time Keyfollow      (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 4C | 0000 aaaa |
|    | 00 4D | 0000 bbbb | TVF Env Time Keyfollow        (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 4E | 0000 aaaa |
|    | 00 4F | 0000 bbbb | TVA Env Time Keyfollow        (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 50 | 0000 aaaa |
|    | 00 51 | 0000 bbbb | Vibrato Pitch Sens            (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 52 | 0000 aaaa |
|    | 00 53 | 0000 bbbb | Vibrato Cutoff Sens           (28 - 228)
|    |       |           |                            -100 - +100
|  # | 00 54 | 0000 aaaa |
|    | 00 55 | 0000 bbbb | Vibrato Level Sens            (28 - 228)
|    |       |           |                            -100 - +100
|    | 00 56 | 0aaa aaaa | Source                         (0 - 108)
|    |       |           |        OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|    |       |           |   CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|    |       |           |   CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|    |       |           |   CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|    |       |           |   CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|    |       |           |   CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|    |       |           |   CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|    |       |           |   CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|    |       |           |   CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|    |       |           |    CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
|    |       |           |    SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4, VELOCITY,
|    |       |           |   KEYFOLLOW, TEMPO, LFO1, LFO2, PIT-ENV, TVF-ENV, TVA-ENV
|    | 00 57 | 00aa aaaa | Destination 1                  (0 - 48)
|    |       |           |     OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|    |       |           |      PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|    |       |           |      PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|    |       |           |        PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|    |       |           |      TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|    |       |           |        MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|    |       |           |      FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|    |       |           |           PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|    |       |           |        XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|    |       |           |            XMOD-OSC1-LEV, XMOD-OSC2-LEV
|    | 00 58 | 0aaa aaaa | Sens 1                         (1 - 127)
|    |       |           |                              -63 - +63
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|  00 59  | 00aa aaaa | Destination 2                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|         |           |         PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|         |           |            PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|         |           |         TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|         |           |             MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|         |           |           FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|         |           |                  PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|         |           |           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|         |           |                   XMOD-OSC1-LEV, XMOD-OSC2-LEV
|  00 5A  | 0aaa aaaa | Sens 2                                   (1 - 127)
|         |           |                                           -63 - +63
|  00 5B  | 00aa aaaa | Destination 3                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|         |           |         PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|         |           |            PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|         |           |         TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|         |           |             MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|         |           |           FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|         |           |                  PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|         |           |           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|         |           |                   XMOD-OSC1-LEV, XMOD-OSC2-LEV
|  00 5C  | 0aaa aaaa | Sens 3                                   (1 - 127)
|         |           |                                           -63 - +63
|  00 5D  | 00aa aaaa | Destination 4                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|         |           |         PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|         |           |            PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|         |           |         TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|         |           |             MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|         |           |           FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|         |           |                  PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|         |           |           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|         |           |                   XMOD-OSC1-LEV, XMOD-OSC2-LEV
|  00 5E  | 0aaa aaaa | Sens 4                                   (1 - 127)
|         |           |                                           -63 - +63
|  00 5F  | 0aaa aaaa | Source                                   (0 - 108)
|         |           |         OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
|         |           |         CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|         |           |         CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|         |           |         CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|         |           |         CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|         |           |         CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|         |           |         CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|         |           |         CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|         |           |         CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|         |           |          CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
|         |           |          SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4, VELOCITY,
|         |           |         KEYFOLLOW, TEMPO, LFO1, LFO2, PIT-ENV, TVF-ENV, TVA-ENV
|  00 60  | 00aa aaaa | Destination 1                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|         |           |         PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|         |           |            PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|         |           |         TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|         |           |             MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|         |           |           FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|         |           |                  PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|         |           |           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|         |           |                   XMOD-OSC1-LEV, XMOD-OSC2-LEV
|  00 61  | 0aaa aaaa | Sens 1                                   (1 - 127)
|         |           |                                           -63 - +63
|  00 62  | 00aa aaaa | Destination 2                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|         |           |         PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|         |           |            PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|         |           |         TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|         |           |             MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|         |           |           FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|         |           |                  PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|         |           |           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|         |           |                   XMOD-OSC1-LEV, XMOD-OSC2-LEV
|  00 63  | 0aaa aaaa | Sens 2                                   (1 - 127)
|         |           |                                           -63 - +63
|  00 64  | 00aa aaaa | Destination 3                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
|         |           |         PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
|         |           |            PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
|         |           |         TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
|         |           |             MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
|         |           |           FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
|         |           |                  PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
|         |           |           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
|         |           |                   XMOD-OSC1-LEV, XMOD-OSC2-LEV
|  00 65  | 0aaa aaaa | Sens 3                                   (1 - 127)
|         |           |                                           -63 - +63
|  00 66  | 00aa aaaa | Destination 4                            (0 - 48)
|         |           |         OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
|         |           |         PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
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                      |   | PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
                      |   |    PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
                      |   |   TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
                      |   |    MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
                      |   |     FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
                      |   |          PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
                      |   |      XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
                      |   |          XMOD-OSC1-LEV, XMOD-OSC2-LEV
00 67 | 0aaa aaaa | Sens 4                              (1 - 127)
                                                       -63 - +63
00 68 | 0aaa aaaa | Source                              (0 - 108)
                              OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                      CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                      CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                      CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                      CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                      CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                      CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                      CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                      CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                       CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
                      SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4, VELOCITY,
                      KEYFOLLOW, TEMPO, LFO1, LFO2, PIT-ENV, TVF-ENV, TVA-ENV
00 69 | 00aa aaaa | Destination 1                       (0 - 48)
                              OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
                       PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
                      PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
                         PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
                       TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
                         MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
                          FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
                               PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
                           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
                               XMOD-OSC1-LEV, XMOD-OSC2-LEV
00 6A | 0aaa aaaa | Sens 1                              (1 - 127)
                                                       -63 - +63
00 6B | 00aa aaaa | Destination 2                       (0 - 48)
                              OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
                       PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
                      PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
                         PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
                       TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
                         MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
                          FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
                               PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
                           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
                               XMOD-OSC1-LEV, XMOD-OSC2-LEV
00 6C | 0aaa aaaa | Sens 2                              (1 - 127)
                                                       -63 - +63
00 6D | 00aa aaaa | Destination 3                       (0 - 48)
                              OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
                       PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
                      PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
                         PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
                       TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
                         MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
                          FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
                               PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
                           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
                               XMOD-OSC1-LEV, XMOD-OSC2-LEV
00 6E | 0aaa aaaa | Sens 3                              (1 - 127)
                                                       -63 - +63
00 6F | 00aa aaaa | Destination 4                       (0 - 48)
                              OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
                       PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
                      PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
                         PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
                       TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
                         MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM,
                          FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN,
                               PIT_DEPTH, TVF-DEPTH, TVA-DEPTH,
                           XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV,
                               XMOD-OSC1-LEV, XMOD-OSC2-LEV
00 70 | 0aaa aaaa | Sens 4                              (1 - 127)
                                                       -63 - +63
00 71 | 0aaa aaaa | Source                              (0 - 108)
                              OFF,  CC01, CC02, CC03, CC04, CC05, CC06,
                      CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
                      CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
                      CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
                      CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
                      CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
                      CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
                      CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
                      CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
                       CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
                      SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4, VELOCITY,
                      KEYFOLLOW, TEMPO, LFO1, LFO2, PIT-ENV, TVF-ENV, TVA-ENV
00 72 | 00aa aaaa | Destination 1                       (0 - 48)
                              OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1,
                       PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2,
                      PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK,
                         PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL,
                       TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1,
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|           |           |           | MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM, |
|           |           |           | FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN, |
|           |           |           | PIT_DEPTH, TVF-DEPTH, TVA-DEPTH, |
|           |           |           | XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV, |
|           |           |           | XMOD-OSC1-LEV, XMOD-OSC2-LEV |
|     00 73 | 0aaa aaaa | Sens 1                                (1 - 127) |
|           |           |                                      -63 - +63 |
|     00 74 | 00aa aaaa | Destination 2                         (0 - 48) |
|           |           | OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1, |
|           |           | PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2, |
|           |           | PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK, |
|           |           | PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL, |
|           |           | TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1, |
|           |           | MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM, |
|           |           | FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN, |
|           |           | PIT_DEPTH, TVF-DEPTH, TVA-DEPTH, |
|           |           | XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV, |
|           |           | XMOD-OSC1-LEV, XMOD-OSC2-LEV |
|     00 75 | 0aaa aaaa | Sens 2                                (1 - 127) |
|           |           |                                      -63 - +63 |
|     00 76 | 00aa aaaa | Destination 3                         (0 - 48) |
|           |           | OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1, |
|           |           | PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2, |
|           |           | PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK, |
|           |           | PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL, |
|           |           | TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1, |
|           |           | MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM, |
|           |           | FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN, |
|           |           | PIT_DEPTH, TVF-DEPTH, TVA-DEPTH, |
|           |           | XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV, |
|           |           | XMOD-OSC1-LEV, XMOD-OSC2-LEV |
|     00 77 | 0aaa aaaa | Sens 3                                (1 - 127) |
|           |           |                                      -63 - +63 |
|     00 78 | 00aa aaaa | Destination 4                         (0 - 48) |
|           |           | OFF, PCH, CUT, RES, LEV, PAN, CHO, REV, PIT-LFO1, |
|           |           | PIT-LFO2, TVF-LFO1, TVF-LFO2, TVA-LFO1, TVA-LFO2, |
|           |           | PAN-LFO1, PAN-LFO2, LFO1-RATE, LFO2-RATE, PIT-ATK, |
|           |           | PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL, |
|           |           | TVA-ATK, TVA-DCY, TVA-REL, PMT, FXM, MFX-CTRL1, |
|           |           | MFX-CTRL2, MFX-CTRL3, MFX-CTRL4, PW, PWM, |
|           |           | FAT, XMOD, LFO1_STEP, LFO2_STEP, SSAW-DETN, |
|           |           | PIT_DEPTH, TVF-DEPTH, TVA-DEPTH, |
|           |           | XMOD2, ATT, RING-OSC1-LEV, RING-OSC2-LEV, |
|           |           | XMOD-OSC1-LEV, XMOD-OSC2-LEV |
|     00 79 | 0aaa aaaa | Sens 4                                (1 - 127) |
|           |           |                                      -63 - +63 |
|     00 7A | 0aaa aaaa | Damper Free Note                      (0 - 127) |
|           |           | OFF, 1, 2, 3, 4, 5, 6, 7, 8, |
|           |           | 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, |
|           |           | 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, |
|           |           | 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, |
|           |           | 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, |
|           |           | 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, |
|           |           | 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, |
|           |           | 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, |
|           |           | 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127 |
|     00 7B | 0aaa aaaa | Stereo Width                          (0 - 100) |
|           |           |                                       0 - 100 |
|     00 7C | 0aaa aaaa | Stereo Detune                         (14 - 114) |
|           |           |                                      -50 - +50 [cent] |
| #   00 7D | 0000 aaaa |                                                 |
|     00 7E | 0000 bbbb | Damper Free Decay Offset              (28 - 228) |
|           |           |                                      -100 - +100 |
|     00 7F | 0000 000a | Wave Tempo Sync                       (0 - 1) |
|           |           |                                       OFF, ON |
+-----------+-----------+-------------------------------------------------+
| 00 00 01 00 | Total Size                                            |
+-------------------------------------------------------------------------+
```

* [Tone Synth Common]

```
+-------------------------------------------------------------------------+
| Offset    |           |                                                 |
|   Address |           |           Description                           |
+-----------+-----------+-------------------------------------------------+
|     00 00 | 0000 000a | Unison Switch                         (0 - 1) |
|           |           |                                       OFF, ON |
|     00 01 | 0000 aaaa | Unison Size                           (2 - 8) |
|           |           |                                       2 - 8 |
|     00 02 | 0aaa aaaa | Unison Detune                         (0 - 100) |
|           |           |                                       0 - 100 |
|     00 03 | 0aaa aaaa | Bend Range Fine Up                    (0 - 100) |
|           |           |                                       0 - 100 |
|     00 04 | 0aaa aaaa | Bend Range Fine Down                  (0 - 100) |
|           |           |                                       0 - 100 |
|     00 05 | 0aaa aaaa | Reserved                                        |
:           :           :                                                 :
+-----------+-----------+-------------------------------------------------+
| 00 00 00 09 | Total Size                                            |
+-------------------------------------------------------------------------+
```

* [Tone Synth PMT]

```
+-------------------------------------------------------------------------+
| Offset    |           |                                                 |
|   Address |           |           Description                           |
```

```
+--------------+-----------+------------------------------------------------------+
|        00 00 | 0000 0aaa | Structure1-2                              (0 - 4)     |
|              |           |              OFF, SYNC, RING, XMOD, XMOD2            |
|        00 01 | 0000 0aaa | Structure3-4                              (0 - 4)     |
|              |           |              OFF, SYNC, RING, XMOD, XMOD2            |
|        00 02 | 0aaa aaaa | RING1-2 Level                            (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 03 | 0aaa aaaa | RING3-4 Level                            (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 04 | 0aaa aaaa | RING OSC1 Level                          (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 05 | 0aaa aaaa | RING OSC2 Level                          (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 06 | 0aaa aaaa | RING OSC3 Level                          (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 07 | 0aaa aaaa | RING OSC4 Level                          (0 - 127)    |
|              |           |                                          0 - 127     |
|#       00 08 | 0000 aaaa |                                                      |
|        00 09 | 0000 bbbb |                                                      |
|        00 0A | 0000 cccc |                                                      |
|        00 0B | 0000 dddd | CrossMod1-2 Depth                     (0 - 10800)    |
|              |           |                             0 - 10800 [cent]         |
|#       00 0C | 0000 aaaa |                                                      |
|        00 0D | 0000 bbbb |                                                      |
|        00 0E | 0000 cccc |                                                      |
|        00 0F | 0000 dddd | CrossMod3-4 Depth                     (0 - 10800)    |
|              |           |                             0 - 10800 [cent]         |
|        00 10 | 0aaa aaaa | CrossMod OSC1 Level                      (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 11 | 0aaa aaaa | CrossMod OSC2 Level                      (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 12 | 0aaa aaaa | CrossMod OSC3 Level                      (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 13 | 0aaa aaaa | CrossMod OSC4 Level                      (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 14 | 0000 000a | Partial Phase Lock                        (0 - 1)     |
|              |           |                                          OFF, ON      |
|        00 15 | 0aaa aaaa | CrossMod2 1-2 Depth                      (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 16 | 0aaa aaaa | CrossMod2 3-4 Depth                      (0 - 127)    |
|              |           |                                          0 - 127     |
+--------------+-----------+------------------------------------------------------+
| 00 00 00 17  |Total Size |                                                      |
+--------------+-----------+------------------------------------------------------+

* [Tone Synth Partial]
+---------------------------------------------------------------------------------+
| Offset       |                                                                  |
|   Address    |                   Description                                    |
+--------------+-----------+------------------------------------------------------+
|        00 00 | 0000 0aaa | OSC Type                                  (0 - 4)     |
|              |           |              PCM, VA, PCM-Sync, SuperSAW, Noise       |
|        00 01 | 0000 aaaa | VA Waveform                               (0 - 8)     |
|              |           |    SAW, SQR, TRI, SIN, RAMP, JUNO, TRI2, TRI3, SIN2   |
|#       00 02 | 0000 aaaa |                                                      |
|        00 03 | 0000 bbbb |                                                      |
|        00 04 | 0000 cccc |                                                      |
|        00 05 | 0000 dddd | PCM-Sync Wave Number                   (0 - 16383)    |
|              |           |                                          0 - 16383    |
|        00 06 | 0aaa aaaa | Pulse Width                              (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 07 | 0aaa aaaa | PWM Depth                                (1 - 127)    |
|              |           |                                          -63 - +63    |
|        00 08 | 0aaa aaaa | SuperSAW Detune                          (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 09 | 0000 00aa | Click Type                                (0 - 3)     |
|              |           |              SOFT, HARD, NATURAL, OFF                 |
|#       00 0A | 0000 aaaa |                                                      |
|        00 0B | 0000 bbbb |                                                      |
|        00 0C | 0000 cccc |                                                      |
|        00 0D | 0000 dddd | HPF Cutoff                               (0 - 1023)   |
|              |           |                                          0 - 1023    |
|        00 0E | 0000 000a | Filter Type                               (0 - 1)     |
|              |           |                                          TVF, VCF     |
|        00 0F | 0000 00aa | Filter Slope                              (0 - 2)     |
|              |           |                             -12, -18, -24 [dB/Oct]   |
|        00 10 | 0000 000a | ADSREnv Switch                            (0 - 1)     |
|              |           |                                          OFF, ON      |
|        00 11 | 0aaa aaaa | Fat                                      (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 12 | 0000 00aa | VCF Type                                  (0 - 3)     |
|              |           |                                          1, 2, 3, 4   |
|#       00 13 | 0000 aaaa |                                                      |
|        00 14 | 0000 bbbb | OSC Attenuator                           (0 - 255)    |
|              |           |                                          0 - 255     |
|        00 15 | 0aaa aaaa | Cutoff Keyfollow Base Point              (0 - 127)    |
|              |           |                                          0 - 127     |
|        00 16 | 0000 000a | VA Waveform Invert Switch                 (0 - 1)     |
|              |           |                                          OFF, ON      |
|        00 17 | 0aaa aaaa | TVF Env Fine Depth                       (1 - 127)    |
|              |           |                                          -63 - +63    |
|        00 18 | 0000 000a | PENV LFO Trigger Switch                   (0 - 1)     |
|              |           |                                          OFF, ON      |
|        00 19 | 0000 000a | FENV LFO Trigger Switch                   (0 - 1)     |
```

```
|         00 1A | 0000 000a | AENV LFO Trigger Switch              OFF, ON
|                                                             (0 - 1)
|         00 1B | 0aaa aaaa | Reserved                             OFF, ON
|
|--------------+--------------------------------------------------------
| 00 00 00 1D  |Total Size
+-------------------------------------------------------------------------
```

* [SN-A Tone Common]

```
+-------------------------------------------------------------------------
| Offset       |
|   Address    |                    Description
|--------------+--------------------------------------------------------
|         00 00 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 01 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 02 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 03 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 04 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 05 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 06 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 07 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 08 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 09 | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 0A | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 0B | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 0C | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 0D | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 0E | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 0F | 0aaa aaaa | Name                                (32 - 127)
|                                                        32 - 127 [ASCII]
|         00 10 | 0aaa aaaa | Category                            (0 - 127)
|                                                                0 - 127
|         00 11 | 0aaa aaaa | Reserved
|         00 12 | 0aaa aaaa | Reserved
|         00 13 | 0aaa aaaa | Level                               (0 - 127)
|                                                                0 - 127
|         00 14 | 0aaa aaaa | Pan                                 (0 - 127)
|                                                              L64 - 63R
|         00 15 | 0aaa aaaa | Coarse Tune                        (16 - 112)
|                                                               -48 - +48
|         00 16 | 0aaa aaaa | Fine Tune                          (14 - 114)
|                                                          -50 - +50 [cent]
|         00 17 | 0aaa aaaa | Octave Shift                       (61 - 67)
|                                                                -3 - +3
|         00 18 | 0aaa aaaa | Reserved
|         00 19 | 0000 000a | Mono/Poly                           (0 - 1)
|                                                              MONO, POLY
|         00 1A | 0aaa aaaa | Portamento Time Offset              (0 - 127)
|                                                               -64 - +63
|         00 1B | 0aaa aaaa | Cutoff Offset                       (0 - 127)
|                                                               -64 - +63
|         00 1C | 0aaa aaaa | Resonance Offset                    (0 - 127)
|                                                               -64 - +63
|         00 1D | 0aaa aaaa | Attack Time Offset                  (0 - 127)
|                                                               -64 - +63
|         00 1E | 0aaa aaaa | Release Time Offset                 (0 - 127)
|                                                               -64 - +63
|         00 1F | 0aaa aaaa | Vib Rate Offset                     (0 - 127)
|                                                               -64 - +63
|         00 20 | 0aaa aaaa | Vib Depth Offset                    (0 - 127)
|                                                               -64 - +63
|         00 21 | 0aaa aaaa | Vib Delay Time Offset               (0 - 127)
|                                                               -64 - +63
|         00 22 | 0000 000a | Inst Group Type                     (0 - 1)
|                                                               INT, EXP
| #       00 23 | 0000 aaaa |
|         00 24 | 0000 bbbb |
|         00 25 | 0000 cccc |
|         00 26 | 0000 dddd | Inst Group ID                   (0 - 16384)
|                                                              0 - 16384
| #       00 27 | 0000 aaaa |
|         00 28 | 0000 bbbb | Inst Number                        (0 - 255)
|                                                                0 - 255
|         00 29 | 0aaa aaaa | Noise Level                         (0 - 127)
|                                                               -64 - +63
|         00 2A | 0aaa aaaa | Reserved
|         00 2B | 0aaa aaaa | Growl Sens                          (0 - 127)
|                                                                0 - 127
```

```
|       00 2C | 0000 000a | Mode Switch                          (0 - 1) |
|             |           |                                    OFF, ON   |
|       00 2D | 0aaa aaaa | Drone Level                        (0 - 127) |
|             |           |                                    0 - 127   |
|       00 2E | 0aaa aaaa | Drone Pitch                       (52 - 76)  |
|             |           |                                   -12 - +12  |
|       00 2F | 0000 0aaa | Play Scale                          (0 - 6)  |
|             |           |                                    0 - 6     |
|       00 30 | 0000 aaaa | Scale Key                          (0 - 11)  |
|             |           |        C, Db, D, Eb, E, F, Gb, G, Ab, A, Bb, B|
|       00 31 | 0000 000a | Glide                               (0 - 1)  |
|             |           |                                PORTA, GLISS   |
|       00 32 | 0000 0aaa | Variation                           (0 - 4)  |
|             |           |          OFF, VARI1, VARI2, VARI3, VARI4     |
|       00 33 | 0aaa aaaa | Reserved                                     |
|      :      |    :      |    :                                         |
|-------------+-------------------------------------------------------|
| 00 00 00 39 |Total Size |                                              |
+-----------------------------------------------------------------------+
```

* [V-Piano Tone Common]
```
+-----------------------------------------------------------------------+
| Offset      |                                                         |
|   Address   |                     Description                         |
|-------------+---------------------------------------------------------|
|       00 00 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 01 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 02 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 03 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 04 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 05 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 06 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 07 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 08 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 09 | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 0A | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 0B | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 0C | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 0D | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 0E | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 0F | 0aaa aaaa | Name                             (32 - 127)  |
|             |           |                            32 - 127 [ASCII]   |
|       00 10 | 0aaa aaaa | Level                            (0 - 127)  |
|             |           |                             0 - 127          |
|       00 11 | 0aaa aaaa | Reserved                                     |
|      :      |    :      |    :                                         |
|       00 14 | 000a aaaa | Original Preset Number           (0 - 31)   |
|       00 15 | 0000 00aa | Tuning Type                      (0 - 2)    |
|             |           |                            OFF, PRESET, USER  |
|       00 16 | 0000 00aa | Level Type                       (0 - 2)    |
|             |           |                            OFF, PRESET, USER  |
|       00 17 | 0000 00aa | Character Type                   (0 - 2)    |
|             |           |                            OFF, PRESET, USER  |
|-------------+---------------------------------------------------------|
| 00 00 00 18 |Total Size |                                              |
+-----------------------------------------------------------------------+
```

* [Piano Designer Basic]
```
+-----------------------------------------------------------------------+
| Offset      |                                                         |
|   Address   |                     Description                         |
|-------------+---------------------------------------------------------|
|       00 00 | 000a aaaa | Instruments Number               (0 - 18)   |
|       00 01 | 0000 0aaa | Lid                              (0 - 6)    |
|       00 02 | 0000 aaaa | String Resonance                 (0 - 10)   |
|       00 03 | 0000 aaaa | Damper Resonance                 (0 - 10)   |
|       00 04 | 0aaa aaaa | Hammer Noise                     (62 - 66)  |
|             |           |                                   -2 - 2     |
|       00 05 | 0000 aaaa | Duplex Scale                     (0 - 10)   |
|       00 06 | 0000 aaaa | Key Off Resonance                (0 - 10)   |
|       00 07 | 0000 aaaa | Cabinet Resonance                (0 - 10)   |
|       00 08 | 0000 0aaa | Sound Board Resonator            (0 - 4)    |
|       00 09 | 0000 aaaa | Damper Noise                     (0 - 10)   |
|       00 0A | 0000 aaaa | Key Off Noise                    (0 - 10)   |
|             |           |                  OFF, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
|       00 0B | 0aaa aaaa | Reserved                                     |
|      :      |    :      |    :                                         |
|-------------+---------------------------------------------------------|
| 00 00 00 0D |Total Size |                                              |
+-----------------------------------------------------------------------+
```

```
+----------------------------------------------------------------------+
|                                                                      |
|  * [Piano Designer Tuning]                                           |
|  +----------------------------------------------------------------+  |
|  | Offset       |                                                 |  |
|  |    Address   |              Description                        |  |
|  |--------------+-------------------------------------------------|  |
|  |#    00 00 | 0000 aaaa |                                        |  |
|  |     00 01 | 0000 bbbb |                                        |  |
|  |     00 02 | 0000 cccc |                                        |  |
|  |     00 03 | 0000 dddd | tuning 1                  (12 - 1012)  |  |
|  |           |           |                        -50.0 - 0 - +50.0|  |
|  :           :           :                                        :  |
|  |#    03 7C | 0000 aaaa |                                        |  |
|  |     03 7D | 0000 bbbb |                                        |  |
|  |     03 7E | 0000 cccc |                                        |  |
|  |     03 7F | 0000 dddd | tuning 128                (12 - 1012)  |  |
|  |           |           |                        -50.0 - 0 - +50.0|  |
|  |--------------+-------------------------------------------------|  |
|  | 00 00 04 00 |Total Size                                       |  |
|  +----------------------------------------------------------------+  |
|                                                                      |
|  * [Piano Designer Level]                                            |
|  +----------------------------------------------------------------+  |
|  | Offset       |                                                 |  |
|  |    Address   |              Description                        |  |
|  |--------------+-------------------------------------------------|  |
|  |     00 00 | 0aaa aaaa | volume 1                    (14 - 64)  |  |
|  |           |           |                                 -50 - 0 |  |
|  :           :           :                                        :  |
|  |     00 7F | 0aaa aaaa | volume 128                  (14 - 64)  |  |
|  |           |           |                                 -50 - 0 |  |
|  |--------------+-------------------------------------------------|  |
|  | 00 00 01 00 |Total Size                                       |  |
|  +----------------------------------------------------------------+  |
|                                                                      |
|  * [Piano Designer Character]                                        |
|  +----------------------------------------------------------------+  |
|  | Offset       |                                                 |  |
|  |    Address   |              Description                        |  |
|  |--------------+-------------------------------------------------|  |
|  |     00 00 | 0aaa aaaa | character 1                 (59 - 69)  |  |
|  |           |           |                                  -5 - 5 |  |
|  :           :           :                                        :  |
|  |     00 7F | 0aaa aaaa | character 128               (59 - 69)  |  |
|  |           |           |                                  -5 - 5 |  |
|  |--------------+-------------------------------------------------|  |
|  | 00 00 01 00 |Total Size                                       |  |
|  +----------------------------------------------------------------+  |
|                                                                      |
|  * [EXSN Tone Common]                                                |
|  +----------------------------------------------------------------+  |
|  | Offset       |                                                 |  |
|  |    Address   |              Description                        |  |
|  |--------------+-------------------------------------------------|  |
|  |     00 00 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 01 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 02 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 03 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 04 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 05 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 06 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 07 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 08 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 09 | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 0A | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 0B | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 0C | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 0D | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 0E | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 0F | 0aaa aaaa | Name                       (32 - 127)  |  |
|  |           |           |                         32 - 127 [ASCII]|  |
|  |     00 10 | 0aaa aaaa | Category                    (0 - 127)  |  |
|  |           |           |                                 0 - 127 |  |
|  |#    00 11 | 0000 aaaa |                                        |  |
|  |     00 12 | 0000 bbbb | Reserved                    (0 - 255)  |  |
|  |           |           |                                 0 - 255 |  |
|  |     00 13 | 0aaa aaaa | Level                       (0 - 127)  |  |
|  |           |           |                                 0 - 127 |  |
```

```
|      00 14 | 0aaa aaaa | Pan                              (0 - 127) |
|            |           |                                 L64 - 63R |
|      00 15 | 0aaa aaaa | Coarse Tune                     (16 - 112) |
|            |           |                                 -48 - +48 |
|      00 16 | 0aaa aaaa | Fine Tune                       (14 - 114) |
|            |           |                             -50 - +50 [cent] |
|      00 17 | 0aaa aaaa | Octave Shift                    (61 - 67) |
|            |           |                                 -3 - +3 |
|      00 18 | 0aaa aaaa | Reserved                        (61 - 67) |
|            |           |                                 -3 - +3 |
|      00 19 | 0000 000a | Mono/Poly                       (0 - 1) |
|            |           |                             MONO, POLY |
|      00 1A | 0aaa aaaa | Reserved                        (0 - 127) |
:                                                                    :
|      00 29 | 0aaa aaaa | Noise Level                     (0 - 127) |
|            |           |                                 0 - 127 |
|      00 2A | 0aaa aaaa | Stereo Width                    (0 - 100) |
|            |           |                                 0 - 100 |
|      00 2B | 0aaa aaaa | Reserved                        (0 - 127) |
:                                                                    :
|      00 36 | 0000 000a | Bend Mode                       (0 - 1) |
|            |           |                          NORMAL, CATCH+LAST |
|      00 37 | 0aaa aaaa | Chorus Send Level               (0 - 127) |
|            |           |                                 0 - 127 |
|      00 38 | 0aaa aaaa | Reverb Send Level               (0 - 127) |
|            |           |                                 0 - 127 |
|      00 39 | 0aaa aaaa | Reserved                        (0 - 127) |
+------------+-----------+-----------------------------------------+
| 00 00 00 3A |Total Size                                          |
+--------------------------------------------------------------------+
```

* [Drum Kit Common]

```
+--------------------------------------------------------------------+
| Offset     |           |                                          |
|   Address  |           |           Description                    |
+------------+-----------+-----------------------------------------+
|      00 00 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 01 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 02 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 03 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 04 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 05 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 06 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 07 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 08 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 09 | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 0A | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 0B | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 0C | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 0D | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 0E | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 0F | 0aaa aaaa | Name                            (32 - 127) |
|            |           |                          32 - 127 [ASCII] |
|      00 10 | 0aaa aaaa | Reserved                                 |
:                                                                    :
|      00 14 | 0aaa aaaa | Level                           (0 - 127) |
|            |           |                                 0 - 127 |
|      00 15 | 0aaa aaaa | Reserved                                 |
:                                                                    :
+------------+-----------+-----------------------------------------+
| 00 00 00 19 |Total Size                                          |
+--------------------------------------------------------------------+
```

* [Drum Kit Partial]

```
+--------------------------------------------------------------------+
| Offset     |           |                                          |
|   Address  |           |           Description                    |
+------------+-----------+-----------------------------------------+
|#     00 00 | 0000 aaaa |                                          |
|      00 01 | 0000 bbbb |                                          |
|      00 02 | 0000 cccc |                                          |
|      00 03 | 0000 dddd | Inst Number                    (0 - 32768) |
|            |           |                                 0 - 32768 |
|      00 04 | 0000 00aa | Inst Bank                      (0 - 2) |
|            |           |                          PRESET, ---, EXP |
|#     00 05 | 0000 aaaa |                                          |
|      00 06 | 0000 bbbb |                                          |
|      00 07 | 0000 cccc |                                          |
|      00 08 | 0000 dddd | Inst Group ID                  (0 - 16383) |
```

```
|          |         |           |                                        0 - 16383
|    00 09 | 0aaa aaaa | Level                                        (0 - 127)
|          |         |           |                                        0 - 127
|    00 0A | 0aaa aaaa | Pan                                          (0 - 127)
|          |         |           |                                       L64 - 63R
|    00 0B | 0aaa aaaa | Chorus Send Level                            (0 - 127)
|          |         |           |                                        0 - 127
|    00 0C | 0aaa aaaa | Reverb Send Level                            (0 - 127)
|          |         |           |                                        0 - 127
|    00 0D | 000a aaaa | Mute Group                                   (0 - 31)
|          |         |           |             OFF,  1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
|          |         |           |  15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
|    00 0E | 0000 0aaa | Output Assign                                (0 - 7)
|          |         |           |  DRY, MFX, COMP1, COMP2, COMP3, COMP4, COMP5, COMP6
|    00 0F | 0aaa aaaa | Key Offset                                   (40 - 88)
|          |         |           |                                        -24 - +24
|    00 10 | 0aaa aaaa | Fine Tune Offset                             (14 - 114)
|          |         |           |                                      -50 - 50 [cent]
| #  00 11 | 0000 aaaa |
|    00 12 | 0000 bbbb | TVF Cutoff Offset                            (28 - 228)
|          |         |           |                                       -100 - +100
| #  00 13 | 0000 aaaa |
|    00 14 | 0000 bbbb | TVF Resonance Offset                         (28 - 228)
|          |         |           |                                       -100 - +100
| #  00 15 | 0000 aaaa |
|    00 16 | 0000 bbbb | TVA Attack Time Offset                       (28 - 228)
|          |         |           |                                       -100 - +100
| #  00 17 | 0000 aaaa |
|    00 18 | 0000 bbbb | TVA Decay Time Offset                        (28 - 228)
|          |         |           |                                       -100 - +100
| #  00 19 | 0000 aaaa |
|    00 1A | 0000 bbbb | TVA Release Time Offset                      (28 - 228)
|          |         |           |                                       -100 - +100
|          +---------+
| 00 00 00 1B |Total Size
```

* [Inst Common]

```
+-----------+-----------+-------------------------------------------------------+
| Offset    |           |
|  Address  |                      Description
+-----------+-----------+-------------------------------------------------------+
|    00 00 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 01 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 02 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 03 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 04 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 05 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 06 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 07 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 08 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 09 | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 0A | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 0B | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 0C | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 0D | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 0E | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 0F | 0aaa aaaa | Name                                         (32 - 127)
|          |         |           |                                     32 - 127 [ASCII]
|    00 10 | 000a aaaa | Category                                     (0 - 21)
|          |         |           |                                        0 - 21
|    00 11 | 0aaa aaaa | Level                                        (0 - 127)
|          |         |           |                                        0 - 127
|    00 12 | 0aaa aaaa | Source Key                                   (0 - 127)
|          |         |           |                                        0 - 127
|    00 13 | 0aaa aaaa | Fine Tune                                    (14 - 114)
|          |         |           |                                      -50 - 50 [cent]
| #  00 14 | 0000 aaaa |
|    00 15 | 0000 bbbb |
|    00 16 | 0000 cccc |
|    00 17 | 0000 dddd | Random Pitch Depth                           (0 - 1200)
|          |         |           |                                      0 - 1200 [cent]
|    00 18 | 00aa aaaa | Random Pan Depth                             (0 - 63)
|          |         |           |                                        0 - 63
|    00 19 | 0aaa aaaa | Alternate Pan Depth                          (0 - 127)
|          |         |           |                                       L64 - 63R
|    00 1A | 0000 000a | Assign Type                                  (0 - 1)
|          |         |           |                                    MULTI, SINGLE
|    00 1B | 0000 000a | Envelope Mode                                (0 - 1)
```

	Address	Value	Parameter	Range
	00 1C	0000 00aa	WMT Velocity Control	NO-SUS, SUSTAIN (0 - 2)
	00 1D	0000 000a	Wave Switch	OFF, ON, RANDOM (0 - 1)
	00 1E	0000 00aa	Wave Group Type	OFF, ON (0 - 2)
#	00 1F	0000 aaaa		INT, EXP, SAMP
	00 20	0000 bbbb		
	00 21	0000 cccc		
	00 22	0000 dddd	Wave Group ID	(0 - 16383) 0 - 16383
#	00 23	0000 aaaa		
	00 24	0000 bbbb		
	00 25	0000 cccc		
	00 26	0000 dddd	Wave Number L	(0 - 16383) 0 - 16383
#	00 27	0000 aaaa		
	00 28	0000 bbbb		
	00 29	0000 cccc		
	00 2A	0000 dddd	Wave Number R	(0 - 16383) 0 - 16383
	00 2B	0000 0aaa	Wave Gain	(0 - 5) -18, -12, -6, 0, +6, +12[dB]
	00 2C	0000 000a	Wave FXM Switch	(0 - 1) OFF, ON
	00 2D	0000 0aaa	Wave FXM Color	(1 - 4) 1 - 4
	00 2E	000a aaaa	Wave FXM Depth	(0 - 16) 0 - 16
	00 2F	0aaa aaaa	Wave Coarse Tune	(16 - 112) -48 - +48
	00 30	0aaa aaaa	Wave Fine Tune	(14 - 114) -50 - +50
	00 31	0aaa aaaa	Wave Pan	(0 - 127) L64 - 63R
	00 32	0000 000a	Wave Random Pan Sw	(0 - 1) OFF, ON
	00 33	0000 00aa	Wave Alternate Pan Sw	(0 - 2) OFF, ON, REVERSE
	00 34	0aaa aaaa	Wave Level	(0 - 127) 0 - 127
	00 35	0000 00aa	Delay Mode	(0 - 3) NORMAL, HOLD, KEYOFF-NORMAL, KEYOFF-DECAY
	00 36	0000 000a	DelayTime Sync	(0 - 1) OFF, ON
	00 37	000a aaaa	DelayTime (note)	(0 - 21) 1/64T, 1/64, 1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8, 1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2
#	00 38	0000 aaaa		
	00 39	0000 bbbb		
	00 3A	0000 cccc		
	00 3B	0000 dddd	DelayTime	(0 - 1023) 0 - 1023
	00 3C	0aaa aaaa	VeloRange Lower	(1 - 127) 1 - 127
	00 3D	0aaa aaaa	VeloRange Upper	(1 - 127) 1 - 127
	00 3E	0aaa aaaa	VeloFade Lower	(0 - 127) 0 - 127
	00 3F	0aaa aaaa	VeloFade Upper	(0 - 127) 0 - 127
	00 40	0000 000a	Wave Switch	(0 - 1) OFF, ON
	00 41	0000 00aa	Wave Group Type	(0 - 2) INT, EXP, SAMP
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	Wave Group ID	(0 - 16383) 0 - 16383
#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	Wave Number L	(0 - 16383) 0 - 16383
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	Wave Number R	(0 - 16383) 0 - 16383
	00 4E	0000 0aaa	Wave Gain	(0 - 5) -18, -12, -6, 0, +6, +12[dB]
	00 4F	0000 000a	Wave FXM Switch	(0 - 1) OFF, ON
	00 50	0000 0aaa	Wave FXM Color	(1 - 4) 1 - 4
	00 51	000a aaaa	Wave FXM Depth	(0 - 16) 0 - 16
	00 52	0aaa aaaa	Wave Coarse Tune	(16 - 112) -48 - +48
	00 53	0aaa aaaa	Wave Fine Tune	(14 - 114) -50 - +50

	00 54	0aaa aaaa	Wave Pan	(0 - 127)
				L64 - 63R
	00 55	0000 000a	Wave Random Pan Sw	(0 - 1)
				OFF, ON
	00 56	0000 00aa	Wave Alternate Pan Sw	(0 - 2)
				OFF, ON, REVERSE
	00 57	0aaa aaaa	Wave Level	(0 - 127)
				0 - 127
	00 58	0000 00aa	Delay Mode	(0 - 3)
				NORMAL, HOLD, KEYOFF-NORMAL, KEYOFF-DECAY
	00 59	0000 000a	DelayTime Sync	(0 - 1)
				OFF, ON
	00 5A	000a aaaa	DelayTime (note)	(0 - 21)
				1/64T, 1/64,
				1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8,
				1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2
#	00 5B	0000 aaaa		
	00 5C	0000 bbbb		
	00 5D	0000 cccc		
	00 5E	0000 dddd	DelayTime	(0 - 1023)
				0 - 1023
	00 5F	0aaa aaaa	VeloRange Lower	(1 - 127)
				1 - 127
	00 60	0aaa aaaa	VeloRange Upper	(1 - 127)
				1 - 127
	00 61	0aaa aaaa	VeloFade Lower	(0 - 127)
				0 - 127
	00 62	0aaa aaaa	VeloFade Upper	(0 - 127)
				0 - 127
	00 63	0000 000a	Wave Switch	(0 - 1)
				OFF, ON
	00 64	0000 00aa	Wave Group Type	(0 - 2)
				INT, EXP, SAMP
#	00 65	0000 aaaa		
	00 66	0000 bbbb		
	00 67	0000 cccc		
	00 68	0000 dddd	Wave Group ID	(0 - 16383)
				0 - 16383
#	00 69	0000 aaaa		
	00 6A	0000 bbbb		
	00 6B	0000 cccc		
	00 6C	0000 dddd	Wave Number L	(0 - 16383)
				0 - 16383
#	00 6D	0000 aaaa		
	00 6E	0000 bbbb		
	00 6F	0000 cccc		
	00 70	0000 dddd	Wave Number R	(0 - 16383)
				0 - 16383
	00 71	0000 0aaa	Wave Gain	(0 - 5)
				-18, -12, -6, 0, +6, +12[dB]
	00 72	0000 000a	Wave FXM Switch	(0 - 1)
				OFF, ON
	00 73	0000 0aaa	Wave FXM Color	(1 - 4)
				1 - 4
	00 74	000a aaaa	Wave FXM Depth	(0 - 16)
				0 - 16
	00 75	0aaa aaaa	Wave Coarse Tune	(16 - 112)
				-48 - +48
	00 76	0aaa aaaa	Wave Fine Tune	(14 - 114)
				-50 - +50
	00 77	0aaa aaaa	Wave Pan	(0 - 127)
				L64 - 63R
	00 78	0000 000a	Wave Random Pan Sw	(0 - 1)
				OFF, ON
	00 79	0000 00aa	Wave Alternate Pan Sw	(0 - 2)
				OFF, ON, REVERSE
	00 7A	0aaa aaaa	Wave Level	(0 - 127)
				0 - 127
	00 7B	0000 00aa	Delay Mode	(0 - 3)
				NORMAL, HOLD, KEYOFF-NORMAL, KEYOFF-DECAY
	00 7C	0000 000a	DelayTime Sync	(0 - 1)
				OFF, ON
	00 7D	000a aaaa	DelayTime (note)	(0 - 21)
				1/64T, 1/64,
				1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8,
				1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2
#	00 7E	0000 aaaa		
	00 7F	0000 bbbb		
	01 00	0000 cccc		
	01 01	0000 dddd	DelayTime	(0 - 1023)
				0 - 1023
	01 02	0aaa aaaa	VeloRange Lower	(1 - 127)
				1 - 127
	01 03	0aaa aaaa	VeloRange Upper	(1 - 127)
				1 - 127
	01 04	0aaa aaaa	VeloFade Lower	(0 - 127)
				0 - 127
	01 05	0aaa aaaa	VeloFade Upper	(0 - 127)
				0 - 127
	01 06	0000 000a	Wave Switch	(0 - 1)
				OFF, ON
	01 07	0000 00aa	Wave Group Type	(0 - 2)
				INT, EXP, SAMP
#	01 08	0000 aaaa		

```
|      01 09 | 0000 bbbb |
|      01 0A | 0000 cccc |
|      01 0B | 0000 dddd | Wave Group ID                        (0 - 16383)
|           |           |                                         0 - 16383
#     01 0C | 0000 aaaa |
|      01 0D | 0000 bbbb |
|      01 0E | 0000 cccc |
|      01 0F | 0000 dddd | Wave Number L                        (0 - 16383)
|           |           |                                         0 - 16383
#     01 10 | 0000 aaaa |
|      01 11 | 0000 bbbb |
|      01 12 | 0000 cccc |
|      01 13 | 0000 dddd | Wave Number R                        (0 - 16383)
|           |           |                                         0 - 16383
|      01 14 | 0000 0aaa | Wave Gain                            (0 - 5)
|           |           |                      -18, -12, -6, 0, +6, +12[dB]
|      01 15 | 0000 000a | Wave FXM Switch                      (0 - 1)
|           |           |                                         OFF, ON
|      01 16 | 0000 0aaa | Wave FXM Color                       (1 - 4)
|           |           |                                         1 - 4
|      01 17 | 000a aaaa | Wave FXM Depth                       (0 - 16)
|           |           |                                         0 - 16
|      01 18 | 0aaa aaaa | Wave Coarse Tune                    (16 - 112)
|           |           |                                        -48 - +48
|      01 19 | 0aaa aaaa | Wave Fine Tune                      (14 - 114)
|           |           |                                        -50 - +50
|      01 1A | 0aaa aaaa | Wave Pan                             (0 - 127)
|           |           |                                        L64 - 63R
|      01 1B | 0000 000a | Wave Random Pan Sw                   (0 - 1)
|           |           |                                         OFF, ON
|      01 1C | 0000 00aa | Wave Alternate Pan Sw                (0 - 2)
|           |           |                                 OFF, ON, REVERSE
|      01 1D | 0aaa aaaa | Wave Level                           (0 - 127)
|           |           |                                         0 - 127
|      01 1E | 0000 00aa | Delay Mode                           (0 - 3)
|           |           |          NORMAL, HOLD, KEYOFF-NORMAL, KEYOFF-DECAY
|      01 1F | 0000 000a | DelayTime Sync                       (0 - 1)
|           |           |                                         OFF, ON
|      01 20 | 000a aaaa | DelayTime (note)                     (0 - 21)
|           |           |                                      1/64T, 1/64,
|           |           | 1/32T, 1/32, 1/16T, 1/32., 1/16, 1/8T, 1/16., 1/8,
|           |           | 1/4T, 1/8., 1/4, 1/2T, 1/4., 1/2, 1T, 1/2., 1, 2T, 1., 2
#     01 21 | 0000 aaaa |
|      01 22 | 0000 bbbb |
|      01 23 | 0000 cccc |
|      01 24 | 0000 dddd | DelayTime                            (0 - 1023)
|           |           |                                        0 - 1023
|      01 25 | 0aaa aaaa | VeloRange Lower                      (1 - 127)
|           |           |                                         1 - 127
|      01 26 | 0aaa aaaa | VeloRange Upper                      (1 - 127)
|           |           |                                         1 - 127
|      01 27 | 0aaa aaaa | VeloFade Lower                       (0 - 127)
|           |           |                                         0 - 127
|      01 28 | 0aaa aaaa | VeloFade Upper                       (0 - 127)
|           |           |                                         0 - 127
|      01 29 | 0000 0aaa | TVF Filter Type                      (0 - 6)
|           |           |               OFF, LPF, BPF, HPF, PKG, LPF2, LPF3
#     01 2A | 0000 aaaa |
|      01 2B | 0000 bbbb |
|      01 2C | 0000 cccc |
|      01 2D | 0000 dddd | TVF Cutoff Frequency                 (0 - 1023)
|           |           |                                        0 - 1023
|      01 2E | 0000 0aaa | TVF Cutoff Velocity Curve            (0 - 7)
|           |           |                                         0 - 7
#     01 2F | 0000 aaaa |
|      01 30 | 0000 bbbb | TVF Cutoff Velocity Sens            (28 - 228)
|           |           |                                      -100 - +100
#     01 31 | 0000 aaaa |
|      01 32 | 0000 bbbb |
|      01 33 | 0000 cccc |
|      01 34 | 0000 dddd | TVF Resonance                        (0 - 1023)
|           |           |                                        0 - 1023
#     01 35 | 0000 aaaa |
|      01 36 | 0000 bbbb | TVF Resonance Velocity Sens         (28 - 228)
|           |           |                                      -100 - +100
|      01 37 | 0000 0aaa | TVA Level Velocity Curve             (0 - 7)
|           |           |                                         0 - 7
#     01 38 | 0000 aaaa |
|      01 39 | 0000 bbbb | TVA Level Velocity Sens             (28 - 228)
|           |           |                                      -100 - +100
|      01 3A | 0000 000a | Wave Tempo Sync                      (0 - 1)
|           |           |                                         OFF, ON
+-----------+-----------+---------------------------------------------------
| 00 00 01 3B |Total Size
+-------------------------------------------------------------------------
```

* [MFX]

```
+-------------------------------------------------------------------------
| Offset    |           |
|  Address  |           |          Description
+-----------+-----------+---------------------------------------------------
|      00 00 | 0aaa aaaa | MFX Type                             (0 - 90)
|      00 01 | 0000 000a | MFX Switch                           (0 - 1)
|           |           |                                         OFF, ON
```

```
|      00 02 | 0aaa aaaa | MFX Chorus Send Level              (0 - 127)
|            |           |                                    0 - 127
|      00 03 | 0aaa aaaa | MFX Reverb Send Level              (0 - 127)
|            |           |                                    0 - 127
|      00 04 | 0aaa aaaa | MFX CtrlSrc 1                      (0 - 100)
|            |           |           OFF, CC01, CC02, CC03, CC04, CC05, CC06,
|            |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|            |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|            |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|            |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|            |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|            |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|            |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|            |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|            |           | CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
|            |           |       SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4
|      00 05 | 0aaa aaaa | MFX CtrlSens 1                     (1 - 127)
|            |           |                                   -63 - +63
|      00 06 | 0aaa aaaa | MFX CtrlSrc 2                      (0 - 100)
|            |           |           OFF, CC01, CC02, CC03, CC04, CC05, CC06,
|            |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|            |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|            |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|            |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|            |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|            |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|            |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|            |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|            |           | CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
|            |           |       SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4
|      00 07 | 0aaa aaaa | MFX CtrlSens 2                     (1 - 127)
|            |           |                                   -63 - +63
|      00 08 | 0aaa aaaa | MFX CtrlSrc 3                      (0 - 100)
|            |           |           OFF, CC01, CC02, CC03, CC04, CC05, CC06,
|            |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|            |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|            |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|            |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|            |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|            |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|            |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|            |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|            |           | CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
|            |           |       SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4
|      00 09 | 0aaa aaaa | MFX CtrlSens 3                     (1 - 127)
|            |           |                                   -63 - +63
|      00 0A | 0aaa aaaa | MFX CtrlSrc 4                      (0 - 100)
|            |           |           OFF, CC01, CC02, CC03, CC04, CC05, CC06,
|            |           | CC07, CC08, CC09, CC10, CC11, CC12, CC13, CC14, CC15, CC16,
|            |           | CC17, CC18, CC19, CC20, CC21, CC22, CC23, CC24, CC25, CC26,
|            |           | CC27, CC28, CC29, CC30, CC31, CC33, CC34, CC35, CC36, CC37,
|            |           | CC38, CC39, CC40, CC41, CC42, CC43, CC44, CC45, CC46, CC47,
|            |           | CC48, CC49, CC50, CC51, CC52, CC53, CC54, CC55, CC56, CC57,
|            |           | CC58, CC59, CC60, CC61, CC62, CC63, CC64, CC65, CC66, CC67,
|            |           | CC68, CC69, CC70, CC71, CC72, CC73, CC74, CC75, CC76, CC77,
|            |           | CC78, CC79, CC80, CC81, CC82, CC83, CC84, CC85, CC86, CC87,
|            |           | CC88, CC89, CC90, CC91, CC92, CC93, CC94, CC95, BEND, AFT,
|            |           |       SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4
|      00 0B | 0aaa aaaa | MFX CtrlSens 4                     (1 - 127)
|            |           |                                   -63 - +63
|      00 0C | 0000 aaaa | MFX CtrlAsgn                       (0 - 11)
|      00 0D | 0000 aaaa | MFX CtrlAsgn                       (0 - 11)
|      00 0E | 0000 aaaa | MFX CtrlAsgn                       (0 - 11)
|      00 0F | 0000 aaaa | MFX CtrlAsgn                       (0 - 11)
| #    00 10 | 0000 aaaa |
|      00 11 | 0000 bbbb |
|      00 12 | 0000 cccc |
|      00 13 | 0000 dddd | MFX Parameter 1               (12768 - 52768)
|            |           |                              -20000 - 20000
| #    00 14 | 0000 aaaa |
|      00 15 | 0000 bbbb |
|      00 16 | 0000 cccc |
|      00 17 | 0000 dddd | MFX Parameter 2               (12768 - 52768)
|            |           |                              -20000 - 20000
| #    00 18 | 0000 aaaa |
|      00 19 | 0000 bbbb |
|      00 1A | 0000 cccc |
|      00 1B | 0000 dddd | MFX Parameter 3               (12768 - 52768)
|            |           |                              -20000 - 20000
| #    00 1C | 0000 aaaa |
|      00 1D | 0000 bbbb |
|      00 1E | 0000 cccc |
|      00 1F | 0000 dddd | MFX Parameter 4               (12768 - 52768)
|            |           |                              -20000 - 20000
| #    00 20 | 0000 aaaa |
|      00 21 | 0000 bbbb |
|      00 22 | 0000 cccc |
|      00 23 | 0000 dddd | MFX Parameter 5               (12768 - 52768)
|            |           |                              -20000 - 20000
| #    00 24 | 0000 aaaa |
|      00 25 | 0000 bbbb |
|      00 26 | 0000 cccc |
|      00 27 | 0000 dddd | MFX Parameter 6               (12768 - 52768)
|            |           |                              -20000 - 20000
```

```
|#      00 28  | 0000 aaaa |
        00 29  | 0000 bbbb |
        00 2A  | 0000 cccc |
        00 2B  | 0000 dddd |  MFX Parameter 7              (12768 - 52768)
                                                            -20000 - 20000
|#      00 2C  | 0000 aaaa |
        00 2D  | 0000 bbbb |
        00 2E  | 0000 cccc |
        00 2F  | 0000 dddd |  MFX Parameter 8              (12768 - 52768)
                                                            -20000 - 20000
|#      00 30  | 0000 aaaa |
        00 31  | 0000 bbbb |
        00 32  | 0000 cccc |
        00 33  | 0000 dddd |  MFX Parameter 9              (12768 - 52768)
                                                            -20000 - 20000
|#      00 34  | 0000 aaaa |
        00 35  | 0000 bbbb |
        00 36  | 0000 cccc |
        00 37  | 0000 dddd |  MFX Parameter 10             (12768 - 52768)
                                                            -20000 - 20000
|#      00 38  | 0000 aaaa |
        00 39  | 0000 bbbb |
        00 3A  | 0000 cccc |
        00 3B  | 0000 dddd |  MFX Parameter 11             (12768 - 52768)
                                                            -20000 - 20000
|#      00 3C  | 0000 aaaa |
        00 3D  | 0000 bbbb |
        00 3E  | 0000 cccc |
        00 3F  | 0000 dddd |  MFX Parameter 12             (12768 - 52768)
                                                            -20000 - 20000
|#      00 40  | 0000 aaaa |
        00 41  | 0000 bbbb |
        00 42  | 0000 cccc |
        00 43  | 0000 dddd |  MFX Parameter 13             (12768 - 52768)
                                                            -20000 - 20000
|#      00 44  | 0000 aaaa |
        00 45  | 0000 bbbb |
        00 46  | 0000 cccc |
        00 47  | 0000 dddd |  MFX Parameter 14             (12768 - 52768)
                                                            -20000 - 20000
|#      00 48  | 0000 aaaa |
        00 49  | 0000 bbbb |
        00 4A  | 0000 cccc |
        00 4B  | 0000 dddd |  MFX Parameter 15             (12768 - 52768)
                                                            -20000 - 20000
|#      00 4C  | 0000 aaaa |
        00 4D  | 0000 bbbb |
        00 4E  | 0000 cccc |
        00 4F  | 0000 dddd |  MFX Parameter 16             (12768 - 52768)
                                                            -20000 - 20000
|#      00 50  | 0000 aaaa |
        00 51  | 0000 bbbb |
        00 52  | 0000 cccc |
        00 53  | 0000 dddd |  MFX Parameter 17             (12768 - 52768)
                                                            -20000 - 20000
|#      00 54  | 0000 aaaa |
        00 55  | 0000 bbbb |
        00 56  | 0000 cccc |
        00 57  | 0000 dddd |  MFX Parameter 18             (12768 - 52768)
                                                            -20000 - 20000
|#      00 58  | 0000 aaaa |
        00 59  | 0000 bbbb |
        00 5A  | 0000 cccc |
        00 5B  | 0000 dddd |  MFX Parameter 19             (12768 - 52768)
                                                            -20000 - 20000
|#      00 5C  | 0000 aaaa |
        00 5D  | 0000 bbbb |
        00 5E  | 0000 cccc |
        00 5F  | 0000 dddd |  MFX Parameter 20             (12768 - 52768)
                                                            -20000 - 20000
|#      00 60  | 0000 aaaa |
        00 61  | 0000 bbbb |
        00 62  | 0000 cccc |
        00 63  | 0000 dddd |  MFX Parameter 21             (12768 - 52768)
                                                            -20000 - 20000
|#      00 64  | 0000 aaaa |
        00 65  | 0000 bbbb |
        00 66  | 0000 cccc |
        00 67  | 0000 dddd |  MFX Parameter 22             (12768 - 52768)
                                                            -20000 - 20000
|#      00 68  | 0000 aaaa |
        00 69  | 0000 bbbb |
        00 6A  | 0000 cccc |
        00 6B  | 0000 dddd |  MFX Parameter 23             (12768 - 52768)
                                                            -20000 - 20000
|#      00 6C  | 0000 aaaa |
        00 6D  | 0000 bbbb |
        00 6E  | 0000 cccc |
        00 6F  | 0000 dddd |  MFX Parameter 24             (12768 - 52768)
                                                            -20000 - 20000
|#      00 70  | 0000 aaaa |
        00 71  | 0000 bbbb |
        00 72  | 0000 cccc |
        00 73  | 0000 dddd |  MFX Parameter 25             (12768 - 52768)
```

```
                                                                    -20000 - 20000
# │    00 74 │ 0000 aaaa │
  │    00 75 │ 0000 bbbb │
  │    00 76 │ 0000 cccc │
  │    00 77 │ 0000 dddd │ MFX Parameter 26            (12768 - 52768)
                                                                    -20000 - 20000
# │    00 78 │ 0000 aaaa │
  │    00 79 │ 0000 bbbb │
  │    00 7A │ 0000 cccc │
  │    00 7B │ 0000 dddd │ MFX Parameter 27            (12768 - 52768)
                                                                    -20000 - 20000
# │    00 7C │ 0000 aaaa │
  │    00 7D │ 0000 bbbb │
  │    00 7E │ 0000 cccc │
  │    00 7F │ 0000 dddd │ MFX Parameter 28            (12768 - 52768)
                                                                    -20000 - 20000
# │    01 00 │ 0000 aaaa │
  │    01 01 │ 0000 bbbb │
  │    01 02 │ 0000 cccc │
  │    01 03 │ 0000 dddd │ MFX Parameter 29            (12768 - 52768)
                                                                    -20000 - 20000
# │    01 04 │ 0000 aaaa │
  │    01 05 │ 0000 bbbb │
  │    01 06 │ 0000 cccc │
  │    01 07 │ 0000 dddd │ MFX Parameter 30            (12768 - 52768)
                                                                    -20000 - 20000
# │    01 08 │ 0000 aaaa │
  │    01 09 │ 0000 bbbb │
  │    01 0A │ 0000 cccc │
  │    01 0B │ 0000 dddd │ MFX Parameter 31            (12768 - 52768)
                                                                    -20000 - 20000
# │    01 0C │ 0000 aaaa │
  │    01 0D │ 0000 bbbb │
  │    01 0E │ 0000 cccc │
  │    01 0F │ 0000 dddd │ MFX Parameter 32            (12768 - 52768)
                                                                    -20000 - 20000
  +------------+------------------------------------------------------
  │ 00 00 01 10 │Total Size
  +-----------------------------------------------------------------+

* [Reverb]
  +-----------------------------------------------------------------+
  │ Offset      │
  │   Address   │                   Description
  +------------+------------------------------------------------------
  │    00 00 │ 0000 000a │ Switch                          (0 - 1)
                                                                    OFF, ON
  │    00 01 │ 0000 0aaa │ Reverb Type                     (0 - 7)
  │    00 02 │ 0aaa aaaa │ Reverb Level                    (0 - 127)
# │    00 03 │ 0000 aaaa │
  │    00 04 │ 0000 bbbb │
  │    00 05 │ 0000 cccc │
  │    00 06 │ 0000 dddd │ Reverb Parameter 1         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 07 │ 0000 aaaa │
  │    00 08 │ 0000 bbbb │
  │    00 09 │ 0000 cccc │
  │    00 0A │ 0000 dddd │ Reverb Parameter 2         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 0B │ 0000 aaaa │
  │    00 0C │ 0000 bbbb │
  │    00 0D │ 0000 cccc │
  │    00 0E │ 0000 dddd │ Reverb Parameter 3         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 0F │ 0000 aaaa │
  │    00 10 │ 0000 bbbb │
  │    00 11 │ 0000 cccc │
  │    00 12 │ 0000 dddd │ Reverb Parameter 4         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 13 │ 0000 aaaa │
  │    00 14 │ 0000 bbbb │
  │    00 15 │ 0000 cccc │
  │    00 16 │ 0000 dddd │ Reverb Parameter 5         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 17 │ 0000 aaaa │
  │    00 18 │ 0000 bbbb │
  │    00 19 │ 0000 cccc │
  │    00 1A │ 0000 dddd │ Reverb Parameter 6         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 1B │ 0000 aaaa │
  │    00 1C │ 0000 bbbb │
  │    00 1D │ 0000 cccc │
  │    00 1E │ 0000 dddd │ Reverb Parameter 7         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 1F │ 0000 aaaa │
  │    00 20 │ 0000 bbbb │
  │    00 21 │ 0000 cccc │
  │    00 22 │ 0000 dddd │ Reverb Parameter 8         (12768 - 52768)
                                                                    -20000 - 20000
# │    00 23 │ 0000 aaaa │
  │    00 24 │ 0000 bbbb │
  │    00 25 │ 0000 cccc │
  │    00 26 │ 0000 dddd │ Reverb Parameter 9         (12768 - 52768)
                                                                    -20000 - 20000
```

```
|#     00 27 | 0000 aaaa |
      00 28 | 0000 bbbb |
      00 29 | 0000 cccc |
      00 2A | 0000 dddd | Reverb Parameter 10              (12768 - 52768)
                                                          -20000 - 20000
|#     00 2B | 0000 aaaa |
      00 2C | 0000 bbbb |
      00 2D | 0000 cccc |
      00 2E | 0000 dddd | Reverb Parameter 11              (12768 - 52768)
                                                          -20000 - 20000
|#     00 2F | 0000 aaaa |
      00 30 | 0000 bbbb |
      00 31 | 0000 cccc |
      00 32 | 0000 dddd | Reverb Parameter 12              (12768 - 52768)
                                                          -20000 - 20000
|#     00 33 | 0000 aaaa |
      00 34 | 0000 bbbb |
      00 35 | 0000 cccc |
      00 36 | 0000 dddd | Reverb Parameter 13              (12768 - 52768)
                                                          -20000 - 20000
|#     00 37 | 0000 aaaa |
      00 38 | 0000 bbbb |
      00 39 | 0000 cccc |
      00 3A | 0000 dddd | Reverb Parameter 14              (12768 - 52768)
                                                          -20000 - 20000
|#     00 3B | 0000 aaaa |
      00 3C | 0000 bbbb |
      00 3D | 0000 cccc |
      00 3E | 0000 dddd | Reverb Parameter 15              (12768 - 52768)
                                                          -20000 - 20000
|#     00 3F | 0000 aaaa |
      00 40 | 0000 bbbb |
      00 41 | 0000 cccc |
      00 42 | 0000 dddd | Reverb Parameter 16              (12768 - 52768)
                                                          -20000 - 20000
|#     00 43 | 0000 aaaa |
      00 44 | 0000 bbbb |
      00 45 | 0000 cccc |
      00 46 | 0000 dddd | Reverb Parameter 17              (12768 - 52768)
                                                          -20000 - 20000
|#     00 47 | 0000 aaaa |
      00 48 | 0000 bbbb |
      00 49 | 0000 cccc |
      00 4A | 0000 dddd | Reverb Parameter 18              (12768 - 52768)
                                                          -20000 - 20000
|#     00 4B | 0000 aaaa |
      00 4C | 0000 bbbb |
      00 4D | 0000 cccc |
      00 4E | 0000 dddd | Reverb Parameter 19              (12768 - 52768)
                                                          -20000 - 20000
|#     00 4F | 0000 aaaa |
      00 50 | 0000 bbbb |
      00 51 | 0000 cccc |
      00 52 | 0000 dddd | Reverb Parameter 20              (12768 - 52768)
                                                          -20000 - 20000
      +-----------+------------------------------------------------------
| 00 00 00 53 |Total Size                                               |
+----------------------------------------------------------------------+
```

* [Chorus]

```
+----------------------------------------------------------------------+
| Offset    |                                                          |
|   Address |                  Description                             |
+-----------+----------------------------------------------------------+
      00 00 | 0000 000a | Switch                            (0 - 1)
                                                          OFF, ON
      00 01 | 0000 aaaa | Chorus Type                       (0 - 9)
      00 02 | 0aaa aaaa | Chorus Level                      (0 - 127)
      00 03 | 0aaa aaaa | Reverb Send Level                 (0 - 127)
|#     00 04 | 0000 aaaa |
      00 05 | 0000 bbbb |
      00 06 | 0000 cccc |
      00 07 | 0000 dddd | Chorus Parameter 1                (12768 - 52768)
                                                          -20000 - 20000
|#     00 08 | 0000 aaaa |
      00 09 | 0000 bbbb |
      00 0A | 0000 cccc |
      00 0B | 0000 dddd | Chorus Parameter 2                (12768 - 52768)
                                                          -20000 - 20000
|#     00 0C | 0000 aaaa |
      00 0D | 0000 bbbb |
      00 0E | 0000 cccc |
      00 0F | 0000 dddd | Chorus Parameter 3                (12768 - 52768)
                                                          -20000 - 20000
|#     00 10 | 0000 aaaa |
      00 11 | 0000 bbbb |
      00 12 | 0000 cccc |
      00 13 | 0000 dddd | Chorus Parameter 4                (12768 - 52768)
                                                          -20000 - 20000
|#     00 14 | 0000 aaaa |
      00 15 | 0000 bbbb |
      00 16 | 0000 cccc |
      00 17 | 0000 dddd | Chorus Parameter 5                (12768 - 52768)
                                                          -20000 - 20000
```

```
|#    00 18 | 0000 aaaa |
|     00 19 | 0000 bbbb |
|     00 1A | 0000 cccc |
|     00 1B | 0000 dddd | Chorus Parameter 6        (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 1C | 0000 aaaa |
|     00 1D | 0000 bbbb |
|     00 1E | 0000 cccc |
|     00 1F | 0000 dddd | Chorus Parameter 7        (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 20 | 0000 aaaa |
|     00 21 | 0000 bbbb |
|     00 22 | 0000 cccc |
|     00 23 | 0000 dddd | Chorus Parameter 8        (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 24 | 0000 aaaa |
|     00 25 | 0000 bbbb |
|     00 26 | 0000 cccc |
|     00 27 | 0000 dddd | Chorus Parameter 9        (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 28 | 0000 aaaa |
|     00 29 | 0000 bbbb |
|     00 2A | 0000 cccc |
|     00 2B | 0000 dddd | Chorus Parameter 10       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 2C | 0000 aaaa |
|     00 2D | 0000 bbbb |
|     00 2E | 0000 cccc |
|     00 2F | 0000 dddd | Chorus Parameter 11       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 30 | 0000 aaaa |
|     00 31 | 0000 bbbb |
|     00 32 | 0000 cccc |
|     00 33 | 0000 dddd | Chorus Parameter 12       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 34 | 0000 aaaa |
|     00 35 | 0000 bbbb |
|     00 36 | 0000 cccc |
|     00 37 | 0000 dddd | Chorus Parameter 13       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 38 | 0000 aaaa |
|     00 39 | 0000 bbbb |
|     00 3A | 0000 cccc |
|     00 3B | 0000 dddd | Chorus Parameter 14       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 3C | 0000 aaaa |
|     00 3D | 0000 bbbb |
|     00 3E | 0000 cccc |
|     00 3F | 0000 dddd | Chorus Parameter 15       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 40 | 0000 aaaa |
|     00 41 | 0000 bbbb |
|     00 42 | 0000 cccc |
|     00 43 | 0000 dddd | Chorus Parameter 16       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 44 | 0000 aaaa |
|     00 45 | 0000 bbbb |
|     00 46 | 0000 cccc |
|     00 47 | 0000 dddd | Chorus Parameter 17       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 48 | 0000 aaaa |
|     00 49 | 0000 bbbb |
|     00 4A | 0000 cccc |
|     00 4B | 0000 dddd | Chorus Parameter 18       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 4C | 0000 aaaa |
|     00 4D | 0000 bbbb |
|     00 4E | 0000 cccc |
|     00 4F | 0000 dddd | Chorus Parameter 19       (12768 - 52768)
|           |           |                          -20000 - 20000
|#    00 50 | 0000 aaaa |
|     00 51 | 0000 bbbb |
|     00 52 | 0000 cccc |
|     00 53 | 0000 dddd | Chorus Parameter 20       (12768 - 52768)
|           |           |                          -20000 - 20000
|-----------+--------------------------------------------------------
| 00 00 00 54 |Total Size
+---------------------------------------------------------------------+
```

6. Supplementary Material

■Decimal and Hexadecimal Table
(An "H" is appended to the end of numbers in hexadecimal notation.)
In MIDI documentation, data values and addresses/sizes of Exclusive messages, etc. are expressed as hexadecimal values for
each 7 bits. The following table shows how these correspond to decimal numbers.

D	H || D	H || D	H || D	H
0	00H || 32	20H || 64	40H || 96	60H
1	01H || 33	21H || 65	41H || 97	61H
2	02H || 34	22H || 66	42H || 98	62H
3	03H || 35	23H || 67	43H || 99	63H
4	04H || 36	24H || 68	44H || 100	64H

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

D: decimal
H: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.
* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128+bb.
* In the case of values which have a +/- sign, 00H = -64, 40H = +/-0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +/-0, and 7F 7FH = +8191. For example, if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128+bb - 64 x 128.
* Data marked "Use nibbled data" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16+b.

<Example1> What is the decimal expression of 5AH?
From the preceding table, 5AH = 90

<Example2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?
From the preceding table, since 12H = 18 and 34H = 52
18 x 128+52 = 2356

<Example3> What is the decimal expression of the nibbled value 0A 03 09 0D?
From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16+3) x 16+9) x 16+13 = 41885

<Example4> What is the nibbled expression of the decimal value 1258?

```
16 ) 1258
16 )   78 ...10
16 )    4 ...14
---------------
        0 ... 4
```

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the result is: 00 04 0E 0AH.

■Examples of Actual MIDI Messages

<Example1> 92 3E 5F
9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example2> CE 49
CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74.

<Example3> EA 00 28
EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 12+80 = 8192) is 0, so this Pitch Bend Value is 28 00H - 40 00H = 40 x 12+80 - (64 x 12+80) = 5120 - 8192 = -3072

If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change 200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F
BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the control number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

```
 B3  64 00      MIDI ch.4, lower byte of RPN parameter number: 00H
(B3) 65 00     (MIDI ch.4) upper byte of RPN parameter number: 00H
(B3) 06 0C     (MIDI ch.4) upper byte of parameter value: 0CH
(B3) 26 00     (MIDI ch.4) lower byte of parameter value: 00H
(B3) 64 7F     (MIDI ch.4) lower byte of RPN parameter number: 7FH
(B3) 65 7F     (MIDI ch.4) upper byte of RPN parameter number: 7FH
```

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set

the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +/-12 semitones (1 octave). (On GS sound generators the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.)

Once the parameter number has been specified for RPN or NRPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents. This is the reason for the (B3) 64 7F (B3) 65 7F at the end.

It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in <Example 4>. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound generator will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN or NRPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN = 96, and about 5 ticks for TPQN = 480).

* TPQN: Ticks Per Quarter Note

■Example of an Exclusive Message and Calculating a Checksum
Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted Exclusive message.

●How to calculate the checksum
(hexadecimal numbers are indicated by "H")
The checksum is a value derived by adding the address, size, and checksum itself and inverting the lower 7 bits.
Here's an example of how the checksum is calculated. We will assume that in the Exclusive message we are transmitting, the address is aabbccddH and the data or size is eeffH.

aa + bb + cc + dd + ee + ff = sum
sum / 128 = quotient ... remainder
128 - remainder = checksum

<Example> Setting scene level to 74 (DT1)
According to the "Parameter Address Map", the start address of Temporary Scene is 02 00 00 00H, the offset address of Scene Common is 00 00 00H, and the address of Scene Level is 00 10H. Therefore the address is:

```
     02 00 00 00H
        00 00 00H
+)         00 10H
    ---------------
     02 00 00 10H
```

Level 74 of the Scene has the value of 4AH. So the system exclusive message should be sent is:

```
F0      41      10      00 00 00 5B     12      02 00 00 10     4A      ??          F7
(1)     (2)     (3)     (4)             (5)     address         data    checksum    (6)
```

(1) Exclusive Status   (2) ID (Roland)   (3) Device ID (17)
(4) Model ID (FANTOM-6/7/8)   (5) Command ID (DT1)   (6) End of Exclusive

Then calculate the checksum.

02H + 00H + 00H + 10H + 4AH = 2 + 0 + 0 + 16 + 74 = 92 (sum)
92 (sum) / 128 = 0 (quotient) ... 92 (remainder)
checksum = 128 - 92 (remainder) = 36 = 24H

This means that F0 41 10 00 00 00 5B 12 02 00 00 10 4A 24 F7 is the message should be sent.

■ASCII Code Table
Scene Name and Tone Name, etc., of MIDI data are described the ASCII code in the table below.

D	H	Char	D	H	Char	D	H	Char
32	20H	SP	64	40H	@	96	60H	`
33	21H	!	65	41H	A	97	61H	a
34	22H	"	66	42H	B	98	62H	b
35	23H	#	67	43H	C	99	63H	c
36	24H	$	68	44H	D	100	64H	d
37	25H	%	69	45H	E	101	65H	e
38	26H	&	70	46H	F	102	66H	f
39	27H	`	71	47H	G	103	67H	g
40	28H	(	72	48H	H	104	68H	h
41	29H	)	73	49H	I	105	69H	i
42	2AH	*	74	4AH	J	106	6AH	j
43	2BH	+	75	4BH	K	107	6BH	k
44	2CH	,	76	4CH	L	108	6CH	l
45	2DH	-	77	4DH	M	109	6DH	m
46	2EH	.	78	4EH	N	110	6EH	n
47	2FH	/	79	4FH	O	111	6FH	o
48	30H	0	80	50H	P	112	70H	p
49	31H	1	81	51H	Q	113	71H	q
50	32H	2	82	52H	R	114	72H	r
51	33H	3	83	53H	S	115	73H	s
52	34H	4	84	54H	T	116	74H	t
53	35H	5	85	55H	U	117	75H	u
54	36H	6	86	56H	V	118	76H	v
55	37H	7	87	57H	W	119	77H	w
56	38H	8	88	58H	X	120	78H	x

```
|   57 |  39H |  9 ||  89 |  59H |  Y ||  121 |  79H |  y  |
|   58 |  3AH |  : ||  90 |  5AH |  Z ||  122 |  7AH |  z  |
|   59 |  3BH |  ; ||  91 |  5BH |  [ ||  123 |  7BH |  {  |
|   60 |  3CH |  < ||  92 |  5CH |  ¥ ||  124 |  7CH |  |  |
|   61 |  3DH |  = ||  93 |  5DH |  ] ||  125 |  7DH |  }  |
|   62 |  3EH |  > ||  94 |  5EH |  ^ |+------+------+------+
|   63 |  3FH |  ? ||  95 |  5FH |  _ |
+------+------+------++------+------+------+
```

D: decimal
H: hexadecimal

* ″SP″ is space.