# KRONOS MIDI IMPLEMENTATION

26, Dec, 2010

Consult your local Korg dealer for more information on MIDI System Exclusive implementation.

## 1.TRANSMITTED DATA

### 1-1 CHANNEL MESSAGES

[H] :Hex, [D] :Decimal

| Status [Hex] | Second [H] [D] | Third [H] [D] | Description | ( Transmitted by ....) | ENA |
|---|---|---|---|---|---|
| 8n | kk (kk) | vv (vv) | Note Off(vv)=1-64 | ( Key Off ) *1 *5 | A |
| 9n | kk (kk) | vv (vv) | Note On (vv)=1-127 | ( Key On ) *1 | A |
| An | kk (kk) | vv (vv) | Poly Key Pressure | ( Sequence data ) | T,Q |
| Bn | 00 (00) | mm (mm) | Bank Select(MSB) | ( BANK keys, Prog/Combi/Set List change ) *2 | PB |
| Bn | 01 (01) | vv (vv) | Modulation1 | ( Joystick +Y, VJS/ASW/Pdl ) | C |
| Bn | 02 (02) | vv (vv) | Modulation2 | ( Joystick -Y, VJS/ASW/Pdl ) | C |
| Bn | 04 (04) | vv (vv) | Foot Pedal | ( Pdl = Foot Pedal ) | C |
| Bn | 05 (05) | vv (vv) | Portamento Time | ( Knob/VJS/Pdl = Porta.Time, S Chg ) | C |
| Bn | 07 (07) | vv (vv) | Volume | ( Knob/VJS/Pdl = Volume, S/C Chg ) | C |
| Bn | 08 (08) | vv (vv) | Post IFX Panpot | ( Knob/VJS/Pdl = IFX Pan, S Chg ) *2 | C |
| Bn | 0A (10) | vv (vv) | Panpot | ( Knob/VJS/Pdl = Pan, S Chg ) | C |
| Bn | 0B (11) | vv (vv) | Expression | ( Knob/VJS/Pdl = Expression ) | C |
| Bn | 0C (12) | vv (vv) | Effect Control 1 | ( Knob/VJS/Pdl = FX Control1 ) | C |
| Bn | 0D (13) | vv (vv) | Effect Control 2 | ( Knob/VJS/Pdl = FX Control2 ) | C |
| Bn | 0E (14) | vv (vv) | | ( KARMA ON/OFF, ASW ) | C |
| Bn | 10 (16) | vv (vv) | Multi Purpose Ctrl1 | ( Ribbon Controller, VJS/ASW/Pdl ) | C |
| Bn | 11 (17) | vv (vv) | Multi Purpose Ctrl2 | ( Knob = Knob Mod5, VJS ) | C |
| Bn | 12 (18) | vv (vv) | Multi Purpose Ctrl3 | ( Value Slider, VJS/ASW/Pdl) | C |
| Bn | 13 (19) | vv (vv) | Multi Purpose Ctrl4 | ( Knob = Knob Mod6, VJS ) | C |
| Bn | 14 (20) | vv (vv) | | ( Knob = Knob Mod7, VJS ) | C |
| Bn | 15 (21) | vv (vv) | | ( Knob = Knob Mod8, VJS ) | C |
| Bn | 16 (22) | vv (vv) | | ( KARMA Slider1, ASW/Pdl ) *3 | C |
| Bn | 17 (23) | vv (vv) | | ( KARMA Slider2, ASW/Pdl ) *3 | C |
| Bn | 18 (24) | vv (vv) | | ( KARMA Slider3, ASW/Pdl ) *3 | C |
| Bn | 19 (25) | vv (vv) | | ( KARMA Slider4, ASW/Pdl ) *3 | C |
| Bn | 1A (26) | vv (vv) | | ( KARMA Slider5, ASW/Pdl ) *3 | C |
| Bn | 1B (27) | vv (vv) | | ( KARMA Slider6, ASW/Pdl ) *3 | C |
| Bn | 1C (28) | vv (vv) | | ( KARMA Slider7, ASW/Pdl ) *3 | C |
| Bn | 1D (29) | vv (vv) | | ( KARMA Slider8, ASW/Pdl ) *3 | C |
| Bn | 1E (30) | vv (vv) | | ( KARMA SCENE, ASW ) *3 | C |
| Bn | 1F (31) | vv (vv) | | ( KARMA LATCH, ASW ) *3 | C |
| Bn | 20 (32) | bb (bb) | Bank Select(LSB) | ( BANK keys, Prog/Combi/Set List change ) *2 | PB |
| Bn | 40 (64) | vv (vv) | Hold1 | ( Damper ) | C |
| Bn | 41 (65) | 00/7F (00/127) | Portamento Off/On | ( SW1/SW2/ASW = Porta.SW, S Chg ) | C |
| Bn | 42 (66) | 00/7F (00/127) | Sostenuto Off/On | ( ASW = Sostenuto ) | C |
| Bn | 43 (67) | vv (vv) | Soft Pedal | ( ASW = Soft ) | C |
| Bn | 46 (70) | vv (vv) | Sound Controller 1 | ( Knob/VJS = F/A Sustain ) | C |
| Bn | 47 (71) | vv (vv) | Sound Controller 2 | ( Knob2, Knob/VJS = Resonance, ASW/Pdl ) | C |
| Bn | 48 (72) | vv (vv) | Sound Controller 3 | ( Knob4, Knob/VJS = F/A Release, ASW/Pdl ) | C |
| Bn | 49 (73) | vv (vv) | Sound Controller 4 | ( Knob/VJS = F/A Attack ) | C |
| Bn | 4A (74) | vv (vv) | Sound Controller 5 | ( Knob1, Knob/VJS = Filter Cutoff, ASW/Pdl ) | C |
| Bn | 4B (75) | vv (vv) | Sound Controller 6 | ( Knob/VJS = F/A Decay ) | C |
| Bn | 4C (76) | vv (vv) | Sound Controller 7 | ( Knob/VJS = Pitch LFO1 Spd ) | C |
| Bn | 4D (77) | vv (vv) | Sound Controller 8 | ( Knob/VJS = Pitch LFO1 Dep ) | C |
| Bn | 4E (78) | vv (vv) | Sound Controller 9 | ( Knob/VJS = Pitch LFO1 Dly ) | C |
| Bn | 4F (79) | vv (vv) | Sound Controller 10 | ( Knob3, Knob/VJS = Filter EG Int, ASW/Pdl ) | C |
| Bn | 50 (80) | 00/7F (00/127) | Multi Purpose Ctrl5 | ( SW1/Knob/VJS = SW1 Mod. ) | C |
| Bn | 51 (81) | 00/7F (00/127) | Multi Purpose Ctrl6 | ( SW2/Knob/VJS = SW2 Mod. ) | C |
| Bn | 52 (82) | 00/7F (00/127) | Multi Purpose Ctrl7 | ( ASW/Knob/VJS = Foot SW ) | C |
| Bn | 53 (83) | vv (vv) | Multi Purpose Ctrl8 | ( Knob/VJS = MIDI CC#83 ) | C |
| Bn | 55 (85) | vv (vv) | | ( VJS = VJS +X Mod. ) | C |
| Bn | 56 (86) | vv (vv) | | ( VJS = VJS -X Mod. ) | C |
| Bn | 57 (87) | vv (vv) | | ( VJS = VJS +Y Mod. ) | C |
| Bn | 58 (88) | vv (vv) | | ( VJS = VJS -Y Mod. ) | C |
| Bn | 5B (91) | vv (vv) | Effect 1 Depth | ( Knob/VJS/Pdl = MFX Send2, S Chg ) | C |
| Bg | 5C (92) | 00/7F (00/127) | Effect 2 Depth | ( All Insert FX Off/On ) | C |
| Bn | 5D (93) | vv (vv) | Effect 3 Depth | ( Knob/VJS/Pdl = MFX Send1, S Chg ) | C |
| Bg | 5E (94) | 00/7F (00/127) | Effect 4 Depth | ( Master FX1/2 Off/On ) | C |
| Bg | 5F (95) | 00/7F (00/127) | Effect 5 Depth | ( Total FX1/2 Off/On ) | C |
| Bn | 66 (102) | vv (vv) | | ( KARMA SW1, ASW ) *3 | C |
| Bn | 67 (103) | vv (vv) | | ( KARMA SW2, ASW ) *3 | C |
| Bn | 68 (104) | vv (vv) | | ( KARMA SW3, ASW ) *3 | C |
| Bn | 69 (105) | vv (vv) | | ( KARMA SW4, ASW ) *3 | C |
| Bn | 6A (106) | vv (vv) | | ( KARMA SW5, ASW ) *3 | C |
| Bn | 6B (107) | vv (vv) | | ( KARMA SW6, ASW ) *3 | C |
| Bn | 6C (108) | vv (vv) | | ( KARMA SW7, ASW ) *3 | C |
| Bn | 6D (109) | vv (vv) | | ( KARMA SW8, ASW ) *3 | C |
| Bn | 6E (110) | vv (vv) | | ( Pad1, ASW ) *3 | C |
| Bn | 6F (111) | vv (vv) | | ( Pad2, ASW ) *3 | C |
| Bn | 70 (112) | vv (vv) | | ( Pad3, ASW ) *3 | C |
| Bn | 71 (113) | vv (vv) | | ( Pad4, ASW ) *3 | C |

| Status [Hex] | Second [H] [D] | Third [H] [D] | Description | ( Transmitted by ....) | | ENA |
|---|---|---|---|---|---|---|
| Bn | 72 (114) | vv (vv) | | ( Pad5, ASW ) | *3 | C |
| Bn | 73 (115) | vv (vv) | | ( Pad6, ASW ) | *3 | C |
| Bn | 74 (116) | vv (vv) | | ( Pad7, ASW ) | *3 | C |
| Bn | 75 (117) | vv (vv) | | ( Pad8, ASW ) | *3 | C |
| Bn | 76 (118) | vv (vv) | | ( Vector Joystick X ) | *3 | C |
| Bn | 77 (119) | vv (vv) | | ( Vector Joystick Y ) | *3 | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( Sequencer data ) | | Q |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( Knob = MIDI CC#00-119 ) | | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( Vector CC = MIDI CC#00-119 ) | | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( KARMA RTC = MIDI CC#00-119 ) | | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( Pads = MIDI CC#00-119 ) | | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( External Mode = MIDI CC#00-119 ) | | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-119 | ( KARMA GE data = MIDI CC#00-119 ) | | C |
| Bn | cc (cc) | vv (vv) | Control (cc)=0-95 | ( KARMA CC Offset = MIDI CC#00-95 ) | *4 | C |
| Cn | pp (pp) | -- -- | Program Change | ( Prog/Combi/Set List change ) | *2 | P |
| Dn | vv (vv) | -- -- | Channel Pressure | ( After Touch ) | | T |
| En | bb (bb) | bb (bb) | Bender Change | ( Joy Stick X ) | | C |

Pdl : Assignable Pedal
ASW : Assignable Switch
Knob : Realtime Knob5,6,7,8
VJS : Vector Joystick CC Control

S Chg : Transmitted when change a Song No.(Seq. mode). (Status = EXT,EX2,BTH)
C/S Chg : Transmitted when change a Combination or Song No.(Seq. mode). (Status = EXT,EX2 or BTH)

n : MIDI Channel No. (0 - 15) ••••••Usually Global Channel.
When in Combination/Sequencer/Spng Play mode, each timbre's/track's channel.(Status = EXT,EX2 or BTH)
g : Always Global Channel No. (0 - 15)
ENA = A : Always Enabled.
C : Enabled when Enable Control Change in Global mode is checked.
P : Enabled when Enable Program Change in Global mode is checked.
PB: Enabled when Enable Program and Bank Change in Global mode is checked.
T : Enabled when Enable After Touch in Global mode is checked.
Q : Enabled when Sequencer is playing(transmit), recording(receive)

*1 : kk = 24 - 108 : KRONOS 61Keys (61Keys + Transpose)
= 16 - 112 : KRONOS 73Keys (73keys + Transpose)
= 09 - 120 : KRONOS 88Keys (88keys + Transpose)
= 00 - 127 : Sequencer and KARMA Module

| *2 : Program | Combination | MIDI Out[Hex] | (Bank Map is KORG) | | (Bank Map is GM(2)) | |
|---|---|---|---|---|---|---|
| Bank INT-A 000 - 127 : | Bank INT-A 000 - 127 : | mm,bb,pp | = 00,00, | 00 - 7F | = 3F,00, | 00 - 7F |
| INT-B 000 - 127 : | INT-B 000 - 127 : | | 00,01, | 00 - 7F | 3F,01, | 00 - 7F |
| INT-C 000 - 127 : | INT-C 000 - 127 : | | 00,02, | 00 - 7F | 3F,02, | 00 - 7F |
| INT-D 000 - 127 : | INT-D 000 - 127 : | | 00,03, | 00 - 7F | 3F,03, | 00 - 7F |
| INT-E 000 - 127 : | INT-E 000 - 127 : | | 00,04, | 00 - 7F | 3F,04, | 00 - 7F |
| INT-F 000 - 127 : | INT-F 000 - 127 : | | 00,05, | 00 - 7F | 3F,05, | 00 - 7F |
| : | INT-G 000 - 127 : | | 00,06, | 00 - 7F | 3F,06, | 00 - 7F |
| GM 001 - 128 : | | | 79,00, | 00 - 7F | 79,00, | 00 - 7F |
| g(1)-(9) 001 - 128 : | | | 79,01-09, | 00 - 7F | 79,01-09, | 00 - 7F |
| g(d) 001 - 128 : | | | 78,00, | 00 - 7F | 78,00, | 00 - 7F |
| USER-A 000 - 127 : | USER-A 000 - 127 : | | 00,08, | 00 - 7F | 3F,08, | 00 - 7F |
| USER-B 000 - 127 : | USER-B 000 - 127 : | | 00,09, | 00 - 7F | 3F,09, | 00 - 7F |
| USER-C 000 - 127 : | USER-C 000 - 127 : | | 00,0A, | 00 - 7F | 3F,0A, | 00 - 7F |
| USER-D 000 - 127 : | USER-D 000 - 127 : | | 00,0B, | 00 - 7F | 3F,0B, | 00 - 7F |
| USER-E 000 - 127 : | USER-E 000 - 127 : | | 00,0C, | 00 - 7F | 3F,0C, | 00 - 7F |
| USER-F 000 - 127 : | USER-F 000 - 127 : | | 00,0D, | 00 - 7F | 3F,0D, | 00 - 7F |
| USER-G 000 - 127 : | USER-G 000 - 127 : | | 00,0E, | 00 - 7F | 3F,0E, | 00 - 7F |
| : Set List | | | | | | |
| 000-127 000 - 127(Slot) | | : mm,bb,pp | = 00,00-7F, | 00 - 7F | = 00,00-7F, | 00 - 7F |

*3 : When CC# by "CC Default" is assigned to the KARMA Controllers, Vector Joystick X, Y and Pads in Global Mode.

Reset Controller MIDI Assign = CC Default

KARMA ON/OFF :CC#14
KARMA Slider1 :CC#22
KARMA Slider2 :CC#23
KARMA Slider3 :CC#24
KARMA Slider4 :CC#25
KARMA Slider5 :CC#26
KARMA Slider6 :CC#27
KARMA Slider7 :CC#28

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      KARMA Slider8      :CC#29
      KARMA SCENE        :CC#30
      KARMA LATCH        :CC#31
      KARMA SW1          :CC#102
      KARMA SW2          :CC#103
      KARMA SW3          :CC#104
      KARMA SW4          :CC#105
      KARMA SW5          :CC#106
      KARMA SW6          :CC#107
      KARMA SW7          :CC#108
      KARMA SW8          :CC#109
      Pad1               :CC#110
      Pad2               :CC#111
      Pad3               :CC#112
      Pad4               :CC#113
      Pad5               :CC#114
      Pad6               :CC#115
      Pad7               :CC#116
      Pad8               :CC#117
      Vector Joystick X  :CC#118
      Vector Joystick Y  :CC#119
```

*4 : Transmitted when turn KARMA On.
Transmitted when change a GE. (KARMA ON/OFF = On)
Transmitted when change a Program, Combination or Song No.(Seq. mode) (KARMA ON/OFF = On)

*5 : (vv) = 64 is always transmitted at Sequencer playback.

### 1-2 SYSTEM COMMON MESSAGES

[H] :Hex, [D] :Decimal

| Status [Hex] | Second [H] [D] | Third [H] [D] | Description ( Transmitted when ) |
|---|---|---|---|
| F2 | ss (ss) | tt (tt) | Song Position Pointer<br>ss : Least significant [LSB] *6<br>tt : Most significant [MSB] *6 |
| F3 | ss (ss) | | Song Select (Song is selected)<br>ss : Song(0-127) |

Transmits Song Position Pointer message when in Sequencer mode. (Internal Clock)
Transmits Song Select message when in Sequencer mode. (Internal Clock)

*6 : For example, if time signature is 4/4 or 8/8, tt,ss = 00,10 means one measure.

### 1-3 SYSTEM REALTIME MESSAGES

| Status[Hex] | Description | ( Transmitted when ... ) | |
|---|---|---|---|
| F8 | Timing Clock | ( Always in Prog/Combi/Seq mode ) | *7 |
| FA | Start | ( START in Seq mode ) | *7 |
| | | ( Trigger KARMA in Prog/Combi mode) | *7, *8 |
| FB | Continue | ( Continue START in Seq mode ) | *7 |
| FC | Stop | ( STOP in Seq mode ) | *7 |
| | | ( Trigger KARMA in Prog/Combi mode) | *7, *8 |
| FE | Active Sensing | ( Always ) | |

*7 Transmits these messages when MIDI Clock in Global mode is Internal.
*8 Transmits these messages when Enable Start/Stop Out in Prog/Combi in Global mode is Enabled.

### 1-4 SYSTEM EXCLUSIVE

#### 1-4-1 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE ( NON REALTIME )

DEVICE INQUIRY REPLY ( Transmits when received a INQUIRY MESSAGE REQUEST )
[ F0,7E,0g,06,02,42,68,00,mm,00,vv,ww,xx,00,F7 ]

```
3rd byte   g : Global Channel
6th byte  42 : KORG ID
7th byte  68 : KRONOS series ID
9th byte  mm : KRONOS 61Keys member code mm = 05
               KRONOS 73Keys member code mm = 0E
               KRONOS 88Keys member code mm = 17
10th byte  vv : System Version 1st ( 1 - )
11th byte  ww : System Version 2nd ( 0 - )
12th byte  xx : System Version 3rd ( 0 - )
(i.e. Version 1.0.2: vv=01, ww=00, xx=02 )
```

#### 1-4-2 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES ( REALTIME )

Master Volume
[ F0,7F,0g,04,01,vv,mm,F7 ]

```
3rd byte    g : Global Channel
6th byte   vv : Value(LSB)
7th byte   mm : Value(MSB)
           mm,vv = 00,00 - 7F,7F : Min - Max
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2.RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

[H] :Hex, [D] :Decimal

| Status [Hex] | Second [H] [D] | Third [H] | [D] | Description ( Use ..... ) | | | ENA |
|---|---|---|---|---|---|---|---|
| 8n | kk (kk) | vv | (vv) | Note Off | (vv) = 0-127 | *5 | A |
| 9n | kk (kk) | 00 | (00) | Note Off | | | A |
| 9n | kk (kk) | vv | (vv) | Note On | (vv) = 1-127 | | A |
| An | kk (kk) | vv | (vv) | Poly Key Pressure | ( as AMS ) | | T,Q |
| Bn | 00 (00) | mm | (mm) | Bank Select(MSB) | ( for Prog/Combi/Set List change ) | *1 | P |
| Bn | 01 (01) | vv | (vv) | Modulation1 | ( as Joy Stick +Y ) | | C |
| Bn | 02 (02) | vv | (vv) | Modulation2 | ( as Joy Stick -Y ) | | C |
| Bn | 04 (04) | vv | (vv) | Foot Pedal | ( as AMS & FX Dmod Src = Foot Pedal ) | | C |
| Bn | 05 (05) | vv | (vv) | Portamento Time | | | C |
| Bn | 06 (06) | vv | (vv) | Data Entry (MSB) | ( for RPC edit ) | | C |
| Bn | 07 (07) | vv | (vv) | Volume | | | C |
| Bn | 08 (08) | vv | (vv) | Balance Control | ( for Post IFX Panpot control ) | *2 | C |
| Bn | 0A (10) | vv | (vv) | Panpot | | | C |
| Bn | 0B (11) | vv | (vv) | Expression | | | C |
| Bn | 0C (12) | vv | (vv) | Effect Control 1 | ( as FX Dmod Src = Fx Control1 ) | | C |
| Bn | 0D (13) | vv | (vv) | Effect Control 2 | ( as FX Dmod Src = Fx Control2 ) | | C |
| Bn | 0E (14) | vv | (vv) | | ( as KARMA ON/OFF ) | *4 | C |
| Bn | 10 (16) | vv | (vv) | Multi Purpose Ctrl1 | ( as Ribbon Controller ) | | C |
| Bn | 11 (17) | vv | (vv) | Multi Purpose Ctrl2 | ( as AMS & FX Dmod Src = Knob Mod5 ) | | C |
| Bn | 12 (18) | vv | (vv) | Multi Purpose Ctrl3 | ( as Value Slider ) | | C |
| Bn | 13 (19) | vv | (vv) | Multi Purpose Ctrl4 | ( as AMS & FX Dmod Src = Knob Mod6 ) | | C |
| Bn | 14 (20) | vv | (vv) | | ( as AMS & FX Dmod Src = Knob Mod7 ) | | C |
| Bn | 15 (21) | vv | (vv) | | ( as AMS & FX Dmod Src = Knob Mod8 ) | | C |
| Bn | 16 (22) | vv | (vv) | | ( as KARMA Slider1 ) | *4 | C |
| Bn | 17 (23) | vv | (vv) | | ( as KARMA Slider2 ) | *4 | C |
| Bn | 18 (24) | vv | (vv) | | ( as KARMA Slider3 ) | *4 | C |
| Bn | 19 (25) | vv | (vv) | | ( as KARMA Slider4 ) | *4 | C |
| Bn | 1A (26) | vv | (vv) | | ( as KARMA Slider5 ) | *4 | C |
| Bn | 1B (27) | vv | (vv) | | ( as KARMA Slider6 ) | *4 | C |
| Bn | 1C (28) | vv | (vv) | | ( as KARMA Slider7 ) | *4 | C |
| Bn | 1D (29) | vv | (vv) | | ( as KARMA Slider8 ) | *4 | C |
| Bn | 1E (30) | vv | (vv) | | ( as KARMA SCENE1...8 Control ) | *4 | C |
| Bn | 1F (31) | vv | (vv) | | ( as KARMA LATCH ) | *4 | C |
| Bn | 20 (32) | bb | (bb) | Bank Select(LSB) | ( for Prog/Combi/Set List change ) | *1 | P |
| Bn | 26 (38) | vv | (vv) | Data Entry (LSB) | ( for RPC edit ) | | C |
| Bn | 40 (64) | vv | (vv) | Hold1 | ( as Damper) | | C |
| Bn | 41 (65) | 3F/40 | (63/64) | Portamento Off/On | | | C |
| Bn | 42 (66) | 3F/40 | (63/64) | Sostenuto Off/On | | | C |
| Bn | 43 (67) | vv | (vv) | Soft Pedal | | | C |
| Bn | 46 (70) | vv | (vv) | Sound Controller 1 | ( for Sustain Level control ) | | C |
| Bn | 47 (71) | vv | (vv) | Sound Controller 2 | ( for Resonance control ) | | C |
| Bn | 48 (72) | vv | (vv) | Sound Controller 3 | ( for Release Time control ) | | C |
| Bn | 49 (73) | vv | (vv) | Sound Controller 4 | ( for Attack Time control ) | | C |
| Bn | 4A (74) | vv | (vv) | Sound Controller 5 | ( for Filter Cutoff control ) | | C |
| Bn | 4B (75) | vv | (vv) | Sound Controller 6 | ( for Decay Time control ) | | C |
| Bn | 4C (76) | vv | (vv) | Sound Controller 7 | ( for LFO1 Speed control ) | | C |
| Bn | 4D (77) | vv | (vv) | Sound Controller 8 | ( for LFO1 Pitch Depth control ) | | C |
| Bn | 4E (78) | vv | (vv) | Sound Controller 9 | ( for LFO1 Delay control ) | | C |
| Bn | 4F (79) | vv | (vv) | Sound Controller 10 | ( for Filter EG Intencity control ) | | C |
| Bn | 50 (80) | vv | (vv) | Multi Purpose Ctrl5 | ( as AMS & FX Dmod Src = SW 1 ) | | C |
| Bn | 51 (81) | vv | (vv) | Multi Purpose Ctrl6 | ( as AMS & FX Dmod Src = SW 2 ) | | C |
| Bn | 52 (82) | vv | (vv) | Multi Purpose Ctrl7 | ( as AMS & FX Dmod Src = Foot Switch ) | | C |
| Bn | 53 (83) | vv | (vv) | Multi Purpose Ctrl8 | ( as AMS & FX Dmod Src = CC#83 ) | | C |
| Bn | 55 (85) | vv | (vv) | | ( as AMS & FX Dmod Src = Vector Mod +X ) | | C |
| Bn | 56 (86) | vv | (vv) | | ( as AMS & FX Dmod Src = Vector Mod -X ) | | C |
| Bn | 57 (87) | vv | (vv) | | ( as AMS & FX Dmod Src = Vector Mod +Y ) | | C |
| Bn | 58 (88) | vv | (vv) | | ( as AMS & FX Dmod Src = Vector Mod -Y ) | | C |
| Bn | 5B (91) | vv | (vv) | Effect 1 Depth | ( for Send 2 Level control ) | | C |
| Bg | 5C (92) | 00/00 | (00/000) | Effect 2 Depth | ( for All Insert FX Off/On ) | | C |
| Bn | 5D (93) | vv | (vv) | Effect 3 Depth | ( for Send 1 Level control ) | | C |
| Bg | 5E (94) | 00/00 | (00/000) | Effect 4 Depth | ( for Master FX1,2 Off/On ) | | C |
| Bg | 5F (95) | 00/00 | (00/000) | Effect 5 Depth | ( for Total FX1,2 Off/On ) | | C |
| Bn | 60 (96) | 00 | (00) | Data Increment | ( for RPC edit ) | | C |
| Bn | 61 (97) | 00 | (00) | Data Decrement | ( for RPC edit ) | | C |
| Bn | 64 (100) | 0r | (0r) | RPN Param No. (LSB) | ( for RPN select ) | *3 | C |
| Bn | 65 (101) | 00 | (00) | RPN Param No. (MSB) | ( for RPN select ) | *3 | C |
| Bn | 66 (102) | 3F/40 | (63/64) | | ( as KARMA SW1 ) | *4 | C |
| Bn | 67 (103) | 3F/40 | (63/64) | | ( as KARMA SW2 ) | *4 | C |
| Bn | 68 (104) | 3F/40 | (63/64) | | ( as KARMA SW3 ) | *4 | C |
| Bn | 69 (105) | 3F/40 | (63/64) | | ( as KARMA SW4 ) | *4 | C |

| Status [Hex] | Second [H] [D] | Third [H] | [D] | Description ( Use ..... ) | | ENA |
|---|---|---|---|---|---|---|
| Bn | 6A (106) | 3F/40 | (63/64) | ( as KARMA SW5 ) | *4 | C |
| Bn | 6B (107) | 3F/40 | (63/64) | ( as KARMA SW6 ) | *4 | C |
| Bn | 6C (108) | 3F/40 | (63/64) | ( as KARMA SW7 ) | *4 | C |
| Bn | 6D (109) | 3F/40 | (63/64) | ( as KARMA SW8 ) | *4 | C |
| Bn | 6E (110) | vv | (vv) | ( as Pad1 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 6F (111) | vv | (vv) | ( as Pad2 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 70 (112) | vv | (vv) | ( as Pad3 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 71 (113) | vv | (vv) | ( as Pad4 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 72 (114) | vv | (vv) | ( as Pad5 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 73 (115) | vv | (vv) | ( as Pad6 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 74 (116) | vv | (vv) | ( as Pad7 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 75 (117) | vv | (vv) | ( as Pad8 (vv) = 1-127 Velocity) | *4 | C |
| Bn | 76 (118) | vv | (vv) | ( as Vector Joystick X ) | *4 | C |
| Bn | 77 (119) | vv | (vv) | ( as Vector Joystick Y ) | *4 | C |
| Bn | cc (cc) | vv | (vv) | Control data ( for Seq. recording (cc) = 0-119 ) | | C,Q |
| Bn | 78 (120) | 00 | (00) | All Sound Off | | C |
| Bn | 79 (121) | 00 | (00) | Reset All Controllers | | C |
| Bn | 7A (122) | 00/7F | (00/127) | Local Control Off/On | | A |
| Bn | 7B (123) | 00 | (00) | All Notes Off | | A |
| Bn | 7C (124) | 00 | (00) | Omni Mode Off ( as All Notes Off ) | | A |
| Bn | 7D (125) | 00 | (00) | Omni Mode On ( as All Notes Off ) | | A |
| Bn | 7E (126) | 10 | (16) | Mono Mode On ( as All Notes Off ) | | A |
| Bn | 7F (127) | 00 | (00) | Poly mode On ( as All Notes Off ) | | A |
| Cn | pp (pp) | -- | -- | Program Change ( for Prog/Combi/Set List change ) | *1 | P |
| Dn | vv (vv) | -- | -- | Channel Pressure ( as After Touch ) | | T |
| En | bb (bb) | bb | (bb) | Bender Change | | C |

AMS : Alternate Modulation Source
FX Dmod Src : Effect Dynamic Modulation Source

n : MIDI Channel No. (0 - 15) •••••• Usually Global Channel.
When in Combination/Sequencer mode, each timbre's/track's channel.(Status is INT or BTH)
For KARMA Module input in Combination/Sequencer mode, Input Channel of each KARMA Module
g : Always Global Channel No. (0 - 15)
x : Random
ENA : Same as Transmitted data

*1 : When Bank Map in Global mode is KORG;

| MIDI In [Hex] | | Program | Combination |
|---|---|---|---|
| mm,bb,pp = | 00,00, 00 - 7F | : Bank INT-A 000 - 127 | : Bank INT-A 000 - 127 : |
| | 00,01, 00 - 7F | : INT-B 000 - 127 | : INT-B 000 - 127 |
| | 00,02, 00 - 7F | : INT-C 000 - 127 | : INT-C 000 - 127 |
| | 00,03, 00 - 7F | : INT-D 000 - 127 | : INT-D 000 - 127 |
| | 00,04, 00 - 7F | : INT-E 000 - 127 | : INT-E 000 - 127 |
| | 00,05, 00 - 7F | : INT-F 000 - 127 | : INT-F 000 - 127 |
| | 00,06, 00 - 7F | : | : INT-G 000 - 127 |
| | 00,08, 00 - 7F | : USER-A 000 - 127 | : USER-A 000 - 127 |
| | 00,09, 00 - 7F | : USER-B 000 - 127 | : USER-B 000 - 127 |
| | 00,0A, 00 - 7F | : USER-C 000 - 127 | : USER-C 000 - 127 |
| | 00,0B, 00 - 7F | : USER-D 000 - 127 | : USER-D 000 - 127 |
| | 00,0C, 00 - 7F | : USER-E 000 - 127 | : USER-E 000 - 127 |
| | 00,0D, 00 - 7F | : USER-F 000 - 127 | : USER-F 000 - 127 |
| | 00,0E, 00 - 7F | : USER-G 000 - 127 | : USER-G 000 - 127 |
| | 79,00, 00 - 7F | : G 001 - 128 | |
| | 79,01-09, 00 - 7F | : g(1)-g(9) 001 - 128 | |
| | 78,00, 00 - 7F | : g(d) 001 - 128 | |
| | 38,00, 00 - 7F | : G 001 - 128 | |
| | 3E,00, 00 - 7F | : g(d) 001 - 128 | |

| MIDI In [Hex] | | Set List |
|---|---|---|
| mm,bb,pp = | 00,00-7F, 00 - 7F | : 000-127 000 - 127(Slot) |

: When Bank Map in Global mode is GM(2);

| MIDI In [Hex] | | Program | Combination |
|---|---|---|---|
| mm,bb,pp = | 3F,00, 00 - 7F | : Bank INT-A 000 - 127 | : Bank INT-A 000 - 127 |
| | 3F,01, 00 - 7F | : INT-B 000 - 127 | : INT-B 000 - 127 |
| | 3F,02, 00 - 7F | : INT-C 000 - 127 | : INT-C 000 - 127 |
| | 3F,03, 00 - 7F | : INT-D 000 - 127 | : INT-D 000 - 127 |
| | 3F,04, 00 - 7F | : INT-E 000 - 127 | : INT-E 000 - 127 |
| | 3F,05, 00 - 7F | : INT-F 000 - 127 | : INT-F 000 - 127 |
| | 3F,06, 00 - 7F | : | : INT-G 000 - 127 |
| | 3F,08, 00 - 7F | : USER-A 000 - 127 | : USER-A 000 - 127 |
| | 3F,09, 00 - 7F | : USER-B 000 - 127 | : USER-B 000 - 127 |

```
            3F,0A,    00 - 7F   :     USER-C 000 - 127 :     USER-C 000 - 127
            3F,0B,    00 - 7F   :     USER-D 000 - 127 :     USER-D 000 - 127
            3F,0C,    00 - 7F   :     USER-E 000 - 127 :     USER-E 000 - 127
            3F,0D,    00 - 7F   :     USER-F 000 - 127 :     USER-F 000 - 127
            3F,0E,    00 - 7F   :     USER-G 000 - 127 :     USER-G 000 - 127

            79,00,    00 - 7F   :          G 001 - 128
            79,01-09, 00 - 7F   :  g(1)-g(9) 001 - 128
            78,00,    00 - 7F   :       g(d) 001 - 128

            00,00,    00 - 7F   :          G 001 - 128
            38,00,    00 - 7F   :          G 001 - 128
            3E,00,    00 - 7F   :       g(d) 001 - 128

MIDI In    [Hex]                 Set List
mm,bb,pp = 00,00-7F, 00 - 7F   : 000-127    000 - 127(Slot)
```

*2 : When in Program/Sampling mode, Global channel.
When in Combination/Sequencer mode, each IFX's channel.

*3 : r = 0 : Pitch Bend Sensitivity ( Bend Range )
= 1 : Fine Tune ( Detune )
= 2 : Coarse Tune ( Transpose )

For drum program, both of Fine Tune and Coase Tune affect to Detune.
Data Entry LSB value has no effect for Pitch Bend Sensitivity and Coarse Tune.

*4 : When CC# by "CC Default" is assigned to the KARMA Controllers, Vector Joystick X, Y and Pads in Global Mode.

n : When in Program/Combination mode, Global channel.
When in Sequencer mode, current selected track's channel.

*5 : Note Off Velocity values (vv) = 0 - 127 are not recorded in Sequencer.

## 2-2 SYSTEM COMMON MESSAGES

[H] :Hex, [D] :Decimal

| Status [Hex] | Second [H] [D] | Third [H] [D] | Description ( Use for ..... ) |
|---|---|---|---|
| F2 | ss (ss) | tt (tt) | Song Position Pointer ( Location ) *7<br>ss : Least significant [LSB]<br>tt : Most significant [MSB] |
| F3 | ss (ss) | | Song Select (Song select) *6<br>ss : Song(0-127) No. |

Receive when in Sequencer mode.

## 2-3 SYSTEM REALTIME MESSAGES

| Status[Hex] | Description ( Use for..... ) | |
|---|---|---|
| F8 | Timing Clock ( Tempo, AMS & FX Dmod Src ) | *6 |
| FA | Start ( Seq Start & KARMA Control ) | *7 |
| FB | Continue ( Seq Continue start & KARMA Control ) | *7 |
| FC | Stop ( Seq Stop & KARMA Control ) | *7 |
| FE | Active Sensing ( MIDI Connect check ) | |

*6 Receive when MIDI Clock in Global mode is External MIDI.
*6 Receive when MIDI Clock in Global mode is External MIDI
and Receive Ext. Realtime Commands in Global mode is checked.

## 2-4 SYSTEM EXCLUSIVE

### 2-4-1 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE ( NON REALTIME )

```
      DEVICE INQUlRY ( When received this message, transmits INQUlRY MESSAGE REPLY )
      [ F0,7E,nn,06,01,F7 ] 3rd byte nn : Channel = 0 - F : Global Channel
                                                 = 7F    : Any Channel

      GM System On ( Receive when in Sequencer mode )
      [ F0,7E,nn,09,01,F7 ] 3rd byte nn : Channel = 0 - F : Global Channel
                                                 = 7F    : Any Channel
```

## 2-4-2 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES ( REALTIME )

```
Master Volume
[ F0,7F,0g,04,01,vv,mm,F7 ] 3rd byte  g : Global Channel
                            6th byte vv : Value(LSB)
                            7th byte mm : Value(MSB)
                                     mm,vv = 00,00 - 7F,7F : Min - Max

Master Balance
[ F0,7F,0g,04,02,vv,mm,F7 ] 3rd byte  g : Global Channel
                            6th byte vv : Value(LSB)
                            7th byte mm : Value(MSB)
                            mm,vv = 00,00:Left, 40,00:Center, 7F,7F:Right

Master Fine Tune ( Control Master Tune(cent) in Global )
[ F0,7F,0g,04,03,vv,mm,F7 ] 3rd byte  g : Global Channel
                            6th byte vv : Value(LSB)
                            7th byte mm : Value(MSB)
                                     mm,vv = 20,00:-50, 40,00:+00, 60,00:+50

Master Coarse Tune ( Control Transpose (chromatic step) in Global )
[ F0,7F,0g,04,04,vv,mm,F7 ] 3rd byte g : Global Channel
                            6th byte vv : Value(LSB)
                            7th byte mm : Value(MSB)
                                     mm,vv = 34,00:-12, 40,00:+00, 4C,00:+12
```