KORG RADIAS MIDI Implementaion

KORG

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Revision 1.0 (2005.09.22)

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)	40 (64)	Note Off	*1	A
9n	kk (kk)	vv (vv)	Note On vv=1~127	*1	A
Bn	00 (00)	mm (mm)	Bank Select(MSB)	(Program Change) *2	K
Bn	01 (01)	vv (vv)	Modulation1	(Mod Wheel,A.P=ModWheel)	C
Bn	02 (02)	vv (vv)	Modulation2	(A.P=BrthCtrl)	C
Bn	04 (04)	vv (vv)	Foot Control	(A.P=FootPedal)	C
Bn	06 (06)	vv (vv)	Data Entry (MSB)	(Panel Control) *3	C
Bn	07 (07)	vv (vv)	Volume	(A.P=Volume)	C
Bn	0A (10)	vv (vv)	Panpot	(A.P=Pan)	C
Bn	0B (11)	vv (vv)	Expression	(A.P=ExpPedal)	C
Bn	20 (32)	bb (bb)	Bank Select(LSB)	(Timbre/DrumKit Change) *2	K
Bn	40 (64)	00/7F (0/127)	Sustain Off/On	(A.S=Damper)	C
Bn	41 (65)	00/7F (0/127)	Portamento Off/On	(A.S=PortSw)	C
Bn	52 (82)	00/7F (0/127)	Multi Purpose Ctrl17(as Foot Sw)	(A.S=FootSw)	C
Bn	62 (98)	vv (vv)	NRPN (LSB)	(P.C) *3	C
Bn	63 (99)	vv (vv)	NRPN (MSB)	(P.C) *3	C
Bn	cc (cc)	vv (vv)	Control Change cc=00~95,102~119	(P.C) *4	C
Cn	pp (pp)	-- --	Program Change	(Prog Change)	P
Dn	vv (vv)	-- --	Channel Pressure	(A.P=AftTouch)	C
En	bb (bb)	bb (bb)	Pitch Bender Change	(Bend Wheel)	B

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n  : MIDI Channel = 0 ~ F
vv : Value

A.P: Assignable Pedal
A.S: Assignable Switch
P.C: Panel Control

ENA = A : Always Enable
      C : Enabled when Global CtrlChg is enabled.
      P : Enabled when Global PROG Chg is enabled.
      K : Enabled when Global BANK Chg is enabled.
      B : Enabled when Global PitchBend is enabled.


*1 : kk =  5 ~ 108 : RADIAS(with Keyboard)   (49Keys + OCT + Transpose)
        = 21 ~ 108 : RADIAS(no Keyboard)     (16Keys + OCT + Transpose)

*2 : Program            MIDI Out       [Hex]          [Dec]
     Program A01 - H16   mm,bb,pp   = 00,00,00~7F / 00,00,000~127
             I01 - P16              00,01,00~7F / 00,01,000~127
     Timbre1 A01 - H16              20,20,00~7F / 32,32,000~127   (only Receive)
             I01 - P16              20,21,00~7F / 32,33,000~127   (only Receive)
     Timbre2 A01 - H16              20,22,00~7F / 32,34,000~127   (only Receive)
             I01 - P16              20,23,00~7F / 32,35,000~127   (only Receive)
     Timbre3 A01 - H16              20,24,00~7F / 32,36,000~127   (only Receive)
             I01 - P16              20,25,00~7F / 32,37,000~127   (only Receive)
     Timbre4 A01 - H16              20,26,00~7F / 32,38,000~127   (only Receive)
             I01 - P16              20,27,00~7F / 32,39,000~127   (only Receive)
     Drum Kit 01 - 32               20,40,00~1F / 32,64,000~031   (only Receive)
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*3 : Non Registered Parameter Number (NRPN)
+---------+----------------------------+----------------------+
| MSB LSB |         Parameter          | Data Entry(MSB) Value|
| [H] [H] |                            |                      |
+---------+----------------------------+----------------------+
| 00  02  | Arpeggio On/Off            | 00/7F:OFF/ON         |
| 00  04  | Arpeggio Latch On/Off      | 00/7F:OFF/ON         |
| 00  07  | Arpeggio Type              | *3-1                 |
| 00  0A  | Arpeggio Gate              | *3-2                 |
| 00  0B  | Arpeggio Select SW         | *3-3                 |
|         |                            |                      |
| 00  14  | StepSeq1 Latch             | 00/7F:OFF/ON         |
| 00  1A  | StepSeq1 Gate              | *3-2                 |
|         |                            |                      |
| 00  24  | StepSeq2 Latch             | 00/7F:OFF/ON         |
| 00  2A  | StepSeq2 Gate              | *3-2                 |
|         |                            |                      |
| 04  00  | Patch1 Source              | *3-4                 |
| 04  01  | Patch2 Source              | *3-4                 |
| 04  02  | Patch3 Source              | *3-4                 |
| 04  03  | Patch4 Source              | *3-4                 |
| 04  04  | Patch5 Source              | *3-4                 |
| 04  05  | Patch6 Source              | *3-4                 |
| 04  08  | Patch1 Destination         | *3-5                 |
| 04  09  | Patch2 Destination         | *3-5                 |
| 04  0A  | Patch3 Destination         | *3-5                 |
| 04  0B  | Patch4 Destination         | *3-5                 |
| 04  0C  | Patch5 Destination         | *3-5                 |
| 04  0D  | Patch6 Destination         | *3-5                 |
|         |                            |                      |
| 04  10  | Mod.SEQ1 Step[01] VALUE    | *3-6                 |
| 04  11  | Mod.SEQ1 Step[02] VALUE    | *3-6                 |
| 04  12  | Mod.SEQ1 Step[03] VALUE    | *3-6                 |
| 04  13  | Mod.SEQ1 Step[04] VALUE    | *3-6                 |
| 04  14  | Mod.SEQ1 Step[05] VALUE    | *3-6                 |
| 04  15  | Mod.SEQ1 Step[06] VALUE    | *3-6                 |
| 04  16  | Mod.SEQ1 Step[07] VALUE    | *3-6                 |
| 04  17  | Mod.SEQ1 Step[08] VALUE    | *3-6                 |
| 04  18  | Mod.SEQ1 Step[09] VALUE    | *3-6                 |
| 04  19  | Mod.SEQ1 Step[10] VALUE    | *3-6                 |
| 04  1A  | Mod.SEQ1 Step[11] VALUE    | *3-6                 |
| 04  1B  | Mod.SEQ1 Step[12] VALUE    | *3-6                 |
| 04  1C  | Mod.SEQ1 Step[13] VALUE    | *3-6                 |
| 04  1D  | Mod.SEQ1 Step[14] VALUE    | *3-6                 |
| 04  1E  | Mod.SEQ1 Step[15] VALUE    | *3-6                 |
| 04  1F  | Mod.SEQ1 Step[16] VALUE    | *3-6                 |
|         |                            |                      |
| 04  20  | Mod.SEQ2 Step[01] VALUE    | *3-6                 |
| 04  21  | Mod.SEQ2 Step[02] VALUE    | *3-6                 |
| 04  22  | Mod.SEQ2 Step[03] VALUE    | *3-6                 |
| 04  23  | Mod.SEQ2 Step[04] VALUE    | *3-6                 |
| 04  24  | Mod.SEQ2 Step[05] VALUE    | *3-6                 |
| 04  25  | Mod.SEQ2 Step[06] VALUE    | *3-6                 |
| 04  26  | Mod.SEQ2 Step[07] VALUE    | *3-6                 |
| 04  27  | Mod.SEQ2 Step[08] VALUE    | *3-6                 |
| 04  28  | Mod.SEQ2 Step[09] VALUE    | *3-6                 |
| 04  29  | Mod.SEQ2 Step[10] VALUE    | *3-6                 |
| 04  2A  | Mod.SEQ2 Step[11] VALUE    | *3-6                 |
| 04  2B  | Mod.SEQ2 Step[12] VALUE    | *3-6                 |
| 04  2C  | Mod.SEQ2 Step[13] VALUE    | *3-6                 |
| 04  2D  | Mod.SEQ2 Step[14] VALUE    | *3-6                 |
| 04  2E  | Mod.SEQ2 Step[15] VALUE    | *3-6                 |
| 04  2F  | Mod.SEQ2 Step[16] VALUE    | *3-6                 |
|         |                            |                      |
| 04  30  | Mod.SEQ3 Step[01] VALUE    | *3-6                 |
| 04  31  | Mod.SEQ3 Step[02] VALUE    | *3-6                 |
| 04  32  | Mod.SEQ3 Step[03] VALUE    | *3-6                 |
| 04  33  | Mod.SEQ3 Step[04] VALUE    | *3-6                 |
| 04  34  | Mod.SEQ3 Step[05] VALUE    | *3-6                 |
| 04  35  | Mod.SEQ3 Step[06] VALUE    | *3-6                 |
| 04  36  | Mod.SEQ3 Step[07] VALUE    | *3-6                 |
| 04  37  | Mod.SEQ3 Step[08] VALUE    | *3-6                 |
| 04  38  | Mod.SEQ3 Step[09] VALUE    | *3-6                 |
| 04  39  | Mod.SEQ3 Step[10] VALUE    | *3-6                 |
| 04  3A  | Mod.SEQ3 Step[11] VALUE    | *3-6                 |
| 04  3B  | Mod.SEQ3 Step[12] VALUE    | *3-6                 |
| 04  3C  | Mod.SEQ3 Step[13] VALUE    | *3-6                 |
| 04  3D  | Mod.SEQ3 Step[14] VALUE    | *3-6                 |
| 04  3E  | Mod.SEQ3 Step[15] VALUE    | *3-6                 |
| 04  3F  | Mod.SEQ3 Step[16] VALUE    | *3-6                 |
|         |                            |                      |
| 04  40  | Vocoder Band01 Level       | 00~7F:0~127          |
| 04  41  | Vocoder Band02 Level       | 00~7F:0~127          |
| 04  42  | Vocoder Band03 Level       | 00~7F:0~127          |
| 04  43  | Vocoder Band04 Level       | 00~7F:0~127          |
| 04  44  | Vocoder Band05 Level       | 00~7F:0~127          |
| 04  45  | Vocoder Band06 Level       | 00~7F:0~127          |
| 04  46  | Vocoder Band07 Level       | 00~7F:0~127          |
| 04  47  | Vocoder Band08 Level       | 00~7F:0~127          |
| 04  48  | Vocoder Band09 Level       | 00~7F:0~127          |
| 04  49  | Vocoder Band10 Level       | 00~7F:0~127          |
| 04  4A  | Vocoder Band11 Level       | 00~7F:0~127          |
| 04  4B  | Vocoder Band12 Level       | 00~7F:0~127          |
| 04  4C  | Vocoder Band13 Level       | 00~7F:0~127          |
| 04  4D  | Vocoder Band14 Level       | 00~7F:0~127          |
| 04  4E  | Vocoder Band15 Level       | 00~7F:0~127          |
| 04  4F  | Vocoder Band16 Level       | 00~7F:0~127          |
|         |                            |                      |
+---------+----------------------------+----------------------+
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| 04   50   | Vocoder Band01 Panpot       | *3-8                  |
| 04   51   | Vocoder Band02 Panpot       | *3-8                  |
| 04   52   | Vocoder Band03 Panpot       | *3-8                  |
| 04   53   | Vocoder Band04 Panpot       | *3-8                  |
| 04   54   | Vocoder Band05 Panpot       | *3-8                  |
| 04   55   | Vocoder Band06 Panpot       | *3-8                  |
| 04   56   | Vocoder Band07 Panpot       | *3-8                  |
| 04   57   | Vocoder Band08 Panpot       | *3-8                  |
| 04   58   | Vocoder Band09 Panpot       | *3-8                  |
| 04   59   | Vocoder Band10 Panpot       | *3-8                  |
| 04   5A   | Vocoder Band11 Panpot       | *3-8                  |
| 04   5B   | Vocoder Band12 Panpot       | *3-8                  |
| 04   5C   | Vocoder Band13 Panpot       | *3-8                  |
| 04   5D   | Vocoder Band14 Panpot       | *3-8                  |
| 04   5E   | Vocoder Band15 Panpot       | *3-8                  |
| 04   5F   | Vocoder Band16 Panpot       | *3-8                  |
|           |                             |                       |
| 04   60   | Vocoder Fc Mod.Source       | *3-4                  |
|           |                             |                       |
| 05   00   | Timbre1 SW                  | 00/7F:OFF/ON          |
| 05   01   | Timbre2 SW                  | 00/7F:OFF/ON          |
| 05   02   | Timbre3 SW                  | 00/7F:OFF/ON          |
| 05   03   | Timbre4 SW                  | 00/7F:OFF/ON          |
| 05   04   | Vocoder SW                  | 00/7F:OFF/ON          |
+---------+----------------------------+----------------------+

 *3-1 : 00~14 : Up
        15~29 : Down
        2A~3E : Alt1
        3F~53 : Alt2
        54~68 : Random
        69~7F : Trigger

 *3-2 : 00~07 :-100, -98, -96, -94, -92, -90, -88, -86,
        08~0F : -84, -82, -80, -78, -76, -74, -72, -70,
        10~17 : -68, -66, -64, -62, -60, -58, -56, -54,
        18~1F : -52, -50, -48, -46, -44, -42, -40, -38,
        20~27 : -36, -34, -32, -30, -28, -27, -26, -25,
        28~2F : -24, -23, -22, -21, -20, -19, -18, -17,
        30~37 : -16, -15, -14, -13, -12, -11, -10,  -9,
        38~3F :  -8,  -7,  -6,  -5,  -4,  -3,  -2,  -1,
        40~47 :   0,   1,   2,   3,   4,   5,   6,   7,
        48~4F :   8,   9,  10,  11,  12,  13,  14,  15,
        50~57 :  16,  17,  18,  19,  20,  21,  22,  23,
        58~5F :  24,  25,  26,  28,  30,  32,  34,  36,
        60~67 :  38,  40,  42,  44,  46,  48,  50,  52,
        68~6F :  54,  56,  58,  60,  62,  64,  66,  68,
        70~77 :  70,  72,  74,  76,  78,  80,  82,  84,
        78~7F :  86,  88,  90,  92,  94,  96,  98, 100

 *3-3 : 00    : OFF
        01    : Arpeggiator
        02    : Step Seq1
        03~7F : Step Seq2

 *3-4 : 00~07 : EG1
        08~10 : EG2
        11~18 : EG3
        19~21 : LFO
        22~29 : LFO2
        2A~32 : VELOCITY
        33~3A : PITCH BEND
        3B~43 : MOD WHEEL
        44~4B : KBD TRACK
        4C~54 : ENVELOPE FOLLOWER
        55~5C : MIDI1
        5D~65 : MIDI2
        66~6D : MIDI3
        6E~76 : MIDI4
        77~7F : MIDI5

 *3-5 : 00~07 :PITCH
        08~0F :OSC2 PITCH
        10~17 :OSC1 CTRL
        18~1F :OSC1 LEVEL
        20~27 :OSC2 LEVEL
        28~2F :NOISE LEVEL
        30~37 :FILTER1 TYPE
        38~3F :FILTER1 CUTOFF
        40~47 :FILTER1 RESONANCE
        48~4F :FILTER2 CUTOFF
        50~57 :DRV/WS DEPTH
        58~5F :AMP LEVEL
        60~67 :PANPOT
        68~6F :LFO1 FREQ.
        70~7F :LFO2 FREQ.

 *3-6 : When Knob is "Pitch" or "OSC2 Semi"  00~7F : -24~0~+24 (*3-7)
        When Knob is others                  00~7F : -63~0~+63 (*3-8)
```

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*3-7 : 00~07 : -24,-24,-24,-23,-23,-23,-22,-22
       08~0F : -21,-21,-21,-20,-20,-20,-19,-19
       10~17 : -18,-18,-18,-17,-17,-16,-16,-16
       18~1F : -15,-15,-15,-14,-14,-13,-13,-13
       20~27 : -12,-12,-11,-11,-11,-10,-10,-10
       28~2F : - 9,- 9,- 8,- 8,- 8,- 7,- 7,- 7
       30~37 : - 6,- 6,- 5,- 5,- 5,- 4,- 4,- 3
       38~3F : - 3,- 3,- 2,- 2,- 2,- 1,- 1,  0
       40~47 :   0,  0,+ 1,+ 1,+ 2,+ 2,+ 2,+ 3
       48~4F : + 3,+ 3,+ 4,+ 4,+ 5,+ 5,+ 5,+ 6
       50~57 : + 6,+ 7,+ 7,+ 7,+ 8,+ 8,+ 8,+ 9
       58~5F : + 9,+10,+10,+10,+11,+11,+11,+12
       60~67 : +12,+13,+13,+13,+14,+14,+15,+15
       68~6F : +15,+16,+16,+16,+17,+17,+18,+18
       70~77 : +18,+19,+19,+20,+20,+20,+21,+21
       78~7F : +21,+22,+22,+23,+23,+23,+24,+24

*3-8 : 00,01~7F = -63,-63~+63
       00~07 : -63,-63,-62,-61,-60,-59,-58,-57
       08~0F : -56,-55,-54,-53,-52,-51,-50,-49
       10~17 : -48,-47,-46,-45,-44,-43,-42,-41
       18~1F : -40,-39,-38,-37,-36,-35,-34,-33
       20~27 : -32,-31,-30,-29,-28,-27,-26,-25
       28~2F : -24,-23,-22,-21,-20,-19,-18,-17
       30~37 : -16,-15,-14,-13,-12,-11,-10,- 9
       38~3F : - 8,- 7,- 6,- 5,- 4,- 3,- 2,- 1
       40~47 :   0,+ 1,+ 2,+ 3,+ 4,+ 5,+ 6,+ 7
       48~4F : + 8,+ 9,+10,+11,+12,+13,+14,+15
       50~57 : +16,+17,+18,+19,+20,+21,+22,+23
       58~5F : +24,+25,+26,+27,+28,+29,+30,+31
       60~67 : +32,+33,+34,+35,+36,+37,+38,+39
       68~6F : +40,+41,+42,+43,+44,+45,+46,+47
       70~77 : +48,+49,+50,+51,+52,+53,+54,+55
       78~7F : +56,+57,+58,+59,+60,+61,+62,+63

*3-9 : 00,01~40~7F = L63,L63~CNT~R63
       00~07 : L63,L63,L62,L61,L60,L59,L58,L57
       08~0F : L56,L55,L54,L53,L52,L51,L50,L49
       10~17 : L48,L47,L46,L45,L44,L43,L42,L41
       18~1F : L40,L39,L38,L37,L36,L35,L34,L33
       20~27 : L32,L31,L30,L29,L28,L27,L26,L25
       28~2F : L24,L23,L22,L21,L20,L19,L18,L17
       30~37 : L16,L15,L14,L13,L12,L11,L10,L09
       38~3F : L08,L07,L06,L05,L04,L03,L02,L01
       40~47 : CNT,R01,R02,R03,R04,R05,R06,R07
       48~4F : R08,R09,R10,R11,R12,R13,R14,R15
       50~57 : R16,R17,R18,R19,R20,R21,R22,R23
       58~5F : R24,R25,R26,R27,R28,R29,R30,R31
       60~67 : R32,R33,R34,R35,R36,R37,R38,R39
       68~6F : R40,R41,R42,R43,R44,R45,R46,R47
       70~77 : R48,R49,R50,R51,R52,R53,R54,R55
       78~7F : R56,R57,R58,R59,R60,R61,R62,R63

*3-10: 00,01~40~7F = -2.00~0.00~+2.00
       00~07 : -2.00,-2.00,-1.93,-1.86,-1.80,-1.73,-1.66,-1.60,
       08~0F : -1.53,-1.46,-1.40,-1.33,-1.26,-1.20,-1.13,-1.06,
       10~17 : -1.00,-0.97,-0.95,-0.93,-0.91,-0.89,-0.87,-0.85,
       18~1F : -0.83,-0.81,-0.79,-0.77,-0.75,-0.72,-0.70,-0.68,
       20~27 : -0.66,-0.64,-0.62,-0.60,-0.58,-0.56,-0.54,-0.52,
       28~2F : -0.50,-0.47,-0.45,-0.43,-0.41,-0.39,-0.37,-0.35,
       30~37 : -0.33,-0.31,-0.29,-0.27,-0.25,-0.22,-0.20,-0.18,
       38~3F : -0.16,-0.14,-0.12,-0.10,-0.08,-0.06,-0.04,-0.02,
       40~47 :  0.00, 0.02, 0.04, 0.06, 0.08, 0.10, 0.12, 0.14,
       48~4F :  0.16, 0.18, 0.20, 0.22, 0.25, 0.27, 0.29, 0.31,
       50~57 :  0.33, 0.35, 0.37, 0.39, 0.41, 0.43, 0.45, 0.47,
       58~5F :  0.50, 0.52, 0.54, 0.56, 0.58, 0.60, 0.62, 0.64,
       60~67 :  0.66, 0.68, 0.70, 0.72, 0.75, 0.77, 0.79, 0.81,
       68~6F :  0.83, 0.85, 0.87, 0.89, 0.91, 0.93, 0.95, 0.97,
       70~77 :  1.00, 1.06, 1.13, 1.20, 1.26, 1.33, 1.40, 1.46,
       78~7F :  1.53, 1.60, 1.66, 1.73, 1.80, 1.86, 1.93, 2.00

*3-11:
       00~07 : -15.0, -15.0, -15.0, -14.5, -14.5, -14.0, -14.0, -13.5,
       08~0F : -13.5, -13.0, -13.0, -12.5, -12.5, -12.0, -12.0, -11.5,
       10~17 : -11.5, -11.0, -11.0, -10.5, -10.5, -10.0, -10.0, -10.0,
       18~1F : -09.5, -09.5, -09.0, -09.0, -08.5, -08.5, -08.0, -08.0,
       20~27 : -07.5, -07.5, -07.0, -07.0, -06.5, -06.5, -06.0, -06.0,
       28~2F : -05.5, -05.5, -05.0, -05.0, -05.0, -04.5, -04.5, -04.0,
       30~37 : -04.0, -03.5, -03.5, -03.0, -03.0, -02.5, -02.5, -02.0,
       38~3F : -02.0, -01.5, -01.5, -01.0, -01.0, -00.5, -00.5, +00.0,
       40~47 : +00.0, +00.0, +00.5, +00.5, +01.0, +01.0, +01.5, +01.5,
       48~4F : +02.0, +02.0, +02.5, +02.5, +03.0, +03.0, +03.5, +03.5,
       50~57 : +04.0, +04.0, +04.5, +04.5, +05.0, +05.0, +05.0, +05.5,
       58~5F : +05.5, +06.0, +06.0, +06.5, +06.5, +07.0, +07.0, +07.5,
       60~67 : +07.5, +08.0, +08.0, +08.5, +08.5, +09.0, +09.0, +09.5,
       68~6F : +09.5, +10.0, +10.0, +10.0, +10.5, +10.5, +11.0, +11.0,
       70~77 : +11.5, +11.5, +12.0, +12.0, +12.5, +12.5, +13.0, +13.0,
       78~7F : +13.5, +13.5, +14.0, +14.0, +14.5, +14.5, +15.0, +15.0
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*4 :Panel Knob & Switch Control (assignable)
+---------+-------------------+------------------+-------------------------+
|         |       Synth       |     Vocoder      |  Value  Synth/Vocoder   |
+---------+-------------------+------------------+-------------------------+
| PITCH   | Portamento        |                  | 00~7F:0~127             |
| UNISON  | Unison SW         |                  | 0,40                    |
| OSC1    | Wave              |                  | *4-1                    |
|         | OSC Mod.          |                  | *4-2                    |
|         | Control1          |                  | *4-3                    |
|         | Control2          |                  | *4-4                    |
| OSC2    | Wave              |                  | *4-5                    |
|         | OSC Mod.          |                  | *4-6                    |
|         | Semitone          |                  | *3-7                    |
|         | Tune              |                  | *3-8                    |
| MIXER   | OSC1 Level        | In Source1       | 00~7F:0~127 / 00~7F:0~127 |
|         | OSC2 Level        | In Source2       | 00~7F:0~127 / 00~7F:0~127 |
|         | Noise Level       |                  | 00~7F:0~127             |
| FILTER1 | Routing           | Mod.Select       | *4-7 / *4-8             |
|         | Type Balance      |                  | *4-9                    |
|         | Cutoff            | FC Offset        | 00~7F:0~127 / *3-8      |
|         | Resonance         | Resonance        | 00~7F:0~127             |
|         | EG1 Int           | FC Mod.Int       | *3-8                    |
|         | KBD Track         | E.F.Sens         | *3-10 / 00~7F:0~127     |
| FILTER2 | Type              | Formant Shift    | *4-10 / *4-11           |
|         | Cutoff            | Threshold        | 00~7F:0~127             |
|         | Resonance         | HPF Level        | 00~7F:0~127             |
|         | EG1 Int           | FC Mod Int       | *3-8                    |
|         | KBD Track         | E.F.Sens         | *3-8 / 00~7F:0~127      |
| AMP     | Level             | Vocoder Level    | 00~7F:0~127             |
|         | Pan               | Direct Level     | *3-9 / 00~7F:0~127      |
|         | Drive/WS Depth    |                  | 00~7F:0~127             |
|         | Drive/WS SW       | HPF Gate         | *4-12 / *4-13           |
| EG1     | Attack            |                  | 00~7F:0~127             |
|         | Decay             |                  | 00~7F:0~127             |
|         | Sustain           |                  | 00~7F:0~127             |
|         | Release           |                  | 00~7F:0~127             |
| EG2     | Attack            |                  | 00~7F:0~127             |
|         | Decay             |                  | 00~7F:0~127             |
|         | Sustain           |                  | 00~7F:0~127             |
|         | Release           |                  | 00~7F:0~127             |
| LFO1    | Wave              |                  | *4-14                   |
|         | Frequency         |                  | *4-15                   |
| LFO2    | Wave              |                  | *4-14                   |
|         | Frequency         |                  | *4-15                   |
| PATCH1  | Intensity         |                  | *3-8                    |
| PATCH2  | Intensity         |                  | *3-8                    |
| PATCH3  | Intensity         |                  | *3-8                    |
| PATCH4  | Intensity         |                  | *3-8                    |
| PATCH5  | Intensity         |                  | *3-8                    |
| PATCH6  | Intensity         |                  | *3-8                    |
| EQ      | Hi.Gain           |                  | *3-11                   |
|         | Low.Gain          |                  | *3-11                   |
| MOD SEQ.| Mod.Seq. SW       |                  | 00~3F,40~7F:OFF,ON      |
| IFX1    | SW                |                  | 00~3F,40~7F:OFF,ON      |
|         | Edit1             |                  | refer midi_imp_fx       |
|         | Edit2             |                  | refer midi_imp_fx       |
| IFX2    | SW                |                  | 00~3F,40~7F:OFF,ON      |
|         | Edit1             |                  | refer midi_imp_fx       |
|         | Edit2             |                  | refer midi_imp_fx       |
| MFX     | SW                |                  | 00~3F,40~7F:OFF,ON      |
|         | Edit              |                  | refer midi_imp_fx       |
+---------+-------------------+------------------+-------------------------+


*4-1 : 00~0D : Saw
       0E~1B : Square
       1C~29 : Tri
       2A~37 : Sin
       38~45 : Formant
       46~53 : Noise
       54~61 : Synth PCM
       62~6F : Drum PCM
       70~7F : Audio In


*4-2 : 00~1F : Waveform
       20~3F : Cross
       40~5F : Unison
       60~7F : VPM


*4-3 : When OSC1Wave is "Saw,Tri,Sin"     and OSC1Mod.Type is Waveform     00~7F : Waveform
       When OSC1Wave is "Squ"             and OSC1Mod.Type is Waveform     00~7F : PulthWidth
       When OSC1Wave is "Saw,Squ,Tri,Sin" and OSC1Mod.Type is Cross        00~7F : Mod.Depth
       When OSC1Wave is "Saw,Squ,Tri,Sin" and OSC1Mod.Type is Unison       00~7F : Detune
       When OSC1Wave is "Saw,Squ,Tri,Sin" and OSC1Mod.Type is VPM          00~7F : Mod.Depth

       When OSC1Wave is "FORMNAT"             00~7F : Formant Width
       When OSC1Wave is "NOISE"               00~7F : Resonance
       When OSC1Wave is "SynthPCM,DrumPCM"    none
       When OSC1Wave is "Audio In"            00~7F : Gain


*4-4 : When OSC1Wave is "Saw,Tri,Sin"     and OSC1Mod.Type is Waveform     00~7F : WFM LFO1 Mod. Int.
       When OSC1Wave is "Squ"             and OSC1Mod.Type is Waveform     00~7F : PWM LFO1 Mod. Int.
       When OSC1Wave is "Saw,Squ,Tri,Sin" and OSC1Mod.Type is Cross        00~7F : Mod. Depth LFO1 Mod. Int.
       When OSC1Wave is "Saw,Squ,Tri,Sin" and OSC1Mod.Type is Unison       00~7F : Unison Phase
       When OSC1Wave is "Saw,Squ,Tri,Sin" and OSC1Mod.Type is VPM          00~7F : Carrier Harmonics

       When OSC1Wave is "FORMNAT"             00~7F : Formant Shift
       When OSC1Wave is "NOISE"               00~7F : LPF/HPF Balance
       When OSC1Wave is "SynthPCM,DrumPCM"    00~7F : Wave Select
       When OSC1Wave is "Audio In"            00~7F : none
```

```
*4-5 : 00~1F : Saw
       20~3F : Squ
       40~5F : Tri
       60~7F : Sin

*4-6 : 00~1F : OFF
       20~3F : RING
       40~5F : SYNC
       60~7F : RING+SYNC

*4-7 : 00~1F : SINGLE
       20~3F : SERIAL
       40~5F : PARALLEL
       60~7F : INDIVIDUAL

*4-8 : 00~3F : Audio
       40~7F : Formant Play

*4-9   00    : LPF24
       01~1E : LPF24~LPF12
       1F~21 : LPF12
       22~3E : LPF12~HPF
       3F~41 : HPF
       42~5E : HPF~BPF
       5F~61 : BPF
       62~7E : BPF~THRU
       7F    : THRU

*4-10: 00~1F : LPF
       20~3F : HPF
       40~5F : BPF
       60~7F : COMB

*4-11: 00~1F : +1
       20~3F : +2
       40~5F : -1
       60~7F : -2

*4-12: 00~29 : OFF
       2A~54 : Drive
       55~7F : WaveShape

*4-13: 00~3F : Disable
       40~7F : Enable

*4-14: 00~1F : Saw
       20~3F : Squ
       40~5F : Tri
       60~7F : S/H

*4-15: When Tempo Sync is "OFF".
       00~07 : 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08,
       08~0F : 0.09, 0.10, 0.11, 0.12, 0.13, 0.14, 0.15, 0.16,
       10~17 : 0.17, 0.18, 0.19, 0.20, 0.21, 0.22, 0.23, 0.24,
       18~1F : 0.25, 0.29, 0.33, 0.42, 0.50, 0.58, 0.67, 0.75,
       20~27 : 0.83, 0.92, 1.00, 1.13, 1.25, 1.38, 1.50, 1.63,
       28~2F : 1.75, 1.88, 2.00, 2.13, 2.25, 2.38, 2.50, 2.63,
       30~37 : 2.75, 2.88, 3.00, 3.13, 3.25, 3.38, 3.50, 3.63,
       38~3F : 3.75, 3.88, 4.00, 4.13, 4.25, 4.38, 4.50, 4.63,
       40~47 : 4.75, 4.88, 5.00, 5.25, 5.50, 5.75, 6.00, 6.25,
       48~4F : 6.50, 6.75, 7.00, 7.25, 7.50, 7.75, 8.00, 8.25,
       50~57 : 8.50, 8.75, 9.00, 9.25, 9.50, 9.75, 10.0, 10.5,
       58~5F : 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5,
       60~67 : 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.5, 23.0,
       68~6F : 24.5, 26.0, 27.5, 29.0, 31.0, 33.0, 35.0, 37.0,
       70~77 : 39.0, 41.0, 44.0, 47.0, 50.0, 53.0, 57.0, 61.0,
       78~7F : 65.0, 70.0, 75.0, 80.0, 85.0, 90.0, 95.0, 100.0

       When Tempo Sync is "ON".
        00~03 : 8/1      24~2B : 1/2     4C~53 : 1/6     74~7B : 1/32
        04~0B : 4/1      2C~33 : 3/8     54~5B : 1/8     7C~7F : 1/64
        0C~13 : 2/1      34~3B : 1/3     5C~63 : 1/12
        14~1B : 1/1      3C~43 : 1/4     64~6B : 1/16
        1C~23 : 3/4      44~4B : 3/16    6C~73 : 1/24


1-2 SYSTEM REALTIME MESSAGES
+----------+---------------------------------------------+
| Status[H]| Description                                 |
+----------+---------------------------------------------+
|   F8     | Timing Clock                            *4  |
|   FE     | Active Sensing                              |
+----------+---------------------------------------------+
 *4 :This message is transmitted when the "Clock" is set to "Internal".
```

```
1-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES

 DEVICE INQUIRY REPLY
+---------+-----------------------------------------------+
| Byte[H] |                 Description                    |
+---------+-----------------------------------------------+
|   F0    | Exclusive Status                              |
|   7E    | Non Realtime Message                          |
|   0g    | MIDI Global Channel  ( Device ID )            |
|   06    | General Information                           |
|   02    | Identity Reply                                |
|   42    | KORG ID          ( Manufacturers ID )         |
|   72    | RADIAS Series ID ( Family ID   (LSB))         |
|   00    |                  ( Family ID   (MSB))         |
|   00    |                  ( Member ID   (LSB))         |
|   00    |                  ( Member ID   (MSB))         |
|   xx    |                  ( Minor Ver.  (LSB))         |
|   xx    |                  ( Minor Ver.  (MSB))         |
|   xx    |                  ( Major Ver.  (LSB))         |
|   xx    |                  ( Major Ver.  (MSB))         |
|   F7    | END OF EXCLUSIVE                              |
+---------+-----------------------------------------------+
  This message is transmitted whenever a INQUIRY MESSAGE REQUEST is received.


1-4 SYSTEM EXCLUSIVE MESSAGES
+------------+------------------------------------+--------+
| Function ID|      Description/Function           |        |
|   [Hex]    |                                    |  *5    |
+------------+------------------------------------+--------+
|    40      | CURRENT PROGRAM DATA DUMP          | R,D,Me |
|    4C      | PROGRAM DATA DUMP (1 PROG)         | R      |
|    43      | CURRENT FORMANT MOTION DATA DUMP   | R      |
|    48      | FORMANT MOTION DATA DUMP           | R      |
|    51      | GLOBAL DATA DUMP                   | R,D    |
|    31      | CURRENT DRUMKIT DATA DUMP          | R,D    |
|    52      | DRUMKIT DATA DUMP (1 DRUMKIT)      | R      |
|    7B      | TEMPLATE DATA DUMP                 | R,D    |
|            |                                    |        |
|    41      | PROGRAM PARAMETER CHANGE           | C      |
|    53      | DRUMKIT PARAMETER CHANGE           | C      |
|    42      | MODE DATA                          | M      |
|            |                                    |        |
|    26      | DATA FORMAT ERROR                  | E      |
|    23      | DATA LOAD COMPLETED                | E      |
|    24      | DATA LOAD ERROR                    | E      |
|    21      | WRITE COMPLETED                    | E      |
|    22      | WRITE ERROR                        | E      |
+------------+------------------------------------+--------+
 *5 : Transmitted when
     R  : Request message is received.
     D  : Data dump from MIDI dump page.
          (Doesn't respond to MIDI FILTER "SystemEx" parameter.)
     E  : Exclusive message is received.
     C  : Parameter is changed by -/+ Switch or Rotary Encoder.
     M  : Mode is changed.
     Me : Mode is changed to "LCD Edit".
```

2.RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

```
+--------+--------+------------+------------------------------------+
| Status | Second |   Third    |            Description              |
| [Hex]  | [H] [D]| [H]   [D]  |                                     |
+--------+--------+------------+------------------------------------+
|   8n   | kk (kk)| vv    (vv) | Note Off      vv=0~127              |
|   9n   | kk (kk)| 00    (00) | Note Off                            |
|   9n   | kk (kk)| vv    (vv) | Note On       vv=1~127              |
|   Bn   | 00 (00)| mm    (mm) | Bank Select(MSB)              *2     |
|   Bn   | 01 (01)| vv    (vv) | Pitch Modulation Depth              |
|   Bn   | 02 (02)| vv    (vv) | Breath Control Depth                |
|   Bn   | 06 (06)| vv    (vv) | Data Entry(MSB)               *6     |
|   Bn   | 0B (11)| vv    (vv) | Expression                          |
|   Bn   | 20 (32)| bb    (bb) | Bank Select(LSB)              *2     |
|   Bn   | 40 (64)| vv    (vv) | Sustain Off/On                      |
|   Bn   | 41 (65)| vv    (vv) | Portamento Off/On                   |
|   Bn   | 62 (98)| nl    (nl) | NRPN LSB                      *6     |
|   Bn   | 63 (99)| nm    (nm) | NRPN MSB                      *6     |
|   Bn   | 78(120)| 00    (0)  | All Sound Off                       |
|   Bn   | 79(121)| 00    (0)  | Reset All Controllers               |
|   Bn   | 7B(123)| 00    (0)  | All Note Off                        |
|   Bn   | 7C(124)| 00    (0)  | Omni Mode Off                       |
|   Bn   | 7D(125)| 00    (0)  | Omni Mode On                        |
|   Bn   | cc (cc)| vv    (vv) | Control Data  cc=00~95              |
|   Cn   | pp (pp)| --    --   | Program Change                      |
|   Dn   | vv (vv)| --    --   | Channel Pressure (After Touch)      |
|   En   | bb (bb)| bb    (bb) | Pitch Bender Change                 |
+--------+--------+------------+------------------------------------+
```

n : MIDI Channel = 0 ~ F
vv : Value

*6 : Non Registered Parameter Number (NRPN)

```
+--------+-----------------------------+------------------------+
| MSB LSB|          Parameter          | Data Entry(MSB) Value  |
| [H] [H]|                             |                        |
+--------+-----------------------------+------------------------+
| 00  02 | Arpeggio On/Off             | 00~3F/40~7F:OFF/ON     |
| 00  03 | Arpeggio Octaves            | 00~03:1~4 Octave       |
| 00  04 | Arpeggio Latch On/Off       | 00~3F/40~7F:OFF/ON     |
| 00  07 | Arpeggio Type               | *3-1                   |
| 00  0A | Arpeggio Gate               | *3-2                   |
| 00  0B | Arpeggio Select SW          | *3-3                   |
|        |                             |                        |
| 00  14 | StepSeq1 Latch              | 00~3F/40~7F:OFF/ON     |
| 00  1A | StepSeq1 Gate               | *3-2                   |
|        |                             |                        |
| 00  24 | StepSeq2 Latch              | 00~3F/40~7F:OFF/ON     |
| 00  2A | StepSeq2 Gate               | *3-2                   |
|        |                             |                        |
| 04  00 | Patch1 Source               | *3-4                   |
| 04  01 | Patch2 Source               | *3-4                   |
| 04  02 | Patch3 Source               | *3-4                   |
| 04  03 | Patch4 Source               | *3-4                   |
| 04  04 | Patch5 Source               | *3-4                   |
| 04  05 | Patch6 Source               | *3-4                   |
| 04  08 | Patch1 Destination          | *3-5                   |
| 04  09 | Patch2 Destination          | *3-5                   |
| 04  0A | Patch3 Destination          | *3-5                   |
| 04  0B | Patch4 Destination          | *3-5                   |
| 04  0C | Patch5 Destination          | *3-5                   |
| 04  0D | Patch6 Destination          | *3-5                   |
|        |                             |                        |
| 04  10 | Mod.SEQ1 Step[01] VALUE     | *3-6                   |
| 04  11 | Mod.SEQ1 Step[02] VALUE     | *3-6                   |
| 04  12 | Mod.SEQ1 Step[03] VALUE     | *3-6                   |
| 04  13 | Mod.SEQ1 Step[04] VALUE     | *3-6                   |
| 04  14 | Mod.SEQ1 Step[05] VALUE     | *3-6                   |
| 04  15 | Mod.SEQ1 Step[06] VALUE     | *3-6                   |
| 04  16 | Mod.SEQ1 Step[07] VALUE     | *3-6                   |
| 04  17 | Mod.SEQ1 Step[08] VALUE     | *3-6                   |
| 04  18 | Mod.SEQ1 Step[09] VALUE     | *3-6                   |
| 04  19 | Mod.SEQ1 Step[10] VALUE     | *3-6                   |
| 04  1A | Mod.SEQ1 Step[11] VALUE     | *3-6                   |
| 04  1B | Mod.SEQ1 Step[12] VALUE     | *3-6                   |
| 04  1C | Mod.SEQ1 Step[13] VALUE     | *3-6                   |
| 04  1D | Mod.SEQ1 Step[14] VALUE     | *3-6                   |
| 04  1E | Mod.SEQ1 Step[15] VALUE     | *3-6                   |
| 04  1F | Mod.SEQ1 Step[16] VALUE     | *3-6                   |
|        |                             |                        |
| 04  20 | Mod.SEQ2 Step[01] VALUE     | *3-6                   |
| 04  21 | Mod.SEQ2 Step[02] VALUE     | *3-6                   |
| 04  22 | Mod.SEQ2 Step[03] VALUE     | *3-6                   |
| 04  23 | Mod.SEQ2 Step[04] VALUE     | *3-6                   |
| 04  24 | Mod.SEQ2 Step[05] VALUE     | *3-6                   |
| 04  25 | Mod.SEQ2 Step[06] VALUE     | *3-6                   |
| 04  26 | Mod.SEQ2 Step[07] VALUE     | *3-6                   |
| 04  27 | Mod.SEQ2 Step[08] VALUE     | *3-6                   |
| 04  28 | Mod.SEQ2 Step[09] VALUE     | *3-6                   |
| 04  29 | Mod.SEQ2 Step[10] VALUE     | *3-6                   |
| 04  2A | Mod.SEQ2 Step[11] VALUE     | *3-6                   |
| 04  2B | Mod.SEQ2 Step[12] VALUE     | *3-6                   |
| 04  2C | Mod.SEQ2 Step[13] VALUE     | *3-6                   |
| 04  2D | Mod.SEQ2 Step[14] VALUE     | *3-6                   |
| 04  2E | Mod.SEQ2 Step[15] VALUE     | *3-6                   |
| 04  2F | Mod.SEQ2 Step[16] VALUE     | *3-6                   |
|        |                             |                        |
```

```
| 04   30  | Mod.SEQ3 Step[01] VALUE   | *3-6                 |
| 04   31  | Mod.SEQ3 Step[02] VALUE   | *3-6                 |
| 04   32  | Mod.SEQ3 Step[03] VALUE   | *3-6                 |
| 04   33  | Mod.SEQ3 Step[04] VALUE   | *3-6                 |
| 04   34  | Mod.SEQ3 Step[05] VALUE   | *3-6                 |
| 04   35  | Mod.SEQ3 Step[06] VALUE   | *3-6                 |
| 04   36  | Mod.SEQ3 Step[07] VALUE   | *3-6                 |
| 04   37  | Mod.SEQ3 Step[08] VALUE   | *3-6                 |
| 04   38  | Mod.SEQ3 Step[09] VALUE   | *3-6                 |
| 04   39  | Mod.SEQ3 Step[10] VALUE   | *3-6                 |
| 04   3A  | Mod.SEQ3 Step[11] VALUE   | *3-6                 |
| 04   3B  | Mod.SEQ3 Step[12] VALUE   | *3-6                 |
| 04   3C  | Mod.SEQ3 Step[13] VALUE   | *3-6                 |
| 04   3D  | Mod.SEQ3 Step[14] VALUE   | *3-6                 |
| 04   3E  | Mod.SEQ3 Step[15] VALUE   | *3-6                 |
| 04   3F  | Mod.SEQ3 Step[16] VALUE   | *3-6                 |
|          |                           |                      |
| 04   40  | Vocoder Band01 Level      | 00~7F:0~127          |
| 04   41  | Vocoder Band02 Level      | 00~7F:0~127          |
| 04   42  | Vocoder Band03 Level      | 00~7F:0~127          |
| 04   43  | Vocoder Band04 Level      | 00~7F:0~127          |
| 04   44  | Vocoder Band05 Level      | 00~7F:0~127          |
| 04   45  | Vocoder Band06 Level      | 00~7F:0~127          |
| 04   46  | Vocoder Band07 Level      | 00~7F:0~127          |
| 04   47  | Vocoder Band08 Level      | 00~7F:0~127          |
| 04   48  | Vocoder Band09 Level      | 00~7F:0~127          |
| 04   49  | Vocoder Band10 Level      | 00~7F:0~127          |
| 04   4A  | Vocoder Band11 Level      | 00~7F:0~127          |
| 04   4B  | Vocoder Band12 Level      | 00~7F:0~127          |
| 04   4C  | Vocoder Band13 Level      | 00~7F:0~127          |
| 04   4D  | Vocoder Band14 Level      | 00~7F:0~127          |
| 04   4E  | Vocoder Band15 Level      | 00~7F:0~127          |
| 04   4F  | Vocoder Band16 Level      | 00~7F:0~127          |
|          |                           |                      |
| 04   50  | Vocoder Band01 Panpot     | *3-8                 |
| 04   51  | Vocoder Band02 Panpot     | *3-8                 |
| 04   52  | Vocoder Band03 Panpot     | *3-8                 |
| 04   53  | Vocoder Band04 Panpot     | *3-8                 |
| 04   54  | Vocoder Band05 Panpot     | *3-8                 |
| 04   55  | Vocoder Band06 Panpot     | *3-8                 |
| 04   56  | Vocoder Band07 Panpot     | *3-8                 |
| 04   57  | Vocoder Band08 Panpot     | *3-8                 |
| 04   58  | Vocoder Band09 Panpot     | *3-8                 |
| 04   59  | Vocoder Band10 Panpot     | *3-8                 |
| 04   5A  | Vocoder Band11 Panpot     | *3-8                 |
| 04   5B  | Vocoder Band12 Panpot     | *3-8                 |
| 04   5C  | Vocoder Band13 Panpot     | *3-8                 |
| 04   5D  | Vocoder Band14 Panpot     | *3-8                 |
| 04   5E  | Vocoder Band15 Panpot     | *3-8                 |
| 04   5F  | Vocoder Band16 Panpot     | *3-8                 |
|          |                           |                      |
| 04   60  | Vocoder Fc Mod.Source     | *3-4                 |
|          |                           |                      |
| 05   00  | Timbre1 SW                | 00~3F/40~7F:OFF/ON   |
| 05   01  | Timbre2 SW                | 00~3F/40~7F:OFF/ON   |
| 05   02  | Timbre3 SW                | 00~3F/40~7F:OFF/ON   |
| 05   03  | Timbre4 SW                | 00~3F/40~7F:OFF/ON   |
| 05   04  | Vocoder SW                | 00~3F/40~7F:OFF/ON   |
+--------+-------------------------+----------------------+
 All these parameters can be changed by "Data Entry(MSB)".


2-2 SYSTEM REALTIME MESSAGES
+----------+--------------------------------------------+
| Status[H] | Description                               |
+----------+--------------------------------------------+
|    F8    | Timing Clock                        *7  |
|    FA    | Start                               *7  |
|    FC    | Stop       (Arpeggiator stop)       *7  |
|    FE    | Active Sensing                          |
+----------+--------------------------------------------+
 *7 :This message is recognized when the "Clock" is set to "Ext-USB" or "Ext-MIDI" or "Auto".


2-3 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE ( NON REALTIME )

 DEVICE INQUIRY MESSAGE REQUEST
+---------+------------------------------------------------+
| Byte[H] |       Description                            |
+---------+------------------------------------------------+
|   F0    | Exclusive Status                            |
|   7E    | Non Realtime Message                        |
|   nn    | MIDI Channel (Device ID)                    |
|   06    | General Information                         |
|   01    | Identity Request                            |
|   F7    | END OF EXCLUSIVE                            |
+---------+------------------------------------------------+
 nn : MIDI Channel = 0 ~ F :Global Channel
                   = 7F    :Any Channel
```

```
2-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE ( REALTIME )

 (1) MASTER VOLUME
+---------+------------------------------------------------+
| Byte[H] |    Description                                 |
+---------+------------------------------------------------+
|   F0    | Exclusive Status                               |
|   7F    | Realtime Message                               |
|   nn    | MIDI Channel (Device ID)                       |
|   04    | Device Control                                 |
|   01    | Master Volume                                  |
|   vv    | Value (LSB)                                     |
|   mm    | Value (MSB)                                     |
|   F7    | END OF EXCLUSIVE                                |
+---------+------------------------------------------------+
 nn : MIDI Channel = 0~F : Global Channel
                   = 7F  : Any Channel
 mm,vv : 00,00~7F,7F     : Min~Max


 (2) MASTER FINE TUNE
+---------+------------------------------------------------+
| Byte[H] |    Description                                 |
+---------+------------------------------------------------+
|   F0    | Exclusive Status                               |
|   7F    | Realtime Message                               |
|   nn    | MIDI Channel (Device ID)                       |
|   04    | Device Control                                 |
|   03    | Master Fine Tune                               |
|   vv    | Value (LSB)                                     |
|   mm    | Value (MSB)                                     |
|   F7    | END OF EXCLUSIVE                               |
+---------+------------------------------------------------+
 nn : MIDI Channel = 0~F   : Global Channel
                   = 7F    : Any Channel
 mm,vv : 00,00~40,00~7F,7F : -100~0~+100


2-5 SYSTEM EXCLUSIVE MESSAGE
+-------------+--------------------------------------------+
| Function ID |                Function                    |
|    [Hex]    |                                            |
+-------------+--------------------------------------------+
|     12      | MODE REQUEST                               |
|     10      | CURRENT PROGRAM DATA DUMP REQUEST          |
|     1C      | PROGRAM DATA DUMP REQUEST (1 PROG)         |
|     13      | CURRENT FORMANT MOTION DATA DUMP REQUEST   |
|     18      | FORMANT MOTION DATA DUMP REQUEST           |
|     0E      | GLOBAL DATA DUMP REQUEST                   |
|     01      | CURRENT DRUMKIT DATA DUMP REQUEST          |
|     0D      | DRUMKIT DATA DUMP REQUEST (1 DRUMKIT)      |
|     11      | PROGRAM WRITE REQUEST                      |
|     02      | DRUMKIT WRITE REQUEST                      |
|     03      | FORMANT MOTION DATA WRITE REQUEST          |
|     7A      | TEMPLATE DATA DUMP                         |
|             |                                            |
|     40      | CURRENT PROGRAM DATA DUMP                  |
|     4C      | PROGRAM DATA DUMP (1 PROG)                 |
|     43      | CURRENT FORMANT MOTION DATA DUMP           |
|     48      | FORMANT MOTION DATA DUMP                   |
|     51      | GLOBAL DATA DUMP                           |
|     31      | CURRENT DRUMKIT DATA DUMP                  |
|     52      | DRUMKIT DATA DUMP (1 DRUMKIT)              |
|             |                                            |
|     4E      | MODE CHANGE                               |
|     41      | PARAMETER CHANGE                          |
|     53      | DRUMKIT PARAMETER CHANGE                   |
+-------------+--------------------------------------------+
 When the "SystemEx" parameter is set to "ENA", these messages are recognized.


MIDI EXCLUSIVE FORMAT   (R:Receive, T:Transmit)

(1) MODE REQUEST                                              R
+---------------+-----------------------------------------------+
|     Byte      |             Description                        |
+---------------+-----------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                              |
| 0001 0010 (12)| MODE REQUEST                         12H      |
| 1111 0111 (F7)| EOX                                          |
+---------------+-----------------------------------------------+
 Receive this message, and transmits Func=42 message.


(2) CURRENT PROGRAM DATA DUMP REQUEST                        R
+---------------+-----------------------------------------------+
|     Byte      |             Description                        |
+---------------+-----------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                              |
| 0001 0000 (10)| CURRENT PROGRAM DATA DUMP REQUEST    10H      |
| 1111 0111 (F7)| EOX                                          |
+---------------+-----------------------------------------------+
 Receive this message, and transmits Func=40 or Func=24 message.
```

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```
(3) PROGRAM DATA DUMP REQUEST (1 PROG)                              R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0001 1100 (1C)| PROGRAM DATA DUMP REQUEST                 1CH     |
| 0ppp pppp (pp)| Source Program No.(LSB bit  6~0)                  |
| 0000 000p (0p)| Source Program No.(MSB bit 13~7)                 |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=4C or Func=24 message.


(4) CURRENT FORMANT MOTION DATA DUMP REQUEST                        R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0001 0011 (13)| MOTION DATA DUMP REQUEST                  13H     |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=43 or Func=13 message.

(5) FORMANT MOTION DATA DUMP REQUEST                                R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0001 1000 (18)| MOTION DATA DUMP REQUEST                  18H     |
| 0000 ffff (0f)| FORMANT MOTION  No.(0~15)                         |
| 0000 0000 (00)|                                                   |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=48 or Func=24 message.


(6) GLOBAL DATA DUMP REQUEST                                        R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0000 1110 (0E)| GLOBAL DATA DUMP REQUEST                  0EH     |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=51 or Func=24 message.


(7) CURRENT DRUMKIT DATA DUMP REQUEST                               R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0000 0001 (01)| CURRENT DRUMKIT DATA DUMP REQUEST         01H     |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=31 or Func=24 message.


(8) DRUMKIT DATA DUMP REQUEST                                       R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0000 1100 (0D)| PROGRAM DATA DUMP REQUEST                 0DH     |
| 000k kkkk (kk)| Source DrumKit No.(0~31)                          |
| 0000 0000 (00)|                                                   |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=52 or Func=24 message.


(9) PROGRAM WRITE REQUEST                                           R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0001 0001 (11)| PROGRAM WRITE REQUEST                     11H     |
| 0ppp pppp (pp)| Destination Program No.(LSB bit  6~0)            |
| 0000 000p (0p)| Destination Program No.(MSB bit 13~7)           |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=21 or Func=22 message.


(10) DRUMKIT WRITE REQUEST                                          R
+---------------+--------------------------------------------------+
|    Byte       |              Description                          |
+---------------+--------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                   |
| 0000 0010 (02)| DRUMKIT WRITE REQUEST                     02H     |
| 000k kkkk (kk)| Destination DrumKit No.(0~31)                     |
| 0000 0000 (00)|                                                   |
| 1111 0111 (F7)| EOX                                               |
+---------------+--------------------------------------------------+
 Receive this message, and transmits Func=21 or Func=22 message.
```

```
(11) FORMANT MOTION DATA WRITE REQUEST                               R
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0000 0011 (03)| DRUMKIT WRITE REQUEST                    03H     |
| 0000 ffff (ff)| Destination Formant Motion No.(0~15)            |
| 0000 0000 (00)|                                                 |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message, and transmits Func=21 or Func=22 message.

(12) TEMPLATE DATA DUMP REQUEST                                      R
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0111 1010 (7A)| TEMPLATE DATA DUMP                       7AH     |
| 0000 00kk (kk)| Template kind                          (NOTE 8) |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message, and transmits Func=7B,?? or Func=24 message.

(13) CURRENT PROGRAM DATA DUMP                                      R/T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 0000 (40)| CURRENT PROGRAM DATA DUMP                40H     |
| 0ddd dddd (dd)| Data                                  (NOTE 1,6)|
|       :       |    :                                            |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Edit Buffer and transmits Func=23 or Func=24 message.
 Receive Func=10 message, and transmits this message & data from Edit Buffer.
 When Enter the LCD Edit Mode, transmit this message & data from Edit Buffer.

(14) PROGRAM DATA DUMP (1 PROG)                                     R/T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 1100 (4C)| PROGRAM DATA DUMP                        4CH     |
| 0ppp pppp (pp)| Program No.(LBS bit  6~0)                       |
| 0000 000p (0p)| Program No.(MSB bit 13~7)                       |
| 0ddd dddd (dd)| Data                                  (NOTE 1,6)|
|       :       |    :                                            |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Internal Memory and transmits Func=23 or Func=24 message.
 Receive Func=1C message, and transmits this message & data from Internal Memory.
 When DATA DUMP is executed, transmit this message & data from Internal Memory.

(15) CURRENT FORMANT MOTION DATA DUMP                               R/T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 0011 (43)| CURRENT FORMANT MOTION DATA DUMP         43H     |
| 0000 0000 (00)|                                                 |
| 0sss ssss (ss)| FORMANT MOTION DATA SIZE   (bit  6~ 0)          |
| 0sss ssss (ss)| FORMANT MOTION DATA SIZE   (bit 13~ 7)          |
| 0000 0000 (00)|                                                 |
| 0ddd dddd (dd)| Data                                  (NOTE 4,6)|
|       :       |    :                                            |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Internal Memory and transmits Func=23 or Func=24 message.
 Receive Func=13 message, and transmits this message & data from Internal Memeory.
 When DATA DUMP is executed, transmit this message & data from Internal Memory.

(16) FORMANT MOTION DATA DUMP                                       R/T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 1000 (48)| FORMANT MOTION DATA DUMP                 48H     |
| 0000 ffff (0f)| FORMANT MOTION No.(0~15)                        |
| 0sss ssss (ss)| FORMANT MOTION DATA SIZE   (bit  6~ 0)          |
| 0sss ssss (ss)| FORMANT MOTION DATA SIZE   (bit 13~ 7)          |
| 0000 0000 (00)|                                                 |
| 0ddd dddd (dd)| Data                                  (NOTE 4,6)|
|       :       |    :                                            |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Internal Memory and transmits Func=23 or Func=24 message.
 Receive Func=18 message, and transmits this message & data from Internal Memeory.
 When DATA DUMP is executed, transmit this message & data from Internal Memory.
```

```
(17) GLOBAL DATA DUMP                                              R/T
+---------------+-------------------------------------------------+
|    Byte       |               Description                       |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0101 0001 (51)| GLOBAL DATA DUMP                        51H      |
| 0ddd dddd (dd)| Data                                   (NOTE 3,6)|
|      :        |   :                                             |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Internal Memory and transmits Func=23 or Func=24 message.
 Receive Func=0E message, and transmits this message & data from Edit Buffer.
 When DATA DUMP is executed, transmit this message & data from Edit Buffer.


(18) CURRENT DRUMKIT DATA DUMP                                     R/T
+---------------+-------------------------------------------------+
|    Byte       |               Description                       |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0011 0001 (31)| CURRENT DRUMKIT DATA DUMP               31H      |
| 0ddd dddd (dd)| Data                                   (NOTE 2,6)|
|      :        |   :                                             |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Edit Buffer and transmits Func=23 or Func=24 message.
 Receive Func=01 message, and transmits this message & data from Edit Buffer.
 When Enter the LCD Edit Mode, transmit this message & data from Edit Buffer.


(19) DRUMKIT DATA DUMP (1 DRUMKIT)                                 R/T
+---------------+-------------------------------------------------+
|    Byte       |               Description                       |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0101 0010 (52)| DRUMKIT DATA DUMP                       52H      |
| 000k kkkk (kk)| DrumKit No.(0~31)                               |
| 0000 0000 (00)|                                                 |
| 0ddd dddd (dd)| Data                                   (NOTE 2,6)|
|      :        |   :                                             |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Internal Memory and transmits Func=23 or Func=24 message.
 Receive Func=0D message, and transmits this message & data from Edit Buffer.
 When DATA DUMP is executed, transmit this message & data from Edit Buffer.


(20) TEMPLATE DATA DUMP                                            R
+---------------+-------------------------------------------------+
|    Byte       |               Description                       |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0111 1011 (7B)| TEMPLATE DATA DUMP                      7BH      |
| 0000 00kk (kk)| Template kind                          (NOTE 8) |
| 0ddd dddd (dd)| Data                                   (NOTE 9,6)|
|      :        |   :                                             |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, save them to Internal Memory and transmits Func=23 or Func=24 message.
 Receive Func=7A,kk message, and transmits this message & data from Internal Memeory.
 When DATA DUMP is executed, transmit this message & data from Internal Memory.


(21) MODE CHANGE                                                   R/T
+---------------+-------------------------------------------------+
|    Byte       |               Description                       |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 1110 (4E)| MODE CHANGE                            4EH       |
| 0000 00mm (0m)| Mode Data                             (NOTE 5)   |
| 0000 0000 (00)|                                                 |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, changes the Mode. and transmits Func=23 or Func=24 message.
 When the Mode is changed by Switch, transmit this message & data.


(22) PARAMETER CHANGE                                              R/T
+---------------+-------------------------------------------------+
|    Byte       |               Description                       |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 0001 (41)| PARAMETER CHANGE                       41H       |
| 0ppp pppp (pp)| Parameter ID     (LSB bit 6~0)        (NOTE 7)   |
| 0000 pppp (PP)| Parameter ID     (MSB bit13~7)          ''       |
| 0qqq qqqq (qq)| Parameter Sub ID (LSB bit 6~0)          ''       |
| 0000 qqqq (QQ)| Parameter Sub ID (MSB bit13~7)          ''       |
| 0vvv vvvv (vv)| Value            (LSB bit 6~0)          ''       |
| 0vvv vvvv (VV)| Value            (MSB bit13~7)          ''       |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, select & change a Parameter and transmits Func=23 or Func=24 message.
 When the Parameter is changed by Switch & Knob, transmit this message & data.
```

```
(23) DRUMKIT PARAMETER CHANGE                                        R/T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0101 0011 (53)| DRUMKIT PARAMETER CHANGE                   53H   |
| 0ppp pppp (pp)| Parameter ID       (LSB bit 6~0)        (NOTE 7) |
| 0000 pppp (PP)| Parameter ID       (MSB bit13~7)           ''   |
| 0qqq qqqq (qq)| Parameter Sub ID   (LSB bit 6~0)           ''   |
| 0000 qqqq (QQ)| Parameter Sub ID   (MSB bit13~7)           ''   |
| 0vvv vvvv (vv)| Value              (LSB bit 6~0)           ''   |
| 0vvv vvvv (VV)| Value              (MSB bit13~7)           ''   |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive this message & data, select & change a Parameter and transmits Func=23 or Func=24 message.
 When the Parameter is changed by Switch & Knob, transmit this message & data.


(24) MODE DATA                                                       T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0100 0010 (42)| MODE DATA                                  42H   |
| 0000 00mm (0m)| Mode Data                               (NOTE 5)|
| 0000 0000 (00)|                                                 |
| 0000 0000 (00)|                                                 |
| 0000 0100 (04)|                                                 |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 Receive Func=12 message, and transmits this message & data .


(25) RECEIVE DATA FORMAT ERROR                                       T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0010 0110 (26)| DATA FORMAT ERROR                          26H   |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 When found an error in the received message (ex.data length), transmits this message.


(26) DATA LOAD COMPLETED (ACK)                                       T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0010 0011 (23)| DATA LOAD COMPLETED                        23H   |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 When DATA LOAD,PROCESSING have been completed, transmits this message.


(27) DATA LOAD ERROR (NAK)                                           T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0010 0100 (24)| DATA LOAD ERROR                            24H   |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 When DATA LOAD,PROCESSING have not been completed (ex.protect), transmits this message.


(28) WRITE COMPLETED                                                 T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0010 0001 (21)| WRITE COMPLETED                            21H   |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 When DATA WRITE MIDI has been completed, transmits this message.


(29) WRITE ERROR                                                     T
+---------------+-------------------------------------------------+
|     Byte      |                 Description                      |
+---------------+-------------------------------------------------+
| F0,42,3g,72   | EXCLUSIVE HEADER                                 |
| 0010 0010 (22)| WRITE ERROR                                22H   |
| 1111 0111 (F7)| EOX                                             |
+---------------+-------------------------------------------------+
 When DATA WRITE MIDI has not been completed, transmits this message.


 NOTE 1: CURRENT PROGRAM DATA (IN CURRENT BUFFER) DUMP FORMAT
      & PROGRAM DATA (IN INTERNAL MEMORY) DUMP FORMAT
      1782Bytes       = 7*254+4    -> 8*254+(4+1)   => 2037Bytes
      (TABLE 1)

 NOTE 2: CURRENT DRUMKIT DATA (IN CURRENT BUFFER) DUMP FORMAT
      & DRUMKIT DATA (IN INTERNAL MEMORY) DUMP FORMAT
      1716Bytes       = 7*245+1    -> 8*245+(1+1)   => 1962Bytes
      (TABLE 11)

 NOTE 3: GLOBAL DATA (IN INTERNAL MEMORY) DUMP FORMAT
      656Bytes        = 7*93+5     -> 8*93+(5+1)    => 750Bytes
      (TABLE 12)
```

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```
NOTE 4: FORMANT MOTION DATA (IN INTERNAL MEMORY) DUMP FORMAT
    (FORMANT MOTION DATA SIZE)*16Bytes = 7*X+Y -> 8*X+(1+Y) Bytes
    (TABLE 13)

NOTE 5: m = 0 : PROGRAM PLAY
            1 : PROGRAM EDIT
            2 : DRUM PLAY
            3 : DRUM EDIT
            4 : GLOBAL

NOTE 6: The dump data conversion

  DATA ( 1set = 8bit x 7Byte )
  b7        ~       b0   b7       ~       b0   b7    ~~   b0   b7      ~       b0
  +-+-+-+-+-+-+-+-+   +-+-+-+-+-+-+-+-+   +-+-+-~~-+-+-+   +-+-+-+-+-+-+-+-+
  | | | | | | | | |   | | | | | | | | |   | | |     | | |   | | | | | | | | |
  +-+-+-+-+-+-+-+-+   +-+-+-+-+-+-+-+-+   +-+-+-~~-+-+-+   +-+-+-+-+-+-+-+-+
       7n+0                7n+1            7n+2 ~~ 7n+5         7n+6

  MIDI DATA ( 1set = 7bit x 8Byte )
   b7b7b7b7b7b7b7    b6      ~      b0    b6 ~~   b0    b6     ~     b0
  +-+-+-+-+-+-+-+-+   +-+-+-+-+-+-+-+-+   +-+-+-~~-+-+-+   +-+-+-+-+-+-+-+-+
  |0| | | | | | | |   |0| | | | | | | |   |0| |    | | |   |0| | | | | | | |
  +-+-+-+-+-+-+-+-+   +-+-+-+-+-+-+-+-+   +-+-+-~~-+-+-+   +-+-+-+-+-+-+-+-+
  7n+6,5,4,3,2,1,0        7n+0            7n+1 ~~ 7n+5         7n+6

NOTE 7: MIDI Parameter Change Message Format
    F0,42,3n,72,41,PP,pp,QQ,qq,vv,VV,F7
     n :Global MIDI Ch.
    72 :RADIAS ID

    parameter ID     :PPpp = 0~3FFF
    parameter sub ID :QQpp = 0~3FFF
    parameter value  :VVvv = signed value

    VV(PP)(QQ):0MMMMMMMvv(pp)(qq):0LLLLLLL
    value(No.):MMMMMM MLLLLLLL

    (See the parameter lists. : TABLE ?)

NOTE 8: k = 0 : ALL TIMBRE PROGRAM
            1 : ALL INSERT FX
            2 : ALL MASTER FX

NOTE 9: TEMPLATE DATA (IN INTERNAL MEMORY) DUMP FORMAT
    ALL TIMBRE PROGRAM
    (TIMB PROG DATA SIZE)*128Bytes = 7*4681+1 -> 8*4681+(1+1) => 37450Bytes
    (TABLE 14)
    ALL INSERT FX
    (INSERT FX DATA SIZE)*128Bytes = 7*1170+2 -> 8*1170+(2+1) => 9363Bytes
    (TABLE 15)
    ALL MASTER FX
    (INSERT FX DATA SIZE)*128Bytes = 7*877+5  -> 8*877+(5+1) => 7022Bytes
    (TABLE 16)
```
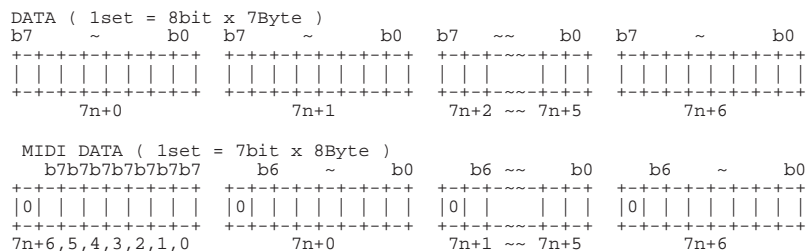
```
TABLE 1 : PROGRAM PARAMETER ( 1 PROG, CURRENT PROG )
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+-----------+---------------+-----------------------------------+----------+
| No. (bit) |   PARAMETER   |  VALUE        DESCRIPTION          | ID:SubID |
+-----------+---------------+-----------------------------------+----------+
| 0~11      | program name  | ASCII code [0]~[11]=Head~Tail     | 00:00-0B |
+-----------+---------------+-----------------------------------+----------+
| 12~15     | (dummy bytes) |                                   | 00:--    |
+-----------+---------------+-----------------------------------+----------+
| 16        | category no.  | 0~15                              | 00:10    |
+-----------+---------------+-----------------------------------+----------+
| 17        | (dummy byte)  |                                   | 00:--    |
+-----------+---------------+-----------------------------------+----------+
| 18  B5~7  | not use       | (0,0,0)                           | 00:--    |
|    -------+---------------+-----------------------------------+----------+
|     B4    | Vocoder select| 0,1=Off,On                        | 00:16    |
|    -------+---------------+-----------------------------------+----------+
|     B3    | Timb4  select | 0,1=Off,On                        | 00:15    |
|     B2    | Timb3  select | 0,1=Off,On                        | 00:14    |
|     B1    | Timb2  select | 0,1=Off,On                        | 00:13    |
|     B0    | Timb1  select | 0,1=Off,On                        | 00:12    |
+-----------+---------------+-----------------------------------+----------+
| 19  B4~7  | Scale Key     | 0~11=C,C#,D,D#,E,F,F#,G,G#,A,A#,B  | 00:18    |
|    -------+---------------+-----------------------------------+----------+
|     B0~3  | Scale Type    | 0~9=Equal Temp~User Scale   *T01-1| 00:17    |
+-----------+---------------+-----------------------------------+----------+
| 20,21     | (dummy byte)  |                                   | 00:--    |
+-----------+---------------+-----------------------------------+----------+
| 22        | Illumination Mode | 0~3=OFF~Arp/S.Seq        *T01-2| 00:1F    |
+-----------+---------------+-----------------------------------+----------+
| 23  B6,7  | not use       | (0,0)                             | 00:--    |
|    -------+---------------+-----------------------------------+----------+
|     B5    | Vocoder panel sel | 0,1=Off,On                    | 00:25    |
|    -------+---------------+-----------------------------------+----------+
|     B4    | Timb4  panel sel | 0,1=Off,On                     | 00:24    |
|     B3    | Timb3  panel sel | 0,1=Off,On                     | 00:23    |
|     B2    | Timb2  panel sel | 0,1=Off,On                     | 00:22    |
|     B1    | Timb1  panel sel | 0,1=Off,On                     | 00:21    |
|    -------+---------------+-----------------------------------+----------+
|     B0    | Link panel edit | 0,1=Off,On                      | 00:20    |
+-----------+---------------+-----------------------------------+----------+
| 24  B5~7  | Drum Timb select | 0,1~4~=off,T1~4                | 00:29    |
|    -------+---------------+-----------------------------------+----------+
|     B0~4  | Drum Bank select | 0~31=Drum-1~32                 | 00:28    |
+-----------+---------------+-----------------------------------+----------+
| 25        | Drum Level    | 0~127                             | 00:2A    |
+-----------+---------------+-----------------------------------+----------+
| 26        | Drum Panpot   | 0~127                             | 00:2B    |
+-----------+---------------+-----------------------------------+----------+
| 27        | Drum note shift | 64+/-48=0+/-48                   | 00:2C    |
+-----------+---------------+-----------------------------------+----------+
| 28~31     | (dummy bytes) |                                   | 00:--    |
+-----------+---------------+-----------------------------------+----------+
|  E.F parameter                                                           |
+-----------+---------------+-----------------------------------+----------+
| 32  B3~7  | not use       | (0,0,0,0,0)                       | 00:--    |
|    -------+---------------+-----------------------------------+----------+
|     B0~2  | Input Source  | 0~4=Off,ExtIn1,2,1+2,Int          | 00:30    |
+-----------+---------------+-----------------------------------+----------+
| 33        | Sensitivity   | 0~127                             | 00:31    |
+-----------+---------------+-----------------------------------+----------+
| 34        | Response      | 0~127                             | 00:32    |
+-----------+---------------+-----------------------------------+----------+
| 35        | Trigger Threshold | 0~127,128~=0~127,Off           | 00:33    |
+-----------+---------------+-----------------------------------+----------+
| 36~39     | (dummy bytes) |                                   | 00:--    |
+-----------+---------------+-----------------------------------+----------+
| 40        | Trigger note1 | 0~127,128~=C-1~G9,Off             | 00:38   +
+-----------+---------------+-----------------------------------+----------+
| 41        | Trigger note2 | 0~127,128~=C-1~G9,Off             | 00:39   +
+-----------+---------------+-----------------------------------+----------+
| 42        | Trigger note3 | 0~127,128~=C-1~G9,Off             | 00:3A   +
+-----------+---------------+-----------------------------------+----------+
| 43        | Trigger note4 | 0~127,128~=C-1~G9,Off             | 00:3B   +
+-----------+---------------+-----------------------------------+----------+
| 44        | Trigger note5 | 0~127,128~=C-1~G9,Off             | 00:3C   +
+-----------+---------------+-----------------------------------+----------+
| 45        | Trigger note6 | 0~127,128~=C-1~G9,Off             | 00:3D   +
+-----------+---------------+-----------------------------------+----------+
| 46        | Trigger note7 | 0~127,128~=C-1~G9,Off             | 00:3E   +
+-----------+---------------+-----------------------------------+----------+
| 47        | Trigger note8 | 0~127,128~=C-1~G9,Off             | 00:3F   +
+-----------+---------------+-----------------------------------+----------+
| Timbre parameter                                                         |
+-----------+---------------+-----------------------------------+----------+
| 48~273    | TIMBRE1 DATA  | Timbre parameter [226]  (TABLE 2) | 1x:00~   |
+-----------+---------------+-----------------------------------+----------+
| 274~499   | TIMBRE2 DATA  | Timbre parameter [226]  (TABLE 2) | 2x:00~   |
+-----------+---------------+-----------------------------------+----------+
| 500~725   | TIMBRE3 DATA  | Timbre parameter [226]  (TABLE 2) | 3x:00~   |
+-----------+---------------+-----------------------------------+----------+
| 726~951   | TIMBRE4 DATA  | Timbre parameter [226]  (TABLE 2) | 4x:00~   |
+-----------+---------------+-----------------------------------+----------+
|  Vocoder parameter                                                       |
+-----------+---------------+-----------------------------------+----------+
| 952~1029  | VOCODER DATA  | Vocoder parameter  [78] (TABLE 3) | 5x:00~   |
+-----------+---------------+-----------------------------------+----------+
|  Master FX parameter                                                     |
+-----------+---------------+-----------------------------------+----------+
| 1030~1051 | MASTER FX DATA| Master Ex parameter[22] (TABLE 4) | 6x:00~   |
```

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```
+----------+--------------------+------------------------------------+---------+
| Arpeggio/Step SEQ common parameter                                           |
+----------+--------------------+------------------------------------+---------+
| 1052     | tempo (LSB)        | 200~3000                           | 70:00  +|
| 1053     |       (MSB)        |                                    |        +|
+----------+--------------------+------------------------------------+---------+
| 1054 B7  | Arpg/SSeq On/Off   | 0,1=Off,On                         | 70:01  +|
+----------+--------------------+------------------------------------+---------+
|      B6  | Key Sync           | 0,1=Off,On                         | 70:02  +|
+----------+--------------------+------------------------------------+---------+
|      B5  | not use            | (0)                                | 70:--  +|
+----------+--------------------+------------------------------------+---------+
|      B4  | Step SEQ Link      | 0,1=Off,On                         | 70:03  +|
+----------+--------------------+------------------------------------+---------+
|      B0~3| not use            | (0,0,0,0)                          | 70:--  +|
+----------+--------------------+------------------------------------+---------+
| 1055 B6,7| not use            | (0,0,0)                            | 70:--  +|
+----------+--------------------+------------------------------------+---------+
|      B0~4| Link Last step     | 0~31=1~32                          | 70:04  +|
+----------+--------------------+------------------------------------+---------+
| Arpeggio parameter                                                           |
+----------+--------------------+------------------------------------+---------+
| 1056~1125| ARPEGGIO DATA      | Arpeggio parameter [70] (TABLE 5)  | 71:00~4F|
+----------+--------------------+------------------------------------+---------+
| Step SEQ parameter                                                           |
+----------+--------------------+------------------------------------+---------+
| 1126~1453| StepSEQ1 DATA      | Step SEQ parameter [328](TABLE 6)  | 78~79:00~|
+----------+--------------------+------------------------------------+---------+
| 1454~1781| StepSEQ2 DATA      | Step SEQ parameter [328](TABLE 6)  | 7C~7D:00~|
+----------+--------------------+------------------------------------+---------+
```

```
TABLE 2 : TIMBRE PARAMETER ( 1 TIMBRE )
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
```

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0 B7	Timbre SW	0,1=Off,On	x0:00
B5,6	not use	(0,0)	x0:--
B4	Sub Output select	0,1=IndL/R,IntBus	x0:02
B2,3	Arpg/Sseq Assign	0~3=Off,Arpg,Sseq-A,Sseq-B	x0:01
B0,1	not use	(0,0)	x0:--
+1	(dummy byte)		
+2	Out Balance	0~127	x0:04
+3	(dummy byte)		x0:--
MIDI parameter			
+4	MIDI ch.	0~15,16~=1~16ch,GLOBAL	x1:00
+5 B7	Pitch Bend filter	0,1=Dis,Ena	x1:0F
B6	ControlChg filter	0,1=Dis,Ens	x1:0E
B5	Foot Pdl&Sw filter	0,1=Dis,Ena	x1:0D
B4	Mod wheel filter	0,1=Dis,Ena	x1:0C
B3	PortamentSW filter	0,1=Dis,Ena	x1:0B
B2	Damper Pdl filter	0,1=Dis,Ena	x1:0A
B1	After Touch filter	0,1=Dis,Ena	x1:09
B0	Program.Chg filter	0,1=Dis,Ena	x1:08
Key Window parameter			
+6	Key Window Bottom	0~127=C-1~G9	x2:00
+7	Key Window Top	0~127=C-1~G9	x2:01
+8 B7	Unison SW	0,1=Off,On	x3:00
B4~6	not use	(0,0,0)	x3:--
B0~3	Unison Voice	0~4,5~=2Voice~6Voice	x3:01
+9	Unison Detune	0~99=0~99[cent]	x3:02
+10	Unison Spread	0~127=	x3:03
+11	Bend Range	64+/-12=0+/-12[note]	x4:00
+12	Portamento Time	0~127	x4:01
+13 B4~6	not use	(0,0,0)	x4:--
B0~3	Portamento Curve	0~4=LogHard~Exp *T02-1	x4:02
+14~15	(dummy bytes)		x4:--

```
+----------+------------------+----------------------------------+----------+
|  Timbre Program parameter                                                 |
+----------+------------------+----------------------------------+----------+
| +16~119  | PROGRAM DATA     | Program Parameter  [104](TABLE 7)| x5~x6:00~|
+----------+------------------+----------------------------------+----------+
|  Insert Fx parameter                                                      |
+----------+------------------+----------------------------------+----------+
| +120~171 | INSERT FX DATA   | Insert Fx Parameter[52] (TABLE 8)| x9:00~   |
+----------+------------------+----------------------------------+----------+
|  Motion Seq parameter                                                     |
+----------+------------------+----------------------------------+----------+
| +172~225 | MOTION SEQ DATA  | MotionSeq Parameter[56] (TABLE 9)| xC:00~   |
+----------+------------------+----------------------------------+----------+
```

```
TABLE 3 : VOCODER PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+------------------+----------------------------------+----------+
| No. (bit)|    PARAMETER     | VALUE         DESCRIPTION         | ID:SubID |
+----------+------------------+----------------------------------+----------+
| +0   B7  | SW               | 0,1=Dis,Ena                      | 50:00    |
|  --------+------------------+----------------------------------+----------+
|      B6  | Source           | 0,1=Modulator,Formant Rec Data   | 50:05    |
|  --------+------------------+----------------------------------+----------+
|      B5  | HPF Gate         | 0,1=Dis,Ena                      | 50:04    |
|  --------+------------------+----------------------------------+----------+
|      B4  | FormantDataPlay  | 0,1=FreeRun,Trig Reset           | 50:03    |
|  --------+------------------+----------------------------------+----------+
|      B2,3| Input Source2    | 0~3=ExtIn1,IntBus(L+R),(L),(R)   | 50:02    |
|  --------+------------------+----------------------------------+----------+
|      B0,1| Select           | 0~3=ExtIn2,IntBus(L+R),(L),(R)   | 50:01    |
+----------+------------------+----------------------------------+----------+
| +1       | Gate Sens        | 0~127=0~127                      | 50:06    |
+----------+------------------+----------------------------------+----------+
| +2       | Threshold        | 0~127                            | 50:07    |
+----------+------------------+----------------------------------+----------+
| +3       | HPF Level        | 0~127                            | 50:08    |
+----------+------------------+----------------------------------+----------+
| +4       | Direct Level     | 0~127                            | 50:09    |
+----------+------------------+----------------------------------+----------+
| +5       | Inst Bus Level   | 0~127                            | 50:0A    |
+----------+------------------+----------------------------------+----------+
| +6       | Inst Synth Level | 0~127                            | 50:0B    |
+----------+------------------+----------------------------------+----------+
| +7       | Vocoder Level    | 0~127                            | 50:0C    |
+----------+------------------+----------------------------------+----------+
|  16 Band parameter                                                        |
+----------+------------------+----------------------------------+----------+
| +8       | Band1 Panpot     | 0,1~64~127=L63,L63~CNT~R63       | 52:00    |
+----------+------------------+----------------------------------+----------+
| +9       | Band1 Level      | 0~127                            | 52:01    |
+----------+------------------+----------------------------------+----------+
| +10,11   | Band2 parameter  | same as Band1                    | 52:02,03 |
+----------+------------------+----------------------------------+----------+
| +12,13   | Band3 parameter  | same as Band1                    | 52:04,05 |
+----------+------------------+----------------------------------+----------+
| +14,15   | Band4 parameter  | same as Band1                    | 52:06,07 |
+----------+------------------+----------------------------------+----------+
| +16,17   | Band5 parameter  | same as Band1                    | 52:08,09 |
+----------+------------------+----------------------------------+----------+
| +18,19   | Band6 parameter  | same as Band1                    | 52:0A,0B |
+----------+------------------+----------------------------------+----------+
| +20,21   | Band7 parameter  | same as Band1                    | 52:0C,0D |
+----------+------------------+----------------------------------+----------+
| +22,23   | Band8 parameter  | same as Band1                    | 52:0E,0F |
+----------+------------------+----------------------------------+----------+
| +24,25   | Band9 parameter  | same as Band1                    | 52:10,11 |
+----------+------------------+----------------------------------+----------+
| +26,27   | Band10 parameter | same as Band1                    | 52:12,13 |
+----------+------------------+----------------------------------+----------+
| +28,29   | Band11 parameter | same as Band1                    | 52:14,15 |
+----------+------------------+----------------------------------+----------+
| +30,31   | Band12 parameter | same as Band1                    | 52:16,17 |
+----------+------------------+----------------------------------+----------+
| +32,33   | Band13 parameter | same as Band1                    | 52:18,19 |
+----------+------------------+----------------------------------+----------+
| +34,35   | Band14 parameter | same as Band1                    | 52:1A,1B |
+----------+------------------+----------------------------------+----------+
| +36,37   | Band15 parameter | same as Band1                    | 52:1C,1D |
+----------+------------------+----------------------------------+----------+
| +38,39   | Band16 parameter | same as Band1                    | 52:1E,1F |
+----------+------------------+----------------------------------+----------+
|                                                                           |
+----------+------------------+----------------------------------+----------+
| +40  B7  | not use          | (0)                              | 53:--    |
|  --------+------------------+----------------------------------+----------+
|      B4~6| Shift            | 0~4=0,+1,+2,-1,-2                | 53:01    |
|  --------+------------------+----------------------------------+----------+
|      B0~3| Fc Mod Source    | 0~10=EG1~EnvF          *T03-1    | 53:00    |
+----------+------------------+----------------------------------+----------+
```

```
+----------+-----------------+--------------------------------+---------+
|  FILTER                                                               |
+----------+-----------------+--------------------------------+---------+
| +41      | Cutoff offset   | 64+/-63=0+/-63                 | 53:10   |
+----------+-----------------+--------------------------------+---------+
| +42      | Resonance       | 0~127                         | 53:11   |
+----------+-----------------+--------------------------------+---------+
| +43      | Fc Mod Intencity| 64+/-63=0+/-63                 | 53:12   |
+----------+-----------------+--------------------------------+---------+
| +44      | E.F.Sens        | 0~127                         | 53:13   |
+----------+-----------------+--------------------------------+---------+
| +45  B4~7| FM Select       | 0~15                          | 53:18   |
|   -------+-----------------+--------------------------------+---------+
|      B3  | Timbre4 select  | 0,1=Dis,Ena                   | 53:17   |
|   -------+-----------------+--------------------------------+---------+
|      B2  | Timbre3 select  | 0,1=Dis,Ena                   | 53:16   |
|   -------+-----------------+--------------------------------+---------+
|      B1  | Timbre2 select  | 0,1=Dis,Ena                   | 53:15   |
|   -------+-----------------+--------------------------------+---------+
|      B0  | Timbre1 select  | 0,1=Dis,Ena                   | 53:14   |
+----------+-----------------+--------------------------------+---------+
|  Formant Hold Data                                                    |
+----------+-----------------+--------------------------------+---------+
| +46      | Band1  (LSB)    | 0~321767=0~321767             | 54:00   |
| +47      |        (MSB)    |                               |         |
+----------+-----------------+--------------------------------+---------+
| +48,49   | Band2  parameter| same as Band1                 | 54:01   |
+----------+-----------------+--------------------------------+---------+
| +50,51   | Band3  parameter| same as Band1                 | 54:02   |
+----------+-----------------+--------------------------------+---------+
| +52,53   | Band4  parameter| same as Band1                 | 54:03   |
+----------+-----------------+--------------------------------+---------+
| +54,55   | Band5  parameter| same as Band1                 | 54:04   |
+----------+-----------------+--------------------------------+---------+
| +56,57   | Band6  parameter| same as Band1                 | 54:05   |
+----------+-----------------+--------------------------------+---------+
| +58,59   | Band7  parameter| same as Band1                 | 54:06   |
+----------+-----------------+--------------------------------+---------+
| +60,61   | Band8  parameter| same as Band1                 | 54:07   |
+----------+-----------------+--------------------------------+---------+
| +62,63   | Band9  parameter| same as Band1                 | 54:08   |
+----------+-----------------+--------------------------------+---------+
| +64,65   | Band10 parameter| same as Band1                 | 54:09   |
+----------+-----------------+--------------------------------+---------+
| +66,67   | Band11 parameter| same as Band1                 | 54:0A   |
+----------+-----------------+--------------------------------+---------+
| +68,69   | Band12 parameter| same as Band1                 | 54:0B   |
+----------+-----------------+--------------------------------+---------+
| +70,71   | Band13 parameter| same as Band1                 | 54:0C   |
+----------+-----------------+--------------------------------+---------+
| +72,73   | Band14 parameter| same as Band1                 | 54:0D   |
+----------+-----------------+--------------------------------+---------+
| +74,75   | Band15 parameter| same as Band1                 | 54:0E   |
+----------+-----------------+--------------------------------+---------+
| +76,77   | Band16 parameter| same as Band1                 | 54:0F   |
+----------+-----------------+--------------------------------+---------+
```

```
TABLE 4 : MASTER EFFECT PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+-----------------+-------------------------------+---------+
| No. (bit)|   PARAMETER     | VALUE        DESCRIPTION       | ID:SubID|
+----------+-----------------+-------------------------------+---------+
| +0   B7  | SW              | 0,1=Off,On                    | 60:00  +
|   -------+-----------------+-------------------------------+---------+
|      B0~6| Fx Type         | 0~30=NoEffect~TalkingMod *T04-1| 60:01  +
+----------+-----------------+-------------------------------+---------+
| +1   B5~7| not  use        | (0,0,0,0)                     | 60:--  +
|   -------+-----------------+-------------------------------+---------+
|      B0~4| knob assign     | 0~19=param1~20                | 60:02  +
+----------+-----------------+-------------------------------+---------+
| +2       | parameter 1     |                      *T04-2   | 61:00  +
+----------+-----------------+-------------------------------+---------+
| +3       | parameter 2     |                      *T04-2   | 61:01  +
+----------+-----------------+-------------------------------+---------+
| +4       | parameter 3     |                      *T04-2   | 61:02  +
+----------+-----------------+-------------------------------+---------+
| +5       | parameter 4     |                      *T04-2   | 61:03  +
+----------+-----------------+-------------------------------+---------+
| +6       | parameter 5     |                      *T04-2   | 61:04  +
+----------+-----------------+-------------------------------+---------+
| +7       | parameter 6     |                      *T04-2   | 61:05  +
+----------+-----------------+-------------------------------+---------+
| +8       | parameter 7     |                      *T04-2   | 61:06  +
+----------+-----------------+-------------------------------+---------+
| +9       | parameter 8     |                      *T04-2   | 61:07  +
+----------+-----------------+-------------------------------+---------+
| +10      | parameter 9     |                      *T04-2   | 61:08  +
+----------+-----------------+-------------------------------+---------+
| +11      | parameter 10    |                      *T04-2   | 61:09  +
+----------+-----------------+-------------------------------+---------+
| +12      | parameter 11    |                      *T04-2   | 61:0A  +
+----------+-----------------+-------------------------------+---------+
| +13      | parameter 12    |                      *T04-2   | 61:0B  +
+----------+-----------------+-------------------------------+---------+
| +14      | parameter 13    |                      *T04-2   | 61:0C  +
+----------+-----------------+-------------------------------+---------+
| +15      | parameter 14    |                      *T04-2   | 61:0D  +
+----------+-----------------+-------------------------------+---------+
| +16      | parameter 15    |                      *T04-2   | 61:0E  +
```

```
+----------+----------------+------------------------------+----------+
| +17      | parameter 16   |                      *T04-2  | 61:0F  +
+----------+----------------+------------------------------+----------+
| +18      | parameter 17   |                      *T04-2  | 61:10  +
+----------+----------------+------------------------------+----------+
| +19      | parameter 18   |                      *T04-2  | 61:11  +
+----------+----------------+------------------------------+----------+
| +20      | parameter 19   |                      *T04-2  | 61:12  +
+----------+----------------+------------------------------+----------+
| +21      | parameter 20   |                      *T04-2  | 61:13  +
+----------+----------------+------------------------------+----------+
```

```
TABLE 5 : ARPEGGIO PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+----------------+------------------------------+----------+
| No. (bit)|   PARAMETER    | VALUE      DESCRIPTION        | ID:SubID |
+----------+----------------+------------------------------+----------+
| +0   B4~7| Resolution     | 0~8=1/32~1/1         *T05-1  | 71:01  +
|     -----+----------------+------------------------------+----------+
|      B3  | not use        | (0)                          | 71:--  +
|     -----+----------------+------------------------------+----------+
|      B0~2| Type           | 0~5=Up~Trigger       *T05-2  | 71:00  +
+----------+----------------+------------------------------+----------+
| +1   B7  | Latch          | 0,1=Off,On                   | 71:06  +
|     -----+----------------+------------------------------+----------+
|      B5,6| Octave Range   | 0~3=1~4 Octave               | 71:02  +
|     -----+----------------+------------------------------+----------+
|      B0~4| Last step      | 0~31=1~32 step               | 71:03  +
+----------+----------------+------------------------------+----------+
| +2       | gate time offset| 0+/-100=0+/-100[%]          | 71:04  +
+----------+----------------+------------------------------+----------+
| +3       | Swing          | 0+/-100=0+/-100[%]           | 71:05  +
+----------+----------------+------------------------------+----------+
| +4       | Scan zone  Bottom| 0~127=C-1~G9               | 71:08  |
+----------+----------------+------------------------------+----------+
| +5       | Scan zone  Top | 0~127=C-1~G9                 | 71:09  |
+----------+----------------+------------------------------+----------+
| +6   B7  | Step1    SW    | 0,1=Off,On                   | 71:10  +
|     -----+----------------+------------------------------+----------+
|      B0~6| Step1    GateTime| 0,1~100=Off,1~100[%]       | 71:30  +
+----------+----------------+------------------------------+----------+
| +7~37    | Step2~32 SW    | same as Step1 SW             | 71:11~2F +
|          |         GateTime| same as Step1 GateTime      | 71:31~4F +
+----------+----------------+------------------------------+----------+
| +38      | Step1    Velocity| 0,1~127,128~=KBD,1~127,KBD | 71:50  +
+----------+----------------+------------------------------+----------+
| +39~69   | Step2~32 Velocity| same as Step1 Velocity     | 71:51~6F +
+----------+----------------+------------------------------+----------+
```

```
TABLE 6 : STEP SEQ PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+----------------+------------------------------+----------+
| No. (bit)|   PARAMETER    | VALUE      DESCRIPTION        | ID:SubID |
+----------+----------------+------------------------------+----------+
| +0   B4~7| Resolution     | 0~8=1/32~1/1         *T05-1  | +0:01  +
|     -----+----------------+------------------------------+----------+
|      B2,3| not use        | (0,0)                        | +0:--  +
|     -----+----------------+------------------------------+----------+
|      B0~1| Run Mode       | 0~2=1Shot,Loop,Step          | +0:00  +
+----------+----------------+------------------------------+----------+
| +1   B7  | Latch          | 0,1=Off,On                   | +0:06  +
|     -----+----------------+------------------------------+----------+
|      B5~6| not use        | (0,0,0)                      | +0:--  +
|     -----+----------------+------------------------------+----------+
|      B0~4| Last step      | 0~31=1~32                    | +0:03  +
+----------+----------------+------------------------------+----------+
| +2       | gate time offset| 0+/-100=0+/-100[%]          | +0:04  +
+----------+----------------+------------------------------+----------+
| +3       | Swing          | 0+/-100=0+/-100[%]           | +0:05  +
+----------+----------------+------------------------------+----------+
| +4   B7  | Transpose      | 0,1=Off,On                   | +0:02  +
|     -----+----------------+------------------------------+----------+
|      B0~6| Base Note      | 0~127=C-1~G9                 | +0:0A  +
+----------+----------------+------------------------------+----------+
| +5       | (dummy byte)   |                              | +0:--  +
+----------+----------------+------------------------------+----------+
| +6       | Scan zone  Bottom| 0~127=C-1~G9               | +0:08  +
+----------+----------------+------------------------------+----------+
| +7       | Scan zone  Top | 0~127=C-1~G9                 | +0:09  +
+----------+----------------+------------------------------+----------+
| Step SEQ Step parameter                                           +
+----------+----------------+------------------------------+----------+
| +8   B7  | STEP1    SW    | 0,1=Off,On                   | +0:60  +
|     -----+----------------+------------------------------+----------+
|      B0~6| STEP1    GateTime| 0,1~100=Off,1~100[%]       | +0:20  +
+----------+----------------+------------------------------+----------+
| +9~39    | STEP2~32 SW    | same as STEP1 SW             | +0:61~7F +
|          |         GateTime| same as STEP1 GateTime      | +0:21~3F +
+----------+----------------+------------------------------+----------+
| +40~71   | STEP1~32 Velocity| [00]~[31]=STEP[1]~[32]     | +0:40~5F +
|          |                | 0,1~127,128~=Kbd,1~127,Kbd   |        +
+----------+----------------+------------------------------+----------+
```

```
+----------+------------------+------------------------------------+---------+
|  Step SEQ Step tone parameter                                              +
+----------+------------------+------------------------------------+---------+
| +72      | STEP1   tone1 note | 0~127,128~=C-1~G9,Off              | +1:00   +
+----------+------------------+------------------------------------+---------+
| +73      | STEP1   tone2 note | 0~127,128~=C-1~G9,Off              | +1:01   +
+----------+------------------+------------------------------------+---------+
| +74      | STEP1   tone3 note | 0~127,128~=C-1~G9,Off              | +1:02   +
+----------+------------------+------------------------------------+---------+
| +75      | STEP1   tone4 note | 0~127,128~=C-1~G9,Off              | +1:03   +
+----------+------------------+------------------------------------+---------+
| +76      | STEP1   tone5 note | 0~127,128~=C-1~G9,Off              | +1:04   +
+----------+------------------+------------------------------------+---------+
| +77      | STEP1   tone6 note | 0~127,128~=C-1~G9,Off              | +1:05   +
+----------+------------------+------------------------------------+---------+
| +78      | STEP1   tone7 note | 0~127,128~=C-1~G9,Off              | +1:06   +
+----------+------------------+------------------------------------+---------+
| +79      | STEP1   tone8 note | 0~127,128~=C-1~G9,Off              | +1:07   +
+----------+------------------+------------------------------------+---------+
| +80~87   | STEP2   tone param | same as STEP1 tone                | +1:08~0F +
+----------+------------------+------------------------------------+---------+
| +88~95   | STEP3   tone param | same as STEP1 tone                | +1:10~17 +
+----------+------------------+------------------------------------+---------+
| +96~103  | STEP4   tone param | same as STEP1 tone                | +1:18~1F +
+----------+------------------+------------------------------------+---------+
| +104~111 | STEP5   tone param | same as STEP1 tone                | +1:20~27 +
+----------+------------------+------------------------------------+---------+
| +112~119 | STEP6   tone param | same as STEP1 tone                | +1:28~2F +
+----------+------------------+------------------------------------+---------+
| +120~127 | STEP7   tone param | same as STEP1 tone                | +1:30~37 +
+----------+------------------+------------------------------------+---------+
| +128~135 | STEP8   tone param | same as STEP1 tone                | +1:38~3F +
+----------+------------------+------------------------------------+---------+
| +136~143 | STEP9   tone param | same as STEP1 tone                | +1:40~47 +
+----------+------------------+------------------------------------+---------+
| +144~151 | STEP10 tone param | same as STEP1 tone                 | +1:48~4F +
+----------+------------------+------------------------------------+---------+
| +152~159 | STEP11 tone param | same as STEP1 tone                 | +1:50~57 +
+----------+------------------+------------------------------------+---------+
| +160~167 | STEP12 tone param | same as STEP1 tone                 | +1:58~5F +
+----------+------------------+------------------------------------+---------+
| +168~175 | STEP13 tone param | same as STEP1 tone                 | +1:60~67 +
+----------+------------------+------------------------------------+---------+
| +176~183 | STEP14 tone param | same as STEP1 tone                 | +1:68~6F +
+----------+------------------+------------------------------------+---------+
| +184~191 | STEP15 tone param | same as STEP1 tone                 | +1:70~77 +
+----------+------------------+------------------------------------+---------+
| +192~199 | STEP16 tone param | same as STEP1 tone                 | +1:78~7F +
+----------+------------------+------------------------------------+---------+
| +200~207 | STEP17 tone param | same as STEP1 tone                 | +1:80~87 +
+----------+------------------+------------------------------------+---------+
| +208~215 | STEP18 tone param | same as STEP1 tone                 | +1:88~8F +
+----------+------------------+------------------------------------+---------+
| +216~223 | STEP19 tone param | same as STEP1 tone                 | +1:90~97 +
+----------+------------------+------------------------------------+---------+
| +224~231 | STEP20 tone param | same as STEP1 tone                 | +1:98~9F +
+----------+------------------+------------------------------------+---------+
| +232~239 | STEP21 tone param | same as STEP1 tone                 | +1:A0~A7 +
+----------+------------------+------------------------------------+---------+
| +240~247 | STEP22 tone param | same as STEP1 tone                 | +1:A8~AF +
+----------+------------------+------------------------------------+---------+
| +248~255 | STEP23 tone param | same as STEP1 tone                 | +1:B0~B7 +
+----------+------------------+------------------------------------+---------+
| +256~263 | STEP24 tone param | same as STEP1 tone                 | +1:B8~BF +
+----------+------------------+------------------------------------+---------+
| +264~271 | STEP25 tone param | same as STEP1 tone                 | +1:C0~C7 +
+----------+------------------+------------------------------------+---------+
| +272~279 | STEP26 tone param | same as STEP1 tone                 | +1:C8~CF +
+----------+------------------+------------------------------------+---------+
| +280~287 | STEP27 tone param | same as STEP1 tone                 | +1:D0~D7 +
+----------+------------------+------------------------------------+---------+
| +288~295 | STEP28 tone param | same as STEP1 tone                 | +1:D8~DF +
+----------+------------------+------------------------------------+---------+
| +296~303 | STEP29 tone param | same as STEP1 tone                 | +1:E0~E7 +
+----------+------------------+------------------------------------+---------+
| +304~311 | STEP30 tone param | same as STEP1 tone                 | +1:E8~EF +
+----------+------------------+------------------------------------+---------+
| +312~319 | STEP31 tone param | same as STEP1 tone                 | +1:F0~F7 +
+----------+------------------+------------------------------------+---------+
| +320~327 | STEP32 tone param | same as STEP1 tone                 | +1:F8~FF +
+----------+------------------+------------------------------------+---------+
```

```
TABLE 7 :  TIMBRE & DRUM PROGRAM PARAMETER
 No. : No. in the PROGRAM DUMP DATA or DRUMKIT DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
```

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0~11	program name	ASCII code [0]~[11]=Head~Tail	+0:00~0B
+12~15	(dummy bytes)		+0:--
Voice			
+16 B7	Assign Mode	0,1=Mono,Poly	+0:10
B6	Trigger Mode	0,1=Single,Multi	+0:11
B2~5	not use	(0,0,0)	+0:--
B0,1	Key Priority	0~2=Last,Low,High	+0:12
+17	(dummy byte)		+0:--
Pitch			
+18	Analog Tuning	0~127	+0:13
+19	Transpose	64+/-48=0+/-48[note]	+0:14
+20	DeTune	64+/-50=0+/-50[cent]	+0:15
+21	Vibrato Int	64+/-63=0+/-63	+0:16
Osc1			
+22 B7	not use	(0)	+0:--
B6	Bus select	0,1=Ext.In,Int bus	+0:1D
B4,5	Osc Mod	0~3=Waveform,Cross,Unison,VPM	+0:18
B0~3	Wave Type	0~7=Saw~Audio In *T07-1	+0:17
+23	Waveform CTRL1	0~127	+0:19
+24	Waveform CTRL2	0~127	+0:1A
+25	DWGS wave select	0~63=EP-Stage~Endless (when Osc1 Wave is "DWGS")	+0:1B
+26	PCM wave select	0~127=BD-99~AT-"doo" (when Osc1 Wave is "PCM")	+0:1C
Osc2			
+27 B6,7	not use	(0,0)	+0:--
B4,5	Mod Select	0~3=Off,Ring,Sync,RingSync	+0:21
B2,3	not use	(0,0)	+0:--
B0,1	Wave Type	0~3=Saw,Squ,Tri,Sin	+0:20
+28	Semitone	64+/-24=0+/-24[note]	+0:22
+29	Tune	64+/-63=0+/-24[note]	+0:23
Mixer			
+30	Osc1 Level	0~127	+0:28
+31	Osc2 Level	0~127	+0:29
+32	Noise Level	0~127	+0:2A
Filter			
+33 B7	Filter Link SW	0,1=Off,On	+0:37
B6	not use	(0)	+0:--
B4,5	Filter2 Type	0~3=LPF,HPF,BPF,COMBO	+0:40
B2,3	not use	(0,0)	+0:--
B0,1	Filter Routing	0~3=Single,Serial,Prallel,Indiv	+0:30
+34	Filter1 Balance	0~127	+0:31
+35	Filter1 Cutoff	0~127	+0:32
+36	Filter1 Resonance	0~127	+0:33
+37	F1 EG1 Intensity	64+/-63=0+/-63	+0:34
+38	F1 Keyboard Track	64+/-63=0+/-63	+0:35
+39	F1 Velocity Sens	64+/-63=0+/-63	+0:36
+40	Filter2 Cutoff	0~127	+0:42
+41	Filter2 Resonance	0~127	+0:43

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+42	F2 EG1 Intensity	64+/-63=0+/-63	+0:44
+43	F2 Keyboard Track	64+/-63=0+/-63	+0:45
+44	F2 Velocity Sens	64+/-63=0+/-63	+0:46
Amp			
+45	Level	0~127	+0:50
+46 B7	not use	(0)	+0:--
B4~6	Drive/WS position	0~1=Pre Flt1,Pre Amp	+0:52
B2,3	not use	(0,0)	+0:--
B0,1	Mod Type	0~3=Off/Driver,WaveShape	+0:53
+47 B4~7	not use	(0,0,0,0)	+0:--
B0~3	WaveShape Type	0~10=Decimator~Lvl Boost *T07-2	+0:51
+48	Driver/Shaper	0~127	+0:54
+49	Panpot	0,1~64~127=L63,L63~CNT~R63	+0:55
+50	Key Track	64+/-63=0+/-63	+0:56
+51	Punch Level	0~127	+0:57
EG1			
+52	Attack Time	0~127	+0:60
+53	Decay Time	0~127	+0:61
+54	Sustain Level	0~127	+0:62
+55	Release Time	0~127	+0:63
+56 B3~7	not use	(0,0,0,0,0)	+0:--
B0~2	Curve	0~4=LogHard~Exp *T02-1	+0:64
+57	LevelVelocitySens	64+/-63=0+/-63	+0:65
+58	Time VelocitySens	64+/-63=0+/-63	+0:66
+59	Time Key Track	64+/-63=0+/-63	+0:67
EG2			
+60	Attack Time	0~127	+0:70
+61	Decay Time	0~127	+0:71
+62	Sustain Level	0~127	+0:72
+63	Release Time	0~127	+0:73
+64 B3~7	not use	(0,0,0,0,0)	+0:--
B0~2	Curve	0~4=LogHard~Exp *T02-1	+0:74
+65	LevelVelocitySens	64+/-63=0+/-63	+0:75
+66	Time VelocitySens	64+/-63=0+/-63	+0:76
+67	Time Key Track	64+/-63=0+/-63	+0:77
EG3			
+68	Attack Time	0~127	+0:80
+69	Decay Time	0~127	+0:81
+70	Sustain Level	0~127	+0:82
+71	Release Time	0~127	+0:83
+72 B3~7	not use	(0,0,0,0,0)	+0:--
B0~2	Curve	0~4=LogHard~Exp *T02-1	+0:84
+73	LevelVelocitySens	64+/-63=0+/-63	+0:85
+74	Time VelocitySens	64+/-63=0+/-63	+0:86
+75	Time Key Track	64+/-63=0+/-63	+0:87
LFO1			
+76 B4~7	not use	(0,0,0,0)	+0:--
B0~3	Wave	0~3=Saw,Squ,Tri,S/H	+0:90
+77	Shape	64+/-63=0+/-63	+0:91
+78	Frequency	0~127=0~127 *T07-4	+0:92

+79 B7	Tempo Sync	0,1=Off,On		+0:93
B5,6	Key Sync	0~2=Off,Timbre,Voice		+0:94
B0~4	Init Phase	0~19=Free,0~180		+0:95
+80 B5~7	not use	(0,0,0)		+0:--
B0~4	Sync Note	0~16=8/1~1/64	*T07-5	+0:96
LFO2				
+81 B4~7	not use	(0,0,0,0)		+0:--
B0~3	Wave	0~3=Saw,Squ(+),Tri,S&H		+0:A0
+82	Shape	64+/-63=0+/-63		+0:A1
+83	Frequency	0~127		+0:A2
+84 B7	Tempo Sync	0,1=Off,On		+0:A3
B5,6	Key Sync	0~2=Off,Timbre,Voice		+0:A4
B0~4	Init Phase	0~19=Free,0~180		+0:A5
+85 B5~7	not use	(0,0,0)		+0:--
B0~4	Sync Note	0~16=8/1~1/64	*T07-5	+0:A6
PATCH				
+86	Patch1 Source	0~10=EG1~EnvF	*T03-1	+1:00
+87	Patch1 Destination	0~14=PITCH~LFO2FREQ	*T07-3	+1:01
+88	Patch1 Intensity	64+/-63=0+/-63		+1:02
+89	Patch2 Source	0~10=EG1~EnvF	*T03-1	+1:04
+90	Patch2 Destination	0~14=PITCH~LFO2FREQ	*T07-3	+1:05
+91	Patch2 Intensity	64+/-63=0+/-63		+1:06
+92	Patch3 Source	0~10=EG1~EnvF	*T03-1	+1:08
+93	Patch3 Destination	0~14=PITCH~LFO2FREQ	*T07-3	+1:09
+94	Patch3 Intensity	64+/-63=0+/-63		+1:0A
+95	Patch4 Source	0~10=EG1~EnvF	*T03-1	+1:0C
+96	Patch4 Destination	0~14=PITCH~LFO2FREQ	*T07-3	+1:0D
+97	Patch4 Intensity	64+/-63=0+/-63		+1:0E
+98	Patch5 Source	0~10=EG1~EnvF	*T03-1	+1:10
+99	Patch5 Destination	0~14=PITCH~LFO2FREQ	*T07-3	+1:11
+100	Patch5 Intensity	64+/-63=0+/-63		+1:12
+101	Patch6 Source	0~10=EG1~EnvF	*T03-1	+1:14
+102	Patch6 Destination	0~14=PITCH~LFO2FREQ	*T07-3	+1:15
+103	Patch6 Intensity	64+/-63=0+/-63		+1:16

```
TABLE 8 :  INSERT FX PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
```

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
Fx1			
+0 B7	Effect1 SW	0,1=Off,On	x9:00
B0~6	Effect1 Type	0~30=NoEffect~TalkingMod *T04-1	x9:01
+1	(dummy byte)		x9:--
+2 B5~7	not use	(0,0,0)	x9:--
B0~4	Fx1 knob1 assign	0~19=param1~20	x9:02
+3 B5~7	not use	(0,0,0)	x9:--
B0~4	Fx1 knob2 assign	0~19=param1~20	x9:03
+4	Fx1 Int param 1	*T08-1	x9:10
+5	Fx1 Int param 2	*T08-1	x9:11
+6	Fx1 Int param 3	*T08-1	x9:12
+7	Fx1 Int param 4	*T08-1	x9:13
+8	Fx1 Int param 5	*T08-1	x9:14
+9	Fx1 Int param 6	*T08-1	x9:15
+10	Fx1 Int param 7	*T08-1	x9:16
+11	Fx1 Int param 8	*T08-1	x9:17
+12	Fx1 Int param 9	*T08-1	x9:18
+13	Fx1 Int param 10	*T08-1	x9:19
+14	Fx1 Int param 11	*T08-1	x9:1A
+15	Fx1 Int param 12	*T08-1	x9:1B
+16	Fx1 Int param 13	*T08-1	x9:1C
+17	Fx1 Int param 14	*T08-1	x9:1D
+18	Fx1 Int param 15	*T08-1	x9:1E
+19	Fx1 Int param 16	*T08-1	x9:1F
+20	Fx1 Int param 17	*T08-1	x9:20
+21	Fx1 Int param 18	*T08-1	x9:21
+22	Fx1 Int param 19	*T08-1	x9:22
+23	Fx1 Int param 20	*T08-1	x9:23
Fx2			
+24~47	Effect2 parameter	same as Effect1	x9:30~53
EQ			
+48	Low Freq	0~29=40~1000 [Hz] *T08-2	x9:60
+49	Low Gain	64+/-12=0+/-12	x9:61
+50	Hi Freq	0~29=1.00~18.0 [KHz] *T08-3	x9:62
+51	Hi Gain	64+/-12=0+/-12	x9:63

```
TABLE 9 :  MOTION SEQ PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+-----------------+-----------------------------------+----------+
| No. (bit)|    PARAMETER    | VALUE         DESCRIPTION          | ID:SubID |
+----------+-----------------+-----------------------------------+----------+
| +0   B7  | SEQ On/Off      | 0,1=Off,On                        | xC:00    +
| ---------+-----------------+-----------------------------------+----------+
|      B6  | not use         | (0)                               | xC:--    +
| ---------+-----------------+-----------------------------------+----------+
|      B4,5| Seq Type        | 0~3=Fowrd,Reverse,Alt1,Alt2       | xC:02    +
| ---------+-----------------+-----------------------------------+----------+
|      B0~3| Last Step       | 0~15=1~16                         | xC:01    +
+----------+-----------------+-----------------------------------+----------+
| +1   B7  | Run Mode        | 0,1=1Shot,Loop                    | xC:03    +
|          |                 | (only Loop when KeySync is "OFF".)|          +
| ---------+-----------------+-----------------------------------+----------+
|      B6  | not use         | (0)                               | xC:--    +
| ---------+-----------------+-----------------------------------+----------+
|      B4,5| Key Sync        | 0~2=OFF,Timbre,Voice              | xC:04    +
| ---------+-----------------+-----------------------------------+----------+
|      B0~3| Resolution      | 0~15=1/48~1/1            *T09-1    | xC:05    +
+----------+-----------------+-----------------------------------+----------+
| +2 ~19   | SEQ1 parameter  | SEQ parameter [18]     (TABLE 10) | xD:00~   +
+----------+-----------------+-----------------------------------+----------+
| +20~37   | SEQ2 parameter  | SEQ parameter [18]     (TABLE 10) | xE:00~   +
+----------+-----------------+-----------------------------------+----------+
| +38~55   | SEQ3 parameter  | SEQ parameter [18]     (TABLE 10) | xF:00~   +
+----------+-----------------+-----------------------------------+----------+


TABLE 10: SEQ PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+-----------------+-----------------------------------+----------+
| No. (bit)|    PARAMETER    | VALUE         DESCRIPTION          | ID:SubID |
+----------+-----------------+-----------------------------------+----------+
| +0       | Knob            | 0~30=None~Patch4Int       *T10-1  | xx:10    +
+----------+-----------------+-----------------------------------+----------+
| +1   B7  | Motion Type     | 0,1=Smooth,Step                   | xx:11    +
| ---------+-----------------+-----------------------------------+----------+
|      B0~6| not use         | (0,0,0,0,0,0,0)                   | xx:--    +
+----------+-----------------+-----------------------------------+----------+
| +2~17    | Step Value [0~15]| 64+/-63=0+/-63                   | xx:00~0F +
+----------+-----------------+-----------------------------------+----------+


TABLE 11: DRUMKIT PARAMETER
 No. : No. in the DRUMKIT DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+-----------------+-----------------------------------+----------+
| No. (bit)|    PARAMETER    | VALUE         DESCRIPTION          | ID:SubID |
+----------+-----------------+-----------------------------------+----------+
| 0~11     | Drum Bank name  | ASCII code [0]~[11]=Head~Tail     | 00:00~0B +
+----------+-----------------+-----------------------------------+----------+
| 12~15    | (dummy bytes)   |                                   | 00:--    +
+----------+-----------------+-----------------------------------+----------+
| 16  B4~7 | not use         | (0,0,0,0)                         | 00:--    +
| ---------+-----------------+-----------------------------------+----------+
|      B0~3| Drum Prog select| 0~15=DrumProg#01~16               | 00:10    +
+----------+-----------------+-----------------------------------+----------+
| 17       | (dummy byte)    |                                   | 00:--    +
+----------+-----------------+-----------------------------------+----------+
| 18~33    | Excl.Assigne  SW| 0,1,2=Off,Group1,2                | 00:20~2F +
|          | DrumProg#[01~16]|                                   |          +
+----------+-----------------+-----------------------------------+----------+
| 34       | Note Off SW     | 0,1=Dis,Ena                       | 00:30~37 +
|     B0~7 | DrumProg#[01~08]|                                   |          +
+----------+-----------------+-----------------------------------+----------+
| 35       | Note Off SW     | 0,1=Dis,Ena                       | 00:38~3F +
|     B0~7 | DrumProg#[09~16]|                                   |          +
+----------+-----------------+-----------------------------------+----------+
| 36~51    | Play Note no.   | 0~127=C-1~G9                      | 00:40~4F +
|          | DrumProg#[01~16]|                                   |          +
+----------+-----------------+-----------------------------------+----------+
| Drum Program parameter                                                     +
+----------+-----------------+-----------------------------------+----------+
| 52~155   | DRUM1  PROG DATA| Program Parameter [104] (TABLE 7) | 10,11:00~+
+----------+-----------------+-----------------------------------+----------+
| 156~259  | DRUM2  PROG DATA| Program Parameter [104] (TABLE 7) | 12,13:00~+
+----------+-----------------+-----------------------------------+----------+
| 260~363  | DRUM3  PROG DATA| Program Parameter [104] (TABLE 7) | 14,15:00~+
+----------+-----------------+-----------------------------------+----------+
| 364~467  | DRUM4  PROG DATA| Program Parameter [104] (TABLE 7) | 16,17:00~+
+----------+-----------------+-----------------------------------+----------+
| 468~571  | DRUM5  PROG DATA| Program Parameter [104] (TABLE 7) | 18,19:00~+
+----------+-----------------+-----------------------------------+----------+
| 572~675  | DRUM6  PROG DATA| Program Parameter [104] (TABLE 7) | 1A,1B:00~+
+----------+-----------------+-----------------------------------+----------+
| 676~779  | DRUM7  PROG DATA| Program Parameter [104] (TABLE 7) | 1C,1D:00~+
+----------+-----------------+-----------------------------------+----------+
| 780~883  | DRUM8  PROG DATA| Program Parameter [104] (TABLE 7) | 1E,1F:00~+
+----------+-----------------+-----------------------------------+----------+
| 884~987  | DRUM9  PROG DATA| Program Parameter [104] (TABLE 7) | 20,21:00~+
+----------+-----------------+-----------------------------------+----------+
| 988~1091 | DRUM10 PROG DATA| Program Parameter [104] (TABLE 7) | 22,23:00~+
+----------+-----------------+-----------------------------------+----------+
| 1092~1195| DRUM11 PROG DATA| Program Parameter [104] (TABLE 7) | 24,25:00~+
+----------+-----------------+-----------------------------------+----------+
| 1196~1299| DRUM12 PROG DATA| Program Parameter [104] (TABLE 7) | 26,27:00~+
+----------+-----------------+-----------------------------------+----------+
```

```
+----------+----------------+------------------------------------+----------+
| 1300~1403 | DRUM13 PROG DATA | Program Parameter [104] (TABLE 7) | 28,29:00~+
+----------+----------------+------------------------------------+----------+
| 1404~1507 | DRUM14 PROG DATA | Program Parameter [104] (TABLE 7) | 2A,2B:00~+
+----------+----------------+------------------------------------+----------+
| 1508~1611 | DRUM15 PROG DATA | Program Parameter [104] (TABLE 7) | 2C,2D:00~+
+----------+----------------+------------------------------------+----------+
| 1612~1715 | DRUM16 PROG DATA | Program Parameter [104] (TABLE 7) | 2E,2F:00~+
+----------+----------------+------------------------------------+----------+
```

```
TABLE 12: GLOBAL PARAMETER
 No. : No. in the GLOBAL DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
+----------+----------------+---------------------------------+----------+
| No. (bit)|   PARAMETER    | VALUE          DESCRIPTION       | ID:SubID |
+----------+----------------+---------------------------------+----------+
| 0        | Master Tune    | 0+/-100=430~440~450             | --:--    |
+----------+----------------+---------------------------------+----------+
| 1        | Transpose      | 0+/-12                          | --:--    |
+----------+----------------+---------------------------------+----------+
| 2    B7  | Memory Protect | 0,1=Off,On                      | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B6  | Panel Page Jump| 0,1=Off,On                      | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B5  | Page Memory    | 0,1=Off,On                      | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B4  | not use        | (0)                             | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B3  | Knob Mode      | 0,1=JUMP,CATCH                  | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B2  | Position       | 0,1=PostKBD,PreTG               | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0,1| Audio In Thru  | 0~3=Off,Ext1+2,Ext1,Ext2        | --:--    |
+----------+----------------+---------------------------------+----------+
| 3        | Vel.Value      | 1~127=1~127                     | --:--    |
+----------+----------------+---------------------------------+----------+
| 4    B4~7| not use        | (0,0,0,0)                       | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0~3| Vel.Curve      | 0~7,8=1~8,Const                 | --:--    |
+----------+----------------+---------------------------------+----------+
| 5        | LCD contrast   | 0~15=0~15                       | --:--    |
+----------+----------------+---------------------------------+----------+
| 6    B4~7| not use        | (0,0,0,0)                       | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0~3| MIDI Ch.       | 0~15=1~16                       | --:--    |
+----------+----------------+---------------------------------+----------+
| 7    B7  | Local Ctrl     | 0,1=Off,On                      | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B6  | not use        | (0)                             | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B4,5| System routing | 0~2=Both,USB,MIDI               | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B2,3| Clock          | 0~3=Auto,Internal,Ext(U),Ext(M) | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0,1| not use        | (0,0)                           | --:--    |
+----------+----------------+---------------------------------+----------+
| 8        | (dummy byte)   |                                 | --:--   +
+----------+----------------+---------------------------------+----------+
| 9        | MIDI1 Ctrl No. | 0~115=P.Bend~CC#119      *T12-1 | --:--    |
+----------+----------------+---------------------------------+----------+
| 10       | MIDI2 Ctrl No. | 0~115=P.Bend~CC#119      *T12-1 | --:--    |
+----------+----------------+---------------------------------+----------+
| 11       | MIDI3 Ctrl No. | 0~115=P.Bend~CC#119      *T12-1 | --:--    |
+----------+----------------+---------------------------------+----------+
| 12       | MIDI2 Ctrl No. | 0~115=P.Bend~CC#119      *T12-1 | --:--    |
+----------+----------------+---------------------------------+----------+
| 13       | MIDI3 Ctrl No. | 0~115=P.Bend~CC#119      *T12-1 | --:--    |
+----------+----------------+---------------------------------+----------+
| 14   B6,7| not use        | (0,0)                           | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B5  | SystemEx Filter| 0,1=Dis,Ena                     | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B4  | P.Bend Filter  | 0,1=Dis,Ena                     | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B3  | CtrlChg Filter | 0,1=Dis,Ena                     | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B2  | not use        | (0)                             | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B1  | BankChg Filter | 0,1=Dis,Ena                     | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0  | ProgChg Filter | 0,1=Dis,Ena                     | --:--    |
+----------+----------------+---------------------------------+----------+
| 15   B4~7| not use        | (0,0,0,0)                       | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0~3| Ass.Pedal      | 0~6=Volume~FootPdl       *T12-2 | --:--    |
+----------+----------------+---------------------------------+----------+
| 16   B7  | Ass.SW Polarity| 0,1= -,+                        | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B6  | Ass.SW Mode    | 0,1=Unlatch,Latch               | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B4,5| not use        | (0,0)                           | --:--    |
+      ----+----------------+---------------------------------+----------+
|      B0~3| Ass.SW         | 0~6=Damper~Arpegio Off/On *T12-3 | --:--   |
+----------+----------------+---------------------------------+----------+
| 17       | (dummy byte)   |                                 | --:--    |
+----------+----------------+---------------------------------+----------+
| User Scale Parameter                                                      |
+----------+----------------+---------------------------------+----------+
| 18~29    | User Scale[C]~[B]| 0+/-100=+/-100cent            | --:--    |
+----------+----------------+---------------------------------+----------+
| 30~317   | (dummy bytes)  |                                 | --:--   +
```

```
+----------+-----------------+--------------------------------+---------+
| Knob & Switch Ctrl Change No. Map                                     |
+----------+-----------------+--------------------------------+---------+
| 318~387  | [0]~[69]                                    *T12-4 | --:--  |
|          | Ctrl Change No. | -1,0~95,102~119                 |         |
|          |                 | =OFF,CC#00~95,#102~119          |         |
+----------+-----------------+--------------------------------+---------+
| 388~399  | (dummy bytes)                                         | --:--  +
+----------+-----------------+--------------------------------+---------+
| category name list                                                    |
+----------+-----------------+--------------------------------+---------+
| 400~415  | category  1 name|                                | --:--  |
|          | [0]~[15]        | ASCII code [0]~[15]=Head~Tail   |         |
| 416~431  | category  2 name|                                | --:--  |
| 432~447  | category  3 name|                                | --:--  |
| 448~463  | category  4 name|                                | --:--  |
| 464~479  | category  5 name|                                | --:--  |
| 480~495  | category  6 name|                                | --:--  |
| 496~511  | category  7 name|                                | --:--  |
| 512~527  | category  8 name|                                | --:--  |
| 528~543  | category  9 name|                                | --:--  |
| 544~559  | category 10 name|                                | --:--  |
| 560~575  | category 11 name|                                | --:--  |
| 576~591  | category 12 name|                                | --:--  |
| 592~607  | category 13 name|                                | --:--  |
| 608~623  | category 14 name|                                | --:--  |
| 624~639  | category 15 name|                                | --:--  |
| 640~655  | category 16 name|                                | --:--  |
+----------+-----------------+--------------------------------+---------+

TABLE 13: FORMANT MOTION DATA
  No. : No. in the FORMANT MOTION DUMP DATA.
+----------+-----------------+---------------------------------------+
| No. (bit)|   PARAMETER     | VALUE        DESCRIPTION               |
+----------+-----------------+---------------------------------------+
| SEQ. STEP[1] Formant parameter    (when SEQ. DATA SIZE > 0)       |
+----------+-----------------+---------------------------------------+
| 0        | Band[1]  Data   | 0~FFh Formant data                    |
+----------+-----------------+---------------------------------------+
| 1        | Band[2]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 2        | Band[3]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 3        | Band[4]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 4        | Band[5]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 5        | Band[6]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 6        | Band[7]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 7        | Band[8]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 8        | Band[9]  Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 9        | Band[10] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 10       | Band[11] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 11       | Band[12] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 12       | Band[13] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 13       | Band[14] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 14       | Band[15] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| 15       | Band[16] Data   | same as Band[1]                       |
+----------+-----------------+---------------------------------------+
| SEQ. STEP[2]~[16] Formant parameter                               |
+----------+-----------------+---------------------------------------+
| 16  ~    | SEQ. STEP [2]   | same as SEQ. STEP[1]                  |
|          |     Band[1]~    | (when SEQ. DATA SIZE > 1)             |
+----------+-----------------+---------------------------------------+

TABLE 14: TIMBRE PROGRAM TEMPLATE DATA
  No. : No. in the ALL TIMBRE PROGRAM TEMPLATE DUMP DATA.
+----------+-----------------+--------------------------------+---------+
| No. (bit)|   PARAMETER     | VALUE       DESCRIPTION         | ID:SubID|
+----------+-----------------+--------------------------------+---------+
| +0~4     | (dummy byte)                                          | --:--  |
+----------+-----------------+--------------------------------+---------+
| Key Window parameter                                                  |
+----------+-----------------+--------------------------------+---------+
| +6,7     | (dummy byte)                                          | --:--  |
+----------+-----------------+--------------------------------+---------+
| +8   B7  | Unision SW      | 0,1=Off,On                     | --:--  |
|     B4~6 | not use         | (0,0,0)                        | --:--  |
|     B0~3 | Unison Voice    | 0~4,5~=2Voice~6Voice           | --:--  |
+----------+-----------------+--------------------------------+---------+
| +9       | Unison Detune   | 0~99=0~99[cent]                | --:--  |
+----------+-----------------+--------------------------------+---------+
| +10      | Unison Spread   | 0~127                          | --:--  |
+----------+-----------------+--------------------------------+---------+
| +11      | Bend Range      | 64+/-12=0+/-12[note]           | --:--  |
+----------+-----------------+--------------------------------+---------+
| +12      | Portamento Time | 0~127                          | --:--  |
```

```
+----------+-------------------+-------------------------------+---------+
| +13  B4~6 | not use          | (0,0,0)                       | --:--   |
|     ------+-------------------+-------------------------------+---------+
|      B0~3 | Portamento Curve  | 0~4=LogHard~Exp         *T02-1 | --:--   |
+----------+-------------------+-------------------------------+---------+
| +14~15    | (dummy bytes)     |                               | --:--   |
+----------+-------------------+-------------------------------+---------+
|  Timbre Program parameter                                              |
+----------+-------------------+-------------------------------+---------+
| +16~119   | PROGRAM DATA      | Program Parameter [104](TABLE 7) | --:-- |
+----------+-------------------+-------------------------------+---------+
| +120~255  | (dummy bytes)     |                               | --:--   |
+----------+-------------------+-------------------------------+---------+


TABLE 15: INSERT FX TEMPLATE DATA
 No. : No. in the ALL INSERT FX TEMPLATE DUMP DATA.
+----------+-------------------+-------------------------------+---------+
| No. (bit)|    PARAMETER      | VALUE        DESCRIPTION       | ID:SubID|
+----------+-------------------+-------------------------------+---------+
| Template Insert Fx                                                     +
+----------+-------------------+-------------------------------+---------+
| +0~11     | Template name     |                               | --:--   |
+----------+-------------------+-------------------------------+---------+
| +12   B7  | Effect  SW        | 0,1=Off,On                    | --:--   +
|     ------+-------------------+-------------------------------+---------+
|      B0~6 | Effect  Type      | 0~30=NoEffect~TalkingMod *T04-1| --:--  +
+----------+-------------------+-------------------------------+---------+
| +13       | (dummy byte)      |                               | --:--   |
+----------+-------------------+-------------------------------+---------+
| +14   B5~7| not use           | (0,0,0)                       | --:--   +
|     ------+-------------------+-------------------------------+---------+
|      B0~4 | Fx  knob1 assign  | 0~19=param1~20                | --:--   +
+----------+-------------------+-------------------------------+---------+
| +15   B5~7| not use           | (0,0,0)                       | --:--   +
|     ------+-------------------+-------------------------------+---------+
|      B0~4 | Fx  knob2 assign  | 0~19=param1~20                | --:--   +
+----------+-------------------+-------------------------------+---------+
| +16       | Fx  Int param 1   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +17       | Fx  Int param 2   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +18       | Fx  Int param 3   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +19       | Fx  Int param 4   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +20       | Fx  Int param 5   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +21       | Fx  Int param 6   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +22       | Fx  Int param 7   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +23       | Fx  Int param 8   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +24       | Fx  Int param 9   |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +25       | Fx  Int param 10  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +26       | Fx  Int param 11  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +27       | Fx  Int param 12  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +28       | Fx  Int param 13  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +29       | Fx  Int param 14  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +30       | Fx  Int param 15  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +31       | Fx  Int param 16  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +32       | Fx  Int param 17  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +33       | Fx  Int param 18  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +34       | Fx  Int param 19  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +35       | Fx  Int param 20  |                        *T08-1 | --:--   +
+----------+-------------------+-------------------------------+---------+
| +36~63    | (dummy bytes)     |                               | --:--   |
+----------+-------------------+-------------------------------+---------+
```

```
TABLE 16: MASTER FX TEMPLATE DATA
 No. : No. in the ALL MASTER FX TEMPLATE DUMP DATA.
```

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
Template Master Fx			
+0~11	Template name		--:--
+12 B7	SW	0,1=Off,On	--:--
B0~6	Effect1 Type	0~30=NoEffect~TalkingMod *T04-1	--:--
+13 B5~7	not use	(0,0,0,0)	--:--
B0~4	knob assign	0~19=param1~20	--:--
+14	parameter 1	*T08-1	--:--
+15	parameter 2	*T08-1	--:--
+16	parameter 3	*T08-1	--:--
+17	parameter 4	*T08-1	--:--
+18	parameter 5	*T08-1	--:--
+19	parameter 6	*T08-1	--:--
+20	parameter 7	*T08-1	--:--
+21	parameter 8	*T08-1	--:--
+22	parameter 9	*T08-1	--:--
+23	parameter 10	*T08-1	--:--
+24	parameter 11	*T08-1	--:--
+25	parameter 12	*T08-1	--:--
+26	parameter 13	*T08-1	--:--
+27	parameter 14	*T08-1	--:--
+28	parameter 15	*T08-1	--:--
+29	parameter 16	*T08-1	--:--
+30	parameter 17	*T08-1	--:--
+31	parameter 18	*T08-1	--:--
+32	parameter 19	*T08-1	--:--
+33	parameter 20	*T08-1	--:--
+34~47	(dummy bytes)		--:--

```
*T01-1 :
      0: Equal Temp    5: Werckmeist
      1: Pure Major    6: Kirnberger
      2: Pure Minor    7: Slendoro
      3: Arabic        8: Pelog
      4: Pythagorea    9: User Scale


*T01-2 :
      0: OFF
      1: Mod.Seq.
      2: Mod.Seq.&D.Kit
      3: Arp./Step Seq.


*T02-1 :
      0:LogHard
      1:LogMid
      2:LogSoft
      3:Lin
      4:Exp


*T03-1 : Fc Mod Source, Patch1~6 Source
      0: EG1        4: LFO2       8: Key Track 12: MIDI3
      1: EG2        5: Velocity   9: EnvF       13: MIDI4
      2: EG3        6: Pitch Bend 10: MIDI1     14: MIDI5
      3: LFO1       7: Mod Wheel  11: MIDI2
```

```
*T04-1 : Fx Type
      0: No Effect
      1: St.Compressor
      2: St.Limiter
      3: St.Gate
      4: St.Filter
      5: St.Wah
      6: St.BandEQ
      7: Distortion
      8: CabinetSimltr
      9: TubePreampSim(IFX) / St.TubePreamp(MFX)
     10: St.Decimator
     11: Reverb
     12: Early Reflect
     13: L/C/R Delay
     14: St.Delay
     15: AutoPanDelay
     16: St.AutoPanDly
     17: Mod Delay
     18: St.Mod Delay
     19: Tape Echo
     20: St.Chorus
     21: Ensemble
     22: St.Flanger
     23: St.Phaser
     24: St.Tremolo
     25: St.Ring Mod
     26: Pitch Shifter(IFX) / St.PitchShift(MFX)
     27: Grain Shifter(IFX) / St.GrainShift(MFX)
     28: St.Vibrato
     29: RotarySpeaker
     30: Talking Mod

*T04-2 :
      (See midifx.txt.)


*T05-1 :
      0: 1/32      3: 1/12      6: 1/4
      1: 1/24      4: 1/8       7: 1/2
      2: 1/16      5: 1/6       8: 1/1

*T05-2 :
      0: Up
      1: Down
      2: Alt1
      3: Alt2
      4: Random
      5: Trigger


*T07-1 :
      0: Saw          4: Noise         8: Audio In
      1: Pulse        5: Formant
      2: Tri          6: DWGS
      3: Sin(Cross)   7: PCM

*T07-2 :
      0:Decimator    4:MultiSin     8:SubOSC Sin
      1:Hard Clip    5:SubOSC Saw   9:Pickup
      2:OctSaw       6:SubOSC Squ  10:Lvl Boost
      3:MultiTri     7:SubOSC Tri

*T07-3 : Patch1~6 Destination
      0: PITCH         5: NOISE LEVEL    10: DRIVE/WS DEPTH
      1: OSC2 PITCH    6: FLT1 TYPE      11: AMP
      2: OSC1 CNTL1    7: FLT1 CUTOFF    12: PAN
      3: OSC1 LEVEL    8: FLT1 RESONANCE 13: LFO1 FREQ
      4: OSC2 LEVEL    9: FLT2 CUTOFF    14: LFO2 FREQ

*T07-4  : [kHz]
      0: 0.01    20: 0.21    40: 1.75    60: 4.25    80: 8.50   100: 19.0   120: 65.0
      1: 0.02    21: 0.22    41: 1.88    61: 4.38    81: 8.75   101: 20.0   121: 70.0
      2: 0.03    22: 0.23    42: 2.00    62: 4.50    82: 9.00   102: 21.5   122: 75.0
      3: 0.04    23: 0.24    43: 2.13    63: 4.63    83: 9.25   103: 23.0   123: 80.0
      4: 0.05    24: 0.25    44: 2.25    64: 4.75    84: 9.50   104: 24.5   124: 85.0
      5: 0.06    25: 0.29    45: 2.38    65: 4.88    85: 9.75   105: 26.0   125: 90.0
      6: 0.07    26: 0.33    46: 2.50    66: 5.00    86: 10.0   106: 27.5   126: 95.0
      7: 0.08    27: 0.42    47: 2.63    67: 5.25    87: 10.5   107: 29.0   127: 100
      8: 0.09    28: 0.50    48: 2.75    68: 5.50    88: 11.0   108: 31.0
      9: 0.10    29: 0.58    49: 2.88    69: 5.75    89: 11.5   109: 33.0
     10: 0.11    30: 0.67    50: 3.00    70: 6.00    90: 12.0   110: 35.0
     11: 0.12    31: 0.75    51: 3.13    71: 6.25    91: 12.5   111: 37.0
     12: 0.13    32: 0.83    52: 3.25    72: 6.50    92: 13.0   112: 39.0
     13: 0.14    33: 0.92    53: 3.38    73: 6.75    93: 13.5   113: 41.0
     14: 0.15    34: 1.00    54: 3.50    74: 7.00    94: 14.0   114: 44.0
     15: 0.16    35: 1.13    55: 3.63    75: 7.25    95: 14.5   115: 47.0
     16: 0.17    36: 1.25    56: 3.75    76: 7.50    96: 15.0   116: 50.0
     17: 0.18    37: 1.38    57: 3.88    77: 7.75    97: 16.0   117: 53.0
     18: 0.19    38: 1.50    58: 4.00    78: 8.00    98: 17.0   118: 57.0
     19: 0.20    39: 1.63    59: 4.13    79: 8.25    99: 18.0   119: 61.0

*T07-5 :
      0: 8/1      4: 3/4      8: 1/4     12: 1/12    16: 1/64
      1: 4/1      5: 1/2      9: 3/16    13: 1/16
      2: 2/1      6: 3/8     10: 1/6     14: 1/24
      3: 1/1      7: 1/3     11: 1/8     15: 1/32
```

```
*T08-1 :
     (See midifx.txt.)

*T08-2 :
     0: 40          10: 220         20: 420
     1: 50          11: 240         21: 440
     2: 60          12: 260         22: 460
     3: 80          13: 280         23: 480
     4: 100         14: 300         24: 500
     5: 120         15: 320         25: 600
     6: 140         16: 340         26: 700
     7: 160         17: 360         27: 800
     8: 180         18: 380         28: 900
     9: 200         19: 400         29: 1000

*T08-3 :
     0: 1.00        10: 3.50        20: 6.00
     1: 1.25        11: 3.75        21: 7.00
     2: 1.50        12: 4.00        22: 8.00
     3: 1.75        13: 4.25        23: 9.00
     4: 2.00        14: 4.50        24: 10.0
     5: 2.25        15: 4.75        25: 11.0
     6: 2.50        16: 5.00        26: 12.0
     7: 2.75        17: 5.25        27: 14.0
     8: 3.00        18: 5.50        28: 16.0
     9: 3.25        19: 5.75        29: 18.0


*T09-1 :
     0: 1/48     4: 1/12     8: 3/16     12: 1/2
     1: 1/32     5: 3/32     9: 1/4      13: 2/3
     2: 1/24     6: 1/8     10: 1/3      14: 3/4
     3: 1/16     7: 1/6     11: 3/8      15: 1/1


*T10-1 : Motion SEQ1~3 Destination List
     0: None         10: NoiseLevel   20: EG1Release    30: Patch4Int
     1: Pitch        11: CutOff       21: EG2Attack
     2: StepLength   12: Resonance    22: EG2Decay
     3: Portamento   13: EG1 Int      23: EG2Sustain
     4: OSC1CTRL1    14: KBD Track    24: EG2Release
     5: OSC1CTRL2    15: AmpLevel     25: LFO1Freq
     6: OSC2Semi     16: Panpot       26: LFO2Freq
     7: OSC2Tune     17: EG1Attack    27: Patch1Int
     8: OSC1Level    18: EG1Decay     28: Patch2Int
     9: OSC2Level    19: EG1Sustain   29: Patch3Int


*T12-1 :
     0: P.Bend     2~97: #CC 000~095
     1: A.Touch   98~115: #CC 102~119

*T12-2 :
     0: Volume     3: A.Touch    6: FootPdl
     1: Exp Pdl    4: Mod Wheel
     2: Panpot     5: BreathC

*T12-3 :
     0: Damper    4: Oct -
     1: Prog +    5: Portmnt
     2: Prog -    6: Arpegio Off/On
     3: Oct +

*T12-4 :
  [+00]: Portamento         [+30]: EG1 Sustain       [+60]: Vcd Mod Select
  [+01]: Unison SW          [+31]: EG1 Release       [+61]: Vcd Direct Level
  [+02]: OSC1 Wave          [+32]: EG2 Attack        [+62]: Vcd In Src1 Level
  [+03]: OSC1 Mod.          [+33]: EG2 Decay         [+63]: Vcd In Src2 Level
  [+04]: OSC1 Ctrl1         [+34]: EG2 Sustain       [+64]: Vcd Level
  [+05]: OSC1 Ctrl2         [+35]: EG2 Release       [+65]: Vcd Formant Shift
  [+06]: OSC2 Wave          [+36]: LFO1 Wave         [+66]: Vcd FC Offset
  [+07]: OSC2 Mod.          [+37]: LFO1 Frequency    [+67]: Vcd Resonance
  [+08]: OSC2 Semitone      [+38]: LFO2 Wave         [+68]: Vcd Fc Mod.Int
  [+09]: OSC2 Tune          [+39]: LFO2 Frequency    [+69]: Vcd E.F. Sens
  [+10]: OSC1 Level         [+40]: Patch1 Int.
  [+11]: OSC2 Level         [+41]: Patch2 Int.
  [+12]: Noise Level        [+42]: Patch3 Int.
  [+13]: Filter Routing     [+43]: Patch4 Int.
  [+14]: Filter1 TypeBalance [+44]: Patch5 Int.
  [+15]: Filter1 Cutoff     [+45]: Patch6 Int.
  [+16]: Filter1 Resonance  [+46]: EQ Hi.Gain
  [+17]: Filter1 EG1 Int    [+47]: EQ Low.Gain
  [+18]: Filter1 KeyTrack   [+48]: Mod.Seq. SW
  [+19]: Filt2 Type         [+49]: FX1 Edit1
  [+20]: Filter2 Cutoff     [+50]: FX1 Edit2
  [+21]: Filter2 Resonance  [+51]: FX2 Edit1
  [+22]: Filter2 EG1 Int    [+52]: FX2 Edit2
  [+23]: Filter2 KeyTrack   [+53]: MasterFX Edit
  [+24]: Amp Level          [+54]: FX1 SW
  [+25]: Panpot             [+55]: FX2 SW
  [+26]: Drive/WS Depth     [+56]: MFX SW
  [+27]: Drive/WS SW        [+57]: Vcd Threshold
  [+28]: EG1 Attack         [+58]: Vcd HPF Level
  [+29]: EG1 Decay          [+59]: Vcd HPF Gate
```

RADIAS Effect Parameter Structure

```
TABLE 1 : INSERT EFFECT PARAMETER
  No. : No. in the PROGRAM DUMP DATA.
  Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
```

1   St.Compressor

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~,99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	not use		--
+2	Sensitivity	1~127=1~127	x9:+02
+3	Attack	0~127=0.1~500 msec *T01-01	x9:+03
+4	Output Level	0~127=0~127	x9:+04

2   St.Limiter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	not use		--
+2	Ratio	0~68,69=1.0:1~50.0:1,Inf:1 *T01-02	x9:+02
+3	Threshold	24~64=-40~0 dB *T01-03	x9:+03
+4	Attack	0~127=0.1~500 msec *T01-01	x9:+04
+5	Gain Adjust	23,24~88=-Inf,-40~+24 dB *T01-04	x9:+05

3   St.Gate

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	not use		--
+2	Threshold	0~127=0~127	x9:+02
+3	Attack	0~127=0.1~500 msec *T01-01	x9:+03
+4	Release	0~127=0.3~1500 msec *T01-05	x9:+04
+5	Gain Adjust	23,24~88=-Inf,-40~+24 dB *T01-04	x9:+05

4   St.Filter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Filter Type	0~4=LPF24,LPF18,LPF12,HPF12,BPF12	x9:+01
+2	Cutoff	0~127=0~127	x9:+02
+3	Resonance	0~127=0~127	x9:+03
+4	Trim	0~127=0~127	x9:+04
+5	Mod Source	0,1=LFO,Ctrl	x9:+05
+6	Mod Intensity	64+/-63=-63~+63	x9:+06
+7	Mod Response	0~127=0~127	x9:+07
+8	LFO Tempo Sync	0,1=Off,On	x9:+08
+9	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+09
+10	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+10
+11	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+11
+12	LFO Shape	64+/-63=-63~+63	x9:+12
+13	LFO KeySync	0,1=Off,Timbre	x9:+13
+14	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+14
+15	Control Source	0~11=Off~MIDI3 *T04-01	x9:+15

5　St.Wah

No. (bit)	PARAMETER	VALUE　　DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Wah Type	0~5=Y-CRY~M-VOX　　　　*T01-06	x9:+01
+2	Frequency	64+/-63=-63~+63	x9:+02
+3	Resonance	64+/-63=-63~+63	x9:+03
+4	Mod Source	0~2=Auto,LFO,Ctrl	x9:+04
+5	Mod Intensity	64+/-63=-63~+63	x9:+05
+6	Mod Response	0~127=0~127	x9:+06
+7	Env.Sens	0~127=0~127	x9:+07
+8	Env.Shape	64+/-63=-63~+63	x9:+08
+9	LFO Tempo Sync	0,1=Off,On	x9:+09
+10	LFO Frequency	0~127=0.01~100.0 Hz　　*T03-01	x9:+10
+11	LFO Sync Note	0~16=8/1~1/64　　　　*T03-02	x9:+11
+12	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+12
+13	LFO Shape	64+/-63=-63~+63	x9:+13
+14	LFO KeySync	0,1=Off,Timbre	x9:+14
+15	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+15
+16	Control Source	0~11=Off~MIDI3　　　　*T04-01	x9:+16

6　St.Band EQ

No. (bit)	PARAMETER	VALUE　　DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Trim	0~127=0~127	x9:+01
+2	B1 Type	0,1=Peaking,Shelv Low	x9:+02
+3	B2 Type	0,1=Peaking,Shelv Hi	x9:+03
+4	B1 Frequency	0~58=20~20 kHz　　　　*T01-07	x9:+04
+5	B1 Q	0~95=0.5,0.6~9.9,10	x9:+05
+6	B1 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	x9:+06
+7	B2 Frequency	0~58=20~20 kHz　　　　*T01-07	x9:+07
+8	B2 Q	0~95=0.5,0.6~9.9,10	x9:+08
+9	B2 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	x9:+09

7　Distortion

No. (bit)	PARAMETER	VALUE　　DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Gain	0~127=0~127	x9:+01
+2	Pre EQ Frequency	0~58=20~20 kHz　　　　*T01-07	x9:+02
+3	Pre EQ Q	0~95=0.5,0.6~9.9,10	x9:+03
+4	Pre EQ Gain	64+/-36=-18,-17.5~0~17.5,18 dB	x9:+04
+5	B1 Frequency	0~58=20~20 kHz　　　　*T01-07	x9:+05
+6	B1 Q	0~95=0.5,0.6~9.9,10	x9:+06
+7	B1 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	x9:+07
+8	B2 Frequency	0~58=20~20 kHz　　　　*T01-07	x9:+08
+9	B2 Q	0~95=0.5,0.6~9.9,10	x9:+09
+10	B2 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	x9:+10
+11	B3 Frequency	0~58=20~20 kHz　　　　*T01-07	x9:+11
+12	B3 Q	0~95=0.5,0.6~9.9,10	x9:+12
+13	B3 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	x9:+13
+14	Output Level	0~127=0~127	x9:+14

8   Cabinet Simulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Cabinet Type	0~10=Tweed1x8~US_V30 *T01-08	x9:+01
+2	Air	0~127=0~127	x9:+02
+3	Trim	0~127=0~127	x9:+03

9   Tube Preamp Simulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Tube1 Low Cut	0~127=0~127	x9:+01
+2	Tube1 High Cut	0~127=0~127	x9:+02
+3	Tube1 Gain	23,24~64~88=-Inf,-40~0~+24 dB	x9:+03
+4	Tube1 Bias	0~100=0~100 %	x9:+04
+5	Tube1 Satulation	0~100=0~100 %	x9:+05
+6	Phase	0,1=Normal,Inverted	x9:+06
+7	Tube2 Low Cut	0~127=0~127	x9:+07
+8	Tube2 High Cut	0~127=0~127	x9:+08
+9	Tube2 Gain	23,24~64~88=-Inf,-40~0~+24 dB	x9:+09
+10	Tube2 Bias	0~100=0~100 %	x9:+10
+11	Tube2 Satulation	0~100=0~100 %	x9:+11
+12	Output Level	0~127=0~127	x9:+12

10 St.Decimator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	PreLPF	0,1=Off,On	x9:+01
+2	HighDamp	0~100=0~100 %	x9:+02
+3	Fs	0~94=1.0,1.5,~47.5,48.0 kHz	x9:+03
+4	Bit	0~20=4~24 bit	x9:+04
+5	Output Level	0~127=0~127	x9:+05
+6	Fs Mod Intensity	64+/-63=-63~+63	x9:+06
+7	LFO Tempo Sync	0,1=Off,On	x9:+07
+8	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+08
+9	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+09
+10	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+10
+11	LFO Shape	64+/-63=-63~+63	x9:+11
+12	LFO KeySync	0,1=Off,Timbre	x9:+12
+13	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+13

11 Reverb

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Type	0~2=Hall,Plate,Room	x9:+01
+2	Reverb Time	0~127=0.1~10.0sec *T05-01,*T05-02	x9:+02
+3	High Damp	0~100=0~100 %	x9:+03

```
12  Early Reflections
+----------+--------------------+------------------------------------+----------+
| No. (bit)|     PARAMETER      | VALUE       DESCRIPTION             | ID:SubID |
+----------+--------------------+------------------------------------+----------+
|   +0     | Dry/Wet            | 0,1~99,100=Dry,1:99 ~ 99:1,Wet     | x9:+00   |
+----------+--------------------+------------------------------------+----------+
|   +1     | Type               | 0~3=Sharp,Loose,Mod,Reverse        | x9:+01   |
+----------+--------------------+------------------------------------+----------+
|   +2     | ER Time            | 0~87=10~400 msec           *T01-09 | x9:+02   |
+----------+--------------------+------------------------------------+----------+
|   +3     | Pre Delay          | 0~127=0~200 msec           *T02-01 | x9:+03   |
+----------+--------------------+------------------------------------+----------+
|   +4     | Pre EQ Trim        | 0~127=0~127                        | x9:+04   |
+----------+--------------------+------------------------------------+----------+
|   +5     | not use            |                                    |   --     |
+----------+--------------------+------------------------------------+----------+
|   +6     | not use            |                                    |   --     |
+----------+--------------------+------------------------------------+----------+
|   +7     | High Damp          | 0~100=0~100 %                      | x9:+07   |
+----------+--------------------+------------------------------------+----------+
|   +8     | Low Damp           | 0~100=0~100 %                      | x9:+08   |
+----------+--------------------+------------------------------------+----------+


13  L/C/R Delay
+----------+--------------------+------------------------------------+----------+
| No. (bit)|     PARAMETER      | VALUE       DESCRIPTION             | ID:SubID |
+----------+--------------------+------------------------------------+----------+
|   +0     | Dry/Wet            | 0,1~99,100=Dry,1:99 ~ 99:1,Wet     | x9:+00   |
+----------+--------------------+------------------------------------+----------+
|   +1     | Delay TempoSync    | 0,1=Off,On                         | x9:+01   |
+----------+--------------------+------------------------------------+----------+
|   +2     | Time Ratio         | 0~127=12.5~400% (Sync=On)  *T06-01 | x9:+02   |
|          |                    | 0~127=0.5~400% (Sync=Off)  *T06-02 |          |
+----------+--------------------+------------------------------------+----------+
|   +3     | L Delay Time       | 0~127=0~1000 msec          *T06-04 | x9:+03   |
+----------+--------------------+------------------------------------+----------+
|   +4     | C Delay Time       | 0~127=0~1000 msec          *T06-04 | x9:+04   |
+----------+--------------------+------------------------------------+----------+
|   +5     | R Delay Time       | 0~127=0~1000 msec          *T06-04 | x9:+05   |
+----------+--------------------+------------------------------------+----------+
|   +6     | L Delay Time       | 0~13=1/64~1/1              *T06-14 | x9:+06   |
+----------+--------------------+------------------------------------+----------+
|   +7     | C Delay Time       | 0~13=1/64~1/1              *T06-14 | x9:+07   |
+----------+--------------------+------------------------------------+----------+
|   +8     | R Delay Time       | 0~13=1/64~1/1              *T06-14 | x9:+08   |
+----------+--------------------+------------------------------------+----------+
|   +9     | L Delay Level      | 0~127=0~127                        | x9:+09   |
+----------+--------------------+------------------------------------+----------+
|   +10    | C Delay Level      | 0~127=0~127                        | x9:+10   |
+----------+--------------------+------------------------------------+----------+
|   +11    | R Delay Level      | 0~127=0~127                        | x9:+11   |
+----------+--------------------+------------------------------------+----------+
|   +12    | C Feedback         | 0~127=0~127                        | x9:+12   |
+----------+--------------------+------------------------------------+----------+
|   +13    | High Damp          | 0~100=0~100 %                      | x9:+13   |
+----------+--------------------+------------------------------------+----------+
|   +14    | Low Damp           | 0~100=0~100 %                      | x9:+14   |
+----------+--------------------+------------------------------------+----------+
|   +15    | Trim               | 0~127=0~127                        | x9:+15   |
+----------+--------------------+------------------------------------+----------+
|   +16    | Spread             | 0~127=0~127                        | x9:+16   |
+----------+--------------------+------------------------------------+----------+


14  St.Delay
+----------+--------------------+------------------------------------+----------+
| No. (bit)|     PARAMETER      | VALUE       DESCRIPTION             | ID:SubID |
+----------+--------------------+------------------------------------+----------+
|   +0     | Dry/Wet            | 0,1~99,100=Dry,1:99 ~ 99:1,Wet     | x9:+00   |
+----------+--------------------+------------------------------------+----------+
|   +1     | Type               | 0,1=Stereo,Cross                   | x9:+01   |
+----------+--------------------+------------------------------------+----------+
|   +2     | Delay TempoSync    | 0,1=Off,On                         | x9:+02   |
+----------+--------------------+------------------------------------+----------+
|   +3     | Time Ratio         | 0~127=12.5~400% (Sync=On)  *T06-01 | x9:+03   |
|          |                    | 0~127=0.5~400% (Sync=Off)  *T06-02 |          |
+----------+--------------------+------------------------------------+----------+
|   +4     | L Delay Time       | 0~127=0~500 msec           *T06-03 | x9:+04   |
+----------+--------------------+------------------------------------+----------+
|   +5     | R Delay Time       | 0~127=0~500 msec           *T06-03 | x9:+05   |
+----------+--------------------+------------------------------------+----------+
|   +6     | L Delay Time       | 0~13=1/64~1/1              *T06-14 | x9:+06   |
+----------+--------------------+------------------------------------+----------+
|   +7     | R Delay Time       | 0~13=1/64~1/1              *T06-14 | x9:+07   |
+----------+--------------------+------------------------------------+----------+
|   +8     | Feedback           | 0~127=0~127                        | x9:+08   |
+----------+--------------------+------------------------------------+----------+
|   +9     | High Damp          | 0~100=0~100 %                      | x9:+09   |
+----------+--------------------+------------------------------------+----------+
|   +10    | Low Damp           | 0~100=0~100 %                      | x9:+10   |
+----------+--------------------+------------------------------------+----------+
|   +11    | Trim               | 0~127=0~127                        | x9:+11   |
+----------+--------------------+------------------------------------+----------+
|   +12    | Spread             | 0~127=0~127                        | x9:+12   |
+----------+--------------------+------------------------------------+----------+
```

15 Auto Panning Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Delay TempoSync	0,1=Off,On	x9:+01
+3	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	x9:+03
+3	L Delay Time	0~127=0~1000 msec *T06-04	x9:+03
+4	R Delay Time	0~127=0~1000 msec *T06-04	x9:+04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	x9:+05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	x9:+06
+7	FeedBack	0~127=0~127	x9:+07
+8	Mod Depth	0~127=0~127	x9:+08
+9	LFO Tempo Sync	0,1=Off,On	x9:+09
+10	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+10
+11	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+11
+12	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+12
+13	LFO Shape	64+/-63=-63~+63	x9:+13
+14	LFO KeySync	0,1=Off,Timbre	x9:+14
+15	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+15
+16	High Damp	0~100=0~100 %	x9:+16
+17	Low Damp	0~100=0~100 %	x9:+17
+18	Trim	0~127=0~127	x9:+18

16 St.Auto Panning Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Delay Tempo Sync	0,1=Off,On	x9:+01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	x9:+02
+3	L Delay Time	0~127=0~500 msec *T06-03	x9:+03
+4	R Delay Time	0~127=0~500 msec *T06-03	x9:+04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	x9:+05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	x9:+06
+7	FeedBack	0~127=0~127	x9:+07
+8	Mod Depth	0~127=0~127	x9:+08
+9	LFO Tempo Sync	0,1=Off,On	x9:+09
+10	LFO Frequency	0~127=0.01~100.0Hz *T03-01	x9:+10
+11	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+11
+12	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+12
+13	LFO Shape	64+/-63=-63~+63	x9:+13
+14	LFO KeySync	0,1=Off,Timbre	x9:+14
+15	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+15
+16	LFO Spread	64+/-18=-180~180 [degree]	x9:+16
+17	High Damp	0~100=0~100 %	x9:+17
+18	Low Damp	0~100=0~100 %	x9:+18
+19	Trim	0~127=0~127	x9:+19

17 Modulation Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Delay Tempo Sync	0,1=Off,On	x9:+01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	x9:+02
+3	L Delay Time	0~127=0~980 msec *T06-09	x9:+03
+4	R Delay Time	0~127=0~980 msec *T06-09	x9:+04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	x9:+05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	x9:+06
+7	FeedBack	0~127=0~127	x9:+07
+8	Mod Depth	0~127=0~127	x9:+08
+9	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+09
+10	LFO Spread	64+/-18=-180~180 [degree]	x9:+10

18 St.Modulation Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Delay Tempo Sync	0,1=Off,On	x9:+01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	x9:+02
+3	L Delay Time	0~127=0~480 msec *T06-08	x9:+03
+4	R Delay Time	0~127=0~480 msec *T06-08	x9:+04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	x9:+05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	x9:+06
+7	FeedBack	0~127=0~127	x9:+07
+8	Mod Depth	0~127=0~127	x9:+08
+9	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+09
+10	LFO Spread	64+/-18=-180~180 [degree]	x9:+10

19 Tape Echo

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Delay Tempo Sync	0,1=Off,On	x9:+01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	x9:+02
+3	Tap1 Delay Time	0~127=0~980 msec *T06-09	x9:+03
+4	Tap2 Delay Time	0~127=0~980 msec *T06-09	x9:+04
+5	Tap1 Delay Time	0~13=1/64~1/1 *T06-14	x9:+05
+6	Tap2 Delay Time	0~13=1/64~1/1 *T06-14	x9:+06
+7	Tap1 Level	0~127=0~127	x9:+07
+8	Tap2 Level	0~127=0~127	x9:+08
+9	FeedBack	0~127=0~127	x9:+09
+10	High Damp	0~100=0~100 %	x9:+10
+11	Low Damp	0~100=0~100 %	x9:+11
+12	Trim	0~127=0~127	x9:+12
+13	Saturation	0~127=0~127	x9:+13
+14	Wah Flatter Freq	0~127=0.01~100.0 Hz *T03-01	x9:+14
+15	Wah Flatter Depth	0~127=0~127	x9:+15
+16	Pre ToneÅ@	0~127=0~127	x9:+16
+17	Spread	0~127=0~127	x9:+17

20 St.Chorus

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Mod Depth	0~127=0~127	x9:+01
+2	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+02
+3	LFO Spread	64+/-18=-180~180 [degree]	x9:+03
+4	PreDelay L	0~119=0~50 msec *T06-12	x9:+04
+5	PreDelay R	0~119=0~50 msec *T06-12	x9:+05
+6	Trim	0~127=0~127	x9:+06
+7	Low EQ Gain	64+/-30=-15~+15 dB	x9:+07
+8	High EQ Gain	64+/-30=-15~+15 dB	x9:+08

21 Ensemble

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Mod Depth	0~127=0~127	x9:+01
+2	Speed	1~127=1~127	x9:+02

22 St.Flanger/CombFilter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Type	0,1=Flanger,Comb	x9:+01
+2	[Flanger]Delay	0~113=0~30 msec *T06-13	x9:+02
+3	[Comb] CutOff	0~127=0~127	x9:+03
+4	Mod Depth	0~127=0~127	x9:+04
+5	Feedback	0~127=0~127	x9:+05
+6	[Flanger]Phase	0,1=+,-	x9:+06
+7	LFO Tempo Sync	0,1=Off,On	x9:+07
+8	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+08
+9	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+09
+10	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+10
+11	LFO Shape	64+/-63=-63~+63	x9:+11
+12	LFO KeySync	0,1=Off,Timbre	x9:+12
+13	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+13
+14	LFO Spread	64+/-18=-180~180 [degree]	x9:+14
+15	High Damp	0~100=0~100 %	x9:+15

23 St.Phaser

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Type	0,1=Blue,U-VB	x9:+01
+2	Manual	0~127=0~127	x9:+02
+3	Mod Depth	0~127=0~127	x9:+03
+4	Resonance	0~127=0~127	x9:+04
+5	Phase	0,1=+,-	x9:+05
+6	LFO Tempo Sync	0,1=Off,On	x9:+06
+7	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+07
+8	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+08
+9	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+09
+10	LFO Shape	64+/-63=-63~+63	x9:+10
+11	LFO KeySync	0,1=Off,Timbre	x9:+11
+12	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+12
+13	LFO Spread	64+/-18=-180~180 [degree]	x9:+13
+14	High Damp	0~100=0~100 %	x9:+14

24 St.Tremolo

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Mod Depth	0~127=0~127	x9:+01
+2	LFO Tempo Sync	0,1=Off,On	x9:+02
+3	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+03
+4	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+04
+5	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+05
+6	LFO Shape	64+/-63=-63~+63	x9:+06
+7	LFO KeySync	0,1=Off,Timbre	x9:+07
+8	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+08
+9	LFO Spread	64+/-18=-180~180 [degree]	x9:+09

25 St.Ring Modulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	OSC Mode	0,1=Fixed,Note	x9:+01
+2	Frequency	0~127=0~12.0kHz *T03-03	x9:+02
+3	Offset	64+/-48=-48~+48	x9:+03
+4	Fine	64+/-50=-100,-98~0~98,100 cent	x9:+04
+5	OSC Waveform	0~2=Saw,Tri,Sine	x9:+05
+6	LFO Intensity	64+/-63=-63~+63	x9:+06
+7	LFO Tempo Sync	0,1=Off,On	x9:+07
+8	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+08
+9	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+09
+10	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+10
+11	LFO Shape	64+/-63=-63~+63	x9:+11
+12	LFO KeySync	0,1=Off,Timbre	x9:+12
+13	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+13
+14	Pre LPF	0~127=0~127	x9:+14

26 Pitch Shifter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Pitch Shift	64+/-24=-24~+24	x9:+01
+2	Fine	64+/-50=-100,-98~0~98,100 cent	x9:+02
+3	not use		--
+4	not use		--
+5	not use		--
+6	not use		--
+7	not use		--
+8	not use		--
+9	Mode	0~2=Slow,Medium,Fast	x9:+09
+10	High Damp	0~100=0~100 %	x9:+10
+11	Trim	0~127=0~127	x9:+11

27 Grain Shifter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Duration TempoSync	0,1=Off,On	x9:+01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	x9:+02
+3	Duration	0~127=0~500 msec *T06-03	x9:+03
+4	not use		--
+5	LFO Tempo Sync	0,1=Off,On	x9:+05
+6	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+06
+7	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+07
+8	LFO KeySync	0,1=Off,Timbre	x9:+08
+9	LFO Init PhaseÅ@	0~18=0,10,20~180 [degree]	x9:+09
+10	not use		--

28 St.Vibrato

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Mod Depth	0~127=0~127	x9:+01
+2	LFO Tempo Sync	0,1=Off,On	x9:+02
+3	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+03
+4	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+04
+5	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+05
+6	LFO Shape	64+/-63=-63~+63	x9:+06
+7	LFO KeySync	0,1=Off,Timbre	x9:+07
+8	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+08
+9	LFO Spread	64+/-18=-180~180 [degree]	x9:+09

29 Rotary Speaker

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Mode Switch	0,1=Rotate,Stop	x9:+01
+2	ModeSw. Ctrl. Src	0~11=Off~MIDI3 *T04-01	x9:+02
+3	ModeSw. Ctrl. Mode	0,1=Toggle,Moment	x9:+03
+4	Speaker Ctrl. Type	0,1=Switch,Manual	x9:+04
+5	[Sw]Speed Switch	0,1=Slow,Fast	x9:+05
+6	[Sw]Sw. Ctrl. Src	0~11=Off~MIDI3 *T04-01	x9:+06
+7	[Sw]Sw. Ctrl. Mode	0,1=Toggle,Moment	x9:+07
+8	[Ml]Speed	1~127=1~127	x9:+08
+9	[Ml]Speed Ctrl.Src	0~11=Off~MIDI3 *T04-01	x9:+09
+10	[Ml]Speed Ctrl.Int	64+/-63=-63~+63	x9:+10
+11	Horn/Rotor Balance	0,1~99,100=Rotor,1:99 ~ 99:1,Horn	x9:+11
+12	Horn Acceleration	0~127=0~127	x9:+12
+13	Horn Ratio	0,1~76=stop,0.5-2.0 *T01-10	x9:+13
+14	Rotor Acceleration	0~127=0~127	x9:+14
+15	Rotor Ratio	0,1~76=stop,0.5-2.0 *T01-10	x9:+15
+16	Mic Distance	0~127=0~127	x9:+16
+17	Spread	0~127=0~127	x9:+17
+18	Trim	0~127=0~127	x9:+18

30 Talking Modulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	x9:+00
+1	Voice Control	64+/-63=Bottom,-62~Center~+62,Top	x9:+01
+2	Voice Top	0~4=A,I,U,E,O	x9:+02
+3	Voice Center	0~4=A,I,U,E,O	x9:+03
+4	Voice Bottom	0~4=A,I,U,E,O	x9:+04
+5	ResonanceÅ@	0~127=0~127	x9:+05
+6	Drive	0~127=0~127	x9:+06
+7	Mod Source	0~2=Auto,LFO,Ctrl	x9:+07
+8	Mod Intensity	64+/-63=-63~+63	x9:+08
+9	Mod Response	0~127=0~127	x9:+09
+10	[Auto] Env.Sens	0~127=0~127	x9:+10
+11	[Auto] Env.Shape	64+/-63=-63~+63	x9:+11
+12	LFO Tempo Sync	0,1=Off,On	x9:+12
+13	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	x9:+13
+14	LFO Sync Note	0~16=8/1~1/64 *T03-02	x9:+14
+15	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	x9:+15
+16	LFO Shape	64+/-63=-63~+63	x9:+16
+17	LFO KeySync	0,1=Off,Timbre	x9:+17
+18	LFO Init Phase	0~18=0,10,20~180 [degree]	x9:+18
+19	[Ctrl] Ctrl.l Src	0~11=Off~MIDI3 *T04-01	x9:+19

```
TABLE 2 : MASTER EFFECT PARAMETER
 No. : No. in the PROGRAM DUMP DATA.
 Parameter ID & SUB ID [Hex]: for PARAMETER CHANGE.
```

1   St.Compressor

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Envelope Select	0,1=LR Mix,LR Indv.	61:01
+2	Sensitivity	1~127=1~127	61:02
+3	Attack	0~127=0.1~500 msec *T01-01	61:03
+4	Output Level	0~127=0~127	61:04

2   St.Limiter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Envelope Select	0,1=LR Mix,LR Indv.	61:01
+2	Ratio	0~68,69=1.0:1~50.0:1,Inf:1 *T01-02	61:02
+3	Threshold	24~64=-40~0dB *T01-03	61:03
+4	Attack	0~127=0.1~500 msec *T01-01	61:04
+5	Gain Adjust	23,24~88=-Inf,-40~+24 dB *T01-04	61:05

3   St.Gate

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Envelope Select	0,1=LR Mix,LR Indv.	61:01
+2	Threshold	0~127=0~127	61:02
+3	Attack	0.1~500 msec *T01-01	61:03
+4	Release	0.3~1500 msec *T01-05	61:04
+5	Gain Adjust	23,24~88=-Inf,-40~+24 dB *T01-04	61:05

4   St.Filter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Filter Type	0~4=LPF24,LPF18,LPF12,HPF12,BPF12	61:01
+2	Cutoff	0~127=0~127	61:02
+3	Resonance	0~127=0~127	61:03
+4	Trim	0~127=0~127	61:04
+5	Mod Source	0,1=LFO,Ctrl	61:05
+6	Mod Intensity	64+/-63=-63~+63	61:06
+7	Mod Response	0~127=0~127	61:07
+8	LFO Tempo Sync	0,1=Off,On	61:08
+9	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:09
+10	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:10
+11	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:11
+12	LFO Shape	64+/-63=-63~+63	61:12
+13	LFO KeySync	0,1=Off,Timbre	61:13
+14	LFO Init Phase	0~18=0,10,20~180 [degree]	61:14
+15	Control Source	0~11=Off~MIDI3 *T04-01	61:15

5   St.Wah

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Wah Type	0~4=Y-CRY~M-VOX *T01-06	61:01
+2	Frequency	64+/-63=-63~+63	61:02
+3	Resonance	64+/-63=-63~+63	61:03
+4	Mod Source	0~2=Auto,LFO,Ctrl	61:04
+5	Mod Intensity	64+/-63=-63~+63	61:05
+6	Mod Response	0~127=0~127	61:06
+7	Env.Sens	0~127=0~127	61:07
+8	Env.Shape	64+/-63=-63~+63	61:08
+9	LFO Tempo Sync	0,1=Off,On	61:09
+10	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:10
+11	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:11
+12	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:12
+13	LFO Shape	64+/-63=-63~+63	61:13
+14	LFO KeySync	0,1=Off,Timbre	61:14
+15	LFO Init Phase	0~18=0,10,20~180 [degree]	61:15
+16	Control Source	0~11=Off~MIDI3 *T04-01	61:16

6   4Band EQ

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Trim	0~127=0~127	61:01
+2	B1 Type	0,1=Peaking,Shelv Low	61:02
+3	B4 Type	0,1=Peaking,Shelv Hi	61:03
+4	B1 Frequency	0~58=20~20 kHz *T01-07	61:04
+5	B1 Q	0~95=0.5,0.6~9.9,10	61:05
+6	B1 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:06
+7	B2 Frequency	0~58=20~20 kHz *T01-07	61:07
+8	B2 Q	0~95=0.5,0.6~9.9,10	61:08
+9	B2 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:09
+10	B3 Frequency	0~58=20~20 kHz *T01-07	61:10
+11	B3 Q	0~95=0.5,0.6~9.9,10	61:11
+12	B3 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:12
+13	B4 Frequency	0~58=20~20 kHz *T01-07	61:13
+14	B4 Q	0~95=0.5,0.6~9.9,10	61:14
+15	B4 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:15

7   Distortion

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Gain	0~127=0~127	61:01
+2	Pre EQ Frequency	0~58=20~20 kHz *T01-07	61:02
+3	Pre EQ Q	0~95=0.5,0.6~9.9,10	61:03
+4	Pre EQ Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:04
+5	B1 Frequency	0~58=20~20 kHz *T01-07	61:05
+6	B1 Q	0~95=0.5,0.6~9.9,10	61:06
+7	B1 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:07
+8	B2 Frequency	0~58=20~20 kHz *T01-07	61:08
+9	B2 Q	0~95=0.5,0.6~9.9,10	61:09
+10	B2 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:10
+11	B3 Frequency	0~58=20~20 kHz *T01-07	61:11
+12	B3 Q	0~95=0.5,0.6~9.9,10	61:12
+13	B3 Gain	64+/-36=-18,-17.5~0~17.5,18 dB	61:13
+14	Output Level	0~127=0~127	61:14

8   Cabinet Simulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Cabinet Type	0~10=Tweed1x8~US_V30 *T01-08	61:01
+2	Air	0~127=0~127	61:02
+3	Trim	0~127=0~127	61:03

9   St.Tube Preamp Simulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Tube1 Low Cut	0~127=0~127	61:01
+2	Tube1 High Cut	0~127=0~127	61:02
+3	Tube1 Gain	23,24~64~88=-Inf,-40~0~+24dB	61:03
+4	Tube1 Bias	0~100=0~100 %	61:04
+5	Tube1 Satulation	0~100=0~100 %	61:05
+6	Phase	0,1=Normal,Inverted	61:06
+7	Tube2 Low Cut	0~127=0~127	61:07
+8	Tube2 High Cut	0~127=0~127	61:08
+9	Tube2 Gain	23,24~64~88=-Inf,-40,~0~+24dB	61:09
+10	Tube2 Bias	0~100=0~100 %	61:10
+11	Tube2 Satulation	0~100=0~100 %	61:11
+12	Output Level	0~127=0~127	61:12

10 St.Decimator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	PreLPF	0,1=Off,On	61:01
+2	HighDamp	0~100=0~100 %	61:02
+3	Fs	0~94=1.0,1.5,~47.5,48.0 kHz	61:03
+4	Bit	0~20=4~24	61:04
+5	Output Level	0~127=0~127	61:05
+6	Fs Mod Intensity	64+/-63=-63~+63	61:06
+7	LFO Tempo Sync	0,1=Off,On	61:07
+8	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:08
+9	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:09
+10	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:10
+11	LFO Shape	64+/-63=-63~+63	61:11
+12	LFO KeySync	0,1=Off,Timbre	61:12
+13	LFO Init Phase	0~18=0,10,20~180 [degree]	61:13

11 Reverb

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Type	0~5=Hall~BrightRoom *T05-03	61:01
+2	Reverb Time	0~127=0.1~10.0sec *T05-01,*T05-02	61:02
+3	High Damp	0~100=0~100 %	61:03
+4	Pre Delay	0~127=0~200 msec *T02-01	61:04
+5	Pre Delay Thru	0~127=0~127	61:05
+6	Pre EQ Trim	0~127=0~127	61:06
+7	Low EQ Gain	64+/-30=-15,-14.5~0~14.5,15 dB	61:07
+8	High EQ Gain	64+/-30=-15,-14.5~0~14.5,15 dB	61:08
+9	ER Level	0~127=0~127	61:09
+10	Reverb Level	0~127=0~127	61:10

12 Early Reflections

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Type	0~3=Sharp,Loose,Mod,Reverse	61:01
+2	ER Time	0~127=10~800 msec *T01-09	61:02
+3	Pre Delay	0~127=0~200 msec *T02-01	61:03
+4	Pre EQ Trim	0~127=0~127	61:04
+5	Low EQ Gain	64+/-30=-15,-14.5~0~14.5,15 dB	61:05
+6	High EQ Gain	64+/-30=-15,-14.5~0~14.5,15 dB	61:06
+7	High Damp	0~100=0~100 %	61:07
+8	Low Damp	0~100=0~100 %	61:08

13 L/C/R Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Delay TempoSync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	L Delay Time	0~127=0~1400 msec *T06-06	61:03
+4	C Delay Time	0~127=0~1400 msec *T06-06	61:04
+5	R Delay Time	0~127=0~1400 msec *T06-06	61:05
+6	L Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	C Delay Time	0~13=1/64~1/1 *T06-14	61:07
+8	R Delay Time	0~13=1/64~1/1 *T06-14	61:08
+9	L Delay Level	0~127=0~127	61:09
+10	C Delay Level	0~127=0~127	61:10
+11	R Delay Level	0~127=0~127	61:11
+12	C Feedback	0~127=0~127	61:12
+13	High Damp	0~100=0~100 %	61:13
+14	Low Damp	0~100=0~100 %	61:14
+15	Trim	0~127=0~127	61:15
+16	Spread	0~127=0~127	61:16

14 St.Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Type	0,1=Stereo,Cross	61:01
+2	Delay TempoSync	0,1=Off,On	61:02
+3	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:03
+4	L Delay Time	0~127=0~700 msec *T06-05	61:04
+5	R Delay Time	0~127=0~700 msec *T06-05	61:05
+6	L Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	R Delay Time	0~13=1/64~1/1 *T06-14	61:07
+8	Feedback	0~127=0~127	61:08
+9	High Damp	0~100=0~100 %	61:09
+10	Low Damp	0~100=0~100 %	61:10
+11	Trim	0~127=0~127	61:11
+12	Spread	0~127=0~127	61:12

15 Auto Panning Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Delay TempoSync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	L Delay Time	0~127=0~1400 msec *T06-06	61:03
+4	R Delay Time	0~127=0~1400 msec *T06-06	61:04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	61:05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	FeedBack	0~127=0~127	61:07
+8	Mod Depth	0~127=0~127	61:08
+9	LFO Tempo Sync	0,1=Off,On	61:09
+10	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:10
+11	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:11
+12	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:12
+13	LFO Shape	64+/-63=-63~+63	61:13
+14	LFO KeySync	0,1=Off,Timbre	61:14
+15	LFO Init Phase	0~18=0,10,20~180 [degree]	61:15
+16	High Damp	0~100=0~100 %	61:16
+17	Low Damp	0~100=0~100 %	61:17
+18	Trim	0~127=0~127	61:18

16 St.Auto Panning Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Delay Tempo Sync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	L Delay Time	0~127=0~700 msec *T06-05	61:03
+4	R Delay Time	0~127=0~700 msec *T06-05	61:04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	61:05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	FeedBack	0~127=0~127	61:07
+8	Mod Depth	0~127=0~127	61:08
+9	LFO Tempo Sync	0,1=Off,On	61:09
+10	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:10
+11	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:11
+12	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:12
+13	LFO Shape	64+/-63=-63~+63	61:13
+14	LFO KeySync	0,1=Off,Timbre	61:14
+15	LFO Init Phase	0~18=0,10,20~180 [degree]	61:15
+16	LFO Spread	64+/-18=-180~180 [degree]	61:16
+17	High Damp	0~100=0~100 %	61:17
+18	Low Damp	0~100=0~100 %	61:18
+19	Trim	0~127=0~127	61:19

17 Modulation Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Delay Tempo Sync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	L Delay Time	0~127=0~1380 msec *T06-11	61:03
+4	R Delay Time	0~127=0~1380 msec *T06-11	61:04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	61:05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	FeedBack	0~127=0~127	61:07
+8	Mod Depth	0~127=0~127	61:08
+9	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:09
+10	LFO Spread	64+/-18=-180~180 [degree]	61:10

18 St.Modulation Delay

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Delay Tempo Sync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	L Delay Time	0~127=0~680 msec *T06-10	61:03
+4	R Delay Time	0~127=0~680 msec *T06-10	61:04
+5	L Delay Time	0~13=1/64~1/1 *T06-14	61:05
+6	R Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	FeedBack	0~127=0~127	61:07
+8	Mod Depth	0~127=0~127	61:08
+9	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:09
+10	LFO Spread	64+/-18=-180~180 [degree]	61:10

19 Tape Echo

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Delay Tempo Sync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	Tap1 Delay Time	0~127=0~1380 msec *T06-11	61:03
+4	Tap2 Delay Time	0~127=0~1380 msec *T06-11	61:04
+5	Tap1 Delay Time	0~13=1/64~1/1 *T06-14	61:05
+6	Tap2 Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	Tap1 Level	0~127=0~127	61:07
+8	Tap2 Level	0~127=0~127	61:08
+9	FeedBack	0~127=0~127	61:09
+10	High Damp	0~100=0~100 %	61:10
+11	Low Damp	0~100=0~100 %	61:11
+12	Trim	0~127=0~127	61:12
+13	Saturation	0~127=0~127	61:13
+14	Wah Flatter Freq	0~127=0.01~100.0 Hz *T03-01	61:14
+15	Wah Flatter Depth	0~127=0~127	61:15
+16	Pre ToneÅ@	0~127=0~127	61:16
+17	Spread	0~127=0~127	61:17

20 St.Chorus

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Mod Depth	0~127=0~127	61:01
+2	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:02
+3	LFO Spread	64+/-18=-180~180 [degree]	61:03
+4	PreDelay L	0~119=0~50 msec *T06-12	61:04
+5	PreDelay R	0~119=0~50 msec *T06-12	61:05
+6	Trim	0~127=0~127	61:06
+7	Low EQ Gain	64+/-30=-15~+15 dB	61:07
+8	High EQ Gain	64+/-30=-15~+15 dB	61:08

21 Ensemble

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Mod Depth	0~127=0~127	61:01
+2	Speed	1~127=1~127	61:02

22 St.Flanger/CombFilter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Type	0,1=Flanger,Comb	61:01
+2	[Flanger]Delay	0~113=0~30 msec *T06-13	61:02
+3	[Comb] CutOff	0~127=0~127	61:03
+4	Mod Depth	0~127=0~127	61:04
+5	Feedback	0~127=0~127	61:05
+6	[Flanger]Phase	0,1=+,-	61:06
+7	LFO Tempo Sync	0,1=Off,On	61:07
+8	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:08
+9	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:09
+10	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:10
+11	LFO Shape	64+/-63=-63~+63	61:11
+12	LFO KeySync	0,1=Off,Timbre	61:12
+13	LFO Init Phase	0~18=0,10,20~180 [degree]	61:13
+14	LFO Spread	64+/-18=-180~180 [degree]	61:14
+15	High Damp	0~100=0~100 %	61:15

23 St.Phaser

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Type	0,1=Blue,U-VB	61:01
+2	Manual	0~127=0~127	61:02
+3	Mod Depth	0~127=0~127	61:03
+4	Resonance	0~127=0~127	61:04
+5	Phase	0,1=+,-	61:05
+6	LFO Tempo Sync	0,1=Off,On	61:06
+7	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:07
+8	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:08
+9	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:09
+10	LFO Shape	64+/-63=-63~+63	61:10
+11	LFO KeySync	0,1=Off,Timbre	61:11
+12	LFO Init Phase	0~18=0,10,20~180 [degree]	61:12
+13	LFO Spread	64+/-18=-180~180 [degree]	61:13
+14	High Damp	0~100=0~100 %	61:14

24 St.Tremolo

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Mod Depth	0~127=0~127	61:01
+2	LFO Tempo Sync	0,1=Off,On	61:02
+3	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:03
+4	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:04
+5	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:05
+6	LFO Shape	64+/-63=-63~+63	61:06
+7	LFO KeySync	0,1=Off,Timbre	61:07
+8	LFO Init Phase	0~18=0,10,20~180 [degree]	61:08
+9	LFO Spread	64+/-18=-180~180 [degree]	61:09

25 St.Ring Modulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	OSC Mode	0,1=Fixed,Note	61:01
+2	Frequency	0~127=0~12.0 kHz *T03-03	61:02
+3	Offset	64+/-48=-48~+48	61:03
+4	Fine	64+/-50=-100,-98~0~98,100 cent	61:04
+5	OSC Waveform	0~2=Saw,Tri,Sine	61:05
+6	LFO Intensity	64+/-63=-63~+63	61:06
+7	LFO Tempo Sync	0,1=Off,On	61:07
+8	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:08
+9	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:09
+10	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:10
+11	LFO Shape	64+/-63=-63~+63	61:11
+12	LFO KeySync	0,1=Off,Timbre	61:12
+13	LFO Init Phase	0~18=0,10,20~180 [degree]	61:13
+14	Pre LPF	0~127=0~127	61:14

26 St.Pitch Shifter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Pitch Shift	64+/-24=-24~+24	61:01
+2	Fine	64+/-50=-100,-98~0~98,100 cent	61:02
+3	Delay Tempo Sync	0,1=Off,On	61:03
+4	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:04
+5	Delay Time	0~127=0~500 msec *T06-03	61:05
+6	Delay Time	0~13=1/64~1/1 *T06-14	61:06
+7	FB Position	0,1=Pre,Post	61:07
+8	Feedback	0~127=0~127	61:08
+9	Mode	0~2=Slow,Medium,Fast	61:09
+10	High Damp	0~100=0~100 %	61:10
+11	Trim	0~127=0~127	61:11

27 St.Grain Shifter

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Duration TempoSync	0,1=Off,On	61:01
+2	Time Ratio	0~127=12.5~400% (Sync=On) *T06-01 0~127=0.5~400% (Sync=Off) *T06-02	61:02
+3	Duration	0~127=0~350 msec *T06-07	61:03
+4	Duration	0~13=1/64~1/1 *T06-14	61:04
+5	LFO Tempo Sync	0,1=Off,On	61:05
+6	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:06
+7	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:07
+8	LFO KeySync	0,1=Off,Timbre	61:08
+9	LFO Init PhaseÅ@	0~18=0,10,20~180 [degree]	61:09
+10	LFO SpreadÅ@	64+/-18=-180~180 [degree]	61:10

28 St.Vibrato

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Mod Depth	0~127=0~127	61:01
+2	LFO Tempo Sync	0,1=Off,On	61:02
+3	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:03
+4	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:04
+5	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:05
+6	LFO Shape	64+/-63=-63~+63	61:06
+7	LFO KeySync	0,1=Off,Timbre	61:07
+8	LFO Init Phase	0~18=0,10,20~180 [degree]	61:08
+9	LFO Spread	64+/-18=-180~180 [degree]	61:09

29 Rotary Speaker

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Mode Switch	0,1=Rotate,Stop	61:01
+2	ModeSw. Ctrl. Src	0~11=Off~MIDI3 *T04-01	61:02
+3	ModeSw. Ctrl. Mode	0,1=Toggle,Moment	61:03
+4	Speaker Ctrl. Type	0,1=Switch,Manual	61:04
+5	[Sw]Speed Switch	0,1=Slow,Fast	61:05
+6	[Sw]Sw. Ctrl. Src	0~11=Off~MIDI3 *T04-01	61:06
+7	[Sw]Sw. Ctrl. Mode	0,1=Toggle,Moment	61:07
+8	[Ml]Speed	1~127=1~127	61:08
+9	[Ml]Speed Ctrl.Src	0~11=Off~MIDI3 *T04-01	61:09
+10	[Ml]Speed Ctrl.Int	64+/-63=-63~+63	61:10
+11	Horn/Rotor Balance	0,1~99,100=Rotor,1:99 ~ 99:1,Horn	61:11
+12	Horn Acceleration	0~127=0~127	61:12
+13	Horn Ratio	0,1~76=stop,0.5~2.0 *T01-10	61:13
+14	Rotor Acceleration	0~127=0~127	61:14
+15	Rotor Ratio	0,1~76=stop,0.5~2.0 *T01-10	61:15
+16	Mic Distance	0~127=0~127	61:16
+17	Spread	0~127=0~127	61:17
+18	Trim	0~127=0~127	61:18

30 Talking Modulator

No. (bit)	PARAMETER	VALUE DESCRIPTION	ID:SubID
+0	Dry/Wet	0,1~99,100=Dry,1:99 ~ 99:1,Wet	61:00
+1	Voice Control	64+/-63=Bottom,-62~Center~+62,Top	61:01
+2	Voice Top	0~4=A,I,U,E,O	61:02
+3	Voice Center	0~4=A,I,U,E,O	61:03
+4	Voice Bottom	0~4=A,I,U,E,O	61:04
+5	ResonanceÅ@	0~127=0~127	61:05
+6	Drive	0~127=0~127	61:06
+7	Mod Source	0~2=Auto,LFO,Ctrl	61:07
+8	Mod Intensity	64+/-63=-63~+63	61:08
+9	Mod Response	0~127=0~127	61:09
+10	[Auto] Env.Sens	0~127=0~127	61:10
+11	[Auto] Env.Shape	64+/-63=-63~+63	61:11
+12	LFO Tempo Sync	0,1=Off,On	61:12
+13	LFO Frequency	0~127=0.01~100.0 Hz *T03-01	61:13
+14	LFO Sync Note	0~16=8/1~1/64 *T03-02	61:14
+15	LFO Waveform	0~4=Saw,Squ,Tri,Sin,S&H	61:15
+16	LFO Shape	64+/-63=-63~+63	61:16
+17	LFO KeySync	0,1=Off,Timbre	61:17
+18	LFO Init Phase	0~18=0,10,20~180 [degree]	61:18
+19	[Ctrl] Ctrl.l Src	0~11=Off~MIDI3 *T04-01	61:19

```
*T01-01 : [msec]
      0: 0.1      16: 1.7     32: 4.7     48: 10.5    64: 23.0    80: 50.0    96: 110     112: 240
      1: 0.2      17: 1.8     33: 5.0     49: 11.0    65: 24.0    81: 53.0    97: 115     113: 252
      2: 0.3      18: 1.9     34: 5.3     50: 11.5    66: 25.0    82: 55.0    98: 121     114: 265
      3: 0.4      19: 2.0     35: 5.6     51: 12.0    67: 27.0    83: 58.0    99: 127     115: 278
      4: 0.5      20: 2.2     36: 5.9     52: 12.5    68: 28.0    84: 61.0    100: 133    116: 292
      5: 0.6      21: 2.4     37: 6.2     53: 13.0    69: 29.0    85: 64.0    101: 140    117: 307
      6: 0.7      22: 2.6     38: 6.5     54: 13.5    70: 31.0    86: 68.0    102: 147    118: 322
      7: 0.8      23: 2.8     39: 6.8     55: 14.0    71: 32.0    87: 71.0    103: 155    119: 338
      8: 0.9      24: 3.0     40: 7.1     56: 15.0    72: 34.0    88: 75.0    104: 162    120: 355
      9: 1.0      25: 3.2     41: 7.4     57: 16.0    73: 36.0    89: 78.0    105: 170    121: 373
     10: 1.1      26: 3.4     42: 7.8     58: 17.0    74: 37.0    90: 82.0    106: 179    122: 391
     11: 1.2      27: 3.6     43: 8.2     59: 18.0    75: 39.0    91: 86.0    107: 188    123: 411
     12: 1.3      28: 3.8     44: 8.6     60: 19.0    76: 41.0    92: 91.0    108: 197    124: 432
     13: 1.4      29: 4.0     45: 9.0     61: 20.0    77: 43.0    93: 95.0    109: 207    125: 453
     14: 1.5      30: 4.2     46: 9.4     62: 21.0    78: 46.0    94: 99.0    110: 218    126: 476
     15: 1.6      31: 4.4     47: 10.0    63: 22.0    79: 48.0    95: 104     111: 229    127: 500

*T01-02 :
      0: 1.0:1    16: 9.0:1   32: 17.0:1  48: 30.0:1  64: 46.0:1
      1: 1.5:1    17: 9.5:1   33: 17.5:1  49: 31.0:1  65: 47.0:1
      2: 2.0:1    18: 10.0:1  34: 18.0:1  50: 32.0:1  66: 48.0:1
      3: 2.5:1    19: 10.5:1  35: 18.5:1  51: 33.0:1  67: 49.0:1
      4: 3.0:1    20: 11.0:1  36: 19.0:1  52: 34.0:1  68: 50.0:1
      5: 3.5:1    21: 11.5:1  37: 19.5:1  53: 35.0:1  69: Inf:1
      6: 4.0:1    22: 12.0:1  38: 20.0:1  54: 36.0:1
      7: 4.5:1    23: 12.5:1  39: 21.0:1  55: 37.0:1
      8: 5.0:1    24: 13.0:1  40: 22.0:1  56: 38.0:1
      9: 5.5:1    25: 13.5:1  41: 23.0:1  57: 39.0:1
     10: 6.0:1    26: 14.0:1  42: 24.0:1  58: 40.0:1
     11: 6.5:1    27: 14.5:1  43: 25.0:1  59: 41.0:1
     12: 7.0:1    28: 15.0:1  44: 26.0:1  60: 42.0:1
     13: 7.5:1    29: 15.5:1  45: 27.0:1  61: 43.0:1
     14: 8.0:1    30: 16.0:1  46: 28.0:1  62: 44.0:1
     15: 8.5:1    31: 16.5:1  47: 29.0:1  63: 45.0:1

*T01-03 :
     24: -40      32: -32     40: -24     48: -16     56: -8      64: 0
     25: -39      33: -31     41: -23     49: -15     57: -7
     26: -38      34: -30     42: -22     50: -14     58: -6
     27: -37      35: -29     43: -21     51: -13     59: -5
     28: -36      36: -28     44: -20     52: -12     60: -4
     29: -35      37: -27     45: -19     53: -11     61: -3
     30: -34      38: -26     46: -18     54: -10     62: -2
     31: -33      39: -25     47: -17     55: -9      63: -1

*T01-04 :
     23: -Inf     33: -31     43: -21     53: -11     63: -1      73: 9       83: 19
     24: -40      34: -30     44: -20     54: -10     64: 0       74: 10      84: 20
     25: -39      35: -29     45: -19     55: -9      65: 1       75: 11      85: 21
     26: -38      36: -28     46: -18     56: -8      66: 2       76: 12      86: 22
     27: -37      37: -27     47: -17     57: -7      67: 3       77: 13      87: 23
     28: -36      38: -26     48: -16     58: -6      68: 4       78: 14      88: 24
     29: -35      39: -25     49: -15     59: -5      69: 5       79: 15
     30: -34      40: -24     50: -14     60: -4      70: 6       80: 16
     31: -33      41: -23     51: -13     61: -3      71: 7       81: 17
     32: -32      42: -22     52: -12     62: -2      72: 8       82: 18

*T01-05 : [msec]
      0: 0.3      16: 5.1     32: 14      48: 32      64: 69      80: 151     96: 329     112: 720
      1: 0.6      17: 5.4     33: 15      49: 33      65: 72      81: 158     97: 346     113: 756
      2: 0.9      18: 5.7     34: 16      50: 35      66: 76      82: 166     98: 363     114: 794
      3: 1.2      19: 6.0     35: 17      51: 36      67: 80      83: 174     99: 381     115: 834
      4: 1.5      20: 6.6     36: 18      52: 38      68: 84      84: 183     100: 400    116: 876
      5: 1.8      21: 7.2     37: 19      53: 39      69: 88      85: 193     101: 420    117: 920
      6: 2.1      22: 7.8     38: 20      54: 41      70: 92      86: 203     102: 441    118: 966
      7: 2.4      23: 8.4     39: 21      55: 42      71: 97      87: 213     103: 464    119: 1014
      8: 2.7      24: 9.0     40: 22      56: 45      72: 101     88: 224     104: 487    120: 1065
      9: 3.0      25: 9.6     41: 23      57: 48      73: 107     89: 235     105: 511    121: 1118
     10: 3.3      26: 10.2    42: 24      58: 51      74: 112     90: 247     106: 537    122: 1174
     11: 3.6      27: 10.8    43: 25      59: 54      75: 118     91: 259     107: 564    123: 1233
     12: 3.9      28: 11.4    44: 26      60: 57      76: 124     92: 272     108: 592    124: 1295
     13: 4.2      29: 12.0    45: 27      61: 60      77: 130     93: 284     109: 622    125: 1360
     14: 4.5      30: 12.6    46: 28      62: 63      78: 137     94: 298     110: 653    126: 1428
     15: 4.8      31: 13.2    47: 30      63: 66      79: 143     95: 313     111: 686    127: 1500

*T01-06 :
      0: Y-CRY
      1: RM-A
      2: RM-B
      3: J-CRY
      4: VOX
      5: M-VOX

*T01-07 : [Hz]
      0: 20        8: 50      16: 125     24: 315     32: 900     40: 2.24k   48: 6.30k   56: 16.0k
      1: 22        9: 56      17: 140     25: 400     33: 1.0k    41: 2.50k   49: 7.10k   57: 18.0k
      2: 25       10: 63      18: 160     26: 450     34: 1.12k   42: 2.80k   50: 8.00k   58: 20.0k
      3: 28       11: 71      19: 180     27: 500     35: 1.25k   43: 3.15k   51: 9.00k
      4: 32       12: 80      20: 200     28: 560     36: 1.4k    44: 4.00k   52: 10.0k
      5: 36       13: 90      21: 224     29: 630     37: 1.6k    45: 4.50k   53: 11.2k
      6: 40       14: 100     22: 250     30: 710     38: 1.8k    46: 5.00k   54: 12.5k
      7: 45       15: 112     23: 280     31: 800     39: 2.0k    47: 5.60k   55: 14.0k
```

```
*T01-08 :
       0: Tweed1x8
       1: Tweed1x12
       2: Tweed4x10
       3: Black2x10
       4: Black2x12
       5: AC15
       6: AC30
       7: AD412
       8: UK_H30
       9: UK_T75
      10: US_V30

*T01-09 : ER Time
       0: 10        16: 26       32: 42       48: 90       64: 170      80: 330      96: 490      112: 650
       1: 11        17: 27       33: 43       49: 95       65: 180      81: 340      97: 500      113: 660
       2: 12        18: 28       34: 44       50: 100      66: 190      82: 350      98: 510      114: 670
       3: 13        19: 29       35: 45       51: 105      67: 200      83: 360      99: 520      115: 680
       4: 14        20: 30       36: 46       52: 110      68: 210      84: 370      100: 530     116: 690
       5: 15        21: 31       37: 47       53: 115      69: 220      85: 380      101: 540     117: 700
       6: 16        22: 32       38: 48       54: 120      70: 230      86: 390      102: 550     118: 710
       7: 17        23: 33       39: 49       55: 125      71: 240      87: 400      103: 560     119: 720
       8: 18        24: 34       40: 50       56: 130      72: 250      88: 410      104: 570     120: 730
       9: 19        25: 35       41: 55       57: 135      73: 260      89: 420      105: 580     121: 740
      10: 20        26: 36       42: 60       58: 140      74: 270      90: 430      106: 590     122: 750
      11: 21        27: 37       43: 65       59: 145      75: 280      91: 440      107: 600     123: 760
      12: 22        28: 38       44: 70       60: 150      76: 290      92: 450      108: 610     124: 770
      13: 23        29: 39       45: 75       61: 155      77: 300      93: 460      109: 620     125: 780
      14: 24        30: 40       46: 80       62: 160      78: 310      94: 470      110: 630     126: 790
      15: 25        31: 41       47: 85       63: 165      79: 320      95: 480      111: 640     127: 800

*T01-10 : Horn/Roter Ratio
       0: Stop      16: 0.80     32: 1.12     48: 1.44     64: 1.76
       1: 0.50      17: 0.82     33: 1.14     49: 1.46     65: 1.78
       2: 0.52      18: 0.84     34: 1.16     50: 1.48     66: 1.80
       3: 0.54      19: 0.86     35: 1.18     51: 1.50     67: 1.82
       4: 0.56      20: 0.88     36: 1.20     52: 1.52     68: 1.84
       5: 0.58      21: 0.90     37: 1.22     53: 1.54     69: 1.86
       6: 0.60      22: 0.92     38: 1.24     54: 1.56     70: 1.88
       7: 0.62      23: 0.94     39: 1.26     55: 1.58     71: 1.90
       8: 0.64      24: 0.96     40: 1.28     56: 1.60     72: 1.92
       9: 0.66      25: 0.98     41: 1.30     57: 1.62     73: 1.94
      10: 0.68      26: 1.00     42: 1.32     58: 1.64     74: 1.96
      11: 0.70      27: 1.02     43: 1.34     59: 1.66     75: 1.98
      12: 0.72      28: 1.04     44: 1.36     60: 1.68     76: 2.00
      13: 0.74      29: 1.06     45: 1.38     61: 1.70
      14: 0.76      30: 1.08     46: 1.40     62: 1.72
      15: 0.78      31: 1.10     47: 1.42     63: 1.74

*T02-01 : [msec]
       0: 0         16: 16       32: 32       48: 48       64: 74       80: 106      96: 138      112: 170
       1: 1         17: 17       33: 33       49: 49       65: 76       81: 108      97: 140      113: 172
       2: 2         18: 18       34: 34       50: 50       66: 78       82: 110      98: 142      114: 174
       3: 3         19: 19       35: 35       51: 51       67: 80       83: 112      99: 144      115: 176
       4: 4         20: 20       36: 36       52: 52       68: 82       84: 114      100: 146     116: 178
       5: 5         21: 21       37: 37       53: 53       69: 84       85: 116      101: 148     117: 180
       6: 6         22: 22       38: 38       54: 54       70: 86       86: 118      102: 150     118: 182
       7: 7         23: 23       39: 39       55: 56       71: 88       87: 120      103: 152     119: 184
       8: 8         24: 24       40: 40       56: 58       72: 90       88: 122      104: 154     120: 186
       9: 9         25: 25       41: 41       57: 60       73: 92       89: 124      105: 156     121: 188
      10: 10        26: 26       42: 42       58: 62       74: 94       90: 126      106: 158     122: 190
      11: 11        27: 27       43: 43       59: 64       75: 96       91: 128      107: 160     123: 192
      12: 12        28: 28       44: 44       60: 66       76: 98       92: 130      108: 162     124: 194
      13: 13        29: 29       45: 45       61: 68       77: 100      93: 132      109: 164     125: 196
      14: 14        30: 30       46: 46       62: 70       78: 102      94: 134      110: 166     126: 198
      15: 15        31: 31       47: 47       63: 72       79: 104      95: 136      111: 168     127: 200

*T03-01 : [kHz]
       0: 0.01      16: 0.17     32: 0.83     48: 2.75     64: 4.75     80: 8.50     96: 15.0     112: 39.0
       1: 0.02      17: 0.18     33: 0.92     49: 2.88     65: 4.88     81: 8.75     97: 16.0     113: 41.0
       2: 0.03      18: 0.19     34: 1.00     50: 3.00     66: 5.00     82: 9.00     98: 17.0     114: 44.0
       3: 0.04      19: 0.20     35: 1.13     51: 3.13     67: 5.25     83: 9.25     99: 18.0     115: 47.0
       4: 0.05      20: 0.21     36: 1.25     52: 3.25     68: 5.50     84: 9.50     100: 19.0    116: 50.0
       5: 0.06      21: 0.22     37: 1.38     53: 3.38     69: 5.75     85: 9.75     101: 20.0    117: 53.0
       6: 0.07      22: 0.23     38: 1.50     54: 3.50     70: 6.00     86: 10.0     102: 21.5    118: 57.0
       7: 0.08      23: 0.24     39: 1.63     55: 3.63     71: 6.25     87: 10.5     103: 23.0    119: 61.0
       8: 0.09      24: 0.25     40: 1.75     56: 3.75     72: 6.50     88: 11.0     104: 24.5    120: 65.0
       9: 0.10      25: 0.29     41: 1.88     57: 3.88     73: 6.75     89: 11.5     105: 26.0    121: 70.0
      10: 0.11      26: 0.33     42: 2.00     58: 4.00     74: 7.00     90: 12.0     106: 27.5    122: 75.0
      11: 0.12      27: 0.42     43: 2.13     59: 4.13     75: 7.25     91: 12.5     107: 29.0    123: 80.0
      12: 0.13      28: 0.50     44: 2.25     60: 4.25     76: 7.50     92: 13.0     108: 31.0    124: 85.0
      13: 0.14      29: 0.58     45: 2.38     61: 4.38     77: 7.75     93: 13.5     109: 33.0    125: 90.0
      14: 0.15      30: 0.67     46: 2.50     62: 4.50     78: 8.00     94: 14.0     110: 35.0    126: 95.0
      15: 0.16      31: 0.75     47: 2.63     63: 4.63     79: 8.25     95: 14.5     111: 37.0    127: 100

*T03-02 :
       0: 8/1        4: 3/4       8: 1/4      12: 1/12     16: 1/64
       1: 4/1        5: 1/2       9: 3/16     13: 1/16
       2: 2/1        6: 3/8      10: 1/6      14: 1/24
       3: 1/1        7: 1/3      11: 1/8      15: 1/32
```

```
*T03-03 : [kHz]
        0: 0.000    16: 0.10    32: 0.37    48: 1.05    64: 2.00    80: 3.60    96: 5.80    112: 9.00
        1: 0.002    17: 0.11    33: 0.39    49: 1.10    65: 2.10    81: 3.70    97: 6.00    113: 9.20
        2: 0.004    18: 0.12    34: 0.41    50: 1.15    66: 2.20    82: 3.80    98: 6.20    114: 9.40
        3: 0.006    19: 0.13    35: 0.43    51: 1.20    67: 2.30    83: 3.90    99: 6.40    115: 9.60
        4: 0.008    20: 0.14    36: 0.45    52: 1.25    68: 2.40    84: 4.00    100: 6.60   116: 9.80
        5: 0.010    21: 0.15    37: 0.50    53: 1.30    69: 2.50    85: 4.10    101: 6.80   117: 10.0
        6: 0.015    22: 0.17    38: 0.55    54: 1.35    70: 2.60    86: 4.20    102: 7.00   118: 10.2
        7: 0.020    23: 0.19    39: 0.60    55: 1.40    71: 2.70    87: 4.30    103: 7.20   119: 10.4
        8: 0.025    24: 0.21    40: 0.65    56: 1.45    72: 2.80    88: 4.40    104: 7.40   120: 10.6
        9: 0.03     25: 0.23    41: 0.70    57: 1.50    73: 2.90    89: 4.50    105: 7.60   121: 10.8
        10: 0.04    26: 0.25    42: 0.75    58: 1.55    74: 3.00    90: 4.60    106: 7.80   122: 11.0
        11: 0.05    27: 0.27    43: 0.80    59: 1.60    75: 3.10    91: 4.80    107: 8.00   123: 11.2
        12: 0.06    28: 0.29    44: 0.85    60: 1.65    76: 3.20    92: 5.00    108: 8.20   124: 11.4
        13: 0.07    29: 0.31    45: 0.90    61: 1.70    77: 3.30    93: 5.20    109: 8.40   125: 11.6
        14: 0.08    30: 0.33    46: 0.95    62: 1.80    78: 3.40    94: 5.40    110: 8.60   126: 11.8
        15: 0.09    31: 0.35    47: 1.00    63: 1.90    79: 3.50    95: 5.60    111: 8.80   127: 12.0

*T04-01 : Control Source
        0: Off
        1: Velocity
        2: AfterTouch
        3: PitchBend
        4: ModWheel
        5: Assignable Pedal
        6: Assignable SW
        7: Damper
        8: Env.Follower
        9: MIDI1
        10: MIDI2
        11: MIDI3
        12: MIDI4
        13: MIDI5

*T05-01 : Reverb Time [sec]   *Type (Hall,SmthHall,WetPlate,DryPlate)
        0: 0.1      5: 0.6      10: 1.1     15: 1.6     20: 2.1     25: 2.6
        1: 0.2      6: 0.7      11: 1.2     16: 1.7     21: 2.2     26: 2.7
        2: 0.3      7: 0.8      12: 1.3     17: 1.8     22: 2.3     27: 2.8
        3: 0.4      8: 0.9      13: 1.4     18: 1.9     23: 2.4     28: 2.9
        4: 0.5      9: 1.0      14: 1.5     19: 2.0     24: 2.5     29: 3.0

*T05-02 : Reverb Time Type [sec]   *Type(Room,BritRoom)
        0: 0.1      15: 1.6     30: 3.1     45: 4.6     60: 6.1     75: 7.6     90: 9.1
        1: 0.2      16: 1.7     31: 3.2     46: 4.7     61: 6.2     76: 7.7     91: 9.2
        2: 0.3      17: 1.8     32: 3.3     47: 4.8     62: 6.3     77: 7.8     92: 9.3
        3: 0.4      18: 1.9     33: 3.4     48: 4.9     63: 6.4     78: 7.9     93: 9.4
        4: 0.5      19: 2.0     34: 3.5     49: 5.0     64: 6.5     79: 8.0     94: 9.5
        5: 0.6      20: 2.1     35: 3.6     50: 5.1     65: 6.6     80: 8.1     95: 9.6
        6: 0.7      21: 2.2     36: 3.7     51: 5.2     66: 6.7     81: 8.2     96: 9.7
        7: 0.8      22: 2.3     37: 3.8     52: 5.3     67: 6.8     82: 8.3     97: 9.8
        8: 0.9      23: 2.4     38: 3.9     53: 5.4     68: 6.9     83: 8.4     98: 9.9
        9: 1.0      24: 2.5     39: 4.0     54: 5.5     69: 7.0     84: 8.5     99: 10.0
        10: 1.1     25: 2.6     40: 4.1     55: 5.6     70: 7.1     85: 8.6
        11: 1.2     26: 2.7     41: 4.2     56: 5.7     71: 7.2     86: 8.7
        12: 1.3     27: 2.8     42: 4.3     57: 5.8     72: 7.3     87: 8.8
        13: 1.4     28: 2.9     43: 4.4     58: 5.9     73: 7.4     88: 8.9
        14: 1.5     29: 3.0     44: 4.5     59: 6.0     74: 7.5     89: 9.0

*T05-03 :
        0: Hall
        1: SmoothHall
        2: WetPlate
        3: DryPlate
        4: Room
        5: BrightRoom

*T06-01 : Time Ratio [%] Sync=ON
        0: 12.5     16: 25.0    32: 50.0    48: 66.6    64: 100.0   80: 133.0   96: 200.0   112: 300.0
        1: 12.5     17: 25.0    33: 50.0    49: 66.6    65: 100.0   81: 133.0   97: 200.0   113: 300.0
        2: 12.5     18: 25.0    34: 50.0    50: 75.0    66: 100.0   82: 133.0   98: 200.0   114: 300.0
        3: 12.5     19: 25.0    35: 50.0    51: 75.0    67: 100.0   83: 133.0   99: 200.0   115: 300.0
        4: 12.5     20: 25.0    36: 50.0    52: 75.0    68: 125.0   84: 133.0   100: 200.0  116: 300.0
        5: 12.5     21: 25.0    37: 50.0    53: 75.0    69: 125.0   85: 133.0   101: 200.0  117: 300.0
        6: 12.5     22: 25.0    38: 50.0    54: 75.0    70: 125.0   86: 150.0   102: 200.0  118: 300.0
        7: 12.5     23: 25.0    39: 50.0    55: 75.0    71: 125.0   87: 150.0   103: 200.0  119: 300.0
        8: 16.7     24: 33.3    40: 50.0    56: 75.0    72: 125.0   88: 150.0   104: 250.0  120: 400.0
        9: 16.7     25: 33.3    41: 66.6    57: 75.0    73: 125.0   89: 150.0   105: 250.0  121: 400.0
        10: 16.7    26: 33.3    42: 66.6    58: 75.0    74: 125.0   90: 150.0   106: 250.0  122: 400.0
        11: 16.7    27: 33.3    43: 66.6    59: 100.0   75: 125.0   91: 150.0   107: 250.0  123: 400.0
        12: 16.7    28: 33.3    44: 66.6    60: 100.0   76: 125.0   92: 150.0   108: 250.0  124: 400.0
        13: 16.7    29: 33.3    45: 66.6    61: 100.0   77: 133.0   93: 150.0   109: 250.0  125: 400.0
        14: 16.7    30: 33.3    46: 66.6    62: 100.0   78: 133.0   94: 150.0   110: 250.0  126: 400.0
        15: 16.7    31: 33.3    47: 66.6    63: 100.0   79: 133.0   95: 200.0   111: 250.0  127: 400.0

*T06-02 : Time Ratio [%] Sync=OFF
        0: 0.5      16: 8.5     32: 23.0    48: 59.0    64: 100.0   80: 120.0   96: 158.0   112: 210.0
        1: 1.0      17: 9.0     33: 25.0    49: 62.0    65: 100.0   81: 122.0   97: 161.0   113: 215.0
        2: 1.5      18: 9.5     34: 28.0    50: 65.0    66: 101.0   82: 123.0   98: 164.0   114: 220.0
        3: 2.0      19: 10.0    35: 30.0    51: 66.6    67: 102.0   83: 125.0   99: 167.0   115: 225.0
        4: 2.5      20: 11.0    36: 32.0    52: 72.0    68: 103.0   84: 128.0   100: 170.0  116: 230.0
        5: 3.0      21: 12.5    37: 33.3    53: 75.0    69: 104.0   85: 130.0   101: 173.0  117: 240.0
        6: 3.5      22: 13.0    38: 36.0    54: 78.0    70: 105.0   86: 133.3   102: 176.0  118: 250.0
        7: 4.0      23: 14.0    39: 38.0    55: 81.0    71: 106.0   87: 134.0   103: 179.0  119: 260.0
        8: 4.5      24: 15.0    40: 40.0    56: 85.0    72: 107.0   88: 136.0   104: 182.0  120: 270.0
        9: 5.0      25: 16.7    41: 42.0    57: 89.0    73: 108.0   89: 138.0   105: 185.0  121: 280.0
        10: 5.5     26: 17.0    42: 44.0    58: 92.0    74: 109.0   90: 140.0   106: 188.0  122: 300.0
        11: 6.0     27: 18.0    43: 46.0    59: 95.0    75: 110.0   91: 143.0   107: 191.0  123: 320.0
        12: 6.5     28: 19.0    44: 48.0    60: 98.0    76: 112.0   92: 146.0   108: 194.0  124: 340.0
        13: 7.0     29: 20.0    45: 50.0    61: 100.0   77: 114.0   93: 150.0   109: 197.0  125: 360.0
        14: 7.5     30: 21.0    46: 53.0    62: 100.0   78: 116.0   94: 152.0   110: 200.0  126: 380.0
        15: 8.0     31: 22.0    47: 56.0    63: 100.0   79: 118.0   95: 155.0   111: 205.0  127: 400.0
```

```
*T06-03 : DelayTime 0~500[msec]
    0: 0      16: 16     32: 34     48: 66     64: 125    80: 205    96: 285    112: 365
    1: 1      17: 17     33: 36     49: 68     65: 130    81: 210    97: 290    113: 370
    2: 2      18: 18     34: 38     50: 70     66: 135    82: 215    98: 295    114: 375
    3: 3      19: 19     35: 40     51: 72     67: 140    83: 220    99: 300    115: 380
    4: 4      20: 20     36: 42     52: 74     68: 145    84: 225    100: 305   116: 390
    5: 5      21: 21     37: 44     53: 76     69: 150    85: 230    101: 310   117: 400
    6: 6      22: 22     38: 46     54: 78     70: 155    86: 235    102: 315   118: 410
    7: 7      23: 23     39: 48     55: 80     71: 160    87: 240    103: 320   119: 420
    8: 8      24: 24     40: 50     56: 85     72: 165    88: 245    104: 325   120: 430
    9: 9      25: 25     41: 52     57: 90     73: 170    89: 250    105: 330   121: 440
   10: 10     26: 26     42: 54     58: 95     74: 175    90: 255    106: 335   122: 450
   11: 11     27: 27     43: 56     59: 100    75: 180    91: 260    107: 340   123: 460
   12: 12     28: 28     44: 58     60: 105    76: 185    92: 265    108: 345   124: 470
   13: 13     29: 29     45: 60     61: 110    77: 190    93: 270    109: 350   125: 480
   14: 14     30: 30     46: 62     62: 115    78: 195    94: 275    110: 355   126: 490
   15: 15     31: 32     47: 64     63: 120    79: 200    95: 280    111: 360   127: 500

*T06-04 : DelayTime 0~1000[msec]
    0: 0      16: 16     32: 60     48: 140    64: 250    80: 410    96: 570    112: 730
    1: 1      17: 18     33: 65     49: 145    65: 260    81: 420    97: 580    113: 740
    2: 2      18: 20     34: 70     50: 150    66: 270    82: 430    98: 590    114: 750
    3: 3      19: 22     35: 75     51: 155    67: 280    83: 440    99: 600    115: 760
    4: 4      20: 24     36: 80     52: 160    68: 290    84: 450    100: 610   116: 780
    5: 5      21: 26     37: 85     53: 165    69: 300    85: 460    101: 620   117: 800
    6: 6      22: 28     38: 90     54: 170    70: 310    86: 470    102: 630   118: 820
    7: 7      23: 30     39: 95     55: 175    71: 320    87: 480    103: 640   119: 840
    8: 8      24: 32     40: 100    56: 180    72: 330    88: 490    104: 650   120: 860
    9: 9      25: 34     41: 105    57: 185    73: 340    89: 500    105: 660   121: 880
   10: 10     26: 36     42: 110    58: 190    74: 350    90: 510    106: 670   122: 900
   11: 11     27: 38     43: 115    59: 200    75: 360    91: 520    107: 680   123: 920
   12: 12     28: 40     44: 120    60: 210    76: 370    92: 530    108: 690   124: 940
   13: 13     29: 45     45: 125    61: 220    77: 380    93: 540    109: 700   125: 960
   14: 14     30: 50     46: 130    62: 230    78: 390    94: 550    110: 710   126: 980
   15: 15     31: 55     47: 135    63: 240    79: 400    95: 560    111: 720   127: 1000

*T06-05 : DelayTime 0~700[msec]
    0: 0      16: 16     32: 44     48: 100    64: 180    80: 260    96: 390    112: 550
    1: 1      17: 17     33: 46     49: 105    65: 185    81: 265    97: 400    113: 560
    2: 2      18: 18     34: 48     50: 110    66: 190    82: 270    98: 410    114: 570
    3: 3      19: 19     35: 50     51: 115    67: 195    83: 275    99: 420    115: 580
    4: 4      20: 20     36: 52     52: 120    68: 200    84: 280    100: 430   116: 590
    5: 5      21: 22     37: 54     53: 125    69: 205    85: 285    101: 440   117: 600
    6: 6      22: 24     38: 56     54: 130    70: 210    86: 290    102: 450   118: 610
    7: 7      23: 26     39: 58     55: 135    71: 215    87: 300    103: 460   119: 620
    8: 8      24: 28     40: 60     56: 140    72: 220    88: 310    104: 470   120: 630
    9: 9      25: 30     41: 65     57: 145    73: 225    89: 320    105: 480   121: 640
   10: 10     26: 32     42: 70     58: 150    74: 230    90: 330    106: 490   122: 650
   11: 11     27: 34     43: 75     59: 155    75: 235    91: 340    107: 500   123: 660
   12: 12     28: 36     44: 80     60: 160    76: 240    92: 350    108: 510   124: 670
   13: 13     29: 38     45: 85     61: 165    77: 245    93: 360    109: 520   125: 680
   14: 14     30: 40     46: 90     62: 170    78: 250    94: 370    110: 530   126: 690
   15: 15     31: 42     47: 95     63: 175    79: 255    95: 380    111: 540   127: 700

*T06-06 : DelayTime 0~1400[msec]
    0: 0      16: 22     32: 90     48: 190    64: 350    80: 510    96: 780    112: 1100
    1: 1      17: 24     33: 95     49: 200    65: 360    81: 520    97: 800    113: 1120
    2: 2      18: 26     34: 100    50: 210    66: 370    82: 530    98: 820    114: 1140
    3: 3      19: 28     35: 105    51: 220    67: 380    83: 540    99: 840    115: 1160
    4: 4      20: 30     36: 110    52: 230    68: 390    84: 550    100: 860   116: 1180
    5: 5      21: 35     37: 115    53: 240    69: 400    85: 560    101: 880   117: 1200
    6: 6      22: 40     38: 120    54: 250    70: 410    86: 580    102: 900   118: 1220
    7: 7      23: 45     39: 125    55: 260    71: 420    87: 600    103: 920   119: 1240
    8: 8      24: 50     40: 130    56: 270    72: 430    88: 620    104: 940   120: 1260
    9: 9      25: 55     41: 135    57: 280    73: 440    89: 640    105: 960   121: 1280
   10: 10     26: 60     42: 140    58: 290    74: 450    90: 660    106: 980   122: 1300
   11: 12     27: 65     43: 145    59: 300    75: 460    91: 680    107: 1000  123: 1320
   12: 14     28: 70     44: 150    60: 310    76: 470    92: 700    108: 1020  124: 1340
   13: 16     29: 75     45: 160    61: 320    77: 480    93: 720    109: 1040  125: 1360
   14: 18     30: 80     46: 170    62: 330    78: 490    94: 740    110: 1060  126: 1380
   15: 20     31: 85     47: 180    63: 340    79: 500    95: 760    111: 1080  127: 1400

*T06-07 : Duration DelayTime 0~350[msec]
    0: 0      16: 16     32: 32     48: 48     64: 78     80: 110    96: 190    112: 270
    1: 1      17: 17     33: 33     49: 49     65: 80     81: 115    97: 195    113: 275
    2: 2      18: 18     34: 34     50: 50     66: 82     82: 120    98: 200    114: 280
    3: 3      19: 19     35: 35     51: 52     67: 84     83: 125    99: 205    115: 285
    4: 4      20: 20     36: 36     52: 54     68: 86     84: 130    100: 210   116: 290
    5: 5      21: 21     37: 37     53: 56     69: 88     85: 135    101: 215   117: 295
    6: 6      22: 22     38: 38     54: 58     70: 90     86: 140    102: 220   118: 300
    7: 7      23: 23     39: 39     55: 60     71: 92     87: 145    103: 225   119: 305
    8: 8      24: 24     40: 40     56: 62     72: 94     88: 150    104: 230   120: 310
    9: 9      25: 25     41: 41     57: 64     73: 96     89: 155    105: 235   121: 315
   10: 10     26: 26     42: 42     58: 66     74: 98     90: 160    106: 240   122: 320
   11: 11     27: 27     43: 43     59: 68     75: 100    91: 165    107: 245   123: 325
   12: 12     28: 28     44: 44     60: 70     76: 102    92: 170    108: 250   124: 330
   13: 13     29: 29     45: 45     61: 72     77: 104    93: 175    109: 255   125: 335
   14: 14     30: 30     46: 46     62: 74     78: 106    94: 180    110: 260   126: 340
   15: 15     31: 31     47: 47     63: 76     79: 108    95: 185    111: 265   127: 350
```

```
*T06-08 : DelayTime 0~480[msec]
     0: 0       16: 16      32: 32      48: 62      64: 115     80: 195     96: 275    112: 355
     1: 1       17: 17      33: 33      49: 64      65: 120     81: 200     97: 280    113: 360
     2: 2       18: 18      34: 34      50: 66      66: 125     82: 205     98: 285    114: 365
     3: 3       19: 19      35: 36      51: 68      67: 130     83: 210     99: 290    115: 370
     4: 4       20: 20      36: 38      52: 70      68: 135     84: 215    100: 295    116: 375
     5: 5       21: 21      37: 40      53: 72      69: 140     85: 220    101: 300    117: 380
     6: 6       22: 22      38: 42      54: 74      70: 145     86: 225    102: 305    118: 390
     7: 7       23: 23      39: 44      55: 76      71: 150     87: 230    103: 310    119: 400
     8: 8       24: 24      40: 46      56: 78      72: 155     88: 235    104: 315    120: 410
     9: 9       25: 25      41: 48      57: 80      73: 160     89: 240    105: 320    121: 420
    10: 10      26: 26      42: 50      58: 85      74: 165     90: 245    106: 325    122: 430
    11: 11      27: 27      43: 52      59: 90      75: 170     91: 250    107: 330    123: 440
    12: 12      28: 28      44: 54      60: 95      76: 175     92: 255    108: 335    124: 450
    13: 13      29: 29      45: 56      61: 100     77: 180     93: 260    109: 340    125: 460
    14: 14      30: 30      46: 58      62: 105     78: 185     94: 265    110: 345    126: 470
    15: 15      31: 31      47: 60      63: 110     79: 190     95: 270    111: 350    127: 480

*T06-09 : DelayTime 0~980[msec]
     0: 0       16: 16      32: 60      48: 140     64: 240     80: 400     96: 560    112: 720
     1: 1       17: 18      33: 65      49: 145     65: 250     81: 410     97: 570    113: 730
     2: 2       18: 20      34: 70      50: 150     66: 260     82: 420     98: 580    114: 740
     3: 3       19: 22      35: 75      51: 155     67: 270     83: 430     99: 590    115: 750
     4: 4       20: 24      36: 80      52: 160     68: 280     84: 440    100: 600    116: 760
     5: 5       21: 26      37: 85      53: 165     69: 290     85: 450    101: 610    117: 780
     6: 6       22: 28      38: 90      54: 170     70: 300     86: 460    102: 620    118: 800
     7: 7       23: 30      39: 95      55: 175     71: 310     87: 470    103: 630    119: 820
     8: 8       24: 32      40: 100     56: 180     72: 320     88: 480    104: 640    120: 840
     9: 9       25: 34      41: 105     57: 185     73: 330     89: 490    105: 650    121: 860
    10: 10      26: 36      42: 110     58: 190     74: 340     90: 500    106: 660    122: 880
    11: 11      27: 38      43: 115     59: 195     75: 350     91: 510    107: 670    123: 900
    12: 12      28: 40      44: 120     60: 200     76: 360     92: 520    108: 680    124: 920
    13: 13      29: 45      45: 125     61: 210     77: 370     93: 530    109: 690    125: 940
    14: 14      30: 50      46: 130     62: 220     78: 380     94: 540    110: 700    126: 960
    15: 15      31: 55      47: 135     63: 230     79: 390     95: 550    111: 710    127: 980

*T06-10 : DelayTime 0~680[msec]
     0: 0       16: 16      32: 44      48: 100     64: 180     80: 260     96: 370    112: 530
     1: 1       17: 17      33: 46      49: 105     65: 185     81: 265     97: 380    113: 540
     2: 2       18: 18      34: 48      50: 110     66: 190     82: 270     98: 390    114: 550
     3: 3       19: 19      35: 50      51: 115     67: 195     83: 275     99: 400    115: 560
     4: 4       20: 20      36: 52      52: 120     68: 200     84: 280    100: 410    116: 570
     5: 5       21: 22      37: 54      53: 125     69: 205     85: 285    101: 420    117: 580
     6: 6       22: 24      38: 56      54: 130     70: 210     86: 290    102: 430    118: 590
     7: 7       23: 26      39: 58      55: 135     71: 215     87: 295    103: 440    119: 600
     8: 8       24: 28      40: 60      56: 140     72: 220     88: 300    104: 450    120: 610
     9: 9       25: 30      41: 65      57: 145     73: 225     89: 305    105: 460    121: 620
    10: 10      26: 32      42: 70      58: 150     74: 230     90: 310    106: 470    122: 630
    11: 11      27: 34      43: 75      59: 155     75: 235     91: 320    107: 480    123: 640
    12: 12      28: 36      44: 80      60: 160     76: 240     92: 330    108: 490    124: 650
    13: 13      29: 38      45: 85      61: 165     77: 245     93: 340    109: 500    125: 660
    14: 14      30: 40      46: 90      62: 170     78: 250     94: 350    110: 510    126: 670
    15: 15      31: 42      47: 95      63: 175     79: 255     95: 360    111: 520    127: 680

*T06-11 : DelayTime 0~1380[msec]
     0: 0       16: 22      32: 90      48: 190     64: 350     80: 510     96: 760    112: 1080
     1: 1       17: 24      33: 95      49: 200     65: 360     81: 520     97: 780    113: 1100
     2: 2       18: 26      34: 100     50: 210     66: 370     82: 530     98: 800    114: 1120
     3: 3       19: 28      35: 105     51: 220     67: 380     83: 540     99: 820    115: 1140
     4: 4       20: 30      36: 110     52: 230     68: 390     84: 550    100: 840    116: 1160
     5: 5       21: 35      37: 115     53: 240     69: 400     85: 560    101: 860    117: 1180
     6: 6       22: 40      38: 120     54: 250     70: 410     86: 570    102: 880    118: 1200
     7: 7       23: 45      39: 125     55: 260     71: 420     87: 580    103: 900    119: 1220
     8: 8       24: 50      40: 130     56: 270     72: 430     88: 600    104: 920    120: 1240
     9: 9       25: 55      41: 135     57: 280     73: 440     89: 620    105: 940    121: 1260
    10: 10      26: 60      42: 140     58: 290     74: 450     90: 640    106: 960    122: 1280
    11: 12      27: 65      43: 145     59: 300     75: 460     91: 660    107: 980    123: 1300
    12: 14      28: 70      44: 150     60: 310     76: 470     92: 680    108: 1000    124: 1320
    13: 16      29: 75      45: 160     61: 320     77: 480     93: 700    109: 1020    125: 1340
    14: 18      30: 80      46: 170     62: 330     78: 490     94: 720    110: 1040    126: 1360
    15: 20      31: 85      47: 180     63: 340     79: 500     95: 740    111: 1060    127: 1380

*T06-12 : DelayTime 0~50[msec]
     0: 0.0     16: 1.6     32: 4.4     48: 8.4     64: 14.0    80: 22.0    96: 30.0    112: 43.0
     1: 0.1     17: 1.7     33: 4.6     49: 8.7     65: 14.5    81: 22.5    97: 30.5    113: 44.0
     2: 0.2     18: 1.8     34: 4.8     50: 9.0     66: 15.0    82: 23.0    98: 31.0    114: 45.0
     3: 0.3     19: 1.9     35: 5.0     51: 9.3     67: 15.5    83: 23.5    99: 31.5    115: 46.0
     4: 0.4     20: 2.0     36: 5.2     52: 9.6     68: 16.0    84: 24.0   100: 32.0    116: 47.0
     5: 0.5     21: 2.2     37: 5.4     53: 9.9     69: 16.5    85: 24.5   101: 32.5    117: 48.0
     6: 0.6     22: 2.4     38: 5.6     54: 10.2    70: 17.0    86: 25.0   102: 33.0    118: 49.0
     7: 0.7     23: 2.6     39: 5.8     55: 10.5    71: 17.5    87: 25.5   103: 34.0    119: 50.0
     8: 0.8     24: 2.8     40: 6.0     56: 10.8    72: 18.0    88: 26.0   104: 35.0
     9: 0.9     25: 3.0     41: 6.3     57: 11.1    73: 18.5    89: 26.5   105: 36.0
    10: 1.0     26: 3.2     42: 6.6     58: 11.4    74: 19.0    90: 27.0   106: 37.0
    11: 1.1     27: 3.4     43: 6.9     59: 11.7    75: 19.5    91: 27.5   107: 38.0
    12: 1.2     28: 3.6     44: 7.2     60: 12.0    76: 20.0    92: 28.0   108: 39.0
    13: 1.3     29: 3.8     45: 7.5     61: 12.5    77: 20.5    93: 28.5   109: 40.0
    14: 1.4     30: 4.0     46: 7.8     62: 13.0    78: 21.0    94: 29.0   110: 41.0
    15: 1.5     31: 4.2     47: 8.1     63: 13.5    79: 21.5    95: 29.5   111: 42.0
```

```
*T06-13 : DelayTime 0~30[msec]
      0: 0.0     16: 1.6     32: 3.2     48: 4.8     64: 6.8     80: 10.5     96: 15.3    112: 28.0
      1: 0.1     17: 1.7     33: 3.3     49: 4.9     65: 7.0     81: 10.8     97: 15.6    113: 30.0
      2: 0.2     18: 1.8     34: 3.4     50: 5.0     66: 7.2     82: 11.1     98: 15.9
      3: 0.3     19: 1.9     35: 3.5     51: 5.1     67: 7.4     83: 11.4     99: 16.2
      4: 0.4     20: 2.0     36: 3.6     52: 5.2     68: 7.6     84: 11.7    100: 16.5
      5: 0.5     21: 2.1     37: 3.7     53: 5.3     69: 7.8     85: 12.0    101: 17.0
      6: 0.6     22: 2.2     38: 3.8     54: 5.4     70: 8.0     86: 12.3    102: 17.5
      7: 0.7     23: 2.3     39: 3.9     55: 5.5     71: 8.2     87: 12.6    103: 18.0
      8: 0.8     24: 2.4     40: 4.0     56: 5.6     72: 8.4     88: 12.9    104: 18.5
      9: 0.9     25: 2.5     41: 4.1     57: 5.7     73: 8.6     89: 13.2    105: 19.0
     10: 1.0     26: 2.6     42: 4.2     58: 5.8     74: 8.8     90: 13.5    106: 19.5
     11: 1.1     27: 2.7     43: 4.3     59: 5.9     75: 9.0     91: 13.8    107: 20.0
     12: 1.2     28: 2.8     44: 4.4     60: 6.0     76: 9.3     92: 14.1    108: 21.0
     13: 1.3     29: 2.9     45: 4.5     61: 6.2     77: 9.6     93: 14.4    109: 22.0
     14: 1.4     30: 3.0     46: 4.6     62: 6.4     78: 9.9     94: 14.7    110: 24.0
     15: 1.5     31: 3.1     47: 4.7     63: 6.6     79: 10.2    95: 15.0    111: 26.0

*T06-14 : DelayTime TempoSync=ON
      0: 1/64     6: 1/6     12: 3/4
      1: 1/32     7: 3/16    13: 1/1
      2: 1/24     8: 1/4
      3: 1/16     9: 1/3
      4: 1/12    10: 3/8
      5: 1/8     11: 1/2
```