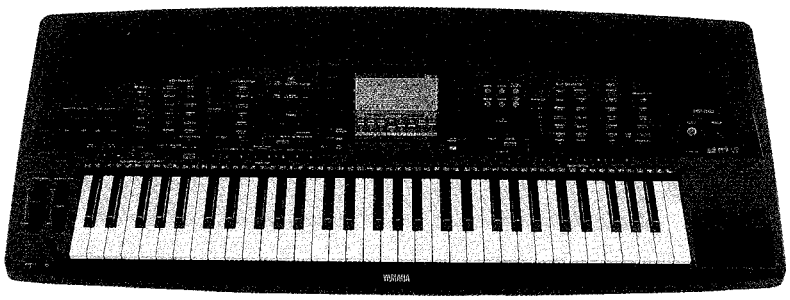
# PORTATONE

# PSR-7000

## SERVICE MANUAL



**■CONTENTS**




PK 001555

YAMAHA CORP.

HAMAMATSU, JAPAN

2.35K-505 Ⓚ Printed in Japan '95.10

## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specification equal to those originally installed.

# ■SPECIFICATIONS

**KEYBOARD:**
61 Keys (C1~C6) with Touch Response (Initial/After)

**POLYPHONY:**
64 Notes max.

**VOICES:**
Preset 473 voices (including 9 Percussion kits)
Custom 32 voices (Programmable)

**ACCOMPANIMENT:**
Accompaniment styles:
Preset 120 + Disk 32 styles
Custom 32 styles
Auto Bass Chord:
Single Finger/Fingered 1/Fingered 2/Full Keyboard/
Auto MIDI Bass/Manual MIDI Bass
Chord Assist
Arranger:
RHYTHM, BASS, CHORD, PAD, PHRASE

**ONE TOUCH SETTING:**
4 settings are available for each preset style

**EXPRESSION & EFFECT:**
Reverb 16 types
Chorus 10 types
DSP Effect 56 types
Lead Effect 18 types
Harmony 16 types
Digital Equalizer (5 bands, 6 types)
Sustain
Left Hold
Pitch Bend Wheel
Modulation Wheel

**MULTI PAD:**
1~8 (Phrase/Chord, Percussion)

**SONG RECORD:**
Quick Record:
Manual/Accomp. Tracks
Chord Step Record, Edit (Delete)
Multi Track Record:
1~16 Tracks
Punch In, Volume, Edit (Quantize, Track Mix, Initial Edit, Delete)

**SONG PLAY:**
Single, All, Chain, Random
Solo/Play/Mute

**REGISTRATION MEMORY:**
16 banks x 8 setups, Freeze

**HELP FUNCTION:**
Five languages
(English, German, French, Spanish and Italian)

**DISPLAY:**
LCD (240 x 320 dots)

**DISK:**
Load from Disk, Save to Disk, Rename File/Song,
Delete File/Song, Format FD, Song Copy
Hard Disk Interface

** 3.5" FDD, Compatibility with DOC (Yamaha Disk Orchestra Collection) PianoSoft, General MIDI, and SFF software.*

**FUNCTIONS:**
F1: Scale (Arabic)/Voice Part
F2: Split Point/ABC Mode/Multi Pad
F3: Controller
F4: Style Revoice
F5: Reverb/Chorus/DSP Effect
F6: Harmony/Registration
F7: Utility
F8: MIDI

**DEMONSTRATIONS:**
14 Songs

**CONNECTORS:**
MIDI (IN/OUT/THRU), AUX IN (R, L/L+R),
AUX OUT (R, L/L+R), FOOT SWITCH 1/2,
FOOT VOLUME, PHONES, MIC

**AMPLIFIER:**
20W x 2

**SPEAKERS:**
16cm x 2, 5cm x 2

**DIMENSIONS (W x H x D):**
1058 mm (41-2/3") x 446 mm (17-1/2") x 178 mm (7")

**WEIGHT:**
14.5 kg (31 lbs. 15 oz)

**SUPPLIED ACCESSORIES:**
- AC Cord
- Music Stand
- Supplied Disk
- Owner's Manual

**OPTIONAL ACCESSORIES:**
- Foot switch FC5
- Foot Volume FC7
- Headphones HPE-150
- Keyboard stand L-5, LW-12
- Hard Disk

**OUTPUT LEVEL:**
See TEST PROGRAM section of this servise manual.





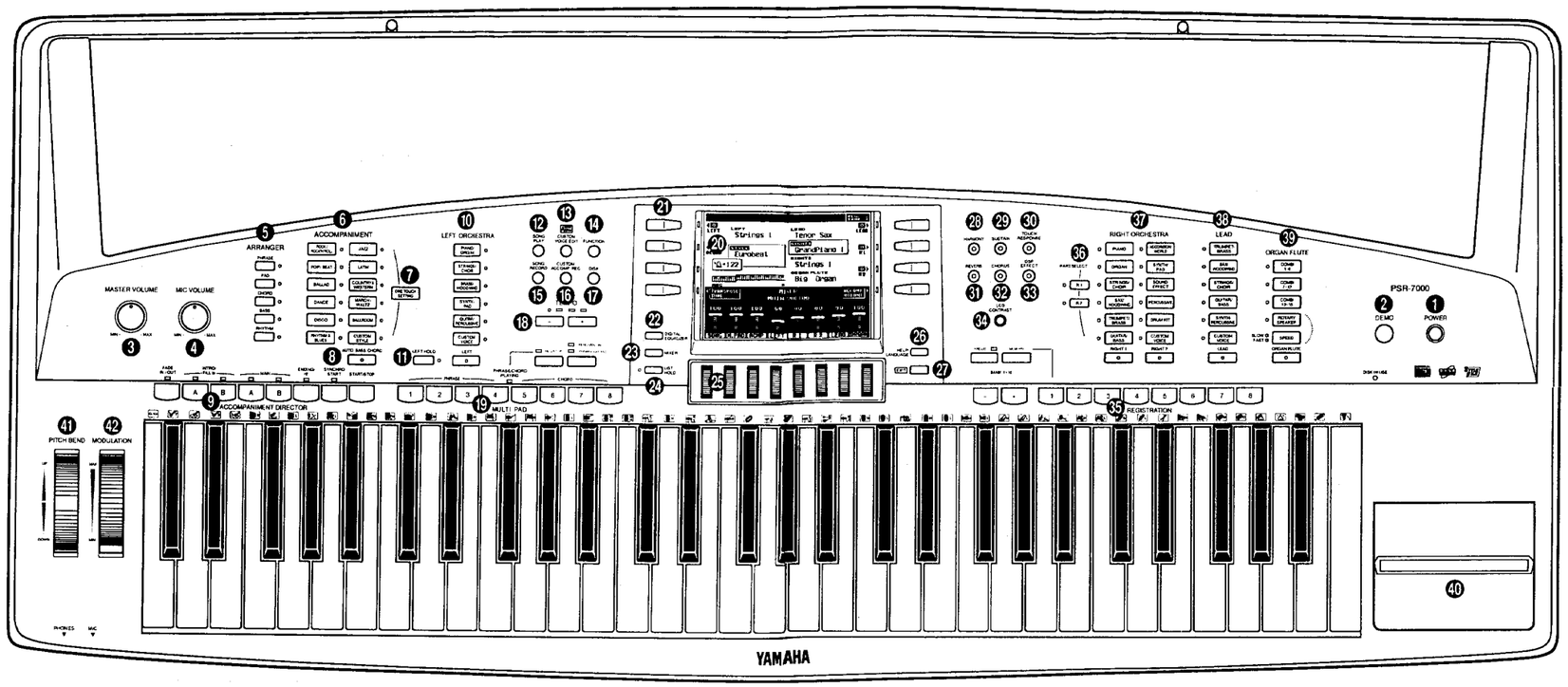
## ● Sample Data Disks

| | |
|---|---|
| **EMS PK27S001** | **Sound Effects**<br>24 great new sound effects - animals, machines, movies,.. |
| **EMS PK27S003** | **Vocal Hooks**<br>Shouts, Sung Chorus, Females, Bass Vox |
| **EMS PK27S004** | **Instruments**<br>DX Piano, Clavi, Classic Organ, Vintage E. Piano, new synths,... (2 disks) |
| **EMS PK27S005** | **House & Techno**<br>Drum Loops, Scratches, Hits, Vox, Synths, Basses |
| **EMS PK27S006** | **Dance & Soul**<br>Drum Loops, Hits, Pads, Basses, Synths, Percussion |
| **EMS PK27S007** | **Latin & Ethnic**<br>Latin, Afro & Ethnic Loops, Ethnic Instruments, Pan Pipe, Flamenco Guitar |
| **EMS PK27S008** | **Jazz & Funk**<br>Jazz & Funk Loops, Bass & Slide, Organ, Synth Clav, Saxophone |
| **EMS PK27S009** | **Rock & Pop**<br>Drum Loops, Hits, Stabs & Squeals, Guitars, Organs, Synths |
| **EMS PK27S010** | **Ambient Textures**<br>Ethereal synth sounds for film style composition and soundtracks |
| **EMS PK27S011** | **Grand Piano**<br>A high quality multi-sampled grand piano |
| **EMS PK27S012** | **Eastern Elements**<br>Assortment of exotic ethnic instruments and rhythmic loops |
| **EMS PK27S013** | **Traditional Keys**<br>More great keyboards - theatre organ, church organ, harpsichord,.. |
| **EMS PK27S014** | **Real Drums**<br>New sampled drums as they really sound ! |
| **SP-2701YE** | **Traditional Instruments 1 & 2**<br>Accordeon, Trumpet, Tuba, Mandolin, Zither, Harmonica, etc. (2 disks) |
| **SP-2702YE** | **Analogue Synthesizer 1 & 2**<br>Pads, Basses, SynBrass, Sweeps, Sync Sounds, etc. (2 disks) |
| **SP-2703YE** | **Pop & Rock Instruments / World Of Guitars**<br>Clean & Heavy Guitars, E.Piano, Sax, 12-strings, etc. (2 disks) |
| **SP-2704YE** | **Classical Instruments / Ethnics**<br>Violins, Cello, Reeds, Gongs, Bells, Pads, Synth sounds, etc. (2 disks) |
| **SP-2705YE** | **Gaudi / Super Effects**<br>Spoken German, Sci-Fi, Electric Atmospheres, etc. (2 disks) |

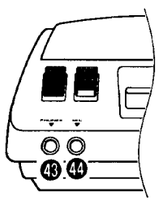
** Not all titles in the above list are available in all areas.*

# ■PANEL LAYOUT

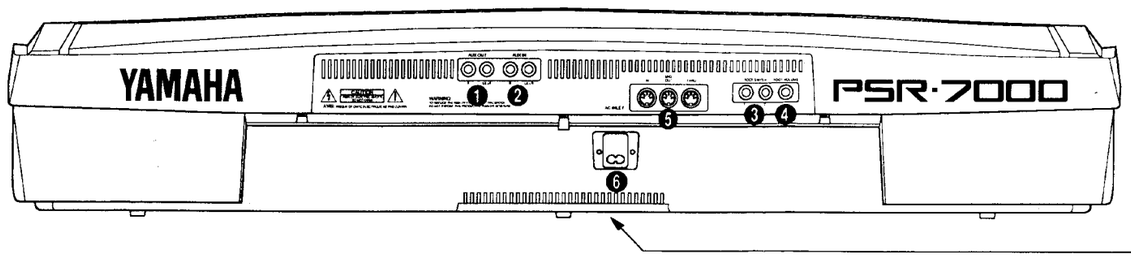
## ● Control Panel



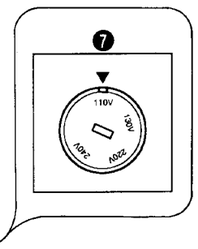

## ● Front Panel



## ● Rear Panel




## ● Bottom Panel








● **Control Panel**

1. POWER Button
2. DEMO Button
3. MASTER VOLUME Control
4. MIC VOLUME Control
5. ARRANGER Buttons
   PHRASE, PAD, CHORD, BASS, RHYTHM
6. ACCOMPANIMENT Buttons
7. ONE TOUCH SETTING Button
8. AUTO BASS CHORD Button
9. ACCOMPANIMENT DIRECTOR Buttons
   FADE IN/OUT, INTRO/FILL to A/B, MAIN A/B, ENDING/rit., SYNCHRO START, START/STOP
10. LEFT ORCHESTRA Buttons
11. LEFT HOLD Button
12. SONG PLAY Button
13. CUSTOM VOICE EDIT Button
14. FUNCTION Button
15. SONG RECORD Button
16. CUSTOM ACCOMP. REC Button
17. DISK Button
18. TEMPO [-] and [+] Buttons
19. MULTI PAD Buttons
    REC/STOP, PHRASE/CHORD-PERCUSSION, 1-8
20. Liquid Crystal Display (LCD)
21. LCD Buttons
22. DIGITAL EQUALIZER Button
23. MIXER Button
24. LIST HOLD Button
25. LCD Dials
26. HELP/LANGUAGE Button
27. EXIT Button
28. HARMONY Button
29. SUSTAIN Button
30. TOUCH RESPONSE Button
31. REVERB Button
32. CHORUS Button
33. DSP EFFECT Button
34. LCD CONTRAST Control
35. REGISTRATION Buttons
    FREEZE, MEMORY, BANK 1-16 [-] and [+],1-8
36. PART SELECT Buttons
    R1, R2
37. RIGHT ORCHESTRA Buttons
38. LEAD Buttons
39. ORGAN FLUTE Buttons
40. Disk Drive
41. PITCH BEND Wheel
42. MODULATION Wheel

● **Front Panel**

43. PHONES Jack
44. MIC Jack

● **Rear Panel**

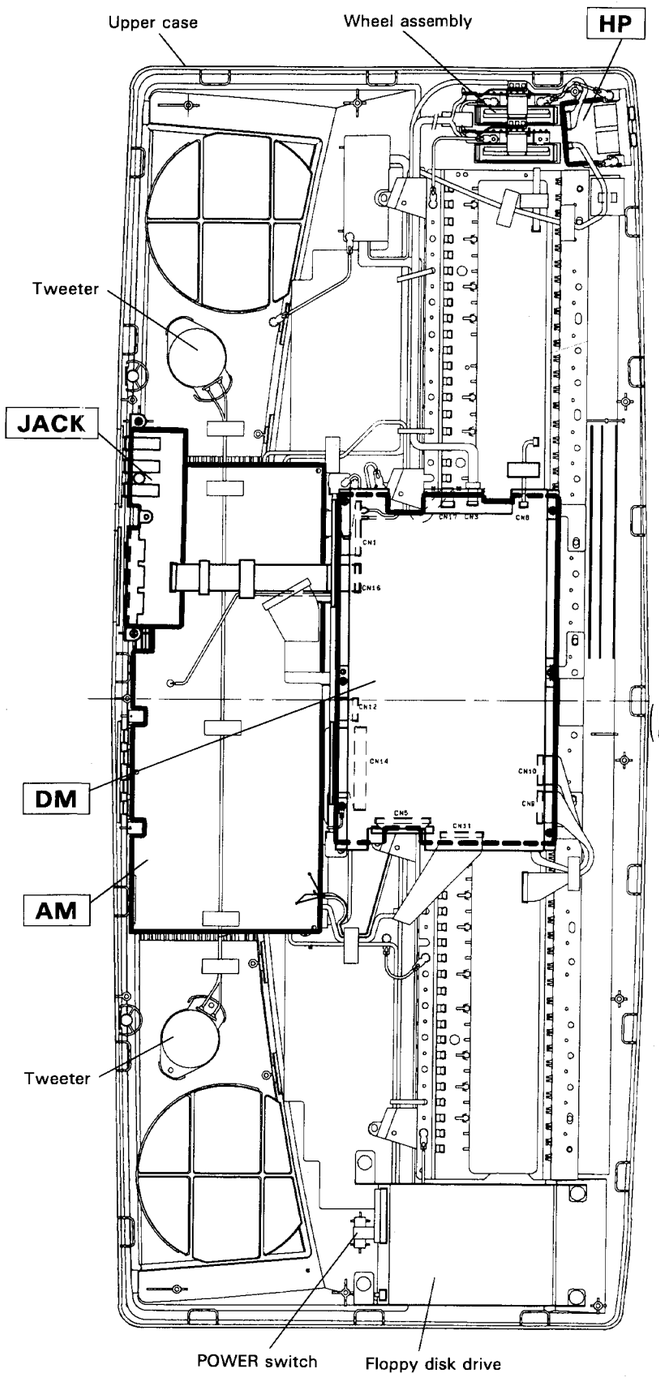
1. AUX OUT R, L/L+R Jacks
2. AUX IN R, L/L+R Jacks
3. FOOT SWITCH 1, 2 Jacks
4. FOOT VOLUME Jack
5. MIDI IN, OUT and THRU Connectors
6. AC Inlet connector

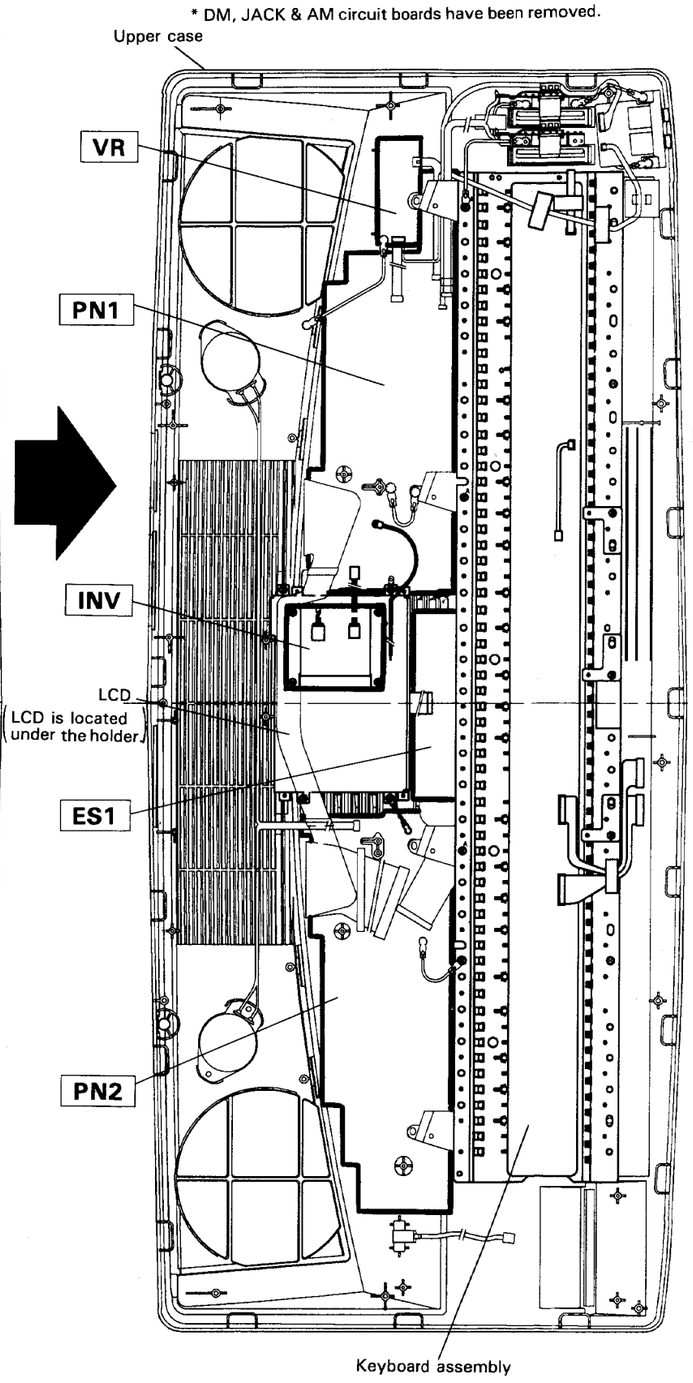
● **Bottom Panel**

7. Voltage Selector

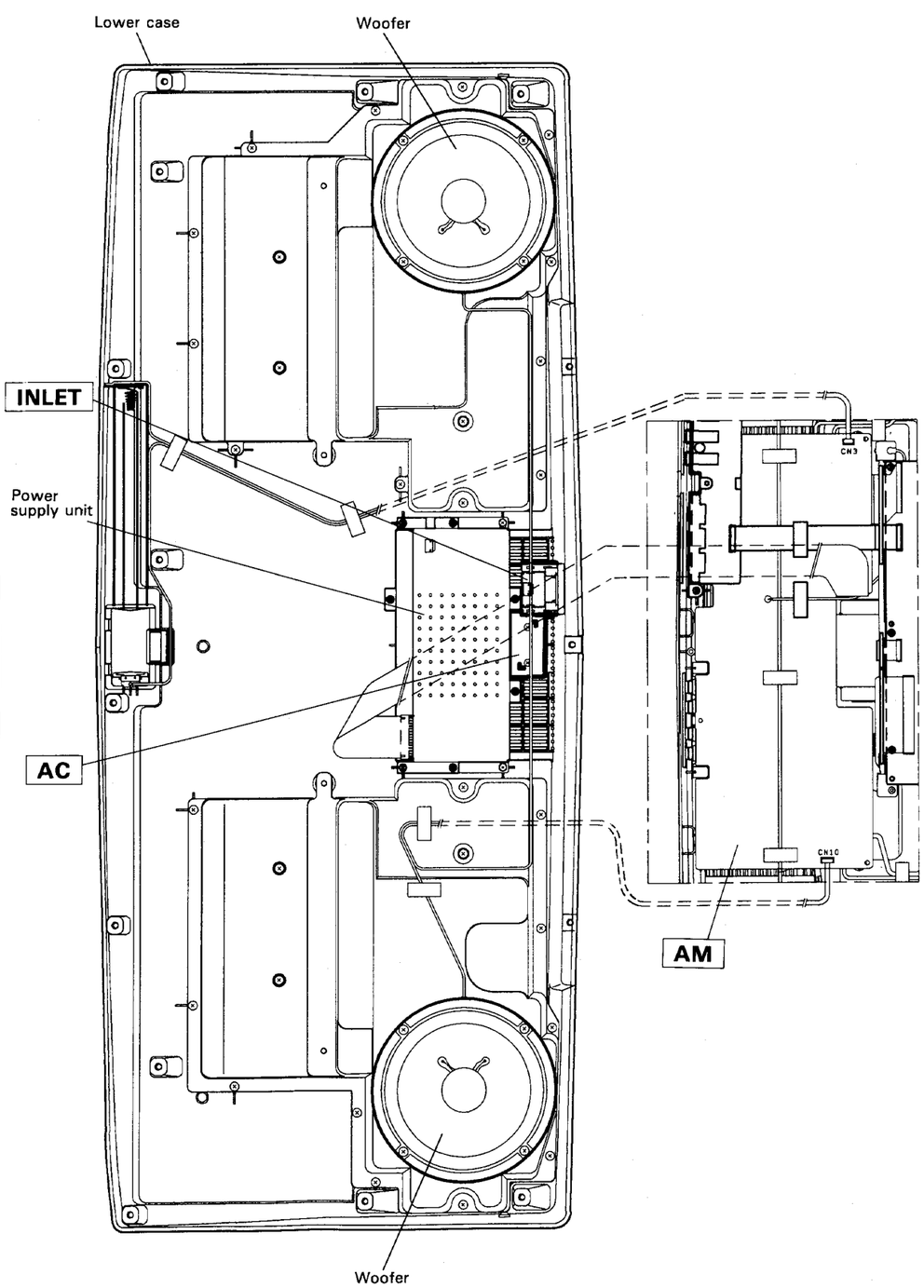
# ■CIRCUIT BOARD LAYOUT

## ● Upper Case Assembly




## ● Lower Case Assembly



# ■LSI PIN DESCRIPTION

## • HD6437034C48F <SH7034> (XQ900C00) CPU

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | /IRQ6 | I | Interrupt request | 57 | /WR | O | Write strobe |
| 2 | /IRQ7 | I | | 58 | /WRH | O | Write strobe-High |
| 3 | VSS | | Ground | 59 | /RD | O | Read strobe |
| 4 | AD0 | I/O | | 60 | PA7 | I/O | |
| 5 | AD1 | I/O | | 61 | VSS | | (Ground) |
| 6 | AD2 | I/O | | 62 | PA8 | I/O | |
| 7 | AD3 | I/O | | 63 | PA9 | I/O | Port A |
| 8 | AD4 | I/O | Data bus | 64 | PA10 | I/O | |
| 9 | AD5 | I/O | | 65 | PA11 | I/O | |
| 10 | AD6 | I/O | | 66 | DACK0 | O | DMA acknowledge |
| 11 | AD7 | I/O | | 67 | /DREQ0 | I | DMA request |
| 12 | VSS | | (Ground) | 68 | DACK1 | O | DMA acknowledge |
| 13 | AD8 | I/O | | 69 | /DERQ1 | I | DMA acknowledge |
| 14 | AD9 | I/O | | 70 | VCC | | Power supply |
| 15 | VCC | | (Power supply) | 71 | CK | O | System clock |
| 16 | AD10 | I/O | | 72 | VSS | | Ground |
| 17 | AD11 | I/O | | 73 | EXTAL | I | Clock |
| 18 | AD12 | I/O | | 74 | XTAL | I | |
| 19 | AD13 | I/O | | 75 | VCC | | Power supply |
| 20 | AD14 | I/O | | 76 | NMI | I | Non-maskable interrupt request |
| 21 | AD15 | I/O | | 77 | VCC | | Power supply |
| 22 | VSS | | Ground | 78 | /WDTOVF | O | Watch dog timer overflow |
| 23 | A0 | O | | 79 | /RES | I | Reset |
| 24 | A1 | O | | 80 | MD0 | I | |
| 25 | A2 | O | | 81 | MD1 | I | Mode select |
| 26 | A3 | O | | 82 | MD2 | I | |
| 27 | A4 | O | | 83 | VCC | | Power supply |
| 28 | A5 | O | | 84 | VCC | | Power supply |
| 29 | A6 | O | | 85 | AVCC | | Analog power supply |
| 30 | A7 | O | | 86 | AVREF | I | Reference voltage |
| 31 | VSS | | (Ground) | 87 | PC0/AN0 | I | |
| 32 | A8 | O | | 88 | PC1/AN1 | I | |
| 33 | A9 | O | | 89 | PC2/AN2 | I | Port C/Analog input |
| 34 | A10 | O | | 90 | PC3/AN3 | I | |
| 35 | A11 | O | | 91 | AVSS | | (Analog ground) |
| 36 | A12 | O | Address bus | 92 | PC4/AN4 | I | |
| 37 | A13 | O | | 93 | PC5/AN5 | I | |
| 38 | A14 | O | | 94 | PC6/AN6 | I | |
| 39 | A15 | O | | 95 | PC7/AN7 | I | |
| 40 | VSS | | (Ground) | 96 | VSS | | Ground |
| 41 | A16 | O | | 97 | PB0 | I/O | |
| 42 | A17 | O | | 98 | PB1 | I/O | |
| 43 | VCC | | (Power supply) | 99 | VCC | | (Power supply) |
| 44 | A18 | O | | 100 | PB2 | I/O | |
| 45 | A19 | O | | 101 | PB3 | I/O | |
| 46 | A20 | O | | 102 | PB4 | I/O | |
| 47 | A21 | O | | 103 | PB5 | I/O | Port B |
| 48 | /CS0 | O | Chip select | 104 | PB6 | I/O | |
| 49 | /CASH | O | Column address strobe-High | 105 | PB7 | I/O | |
| 50 | /CS2 | O | Chip select | 106 | VSS | | (Ground) |
| 51 | /CASL | O | Column address strobe-Low | 107 | PB8 | I/O | |
| 52 | VSS | | Ground | 108 | PB9 | I/O | |
| 53 | /CS4 | O | | 109 | PB10 | I/O | |
| 54 | /CS5 | O | Chip select | 110 | PB11 | I/O | |
| 55 | /CS6 | O | | 111 | /IRQ4 | I | Interrupt request |
| 56 | /WAIT | I | Wait | 112 | /IRQ5 | I | |

## ● HD6433228A86F (XQ491B00) CPU

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | XTAL | | Clock | 33 | P26 | I/O | |
| 2 | EXTAL | | | 34 | P25 | I/O | |
| 3 | MD0 | I | Mode select | 35 | P24 | I/O | |
| 4 | MD0 | I | | 36 | P23 | I/O | Port 2 |
| 5 | /NMI | I | Non-maskable interrupt | 37 | P22 | I/O | |
| 6 | VCC | | Power supply | 38 | P21 | I/O | |
| 7 | /STBY | I | Stand-by mode signal | 39 | P20 | I/O | |
| 8 | VSS | | Ground | 40 | VSS | | Ground |
| 9 | P40 | I/O | | 41 | P17 | I/O | |
| 10 | P41 | I/O | | 42 | P16 | I/O | |
| 11 | P42 | I/O | | 43 | P15 | I/O | |
| 12 | P43 | I/O | | 44 | P14 | I/O | |
| 13 | P44 | I/O | Port 4 | 45 | P13 | I/O | Port 1 |
| 14 | P45 | I/O | | 46 | P12 | I/O | |
| 15 | P46 | I/O | | 47 | P11 | I/O | |
| 16 | P47 | I/O | | 48 | P10 | I/O | |
| 17 | P50 | I/O | | 49 | P30 | I/O | |
| 18 | P51 | I/O | | 50 | P31 | I/O | |
| 19 | P52 | I/O | | 51 | P32 | I/O | |
| 20 | P53 | I/O | Port 5 | 52 | P33 | I/O | |
| 21 | P54 | I/O | | 53 | P34 | I/O | Port 3 |
| 22 | P55 | I/O | | 54 | P35 | I/O | |
| 23 | P70 | I/O | | 55 | P36 | I/O | |
| 24 | P71 | I/O | | 56 | P37 | I/O | |
| 25 | P72 | I/O | | 57 | P60 | I/O | |
| 26 | P73 | I/O | | 58 | P61 | I/O | |
| 27 | P74 | I/O | Port 7 | 59 | P62 | I/O | |
| 28 | P75 | I/O | | 60 | P63 | I/O | |
| 29 | P76 | I/O | | 61 | P64 | I/O | Port 6 |
| 30 | P77 | I/O | | 62 | P65 | I/O | |
| 31 | VCC | | Power supply | 63 | P66 | I/O | |
| 32 | P27 | I/O | Port 2 | 64 | P67 | I/O | |

## ● HD63266FP (XI939A00) FDC (Floppy Disk Controller)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | 8"//5" | I | Data transmission speed | 33 | /TRKO | I | Track 00 signal |
| 2 | XTALSET | I | Clock select | 34 | /INDEX | I | Index signal |
| 3 | /RESET | I | Rest | 35 | /RDATA | I | Read data input from FDD |
| 4 | E//RD | I | Enable/Read | 36 | XTAL2 | | Clock |
| 5 | RW//WR | I | Read/write/Write | 37 | EXTAL2 | | |
| 6 | /CS | I | Chip select | 38 | NC | | |
| 7 | /DACK | I | DMA acknowledge | 39 | XTAL1 | | Clock |
| 8 | RS0 | I | Register select | 40 | EXTAL1 | | |
| 9 | RS1 | I | | 41 | VSS4 | | Ground |
| 10 | VSS1 | | Ground | 42 | VSS5 | | |
| 11 | VSS2 | | | 43 | NC | | |
| 12 | D0 | I/O | | 44 | VCC2 | | |
| 13 | D1 | I/O | | 45 | VCC3 | | Power supply |
| 14 | D2 | I/O | | 46 | VCC4 | | |
| 15 | D3 | I/O | Data bus | 47 | /WGATE | O | Write control |
| 16 | D4 | I/O | | 48 | /WDATA | O | Writ data to FDD |
| 17 | D5 | I/O | | 49 | VSS6 | | Ground |
| 18 | D6 | I/O | | 50 | /STEP | O | Step signal to control head of FDD |
| 19 | D7 | I/O | | 51 | /HDIR | O | Direction |
| 20 | /DREQ | O | DMA request | 52 | /HLOAD | O | Head load |
| 21 | /IRQ | O | Interrupt request | 53 | /HSEL | O | Head select |
| 22 | /DEND | I | Data end | 54 | VSS7 | | Ground |
| 23 | VSS3 | | Ground | 55 | /DS0 | O | |
| 24 | 1/2 EX1 | | | 56 | /DS1 | O | Drive select |
| 25 | VCC1 | | Power supply | 57 | /DS2 | O | |
| 26 | NUM1 | I | | 58 | /DS3 | O | |
| 27 | NUM3 | I | | 59 | VSS8 | | Ground |
| 28 | IFS | I | Host interface select | 60 | /MON0 | O | |
| 29 | SFORM | I | Format data | 61 | /MON1 | O | Motor on |
| 30 | /INP | I | Index pulse | 62 | /MON2 | O | |
| 31 | /READY | I | Ready from FDD | 63 | /MON3 | O | |
| 32 | /WPRT | I | Write control signal | 64 | VSS9 | | Ground |

## • YMM275-F (XN346B00) SWP20 (AWN Tone Genarator coped with MEG) Standard Wave processor)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | MA05 | O | Wave memory address bus | 51 | MELO1 | O | MEL formatted data |
| 2 | MA04 | O | | 52 | MELO2 | O | |
| 3 | MA03 | O | | 53 | MELO3 | O | |
| 4 | MA02 | O | | 54 | /CS | | SWP20 chip select |
| 5 | MA01 | O | | 55 | VSS | | Power supply |
| 6 | MA00 | O | | 56 | /WR | I | Register data read strobe |
| 7 | VSS | | Ground | 57 | /RD | I | Register data write strobe |
| 8 | MD00 | I/O | Wave memory data bus | 58 | AD0 | I | Register address bus |
| 9 | MD01 | I/O | | 59 | AD1 | I | |
| 10 | MD02 | I/O | | 60 | AD2 | I | |
| 11 | MD03 | I/O | | 61 | AD3 | I | |
| 12 | MD04 | I/O | | 62 | AD4 | I | |
| 13 | MD05 | I/O | | 63 | AD5 | I | |
| 14 | MD06 | I/O | | 64 | DT0 | I/O | Register data bus |
| 15 | MD07 | I/O | | 65 | DT1 | I/O | |
| 16 | VSS | | Ground | 66 | DT2 | I/O | |
| 17 | VDD | | Power supply | 67 | VDD | | Power supply |
| 18 | MD08 | I/O | Wave memory data bus | 68 | DT3 | I/O | Register data bus |
| 19 | MD09 | I/O | | 69 | DT4 | I/O | |
| 20 | MD10 | I/O | | 70 | DT5 | I/O | |
| 21 | MD11 | I/O | | 71 | DT6 | I/O | |
| 22 | MD12 | I/O | | 72 | DT7 | I/O | |
| 23 | MD13 | I/O | | 73 | MAHIZ | I | MA, MWEN, MOEN output HiZ assignment |
| 24 | MD14 | I/O | | 74 | /MCE | O | CE output for PSRAM |
| 25 | MD15 | I/O | | 75 | /MWE | I | Memory data write enable |
| 26 | FORM0 | O | Wave mode for SWD | 76 | VSS | | Power supply |
| 27 | FORM1 | O | | 77 | /MOE | I | Memory data read enable |
| 28 | INCO | O | Data renewal for SWD | 78 | MA23 | O | Wave memory address bus |
| 29 | SKONPO | O | Key-On and ODD/EVEN signals | 79 | MA22 | O | |
| 30 | VDD | | Power supply | 80 | VSS | | Ground |
| 31 | VSS | | Ground | 81 | VDD | | Power supply |
| 32 | S/M | I | Master/Slave switching | 82 | MA21 | O | Wave memory address bus |
| 33 | SWDON | I | SWD connection ON/OFF control | 83 | MA20 | O | |
| 34 | X I | I | Crystal oscillator | 84 | MA19 | O | |
| 35 | X O | O | | 85 | MA18 | O | |
| 36 | VSS | | Ground | 86 | MA17 | O | |
| 37 | MCLKO | O | Crystal clock | 87 | MA16 | O | |
| 38 | MCLKI | I | Master clock (Fs x 256) | 88 | MA15 | O | |
| 39 | HCLKO | O | 2 dividing clock | 89 | MA14 | O | |
| 40 | VDD | | Power supply | 90 | VDD | | (Power supply) |
| 41 | QCLKO | O | 4 dividing clock | 91 | MA13 | O | Wave memory address bus |
| 42 | SYI | I | Synch. signal (Fs) | 92 | MA12 | O | |
| 43 | SYO | O | | 93 | MA11 | O | |
| 44 | SYOD | O | Synch. signal for QCLK | 94 | MA10 | O | |
| 45 | CHIP2 | I | 1 chip/2 chips mode select | 95 | MA09 | O | |
| 46 | /IC | | Initial clear | 96 | MA08 | O | |
| 47 | MELI0 | I | MEL formatted data cascade input | 97 | MA07 | O | |
| 48 | MELI1 | I | | 98 | MA06 | O | |
| 49 | CDOUT | O | CD format data | 99 | VSS | | |
| 50 | MELO0 | O | MEL formatted data | 100 | VDD | | Power supply |

Fs : Sampling frequency

## • YM3422B (XE862B00) ES1 (Format Converter)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | Vss | | Ground | 9 | M0 | I | Mode select |
| 2 | SI0 | I | Serial data input 0 | 10 | M1 | I | |
| 3 | SO0 | O | Serial data output 0 | 11 | M2 | I | |
| 4 | BC0 | I | Bit clock channel 0 | 12 | M3 | I | |
| 5 | WC0 | I | Word clock channel 0 | 13 | WC1 | I | Word clock channel 1 |
| 6 | SI2 | I | Serial data input 2 | 14 | BC1 | I | Bit clock channel 1 |
| 7 | SO2 | O | Serial data output 2 | 15 | SO1 | O | Serial data output 1 |
| 8 | Vdd | | Power supply | 16 | SI1 | I | Serial data input 1 |

## • HD62098 (XM309A00) MEG (Multiple Effect Generator)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | GND | | Ground | 41 | GND4 | | Ground |
| 2 | MD8 | I/O | | 42 | SYW | O | Synch. signal for 256fs system |
| 3 | MD9 | I/O | | 43 | SYWD | O | Synch. signal for 128/64 fs system |
| 4 | MD10 | I/O | | 44 | QCLK | O | 1/4 clock |
| 5 | MD11 | I/O | | 45 | HCLK | O | 1/2 clock |
| 6 | MD12 | I/O | | 46 | /CS | I | Chip enable |
| 7 | MD13 | I/O | | 47 | /RD | I | Read enable |
| 8 | MD14 | I/O | | 48 | /WR | I | Write enable |
| 9 | MD15 | I/O | DRAM data bus | 49 | A0 | I | |
| 10 | MD0 | I/O | | 50 | A1 | I | |
| 11 | MD1 | I/O | | 51 | A2 | I | CPU address bus |
| 12 | MD2 | I/O | | 52 | A3 | I | |
| 13 | MD3 | I/O | | 53 | A4 | I | |
| 14 | MD4 | I/O | | 54 | D0 | I/O | |
| 15 | MD5 | I/O | | 55 | D1 | I/O | |
| 16 | MD6 | I/O | | 56 | D2 | I/O | |
| 17 | MD7 | I/O | | 57 | D3 | I/O | CPU data bus |
| 18 | /WE | O | DRAM write enable | 58 | D4 | I/O | |
| 19 | /RASH | O | DRAM expansion, row address strobe | 59 | D5 | I/O | |
| 20 | /RASL | O | DRAM, row address strobe | 60 | D6 | I/O | |
| 21 | Vcc1 | | Power supply | 61 | D7 | I/O | |
| 22 | GND2 | | Ground | 62 | TEST | I | Test pin |
| 23 | MA0 | O | | 63 | /IC | I | Initial clear |
| 24 | MA1 | O | | 64 | Vcc4 | | Power supply |
| 25 | MA2 | O | | 65 | GND5 | | Ground |
| 26 | MA3 | O | DRAM address bus | 66 | IMEL0 | I | |
| 27 | MA4 | O | | 67 | IMEL1 | I | MEL formatted signal input |
| 28 | MA5 | O | | 68 | IMEL2 | I | |
| 29 | MA6 | O | | 69 | IMEL3 | I | |
| 30 | MA7 | O | | 70 | AUXMEL0 | I | MEL cascade input |
| 31 | /CASH | O | DRAM expansion, column address strobe | 71 | AUXMEL1 | I | |
| 32 | /CASL | O | DRAM, column address strobe | 72 | OMEL0 | O | MEL formatted signal output |
| 33 | Vcc2 | | Power supply | 73 | OMEL1 | O | |
| 34 | EXTAL | I | connected to quartz crystal | 74 | DAC0L | O | L channel signal output |
| 35 | XTAL | O | connected to quartz crystal | 75 | DAC0R | O | R channel signal output |
| 36 | GND3 | | Ground | 76 | DAC1L | O | L channel signal output |
| 37 | MCLK | O | Master clock output | 77 | DAC1R | O | R channel signal output |
| 38 | CLKIN | I | Master clock input | 78 | WDCX | O | Load signal for DAC |
| 39 | SYWIN | I | Synch. signal input | 79 | PAD18/20 | I | 18-bit/20-bit select |
| 40 | Vcc3 | | Power supply | 80 | Vcc5 | | Power supply |

## • YMM279-F (XN347A00) SWD (Standard Wave Decoder)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | RD09 | I | | 23 | RDO10 | O | |
| 2 | RD10 | I | | 24 | RDO09 | O | |
| 3 | RD11 | I | | 25 | RDO08 | O | |
| 4 | RD12 | I | Wave memory data input | 26 | RDO07 | O | |
| 5 | RD13 | I | | 27 | RDO06 | O | |
| 6 | RD14 | I | | 28 | RDO05 | O | Wave memory data output |
| 7 | RD15 | I | | 29 | RDO04 | O | |
| 8 | SYI | I | Synch. signal | 30 | RDO03 | O | |
| 9 | CHIP2 | I | 1 chip/2 chips mode select | 31 | RDO02 | O | |
| 10 | MCLK | I | Master clock (Fs x256) | 32 | RDO01 | O | |
| 11 | S/M | I | Master/Slave switching | 33 | RDO00 | O | |
| 12 | KONP | I | Key-On and ODD/EVEN signals | 34 | /TEST | | Test pin (VDD) |
| 13 | INC | I | Data renewal control signal | 35 | RD00 | I | |
| 14 | VDD | | Power supply | 36 | RD01 | I | Wave memory data input |
| 15 | FORM1 | I | Waveform mode control signal | 37 | RD02 | I | |
| 16 | FORM0 | I | | 38 | RD03 | I | |
| 17 | VSS | | Ground | 39 | VSS | | Ground |
| 18 | RDO15 | O | | 40 | RD04 | I | |
| 19 | RDO14 | O | | 41 | RD05 | I | |
| 20 | RDO13 | O | Wave memory data output | 42 | RD06 | I | Wave memory data input |
| 21 | RDO12 | O | | 43 | RD07 | I | |
| 22 | RDO11 | O | | 44 | RD08 | I | |

## • TC14L010A (XQ460C00) Gate Array

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | VSS | | Ground | 51 | VSS | | Ground |
| 2 | IOA8 | O | I/O address bus | 52 | /SWP1 | O | Chip select SWP1 |
| 3 | IOA9 | O | | 53 | /SWP2 | O | Chip select SWP2 |
| 4 | IOA10 | O | | 54 | /MEG | O | Chip select MEG |
| 5 | IOA11 | O | | 55 | /KSH | O | Chip select KSH |
| 6 | AD0 | I/O | CPU data bus | 56 | /FDC | O | Chip select FDC |
| 7 | AD1 | I/O | | 57 | /LD03 | O | Chip select LD033 |
| 8 | AD2 | I/O | | 58 | /LCD | O | Chip select LCD |
| 9 | AD3 | I/O | | 59 | /HSC0 | O | Chip select HSC0 |
| 10 | AD4 | I/O | | 60 | /HSC1 | O | Chip select HSC1 |
| 11 | AD5 | I/O | | 61 | /FDACK2 | O | FD DMA acknowledge 2 |
| 12 | AD6 | I/O | | 62 | /FDEND | I | FD DMA end |
| 13 | AD7 | I/O | | 63 | HDFD | I | HD/FD DMA select |
| 14 | AC | I | AC test | 64 | /DACK0 | I | DMA acknowledge |
| 15 | VSS | | Power supply | 65 | /DERQO | O | DMA request |
| 16 | A0 | I | CPU address bus | 66 | VSS | | Ground |
| 17 | A1 | I | | 67 | /DEND | O | DMA end |
| 18 | A2 | I | | 68 | /FDACK | O | FD DMA acknowledge |
| 19 | A3 | I | | 69 | /FDREQ | I | FD DMA request |
| 20 | A4 | I | | 70 | /HDACK | O | HD DMA acknowledge |
| 21 | A5 | I | | 71 | HDREQ | I | HD DMA request |
| 22 | A6 | I | | 72 | TGD0 | I/O | TG data bus |
| 23 | A7 | I | | 73 | TGD1 | I/O | |
| 24 | A8 | I | | 74 | TGD2 | I/O | |
| 25 | A9 | I | | 75 | TGD3 | I/O | |
| 26 | A10 | I | | 76 | TGD4 | I/O | |
| 27 | A11 | I | | 77 | TGD5 | I/O | |
| 28 | A16 | I | | 78 | TGD6 | I/O | |
| 29 | A17 | I | | 79 | TGD7 | I/O | |
| 30 | A18 | I | | 80 | IOD0 | I/O | I/O data bus |
| 31 | A20 | I | | 81 | IOD1 | I/O | |
| 32 | A21 | I | | 82 | IOD2 | I/O | |
| 33 | /CS2 | I | Chip select | 83 | IOD3 | I/O | |
| 34 | /CS6 | I | | 84 | IOD4 | I/O | |
| 35 | /WAIT | O | Bus cycle wait | 85 | IOD5 | I/O | |
| 36 | /WR | I | Write strobe | 86 | IOD6 | I/O | |
| 37 | /RD | I | Read strobe | 87 | IOD7 | I/O | |
| 38 | /RES | I | Reset | 88 | /IOWDOE | O | I/O write data output enable |
| 39 | CK | I | Clock | 89 | /IORDOE | O | I/O read data output enable |
| 40 | VSS | | Ground | 90 | VSS | | Ground |
| 41 | VDD | | Power supply | 91 | VDD | | Power supply |
| 42 | /IOWR | O | I/O write strobe | 92 | /SQ5 | O | Read latch strobe |
| 43 | /IORD | O | I/O read strobe | 93 | IOA0 | O | I/O address bus |
| 44 | /SROM | O | Chip select SROM | 94 | IOA1 | O | |
| 45 | /DROM | O | Chip select DROM | 95 | IOA2 | O | |
| 46 | /PROM1 | O | Chip enable PROM1 | 96 | IOA3 | O | |
| 47 | /PROM2 | O | Chip enable PROM2 | 97 | IOA4 | O | |
| 48 | /PROM3 | O | Chip enable PROM3 | 98 | IOA5 | O | |
| 49 | /PROM4 | O | Chip enable PROM4 | 99 | IOA6 | O | |
| 50 | /SRAM | O | Chip select SRAM | 100 | IOA7 | O | |

## • PCM1702U (XM896A00) DAC (Digital to Analog Converter)

## • PCM1702U (XP551A00) DAC (Digital to Analog Converter)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | DATA | I | Data input | 11 | +VCC | | Power supply (+5 V) |
| 2 | CLK | I | Clock | 12 | BPO | | Bipolar de-couple |
| 3 | NC | | | 13 | NC | | |
| 4 | +VDD | | Power supply (+5 V) | 14 | IOUT | O | Output current |
| 5 | D.GND | | Digital ground | 15 | A.GND | | Analog ground |
| 6 | -VDD | | Power supply (-5 V) | 16 | A.GND | | Analog ground |
| 7 | L.E | I | Latch enable | 17 | SERV | | Servo de-couple |
| 8 | NC | | | 18 | NC | | |
| 9 | NC | | | 19 | REF | | Reference de-couple |
| 10 | NC | | | 20 | -VCC | | Power supply (-5 V) |

## • LC92018B-500 (XI616A00) LD03

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | P04 | O | Parallel port | 41 | /T08 | O | Drive (sink) |
| 2 | P05 | O | | 42 | /T09 | O | |
| 3 | P06 | O | | 43 | VSS | | (Ground) |
| 4 | P07 | O | | 44 | /T10 | O | |
| 5 | P10 | O | | 45 | /T11 | O | |
| 6 | P11 | O | | 46 | VSS | | (Ground) |
| 7 | P12 | O | | 47 | /T12 | O | |
| 8 | P13 | O | | 48 | /T13 | | |
| 9 | P14 | O | | 49 | VSS | | (Ground) |
| 10 | P15 | O | | 50 | /T14 | O | |
| 11 | P16 | O | | 51 | /T15 | O | |
| 12 | P17 | O | | 52 | VSS | | (Ground) |
| 13 | VSS | | Ground | 53 | XTLI | I | Clock |
| 14 | /T00 | O | Drive (sink) | 54 | XTLO | O | |
| 15 | /T01 | O | | 55 | TXD | O | Serial communication interface |
| 16 | VSS | | (Ground) | 56 | TCLK | O | |
| 17 | /T02 | O | | 57 | TREQ | I | |
| 18 | /T03 | O | | 58 | D0 | I/O | Data bus |
| 19 | VSS | | (Ground) | 59 | D1 | I/O | |
| 20 | /T04 | O | | 60 | D2 | I/O | |
| 21 | /T05 | O | | 61 | D3 | I/O | |
| 22 | VSS | | (Ground) | 62 | D4 | I/O | |
| 23 | /T06 | O | | 63 | D5 | I/O | |
| 24 | /T07 | O | | 64 | D6 | I/O | |
| 25 | Vss | | | 65 | D7 | I/O | |
| 26 | /C0 | O | Drive (source) | 66 | A0 | I | Address bus |
| 27 | /C1 | O | | 67 | A1 | I | |
| 28 | /C2 | O | | 68 | A2 | I | |
| 29 | /C3 | O | | 69 | A3 | I | |
| 30 | /C4 | O | | 70 | A4 | I | |
| 31 | VDD | | (Power supply) | 71 | /CS | I | Chip select |
| 32 | /C5 | O | | 72 | /WR | I | Write strobe |
| 33 | /C6 | O | | 73 | VDD | | Power supply |
| 34 | /C7 | O | | 74 | /RD | I | Read strobe |
| 35 | RXD | I | Serial communication interface | 75 | CW | O | I/O expand control |
| 36 | RCLK | I | | 76 | /CR | O | |
| 37 | FREQ | O | | 77 | P00 | O | Parallel port |
| 38 | /IRQ | O | Interrupt request | 78 | P01 | O | |
| 39 | /RES | I | Reset | 79 | P02 | O | |
| 40 | VSS | | Ground | 80 | P03 | O | |

## • LC7886M (XQ209A00) ADC (Analog to Digital Converter)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | ADIN1 | I | CH1 analog input | 13 | DGND | | Digital GND |
| 2 | VH | | Reference voltage "H" | 14 | TSTOUT | I | |
| 3 | AVDD | | Analog power supply | 15 | TEST1 | I | Test pin (Connected to digital GND) |
| 4 | VR1 | | CH1 (VH+VL)/2 Reference voltage | 16 | TEST2 | I | |
| 5 | TEST3 | | Test pin (Connected to analog GND) | 17 | TEST4 | I | |
| 6 | AVDD | | Analog power supply | 18 | TEST6 | I | |
| 7 | FORM | I | When FORM="H", LRCK="L":CH1, LRCK="H":CH2 When FORM="L", LRCK="H":CH1, LRCK="L":CH2 | 19 | AGND | | Analog GND |
| 8 | IFDA | I | "H":18 bit digital data, "L":16 bit digital data | 20 | TEST5 | | Test pin (Connected to analog GND) |
| 9 | LRCK | I | CH1/CH2 select | 21 | VR2 | | CH2 (VH+VL)/2 Reference voltage |
| 10 | BCLK | I | Bit clock | 22 | VL | | Reference voltage "L" |
| 11 | ADDATA | O | Data output | 23 | ADIN2 | I | CH2 Analog input |
| 12 | DVDD | | Digital power supply | 24 | AGND | | Analog GND |

## ● SED1335F0B (XQ595A00) LCDC (LCD Controller)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | VA5 | O | VRAM address bus | 31 | XD2 | O | X driver data bus |
| 2 | VA4 | O | | 32 | XD1 | O | |
| 3 | VA3 | O | | 33 | XD0 | O | |
| 4 | VA2 | O | | 34 | XECL | O | X driver enable chain clock |
| 5 | VA1 | O | | 35 | XSCL | O | X driver shift clock |
| 6 | VA0 | O | | 36 | VSS | | Ground |
| 7 | VR/W | O | VRAM write strobe | 37 | LP | O | Latch pulse |
| 8 | /VCE | O | VRAM chip enable | 38 | WF | O | Frame signal |
| 9 | NC | | | 39 | YDIS | O | LCD power down |
| 10 | /RES | I | Reset | 40 | YD | O | Scan start pulse |
| 11 | NC | | | 41 | YSCL | O | Scan shift clock |
| 12 | NC | | | 42 | VD7 | I/O | VRAM data bus |
| 13 | /RD | I | 80: Read strobe, 68: E clock | 43 | VD6 | I/O | |
| 14 | /WR | I | 80: Write strobe, 68: Read/Write | 44 | VD5 | I/O | |
| 15 | SEL2 | I | CPU 80/68 bus select | 45 | VD4 | I/O | |
| 16 | SEL1 | I | | 46 | VD3 | I/O | |
| 17 | OSC1 | I | Clock | 47 | VD2 | I/O | |
| 18 | OSC2 | O | | 48 | VD1 | I/O | |
| 19 | /CS | I | Chip select | 49 | VD0 | I/O | |
| 20 | A0 | I | Data bus signal discrimination | 50 | VA15 | O | VRAM address bus |
| 21 | VDD | | Power supply | 51 | VA14 | O | |
| 22 | D0 | I/O | Data bus | 52 | VA13 | O | |
| 23 | D1 | I/O | | 53 | VA12 | O | |
| 24 | D2 | I/O | | 54 | VA11 | O | |
| 25 | D3 | I/O | | 55 | VA10 | O | |
| 26 | D4 | I/O | | 56 | VA9 | O | |
| 27 | D5 | I/O | | 57 | VA8 | O | |
| 28 | D6 | I/O | | 58 | VA7 | O | |
| 29 | D7 | I/O | | 59 | VA6 | O | |
| 30 | XD3 | O | X driver data bus | 60 | NC | | |

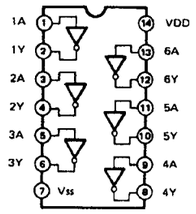
## ● YM6104 (XE788A00) DEQ2 (Digital Equalizer)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | VDD | | Power supply | 13 | SI0 | I | Input for serial data |
| 2 | XMD | I | Alternation of Sync.(=+5V) or Async.(=0V) for CDI input terminal(Sync=1:1, Async.=16:1) | 14 | SI1 | I | |
| 3 | /CRS | I | Initialized serial control interface | 15 | SO0 | O | Output for serial data |
| 4 | CDI | I | Input of micro-program, para/seri. control data of control register | 16 | SO1 | O | |
| 5 | CDO | O | Output of micro-program, para/seri. control data of control register | 17 | /OVF | O | Detector for over flow |
| 6 | XCLK | I | In/Out clock for CDI & CDO | 18 | /TEST | I | Test pin: normally connected to +5 V |
| 7 | TRG | I | Determines transmit timing of PARA. to para. register from T. BFR. | 19 | C2 | O | Delayed data of 2nd bit of P. register by 1 bit. |
| 8 | ESL | I | Timing determination of data for external at ext. shift clock | 20 | C1 | O | Delayed data of 1st bit of P. register by 1 bit. |
| 9 | ELD | I | Timing determination of data for inner at ext. shift clock | 21 | C0 | O | Delayed data of 0 bit of P. register by 1 bit. |
| 10 | ECLK | I | Input shift clock of in/out T. SR. at external shift clock | 22 | /CEMD | I | +5 V: It is necessary to input 2 byte for CE to CDI.<br>0 V: It needs not to have data for CE to CDI. |
| 11 | CLK | I | System clock | 23 | /IC | I | Initial clear |
| 12 | VSS | | Ground | 24 | /SYNC | I | Sync. signal for system |

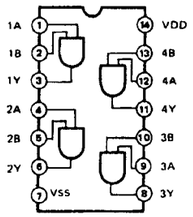
PSR-7000

## ■IC BLOCK DIAGRAM

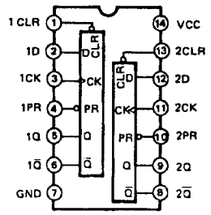
● **SN74HC04NSR** (XD830A00)
**HD74HC04FPTR** (XL092A00)
**Hex Inverter**



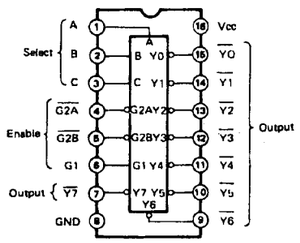

● **HD74HC08FPTR** (XL093A00)
Quad 2 Input AND



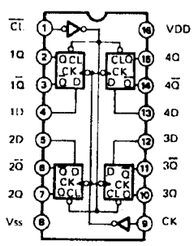

● **HD74HC138FPTR** (XL096A00)
**Dual D-Type Flip Flop**



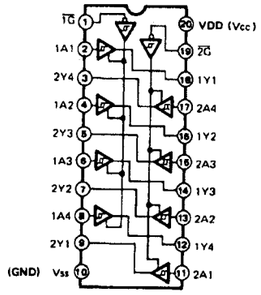

● **HD74AC138FPTR** (XP446A00)
3 to 8 Demultiplexer



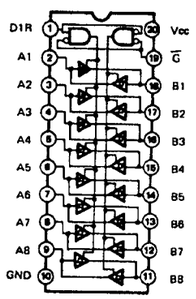

● **TC74HC175AF** (XD658A00)
Quad D-Type Flip-Flop



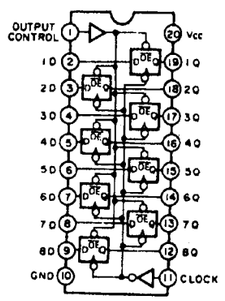

● **SN74HC244NSR** (XD23300)
**Octal 3-State Bus Buffer**



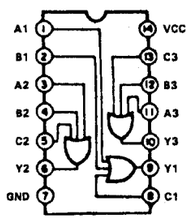

● **TC74AC245F** (XQ593A00)
Octal 3-State Bus Transceiver



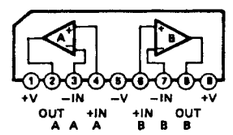

● **TC74AC574F** (XR237A00)
**MC74AC574F** (XR359A00)
**Octal D-type Flip Flop**



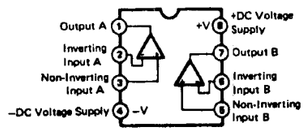

● **TC74HC4075AF** (XL393A00)
**Triple 3-Input OR Gate**



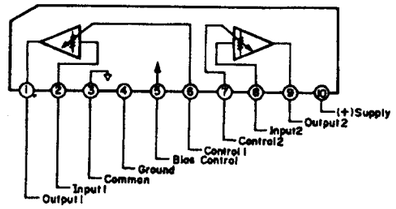

● **μPC4570HA** (XB247A00)
**Dual Operational Amplifier**




● **RC4558D-V** (IG001390)
**μPC4570G2** (XF291A00)
**Dual Operational Amplifier**




● **M5241L** (XB163A00)
VCA



# ■MIDI DATA FORMAT

## <Table 1-1>

Parameter Base Address
Model ID = 4C

| Parameter Change | | | | |
|---|---|---|---|---|
| | Address | | | |
| | (H) | (M) | (L) | Description |
| XG SYSTEM | 00 | 00 | 00 | System |
| | 00 | 00 | 7D | Drum Setup Reset |
| | 00 | 00 | 7E | XG System On |
| | 00 | 00 | 7F | Reset All Parameters |
| EFFECT 1 | 02 | 01 | 00 | Effect1(Reverb,Chorus,Variation ) |
| DRUM | 30 | 18 | 00 | Drum Setup 1 |
| | 31 | 18 | 00 | Drum Setup 2 |

→

| Address | Parameter |
|---|---|
| 3n 0B 00 | note number 13 |
| 3n 0C 00 | note number 14 |
| : | : |
| 3n 5B 00 | note number 91 |

## <Table 1-2>

MIDI Parameter Change table ( SYSTEM )

| Address (H) | Size (H) | Data (H) | Parameter | Description | Default value (H) |
|---|---|---|---|---|---|
| 00 00 00 | 4 | 0000 - 07FF | MASTER TUNE | -102.4 - +102.3[cent] | 00 04 00 00 |
| 01 | | | | 1st bit3-0→bit15-12 | -400 |
| 02 | | | | 2nd bit3-0→bit11-8 | |
| 03 | | | | 3rd bit3-0→bit7-4 | |
| | | | | 4th bit3-0→bit3-0 | |
| 04 | 1 | 00 - 7F | MASTER VOLUME | 0 - 127 | 7F |
| 06 | 1 | 28 - 58 | TRANSPOSE | -24 - +24[semitones] | 40 |
| 7D | | n | DRUM SETUP RESET | n=Drum setup number | |
| 7E | | 00 | XG SYSTEM ON | 00=XG sytem ON | |
| 7F | | 00 | RESET ALL PARAMETERS | 00=ON (receive only) | |
| TOTAL SIZE | 07 | | | | |

## <Table 1-3>

MIDI Parameter Change table ( EFFECT 1)

Refer to the "Effect MIDI Map" for a complete list of Reverb, Chorus and Variation type numbers.
Refer to the "Effect Parameter List" for a detailed description of each parameter.

| Address (H) | Size (H) | Data (H) | Parameter | Description | Default value (H) |
|---|---|---|---|---|---|
| 02 01 00 | 2 | 00-7F | REVERB TYPE MSB | Refer to Effect Program List | 01(=HALL1) |
| | | 00-7F | REVERB TYPE LSB | 00 : basic type | 00 |
| 02 | 1 | 00-7F | REVERB PARAMETER 1 | Refer to Effect Parameter List | Depends on reverb type |
| 03 | 1 | 00-7F | REVERB PARAMETER 2 | Refer to Effect Parameter List | Depends on reverb type |
| 04 | 1 | 00-7F | REVERB PARAMETER 3 | Refer to Effect Parameter List | Depends on reverb type |
| 05 | 1 | 00-7F | REVERB PARAMETER 4 | Refer to Effect Parameter List | Depends on reverb type |
| 06 | 1 | 00-7F | REVERB PARAMETER 5 | Refer to Effect Parameter List | Depends on reverb type |
| 07 | 1 | 00-7F | REVERB PARAMETER 6 | Refer to Effect Parameter List | Depends on reverb type |
| 08 | 1 | 00-7F | REVERB PARAMETER 7 | Refer to Effect Parameter List | Depends on reverb type |
| 09 | 1 | 00-7F | REVERB PARAMETER 8 | Refer to Effect Parameter List | Depends on reverb type |
| 0A | 1 | 00-7F | REVERB PARAMETER 9 | Refer to Effect Parameter List | Depends on reverb type |
| 0B | 1 | 00-7F | REVERB PARAMETER 10 | Refer to Effect Parameter List | Depends on reverb type |
| 0C | 1 | 00-7F | REVERB RETURN | -∞dB...0dB...+6dB(0...64...127) | 40 |
| 0D | 1 | 01-7F | REVERB PAN | L63...C...R63(1...64...127) | 40 |
| TOTAL SIZE | 0E | | | | |
| 02 01 10 | 1 | 00-7F | REVERB PARAMETER 11 | Refer to Effect Parameter List | Depends on reverb type |
| 11 | 1 | 00-7F | REVERB PARAMETER 12 | Refer to Effect Parameter List | Depends on reverb type |
| 12 | 1 | 00-7F | REVERB PARAMETER 13 | Refer to Effect Parameter List | Depends on reverb type |
| 13 | 1 | 00-7F | REVERB PARAMETER 14 | Refer to Effect Parameter List | Depends on reverb type |
| 14 | 1 | 00-7F | REVERB PARAMETER 15 | Refer to Effect Parameter List | Depends on reverb type |
| 15 | 1 | 00-7F | REVERB PARAMETER 16 | Refer to Effect Parameter List | Depends on reverb type |
| TOTAL SIZE | 6 | | | | |
| 02 01 20 | 2 | 00-7F | CHORUS TYPE MSB | Refer to Effect MIDI Map | 41(=CHORUS1) |
| | | 00-7F | CHORUS TYPE LSB | 00 : basic type | 00 |
| 22 | 1 | 00-7F | CHORUS PARAMETER 1 | Refer to Effect Parameter List | Depends on chorus type |
| 23 | 1 | 00-7F | CHORUS PARAMETER 2 | Refer to Effect Parameter List | Depends on chorus type |
| 24 | 1 | 00-7F | CHORUS PARAMETER 3 | Refer to Effect Parameter List | Depends on chorus type |
| 25 | 1 | 00-7F | CHORUS PARAMETER 4 | Refer to Effect Parameter List | Depends on chorus type |
| 26 | 1 | 00-7F | CHORUS PARAMETER 5 | Refer to Effect Parameter List | Depends on chorus type |
| 27 | 1 | 00-7F | CHORUS PARAMETER 6 | Refer to Effect Parameter List | Depends on chorus type |
| 28 | 1 | 00-7F | CHORUS PARAMETER 7 | Refer to Effect Parameter List | Depends on chorus type |
| 29 | 1 | 00-7F | CHORUS PARAMETER 8 | Refer to Effect Parameter List | Depends on chorus type |
| 2A | 1 | 00-7F | CHORUS PARAMETER 9 | Refer to Effect Parameter List | Depends on chorus type |
| 2B | 1 | 00-7F | CHORUS PARAMETER 10 | Refer to Effect Parameter List | Depends on chorus type |
| 2C | 1 | 00-7F | CHORUS RETURN | -∞dB...0dB...+6dB(0...64...127) | 40 |
| 2D | 1 | 01-7F | CHORUS PAN | L63...C...R63(1...64...127) | 40 |
| 2E | 1 | 00-7F | SEND CHORUS TO REVERB | -∞dB...0dB...+6dB(0...64...127) | 00 |
| TOTAL SIZE | 0F | | | | |
| 02 01 30 | 1 | 00-7F | CHORUS PARAMETER 11 | Refer to Effect Parameter List | Depends on chorus type |
| 31 | 1 | 00-7F | CHORUS PARAMETER 12 | Refer to Effect Parameter List | Depends on chorus type |
| 32 | 1 | 00-7F | CHORUS PARAMETER 13 | Refer to Effect Parameter List | Depends on chorus type |
| 33 | 1 | 00-7F | CHORUS PARAMETER 14 | Refer to Effect Parameter List | Depends on chorus type |
| 34 | 1 | 00-7F | CHORUS PARAMETER 15 | Refer to Effect Parameter List | Depends on chorus type |
| 35 | 1 | 00-7F | CHORUS PARAMETER 16 | Refer to Effect Parameter List | Depends on chorus type |
| TOTAL SIZE | 6 | | | | |
| 02 01 40 | 2 | 00-7F | VARIATION TYPE MSB | Refer to Effect Program List | 05(=DELAY L,C,R) |
| | | 00-7F | VARIATION TYPE LSB | 00 : basic type | 00 |
| 42 | 2 | 00-7F | VARIATION PARAMETER 1 MSB | Refer to Effect Parameter List | Depends on variation type |
| | | 00-7F | VARIATION PARAMETER 1 LSB | Refer to Effect Parameter List | Depends on Variation type |

| | | | | | |
|---|---|---|---|---|---|
| 44 | 2 | 00-7F | VARIATION PARAMETER 2 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 2 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 46 | 2 | 00-7F | VARIATION PARAMETER 3 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 3 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 48 | 2 | 00-7F | VARIATION PARAMETER 4 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 4 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 4A | 2 | 00-7F | VARIATION PARAMETER 5 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 5 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 4C | 2 | 00-7F | VARIATION PARAMETER 5 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 6 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 4E | 2 | 00-7F | VARIATION PARAMETER 7 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 7 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 50 | 2 | 00-7F | VARIATION PARAMETER 8 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 8 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 52 | 2 | 00-7F | VARIATION PARAMETER 9 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 9 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 54 | 2 | 00-7F | VARIATION PARAMETER 10 MSB | Refer to Effect Parameter List | Depends on Variation type |
| | | 00-7F | VARIATION PARAMETER 10 LSB | Refer to Effect Parameter List | Depends on Variation type |
| 56 | 1 | 00-7F | VARIATION RETURN | -∞dB...0dB...+6dB(0...64...127) | 40 |
| 57 | 1 | 01-7F | VARIATION PAN | L63...C...R63(1...64...127) | 40 |
| 58 | 1 | 00-7F | SEND VARIATION TO REVERB | -∞dB...0dB...+6dB(0...64...127) | 00 |
| 59 | 1 | 00-7F | SEND VARIATION TO CHORUS | -∞dB...0dB...+6dB(0...64...127) | 00 |
| 5A | 1 | 00-01 | VARIATION CONNECTION | 0:INSERTION,1:SYSTEM | 00 |
| 5B | 1 | 00-01 | VARIATION PART | OFF(127)<br>Part 1-16 (0-15) | 7F |
| TOTAL SIZE | 21 | | | | |
| 02 01 70 | 1 | 00-7F | VARIATION PARAMETER 11 | Refer to Effect Parameter List | Depends on variation type |
| 71 | 1 | 00-7F | VARIATION PARAMETER 12 | Refer to Effect Parameter List | Depends on variation type |
| 72 | 1 | 00-7F | VARIATION PARAMETER 13 | Refer to Effect Parameter List | Depends on variation type |
| 73 | 1 | 00-7F | VARIATION PARAMETER 14 | Refer to Effect Parameter List | Depends on variation type |
| 74 | 1 | 00-7F | VARIATION PARAMETER 15 | Refer to Effect Parameter List | Depends on variation type |
| 75 | 1 | 00-7F | VARIATION PARAMETER 16 | Refer to Effect Parameter List | Depends on variation type |
| TOTAL SIZE | 6 | | | | |

* "VARIATION" refers to the DSP EFFECT on the panel.

## <Table 1-4>

### MIDI Parameter Change table ( MULTI PART )

| Address (H) | Size (H) | Data (H) | Parameter | Description | Default value (H) |
|---|---|---|---|---|---|
| 08 nn 07 | 1 | 00 - 01 | PART MODE | 0:NORMAL<br>1:Preset Drum<br>2 - 3:Drum Setup 1 – 2 | 00 (Part other than 10)<br>01 (Part10) |
| nn 11 | 1 | 00 - 7F | DRY LEVEL | 0 - 127 | 7F |
| nn 41 | 1 | 00 - 7F | SCALE TUNING C | -64 - +63[cent] | 40 |
| nn 42 | 1 | 00 - 7F | SCALE TUNING C# | -64 - +63[cent] | 40 |
| nn 43 | 1 | 00 - 7F | SCALE TUNING D | -64 - +63[cent] | 40 |
| nn 44 | 1 | 00 - 7F | SCALE TUNING D# | -64 - +63[cent] | 40 |
| nn 45 | 1 | 00 - 7F | SCALE TUNING E | -64 - +63[cent] | 40 |
| nn 46 | 1 | 00 - 7F | SCALE TUNING F | -64 - +63[cent] | 40 |
| nn 47 | 1 | 00 - 7F | SCALE TUNING F# | -64 - +63[cent] | 40 |
| nn 48 | 1 | 00 - 7F | SCALE TUNING G | -64 - +63[cent] | 40 |
| nn 49 | 1 | 00 - 7F | SCALE TUNING G# | -64 - +63[cent] | 40 |
| nn 4A | 1 | 00 - 7F | SCALE TUNING A | -64 - +63[cent] | 40 |
| nn 4B | 1 | 00 - 7F | SCALE TUNING A# | -64 - +63[cent] | 40 |
| nn 4C | 1 | 00 - 7F | SCALE TUNING B | -64 - +63[cent] | 40 |

nn = MIDI Channel (00 – 0F)

## <Table 1-5>

### MIDI Parameter Change table ( DRUM SETUP )

| Address (H) | Size (H) | Data (H) | Parameter | Description | Default value (H) |
|---|---|---|---|---|---|
| 3n rr 00 | 1 | 00 - 7F | PITCH COARSE | -64 - +63 | 40 |
| 3n rr 01 | 1 | 00 - 7F | PITCH FINE | -64 - +63[cent] | 40 |
| 3n rr 02 | 1 | 00 - 7F | LEVEL | 0 - 127 | Depends on note |
| 3n rr 04 | 1 | 00 - 7F | PAN | 0:random<br>1: L63<br>:<br>64: C (center)<br>:<br>127: R63 | Depends on note |
| 3n rr 05 | 1 | 00 - 7F | REVERB SEND | 0 - 127 | Depends on note |
| 3n rr 06 | 1 | 00 - 7F | CHORUS SEND | 0 - 127 | Depends on note |
| 3n rr 07 | 1 | 00 - 7F | VARIATION SEND | 0 - 127 | 7F |
| 3n rr 0B | 1 | 00 - 7F | FILTER CUTOFF FREQUENCY | -64 - 63 | 40 |
| 3n rr 0C | 1 | 00 - 7F | FILTER RESONANCE | -64 - 63 | 40 |
| 3n rr 0D | 1 | 00 - 7F | EG ATTACK | -64 - 63 | 40 |
| 3n rr 0E | 1 | 00 - 7F | EG DECAY1 | -64 - 63 | 40 |
| 3n rr 0F | 1 | 00 - 7F | EG DECAY2 | -64 - 63 | 40 |
| TOTAL SIZE | 10 | | | | |

[Note]
n: Drum Setup number (0 to 1)
rr: Note number (0D to 54)
Receipt of "XG System On" or "GM System On" message generates reinitialization of all DRUM SETUP parameters.
"Drum Setup Reset" message can be used to reinitialize drum setup parameters.

# ● Effect MIDI Map

## Reverb Type

| MSB (HEX) | TYPE LSB (HEX) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 00 | 01 | 02 | 03~07 | 08 | 09 | 0A | 0B | 0C | 0D~ |
| 00 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 01 | [1]Hall 1 | Hall 2 | <—— | <—— | [2]Hall 2 | [3]Hall 3 | [4]Hall 4 | <—— | <—— | <—— |
| 02 | Room 1 | Room 2 | Room 3 | <—— | [5]Room 1 | [6]Room 2 | [7]Room 3 | [8]Room 4 | <—— | |
| 03 | Stage 1 | Stage 2 | <—— | <—— | [9]Stage 1 | [10]Stage 2 | <—— | <—— | <—— | |
| 04 | Plate | <—— | <—— | <—— | [11]Plate 1 | [12]Plate 2 | <—— | <—— | <—— | <—— |
| 05 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 00F | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 10 | [13]WhiteRoom | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 11 | [14]Tunnel | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 12 | [15]Canyon | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 13 | [16]Basement | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 14 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 7F | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |

<—— ..... same as BASIC EFFECT(LSB=0)  [ ] ..... Panel Effect Number

## Chorus Type

| MSB (HEX) | TYPE LSB (HEX) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 00 | 01 | 02 | 03~07 | 08 | 09 | 0A | 0B | 0C | 0D~ |
| 00 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 01 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 40 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 41 | Chorus 1 | Chorus 5 | Chorus 3 | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 42 | Chorus 4 | Celeste 2 | Celeste 3 | <—— | Chorus 2 | Chorus 3 | Chorus 1 | <—— | <—— | <—— |
| 43 | Flanger 1 | Flanger 4 | <—— | <—— | Flanger 1 | Flanger 2 | Flanger 3 | <—— | <—— | <—— |
| 44 | Symphonic | <—— | <—— | <—— | Symphonic 1 | <—— | <—— | <—— | <—— | <—— |
| 45 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 7F | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |

<—— ..... same as BASIC EFFECT(LSB=0)

## Variation Type (DSP EFFECT)

| MSB (HEX) | TYPE LSB (HEX) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 00 | 01 | 02 | 03~07 | 08 | 09 | 0A | 0B | 0C | 0D~ |
| 00 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 01 | [1]Hall 1 | Hall 2 | <—— | <—— | [2]Hall 2 | [3]Hall 3 | [4]Hall 4 | <—— | <—— | <—— |
| 02 | Room 1 | Room 2 | Room 3 | <—— | [5]Room 1 | [6]Room 2 | [7]Room 3 | [8]Room 4 | <—— | <—— |
| 03 | Stage 1 | Stage 2 | <—— | <—— | [9]Stage 1 | [10]Stage 2 | <—— | <—— | <—— | <—— |
| 04 | Plate | <—— | <—— | <—— | [11]Plate 1 | [12]Plate 2 | <—— | <—— | <—— | <—— |
| 05 | Delay L,C,R | <—— | <—— | <—— | [38]Delay LCR | <—— | <—— | <—— | <—— | <—— |
| 06 | [39]Delay L,R | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 07 | [40]Echo | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 08 | [41]Cross Delay | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 09 | [13]Early Ref 1 | [14]Early Ref 2 | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 0A | [15]Gate Reverb | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 0B | [16]ReverseGate | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 0C | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 13 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 14 | [46]Karaoke1 | [47]Karaoke2 | [48]Karaoke3 | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 15 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 3F | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 40 | True | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 41 | Chorus 1 | [21]Chorus 5 | Chorus 3 | <—— | <—— | <—— | <—— | <—— | <—— | |
| 42 | [20]Chorus 4 | Celeste 2 | Celeste 3 | <—— | [18]Chorus 2 | [19]Chorus 3 | [17]Chorus 1 | [32]Rotary Sp5 | <—— | <—— |
| 43 | Flanger 1 | [25]Flanger 4 | <—— | <—— | [22]Flanger 1 | [23]Flanger 2 | [24]Flanger 3 | <—— | <—— | <—— |
| 44 | Symphonic | <—— | <—— | <—— | [26]Symphonic | <—— | <—— | <—— | <—— | <—— |
| 45 | Rotary SP. | <—— | <—— | <—— | [28]Rotary Sp1 | <—— | Rotary Sp3 | Rotary Sp4 | <—— | <—— |
| 46 | Tremolo | <—— | <—— | <—— | [33]Tremolo1 | <—— | [31]Rotary Sp4 | Tremolo 4 | <—— | <—— |
| 47 | Auto Pan | <—— | <—— | <—— | [36]AutoPan | [29]Rotary Sp2 | [30]Rotary Sp3 | [34]Tremolo2 | [35]Gtr Tremolo | <—— |
| 48 | [27]Phaser | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 49 | [49]Distortion | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 4A | [50]Over Drive | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 4B | Amp Sim. | <—— | <—— | <—— | [42]Dist. HARD | [43]Dist. SOFT | <—— | <—— | <—— | <—— |
| 4C | 3Band EQ | <—— | <—— | <—— | [44]EQ DISCO | [45]EQ TEL | <—— | <—— | <—— | <—— |
| 4D | 2Band EQ | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 4E | Auto Wah | <—— | <—— | <—— | [37]Auto Wah | <—— | <—— | <—— | <—— | <—— |
| 4F | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 50 | Pitch Change ([51]Unison, [52]5thHarmony) | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 51 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 52 | [53]Touch Wah | [54]Wah+Dist. | <—— | <—— | <—— | <—— | <—— | <—— | <—— | |
| 53 | [55]Compresser | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 54 | [56]Noise Gate | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 55 | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| : | : | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |
| 7F | No Effect | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— | <—— |

<—— ..... same as BASIC EFFECT(LSB=0)  [ ] ..... Panel Effect Number

** The effect name appearing in the LCD display may be abbreviated.*

## ● Effect Parameter List

| BASIC TYPE | No. | Parameter | Display* | Value |
|---|---|---|---|---|
| CHORUS CELESTE | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | LFO PM Depth | 0~127 | 0-63 |
| | 3 | Feedback Level | -63~+63 | 1-127 |
| | 4 | Delay Offset | 0~127 | 0-127 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |
| | 14 | LFO AM Depth | 0~127 | 0-127 |
| | 15 | Input Mode | mono/stereo | 0-1 |
| FLANGER | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | LFO Depth | 0~127 | 0-127 |
| | 3 | Feedback Level | -63~+63 | 1-127 |
| | 4 | Delay Offset | 0~63 | 0-63 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |
| | 14 | LFO Phase Difference | -180~+180deg | 4-124 |
| SYMPHONIC | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | LFO Depth | 0~127 | 0-127 |
| | 3 | Delay Offset | 0~127 | 0-127 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |
| ROTARY SPEAKER | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | LFO Depth | 0~127 | 0-127 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |
| TREMOLO | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | AM Depth | 0~127 | 0-127 |
| | 3 | PM Depth | 0~127 | 0-127 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |
| | 14 | LFO Phase Difference | -180~+180deg | 4-124 |
| | 15 | Input Mode | mono/stereo | 0-1 |
| AUTO PAN | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | L/R Depth | 0~127 | 0-127 |
| | 3 | F/R Depth | 0~127 | 0-127 |
| | 4 | PAN Direction | L<->R,L->R,L<-R,Lturn, Rturn,L/R | 0-5 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |

| BASIC TYPE | No. | Parameter | Display* | Value |
|---|---|---|---|---|
| PHASER | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | LFO Depth | 0~127 | 0-127 |
| | 3 | Phase Shift Offset | 0~127 | 0-127 |
| | 4 | Feedback Level | -63~+63 | 1-127 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Stage | 3~10 | 3-10 |
| | 12 | Diffusion | Mono/Stereo | 0-1 |
| | 13 | LFO Phase Difference | -180~+180deg. | 4-124 |
| DISTORTION OVERDRIVE | 1 | Drive | 0~127 | 0-127 |
| | 2 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 3 | EQ Low Gain | -12~+12dB | 52-76 |
| | 4 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 5 | Output Level | 0~127 | 0-127 |
| | 7 | EQ Mid Frequency | 500Hz~10.0kHz | 28-54 |
| | 8 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 9 | EQ Mid Width | 1.0~12.0 | 10-120 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Edge(Clip Curve) | 0~127 | 0-127 |
| GUITAR AMP SIMULATOR | 1 | Drive | 0~127 | 0-127 |
| | 2 | AMP Type | Off,Stack,Combo,Tube | 0-3 |
| | 3 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 4 | Output Level | 0~127 | 0-127 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Edge(Clip Curve) | 0~127 | 0-127 |
| 3BAND EQ | 1 | EQ Low Gain | -12~+12dB | 52-76 |
| | 2 | EQ Mid Frequency | 500Hz~10.0kHz | 28-54 |
| | 3 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 4 | EQ Mid Width | 1.0~12.0 | 10-120 |
| | 5 | EQ High Gain | -12~+12dB | 52-76 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| 2BAND EQ | 1 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 2 | EQ Low Gain | -12~+12dB | 52-76 |
| | 3 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 4 | EQ High Gain | -12~+12dB | 52-76 |
| | 11 | EQ Mid Frequency | 100Hz~10.0kHz | 14-54 |
| | 12 | EQ Mid Gain | -12~+12dB | 52-76 |
| | 13 | EQ Mid Width | 1.0~12.0 | 10-120 |
| AUTO WAH | 1 | LFO Frequency | 0.00~39.7Hz | 0-127 |
| | 2 | LFO Depth | 0~127 | 0-127 |
| | 3 | Cutoff Frequency Offset | 0~127 | 0-127 |
| | 4 | Resonance | 1.0~12.0 | 10-120 |
| | 6 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Drive | 0~127 | 0-127 |
| HALL ROOM STAGE PLATE | 1 | Reverb Time | 0.3~30.0s | 0-69 |
| | 2 | Diffusion | 0~10 | 0-10 |
| | 3 | Initial Delay | 0~63 | 0-63 |
| | 4 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 5 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Rev Delay | 0~63 | 0-63 |
| | 12 | Density | 0~3 | 0-3 |
| | 13 | Er/Rev Balance | E63>R ~ E=R ~ E<R63 | 1-127 |
| | 14 | High Damp | 0.1~1.0 | 1-10 |
| | 15 | Feedback Level | -63~+63 | 1-127 |

| BASIC TYPE | No. | Parameter | Display* | Value |
|---|---|---|---|---|
| DELAY L,C,R | 1 | Lch Delay | 0.1~715.0ms | 1-7150 |
| | 2 | Rch Delay | 0.1~715.0ms | 1-7150 |
| | 3 | Cch Delay | 0.1~715.0ms | 1-7150 |
| | 4 | Feedback Delay | 0.1~715.0ms | 1-7150 |
| | 5 | Feedback Level | -63~+63 | 1-127 |
| | 6 | Cch Level | 0~127 | 0-127 |
| | 7 | High Damp | 0.1~1.0 | 1-10 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 12 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 13 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 14 | EQ Low Gain | -12~+12dB | 52-76 |
| | 15 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 16 | EQ High Gain | -12~+12dB | 52-76 |
| DELAY L,R | 1 | Lch Delay | 0.1~715.0ms | 1-7150 |
| | 2 | Rch Delay | 0.1~715.0ms | 1-7150 |
| | 3 | Feedback Delay 1 | 0.1~715.0ms | 1-7150 |
| | 4 | Feedback Delay 2 | 0.1~715.0ms | 1-7150 |
| | 5 | Feedback Level | -63~+63 | 1-127 |
| | 6 | High Damp | 0.1~1.0 | 1-10 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 12 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 13 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 14 | EQ Low Gain | -12~+12dB | 52-76 |
| | 15 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 16 | EQ High Gain | -12~+12dB | 52-76 |
| ECHO | 1 | Lch Delay1 | 0.1~355.0ms | 1-3550 |
| | 2 | Lch Feedback Level | -63~+63 | 1-127 |
| | 3 | Rch Delay1 | 0.1~355.0ms | 1-3550 |
| | 4 | Rch Feedback Level | -63~+63 | 1-127 |
| | 5 | High Damp | 0.1~1.0 | 1-10 |
| | 6 | Lch Delay2 | 0.1~355.0ms | 1-3550 |
| | 7 | Rch Delay2 | 0.1~355.0ms | 1-3550 |
| | 8 | Delay2 Level | 0~127 | 0-127 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 12 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 13 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 14 | EQ Low Gain | -12~+12dB | 52-76 |
| | 15 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 16 | EQ High Gain | -12~+12dB | 52-76 |
| CROSS DELAY | 1 | L->R Delay | 0.1~355.0ms | 1-3550 |
| | 2 | R->L Delay | 0.1~355.0ms | 1-3550 |
| | 3 | Feedback Level | -63~+63 | 1-127 |
| | 4 | Input Select | L,R,L&R | 0-2 |
| | 5 | High Damp | 0.1~1.0 | 1-10 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 12 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 13 | EQ Low Frequency | 50Hz~2.0kHz | 8-40 |
| | 14 | EQ Low Gain | -12~+12dB | 52-76 |
| | 15 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 16 | EQ High Gain | -12~+12dB | 52-76 |
| EARLY REF | 1 | Type | S-H, L-H, Rdm, Rvs, Plt, Spr | 0-5 |
| | 2 | Room Size | 0.1~7.0 | 0-44 |
| | 3 | Diffusion | 0~10 | 0-10 |
| | 4 | Initial Delay | 0~63 | 0-63 |
| | 5 | Feedback Level | -63~+63 | 1-127 |
| | 6 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 7 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Liveness | 0~10 | 0-10 |
| | 12 | Density | 0~3 | 0-3 |
| | 13 | High Damp | 0.1~1.0 | 1-10 |

| BASIC TYPE | No. | Parameter | Display* | Value |
|---|---|---|---|---|
| GATE REVERB<br>REVERSE GATE | 1 | Type | TypeA,TypeB | 0-1 |
| | 2 | Room Size | 0.1~7.0 | 0-44 |
| | 3 | Diffusion | 0~10 | 0-10 |
| | 4 | Initial Delay | 0~63 | 0-63 |
| | 5 | Feedback Level | -63~+63 | 1-127 |
| | 6 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 7 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Liveness | 0~10 | 0-10 |
| | 12 | Density | 0~3 | 0-3 |
| | 13 | High Damp | 0.1~1.0 | 1-10 |
| PITCH CHENGE | 1 | Pitch | -24~+24 | 40-88 |
| | 2 | Initial Delay | 0~127 | 0-127 |
| | 3 | Fine 1 | -50~+50 | 14-114 |
| | 4 | Fine 2 | -50~+50 | 14-114 |
| | 5 | Feedback Gain | -99~+99% | 1-127 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Pan 1 | L63~R63 | 1-127 |
| | 12 | Output Level 1 | 0~127 | 0-127 |
| | 13 | Pan 2 | L63~R63 | 1-127 |
| | 14 | Output Level2 | 0~127 | 0-127 |
| TOUCH WAH<br>WAH+DIST. | 1 | Sensitive | 0~127 | 0-127 |
| | 2 | Cutoff Frequency Offset | 0~127 | 0-127 |
| | 3 | Resonance | 1.0~12.0 | 10-120 |
| | 6 | EQ Low Frequency | 32Hz~2.0kHz | 4-40 |
| | 7 | EQ Low Gain | -12~+12dB | 52-76 |
| | 8 | EQ High Frequency | 500Hz~16.0kHz | 28-58 |
| | 9 | EQ High Gain | -12~+12dB | 52-76 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Drive | 0~127 | 0-127 |
| COMPRESSOR | 1 | Attack | 1~40ms | 0-19 |
| | 2 | Release | 10~680ms | 0-15 |
| | 3 | Threshold | -48~-6UdB | 79-121 |
| | 4 | Ratio | 1.0~20.0 | 0-7 |
| | 5 | Output Level | 0~127 | 0-127 |
| NOISE GATE | 1 | Attack | 1~40ms | 0-19 |
| | 2 | Release | 10~680ms | 0-15 |
| | 3 | Threshold | -72~-30dB | 55-97 |
| | 4 | Output Level | 0~127 | 0-127 |
| WHITE ROOM<br>TUNNEL<br>CANYON<br>BASEMENT | 1 | Reverb Time | 0.3~30.0s | 0-69 |
| | 2 | Diffusion | 0~10 | 0-10 |
| | 3 | Initial Delay | 0~63 | 0-63 |
| | 4 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 5 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 6 | Width | 0.5~10.2m | 0-37 |
| | 7 | Heigt | 0.5~20.2m | 0-73 |
| | 8 | Depth | 0.5~30.2m | 0-104 |
| | 9 | Wall Vary | 0~30 | 0-30 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |
| | 11 | Rev Delay | 0~63 | 0-63 |
| | 12 | Density | 0~3 | 0-3 |
| | 13 | Er/Rev Balance | E63>R ~ E=R ~ E<R63 | 1-127 |
| | 14 | High Damp | 0.1~1.0 | 1-10 |
| | 15 | Feedback Level | -63~+63 | 1-127 |
| KARAOKE | 1 | Delay Time | 0~127 | 0-127 |
| | 2 | Feedback Level | -63~+63 | 1-127 |
| | 3 | HPF Cutoff | Thru~8.0kHz | 0-52 |
| | 4 | LPF Cutoff | 1.0k~Thru | 34-60 |
| | 10 | Dry/Wet | D63>W ~ D=W ~ D<W63 | 1-127 |

* *Only parameters 1 through 5 can be edited via panel control for effects which can be selected via panel control. The 3 band equalizer is an exception to this rule.*

* *Basic Type effects are different from DSP Effect Types appearing in the LCD display.*

[PortaTone]
Model: PSR-7000

# MIDI Implementation Chart

Date: 1995. 07. 18
Version: 1.0

| Function | Transmitted | Recognized | Remarks |
|---|---|---|---|
| Basic Default | 1~16 CH (*1) | 1~16 CH (*2) | |
| Channel Changed | 1~16 CH (*1) | 1~16 CH (*2) | |
| Mode Default | 3 | 3 | |
| Mode Messages | × | × | |
| Mode Altered | ********** | × | |
| Note Number : True voice | 0~127<br>********** | 0~127 (*3)<br>0~127 | |
| Velocity Note on | O 9nH, v=1~127 | O 9nH, v=1~127 | |
| Velocity Note off | × 9nH, v=0 | × | |
| After Touch key's | × | × | |
| After Touch Ch's | O | O | |
| Pitch Bender | O | O | |
| Control Change 0, 32 | O | O | Bank select MSB, LSB (*4) |
| 1 | O | O | Modulation |
| 6, 38 | O | O | Data entry MSB, LSB |
| 7 | O | O | Volume |
| 10 | O | O | Pan |
| 11 | O | O | Expression |
| 64 | O | O | Sustain |
| 66 | O | O | Sostenuto |
| 67 | O | O | Soft pedal |
| 71 | × (*5) | O | Harmonic content |
| 72 | × (*5) | O | Release time |
| 73 | × (*5) | O | Attack time |
| 74 | × (*5) | O | Brightness |
| 84 | × (*5) | O | Portamento control |
| 91 | O | O | Reverb send level |
| 93 | O | O | Chorus send level |
| 94 | O | O | Variation effect send level |
| 96, 97 | × | O | Data increment, decrement |
| 98, 99 | × (*5) | O | NRPN LSB, MSB (*6) |
| 100, 101 | O | O | RPN LSB, MSB (*7) |
| 120 | × | O | All sound off |
| 121 | × | O | Reset all controllers (*8) |
| Program Change : True # | O 0~127<br>********** | O 0~127<br>0~127 | |
| System Exclusive | O | O | (*9) |
| System : Song Position | × | × | |
| System : Song Select | × | × | |
| Common : Tune | × | × | |
| System : Clock | O | O | |
| Real Time : Commands | O | O | |
| Aux : Local ON/OFF | × | × | |
| Aux : All Notes Off | O | O (123 – 127) | |
| Messages : Active Sense | O | O | |
| Messages : Reset | × | × | |

Mode 1: OMNI ON, POLY
Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY
Mode 4: OMNI OFF, MONO

O: Yes
×: No

*1 The RIGHT1, RIGHT2, LEAD, LEFT, ORGAN FLUTE, HARMONY, MULTI PAD, and ACCOMPANIMENT parts can be independently transmitted via the panel controls.

*2 The tone generator normally functions as a 16-channel multi-timbre tone generator in response to MIDI input. MIDI messages therefore do not normally affect the panel voices or other panel settings. The MIDI messages listed below, however, do affect the panel voice, style, multi pad, and song settings:

- MIDI master tuning, MIDI master volume, MASTER TRANSPOSE.
- Drum setup-related exclusive messages.
- System exclusive messages which change the reverb, chorus, or DSP effect settings.

The KEYBOARD mode can be selected via panel control. Note on/off messages received on KEYBOARD MODE channels are handled in the same way as note on/off data from the internal keyboard.
Only the following channel messages are recognized in this mode:

- Key on/key off.
- Control change: bank select (RIGHT1 only), modulation, main volume, (RIGHT1 only), expression, sustain.
- Program change (RIGHT1 only).
- Pitch bend, all notes off.

*3 Limited to the range 21...108 on KEYBOARD MODE channels.

*4 BANK SELECT MSB

| | | |
|---|---|---|
| MSB 00H | LSB 00H | Preset GM tone generator. |
| MSB 00H | LSB 70H~7FH | Non-GM preset panel voices. |
| MSB 6FH | LSB 00H~11H | ORGAN FLUTE voices. |
| MSB 6FH | LSB 60H~7FH | Custom voice orchestra voices. |
| MSB 7FH | LSB 00H | Preset drum kit voices. |
| MSB 7FH | LSB 6FH | Custom voice drum kit voices. |

Channel 10 is reserved for drum kit voices after a GM ON message is received.
No voice change occurs when only a bank change message is received. The latest bank change message is applied when a program change message is received.

*5 These Control Change messages are not transmitted by the PSR-7000 panel operation, but may be transmitted by the accompaniment style playing.

*6 NRPN transmission/reception
The following parameters are supported.

| NRPN MSB | NRPN LSB | Data entry MSB | Data entry LSB | Parameter Name/Range | Default |
|---|---|---|---|---|---|
| 01H | 08H | mmH | -- | Vibrato Rate<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 09H | mmH | -- | Vibrato Depth<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 0AH | mmH | -- | Vibrato Delay<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 20H | mmH | -- | Filter Cutoff Freq.<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 21H | mmH | -- | Filter Resonance<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 63H | mmH | -- | EG Attack Time<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 64H | mmH | -- | EG Decay Time<br>mm : 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 01H | 66H | mmH | -- | EG Release Time<br>mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 14H | rrH | mmH | -- | Drum Filter Cutoff Freq.<br>rr: drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 15H | rrH | mmH | -- | Drum Filter Resonance<br>rr: drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 16H | rrH | mmH | -- | Drum EG Attack Rate<br>rr: drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 17H | rrH | mmH | -- | Drum EG Decay Rate<br>rr: drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 18H | rrH | mmH | -- | Drum Instrument Pitch Course<br>rr: drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 19H | rrH | mmH | -- | Drum Instrument Pitch Fine<br>rr: drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 1AH | rrH | mmH | -- | Drum Instrument Level<br>rr: drum instrument note number mm: 00H - 7FH (0 - 127) | Depends on note |
| 1CH | rrH | mmH | -- | Drum Instrument Panpot<br>rr: drum instrument note number mm: 00H - 40H - 7FH (L - Center - R) | Depends on note |
| 1DH | rrH | mmH | -- | Drum Instrument Reverb Send Level<br>rr: drum instrument note number mm: 00H - 7FH (0 - 127) | Depends on note |
| 1EH | rrH | mmH | -- | Drum Instrument Chorus Send Level<br>rr: drum instrument note number mm: 00H - 7FH (0 - 127) | Depends on note |
| 1FH | rrH | mmH | -- | Drum Instrument DSP Send Level<br>rr: drum instrument note number mm : 00H - 7FH (0 - 127) | 7FH |

Data entry LSB is ignored.

*7 RPN transmission/reception
The following parameters are supported.

| RPN MSB | RPN LSB | Data entry MSB | Data entry LSB | Parameter Name/Range | Default |
|---|---|---|---|---|---|
| 00H | 00H | mmH | -- | Pitch bend Sensitivity<br>mm: 00H - 02H - 0CH (0 - 2 - 12) | 02H |
| 00H | 01H | mmH | -- | Fine Tuning<br>mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 00H | 02H | mmH | -- | Course Tuning<br>mm: 00H - 40H - 7FH (-64 - 0 - +63) | 40H |
| 7FH | 7FH | -- | -- | RPN Null<br>Clears current RPN and NRPN number settings. | -- |

Data entry LSB is ignored.

*8 Pitch Bend, modulation, expression, sustain, sostenuto and softpedal are returned to their defult values.
Clears current RPN and NRPN number settings.
Resets portament source note number.

*9 Exclusive
The following system exclusive messages are recognized.

<GM system ON> F0H, 7EH, 7FH, 09H, 01H, F7H
All parameters except MIDI master Tuning and Dsp setting are reset to their default values.
Remote Channel setting is canceled.
This message requires approximately 50ms to execute, so sufficient time should be allowed before the next message is sent.

<MIDI Master Volume> F0H, 7FH, 7FH, 04H, 01H, ll, mm, F7H
Allows the volume of all channels to be changed simultaneously.
"mm" is used as the MIDI Master Volume value ("ll" is ignored).
The defalut value for "mm" is 7FH.

<MIDI Master Tuning>
F0H, 43H, 1nH, 27H, 30H, 00H, 00H, mm, ll, cc, F7H
"mmll" is used as the MIDI Master Tuning value.
The tuning value is represented as follows:
T=M-128 (28≦M≧228), T=-100 (M<28), T=100 (M>228)
Where T is the actual tuning value in cents.
M is decimal value represented by 1-byte using bits 0..3 of "mm" as the MSB and bits 0..3 of "ll" as the LSB.
The default values of "mm" and "ll" are 08H and 00H respectively.
n and cc are also recognized.
This value is not reset by a GM System ON or Reset All Controllers message.
This value affects not only MIDI reception part but the entire system of the PSR-7000.

<XG Native Parameter Change>
F0H, 43H, 1nH, 4CH, aaH, bbH, ccH, ddH.....F7H
n: device number (n=0~FH)
aa,bb,cc: address High, Mid, Low
dd: data
A corresponding data size is transmitted when the data size is 2 or 4 parameters.
Note: This product is compatible with the XG format parameters listed in the chart, but not with the many other parameters included in the XG full format.

<XG System On> F0H, 43H, 1nH, 4CH, 00H, 7E, 00H, F7H
n: device number (n=0~FH)
All parameters other than MIDI master tuning are reset to their default values.
This message requires approximately 50ms to execute, so sufficient time should be allowed before the next message is sent.

<XG System Data Parameter Change>
See Tabbles 1-1, 1-2.

<Multi Effect1 Data Parameter Change>
See Tabbles 1-1, 1-3.

<Multi Part Data Parameter Change>
See Tabbles 1-1, 1-4.

<Drums Setup Data Parameter Change>
See Tabbles 1-1, 1-5.

<XG Native Bulk Dump>
F0H, 43H, 0nH, 4CH, bl, bh, aaH, bbH, ccH, <Data>, cs, F7H
n: device number (n=0~FH)
bl, bh: byte count (only data portion shown)
aa,bb,cc: address High, Mid, Low (Refer to the accompanying chart)
cs: Checksum (Start Address+Data+Checksum=0 : calculated binary in first 7 bit)
The data series listed under "Total Size" in the chart is one bulk dump. Only the header address is interpreted as the bulk data address.
Since an error can occur when a large amount of bulk data is received, data series longer than 512 bytes are divided into groups of less than 512 bytes each, and transmitted with a time interval of greater than 120 ms between each group.
Note: This product is compatible with the XG format parameters listed in the chart, but not with the many other parameters included in the XG full format.

<XG System Data Bulk Dump>
See Tabbles 1-1, 1-2.

<Multi Effect1 Data Bulk Dump>
See Tabbles 1-1, 1-3.

<Drums Setup Data Bulk Dump>
See Tabbles 1-1, 1-5.

<Parameter Request>
F0H, 43H, 3nH, 4CH, aaH, bbH, ccH, F7H
n: device number (n=0~FH)
aa,bb,cc: address High, Mid, Low
Requests are accepted for parameters which can be changed.
Only the header address is interpreted as the parameter request address for a Data Size of 2 or 4 parameters.

<Dump Request>
F0H, 43H, 2nH, 4CH, aaH, bbH, ccH, F7H
n: device number (n=0~FH)
aa,bb,cc: address High, Mid, Low
The data series listed under "Total Size" in the chart is one bulk dump. Only the header address is interpreted as the bulk data address.