97PnP2 Audio CD Quality Professional Sound Studio

User Guide

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Section 1

Introduction

1.1 97PnP2 Key Features

The 97PnP2 is a professional add-on sound card complementary to a WSS/SB compatible sound card. Its features meet professional musical application requirements.

This card can be used as an upgrade for a Multi-Media PC providing WSS/SB capabilities or as a professional PnP sound board for Windows® applications.

1.1.1 Effect Processor

97PnP2 provides 16 reverb/chorus programs, a 4-band stereo equalizer and a 2/4 surround speakers system.

These effects can be applied to all the sound devices: Wave table, DSP waves, Line input.

The reverb, equalizer and surround effects will expand the standard Sound Blaster sound into a broad colored sound.

1.1.2 Wave Table Synthesis

97PnP2 provides a RAM Wave Table with 1M samples that make MIDI sequence sounds realistic.

1.1.3 Professional Synthesiser

The on-board 2-Mbyte DRAM enables the DSP to download and edit instruments. This lets you use the 97PnP2 as a professional synthesizer/sampler.

The additional SIMM expands memory size to 6/18M bytes.

1.1.4 Direct to Disk

The 97PnP2 provides DtD full duplex capabilities with 8 stereo play waves with individual volume panoramic reverb send and chorus send controls and one stereo record track.

Note: The number of simultaneous play waves is limited by the PC hard disk performance.

1.1.5 Direct Sound

The 97PnP2 supports Microsoft® Direct Sound Features. These include:

- Hardware mixing of Multi waves (up to 32 waves)
- On board memory buffer to support static wave buffer
- 3D position & dynamic audio sources (4 speakers outputs, Doppler for dynamic effect)

1.1.6 Upgradeable

Open to third-party download.

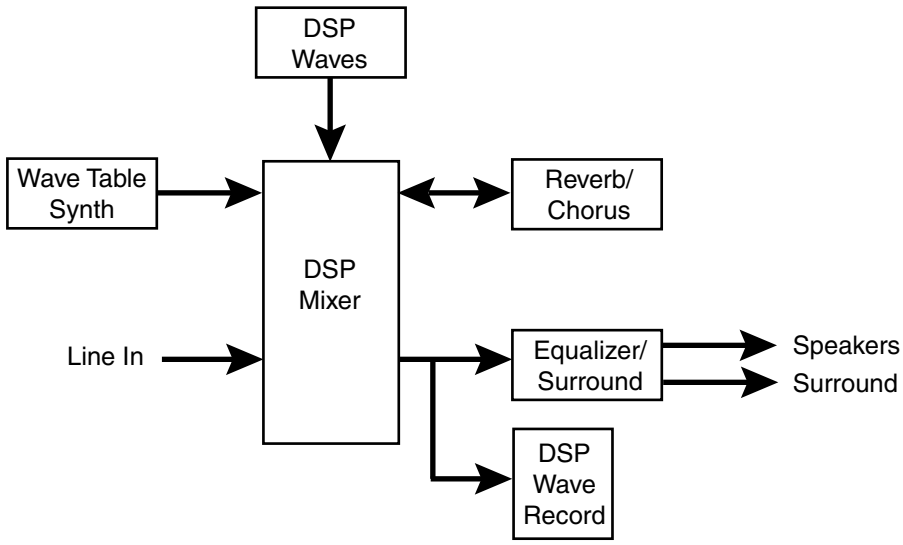
1.2 CD-ROM Content

Table 1-1. CD-ROM Content

Hardware Installation	
97PNP2.INF	Device Installation File
DREAM95.VXD	Virtual Driver File
DREAM95.DRV	Driver File
97PNP2.BIN	Firmware File
GMBK9708.94B	Sound Bank
CLEAN97.EXE	Uninstallation File
Software Installation	
2621A.PDF	This Document
INSTALL.EXE	Windows Setup for Dream Mixer and Dream Media Player
Hardware and File Source	
Hardware	Card Development Information
Firmware	Firmware Files
Gerber	Gerber Files
ORCAD	Schematic Files
PNP	PnP EEprom Configuration
TEST	Hardware DOS Test
Application/Software and File Source	
SNDBANK	Sound Bank Files
SNDEDIT	Sound Editor Subdirectory
SETUPED.EXE	Windows Setup Dream Instrument Editor and Dream User Sound Bank Editor
SNDTOOL.PDF	Sound Tools (Editor's User Manual and Sound LIst)
G*.DOC	Sound Bank Documentation
SOFTWARE	Programming Libraries
PROGREFF.PDF	Programmer's Reference (Windows API and MPU Messages)
94DEMO	Demo Files (MIDI, Waves, Instruments)
BIN	Files for AutoRUN CD-ROM and Demo
ACROBAT®3	Acrobat® Reader® 3.01 from Adobe Systems Incorporated

1.3 97PnP2 Sound Overview

Figure 1-1. 97PnP2 Block Diagram



1.3.1 Wave Table Synthesis

The high quality wave table synthesis provides 32 MIDI channels with up to 64 maximum voices of polyphony (according to the configuration).

The 24 dB resonant filter and the audio CD quality samples provide professional synthesizer sound quality.

The 2M bytes of on-board DRAM (up to 16M bytes with additional SIMM) provides downloading of the high-quality GM factory sound bank.

1.3.2 DSP Waves

The DSP waves ensure the high quality required by professional musical applications.

Multi waves for DtD (Direct to Disk) applications: 8 stereo play tracks + 1 simultaneous stereo record track.

High quality wave due to the interpolation and the digital filter.

Up to 65 kHz sampling rate with 8/16 bits mono/stereo format, (44.1 kHz nominal sampling rate).

Individual send to the reverb and the chorus effects provided by the DSP mixer.

1.3.3 DSP Mixer

The DSP Mixer provides individual volume, panoramic, reverb and chorus send for all inputs:

- 32 mono inputs: Wave table
- 8 stereo inputs: DSP waves
- 1 stereo input: Line In

Line input provides an additional echo with effect volume delay and feedback control.

1.3.4 DSP Waves Record

This device records DSP mixer output including reverb & chorus in 8/16 bits mono/stereo format up to 65 kHz sampling rate.

1.3.5 Reverb/Chorus

Reverb and chorus comply to GS standard:

- 8 reverb programs, effect volume, time and feedback controls.
- 8 chorus programs, effect volume, delay, feedback, rate and depth controls.

1.3.6 Equalizer

Stereo four-band parametric equalizer with ± 12 dB band level.

1.3.7 Surround

Surround processing expands the stereo image of a stereo signal or creates a pseudo-stereo image from a monophonic source. Surround operates on a configuration of 2 or 4 speakers.

The 97PnP2 surround processing involves a delay line that creates an actual 3D sound unlike most of the products that claim to offer 3D sound.

Section 2

Installation

2.1 System Requirements

- IBM® Compatible PC with Intel® 486 or above
- WINDOWS® 95, WINDOWS® 98 or WINDOWS® ME
- 97PnP2 Card
- CD-ROM Unit
- 3 MB disk space for installation

Note: All information pertaining to hardware/software installation and uninstallation in this user guide is relevant to WINDOWS 95, WINDOWS 98 and WINDOWS ME and the instructions are identical for each system. In all cases, any textual usage of WINDOWS refers to the systems above.

2.2 Windows Hardware Installation

- Turn power off.
- Plug the 97PnP2 card into an unused 16-bit ISA slot.
- Turn power on.
- Insert CD-ROM.
- Windows plug & play sequence finds new hardware «DREAM 97PnP2 home studio».
- Windows asks for drivers to install.
- Select «Driver from disk provided by hardware manufacturer».
- Browse «cdrom:\97PnP2.inf».
- Follow Windows installation procedure.

Now the hardware is installed.

2.3 Windows (Microsoft® Internet Explorer) Hardware Installation

- Turn power off.
- Plug the 97PnP2 card into an unused 16-bit ISA slot.
- Turn power on.
- Insert CD-ROM.
- Windows plug & play sequence finds new hardware «DREAM 97PnP2 home studio».
- Windows asks for drivers to install and automatically checks CD-ROM.
- Windows asks for disk.
- Browse «cdrom:\97PnP2.inf».
- Follow Windows installation procedure.

Now the hardware is installed.

2.4 Windows Hardware Checking

To check Windows Hardware:

From «start/settings/control panel/system/device manager/sound, video & game controllers»:

- Check that your card is correctly installed. It should appear as «DREAM 97PnP2 Home Studio DSP».

To define the 97PnP2 Wave table as default MIDI device:

From «start/settings/control panel/multimedia/midi»:

- Select «DREAM 97PnP2 Home Studio DSP».

To define the 97PnP2 Wave as default wave device:

From «start/settings/control panel /multimedia/wave»:

- Select «DREAM 9707, wave Nb1» as playback.
- Select «DREAM 9707, wave record» as recording.
- Check «show volume control on the taskbar».

Now the hardware is checked & configured.

2.5 Windows Hardware Uninstallation

To Uninstall the 97PnP2 sound card:

From «start/settings/control panel/Add/Remove programs»:

- Select «DREAM 97PnP2 Home Studio – Uninstall».
- Follow the Uninstall procedure.
- Turn the power off.
- Remove the 97PnP2 card.

Now the hardware is correctly uninstalled.

2.6 Installation Troubleshooting

To perform installation troubleshooting:

From «start/settings/control panel/system/device manager/sound, video & game controllers»:

- Check that your card is correctly installed.

If the device icon is overlaid with a yellow circle, this means that the device installation failed.

Installation failures arise from:

1. Problem(s) with previous installations
2. Hardware failure
3. PnP allocation conflicts.

2.6.1 Solutions for Installation Failure

2.6.1.1 Solution for Condition 1

Problem(s) with previous installations:

- Uninstall the card.
- Follow uninstall procedure.
- Reboot the PC.
- Re-install the hardware.

2.6.1.2 Solution for Condition 3

PnP allocation conflicts:

- Use Windows conflict resolution tools.

2.7 Windows Software Installation

Once the hardware is installed, you can use the Microsoft multimedia applications Mixer and Media Player.

2.7.1 Dream Applications Bundle Installation

To install the software applications bundle:

From «start/run»:

- Browse «cdrom:\install.exe».

The Dream bundle mixer and media player applications are installed.

- Run mixer from «start/programs/Dream Multimedia/Dream Mixer».
- Run media player from «start/programs/Dream Multimedia/Dream Media Player».

2.7.2 Sound Editors Installation

To install Professional Sound Editors:

From «start/run»:

- Browse «cdrom:\sndedit\setuped.exe».

The Dream instrument & sound bank editors applications are installed.

- Run instrument editor from «start/programs/Dream Editor /Dream Instrument Editor».
- Run sound bank editor mixer from «start/programs/Dream Editors/Dream Sound Bank Editor».

2.8 Windows Software Uninstallation

To Uninstall the Dream software bundle:

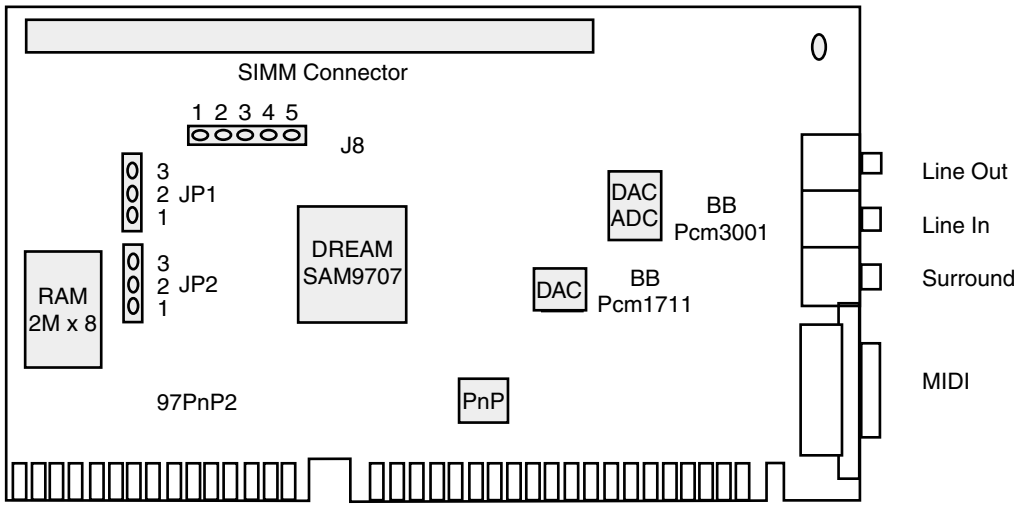
From «start/settings/control panel/Add/Remove programs»:

- Select «DREAM Multimedia – Uninstall», «DREAM Editors – Uninstall».
- Follow the Uninstall procedure.

Now the software is correctly uninstalled.

2.9 97PnP2 External Connection

Figure 2-1. Description of 97PnP2 External Connection



JP1	SIMM:	1 - 2: No SIMM	2 - 3: SIMM
JP2	SIMM size	1 - 2: 1M x 32 (4M bytes)	2 - 3: 4M x 32 (16M bytes)
J8	SAM9707 Four Wires High Speed Serial Link		

2.9.1 External Connection Procedures for 97PnP2

- Connect Line Out to the front stereo powered speakers.
- Connect Surround to the rear stereo powered speakers.
- Connect Line In to an external audio stereo line source (CD player, Windows sound system audio card line output – external microphone should be preamplified to line level).
- Connect a MIDI/Gameport connector to use external MIDI IN & OUT.

External SIMM expands memory from 2M bytes to 4/16M bytes.

Section 3

97PnP2 Software Applications

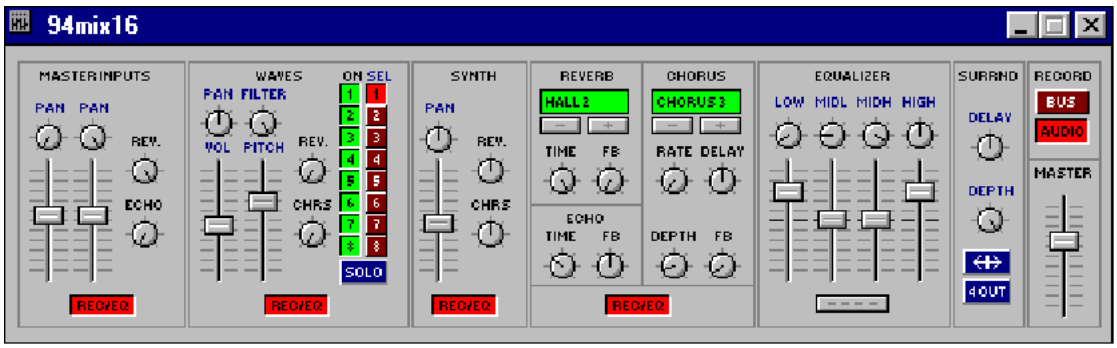
Note: This Section details the 97PnP2 applications bundle only. For information about the professional sound editors, please refer to the “Sound Tools” documentation.

3.1 97PnP2 Mixer Application

This MIXER application enables control of all the 97PnP2 Devices on a single control panel.

3.1.1 Control Array with REC/EQ Indicator Function Defined

Figure 3-1. View of Mixer Control Display and REC/EQ Indicator Functional Description



REC/EQ

Bright Red: Device is ON, output signal is routed to Equalizer & surround. Signal is also routed to record BUS.

Dark Red: Device is OFF, output signal is routed directly to Line out (bypass EQ & Surround). No signal is routed to record BUS .

3.2 Line Input

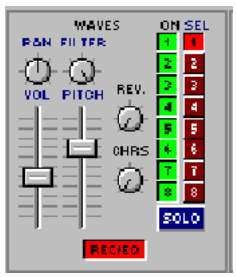
Figure 3-2. View of Line Input Controls

3.2.1 Line Input Control Functions

- Left Line Input: Volume & panoramic
- Right Line Input: Volume & panoramic
- REV: Reverb send volume
- ECHO: Echo send volume
- REC/EQ: see REC/EQ

3.3 DSP Waves

Figure 3-3. View of DSP Wave Controls and Indicators

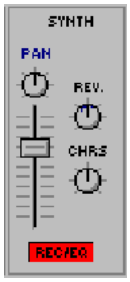


3.3.1 DSP Wave Control Functions and Indicator Definitions

- ON Light: Bright green on/dark green off, turns wave audio on/off.
- SEL Light: Bright red for selected wave, selects the current wave to edit.
- SOLO: Bright blue on/dark blue off, turns the current wave audio on and others off.
- PAN: Selected wave panoramic
- VOL: Selected wave volume
- FILTER: Selected wave low-pass filter cutoff frequency
- REV: Selected wave reverb send volume
- CHRS: Selected wave chorus send volume
- REC/EQ: see REC/EQ

3.4 MIDI Wave Table

Figure 3-4. View of MIDI Wave Table Controls

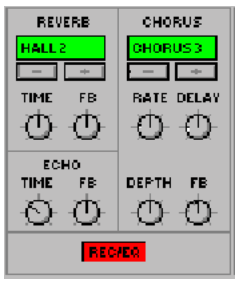


3.4.1 MIDI Wave Table Control Functions

- Slider: Synthesis Volume
- PAN: Synthesis panoramic
- REV: Synthesis reverb send volume
- CHRS: Synthesis chorus send volume
- REC/EQ: see REC/EQ

3.5 Delay Effects

Figure 3-5. View of Delay Effects Controls and Indicators



3.5.1 Reverb Control Functions

- - / +: Select Reverb program
- TIME: Reverberation time
- FB: Feedback amount

3.5.2 Echo Control Functions

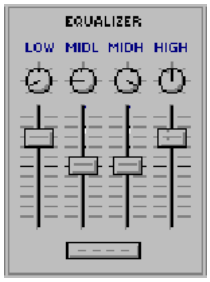
- TIME: Delay time
- FB: Feedback amount

3.5.3 Chorus Control Functions

- - / +: Select Chorus program
- RATE: Modulation speed
- DELAY: Delay time
- DEPTH: Modulation amount
- FB: Feedback amount

3.6 Equalizer

Figure 3-6. View of Equalizer Controls



3.6.1 Equalizer Composition and Control Functions

The equalizer is comprised of parametric type rotating pots frequency adjustment and slider adjust gain ± 12 dB.

- LOW: Low pass filter
- MIDL: Middle low band pass filter
- MIDH: Middle high band pass filter
- HIGH: High pass filter

The push button sets the equalizer to loudness preset: +6 dB - 0 dB - 0 dB - +6 dB.

3.7 Surround Effects

Figure 3-7. View of Surround Effect Controls and Indicators

3.7.1 Surround Effects Control Functions and Indicator Definitions

- The surround effects expand stereo image.
- DELAY: Delay time of surround processing
- DEPTH: Effect amount
- <-I-> button: Boost surround effect
  Bright blue: ON
  Dark blue: OFF
- 4OUT button:
  Bright blue: 4 speakers, surround outputs on surround jack output, no surround on line out jack.
  Dark blue: 2 speakers, surround outputs on line out jack, no sound on surround jack.

3.8 Record Device

Figure 3-8. View of Record Device Control and Indicators

The Record device refers to DSP record (see Windows hardware installation section to validate DSP wave record).

- BUS: Bright red ON, Dark red OFF,
  DSP wave records the record BUS (see REC/EQ)
- AUDIO: Bright red ON, Dark red OFF,
  DSP wave records the WSS/SB mixer output.
- MASTER: Record volume

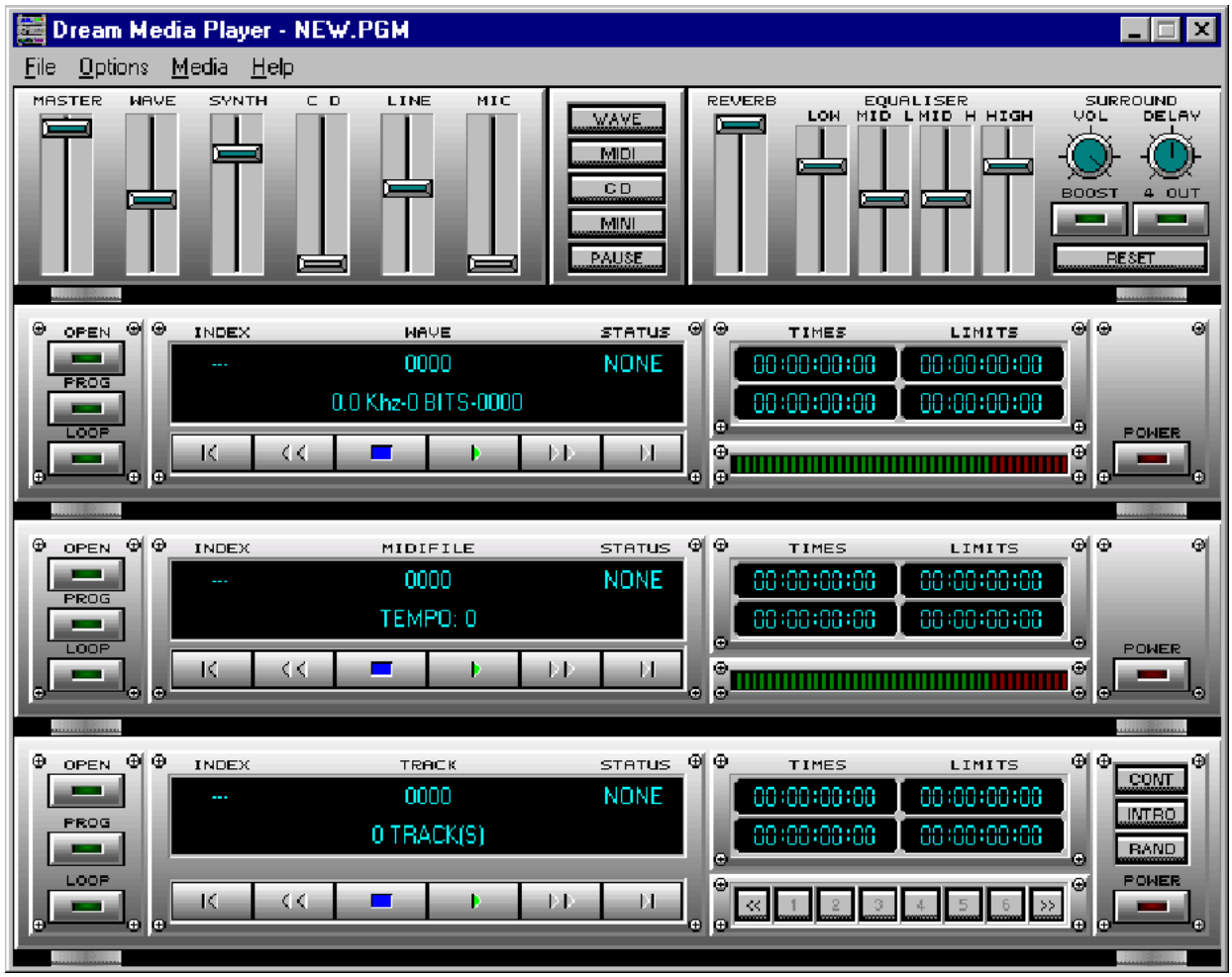
3.9 DREAM Media Player

The DREAM Media Player Provides control on the PC Audio functions through a user friendly interface.

The Player is composed of four elements:

1. The Mixer
2. The Wave Player
3. The MIDI Player
4. The Audio CD Player

Figure 3-9. View of Dream Media Player Controls and Indicators



Each media-player unit (Wave/MIDI/CD) can operate in two different modes:

1. Individual Selection: Songs are played one by one. Push the “OPEN” button on the player.
2. Program Selection: Songs are played from a play list. Push the “PROG” button on the player. (Previously, open or create a program list.)

3.10 MIDI Player

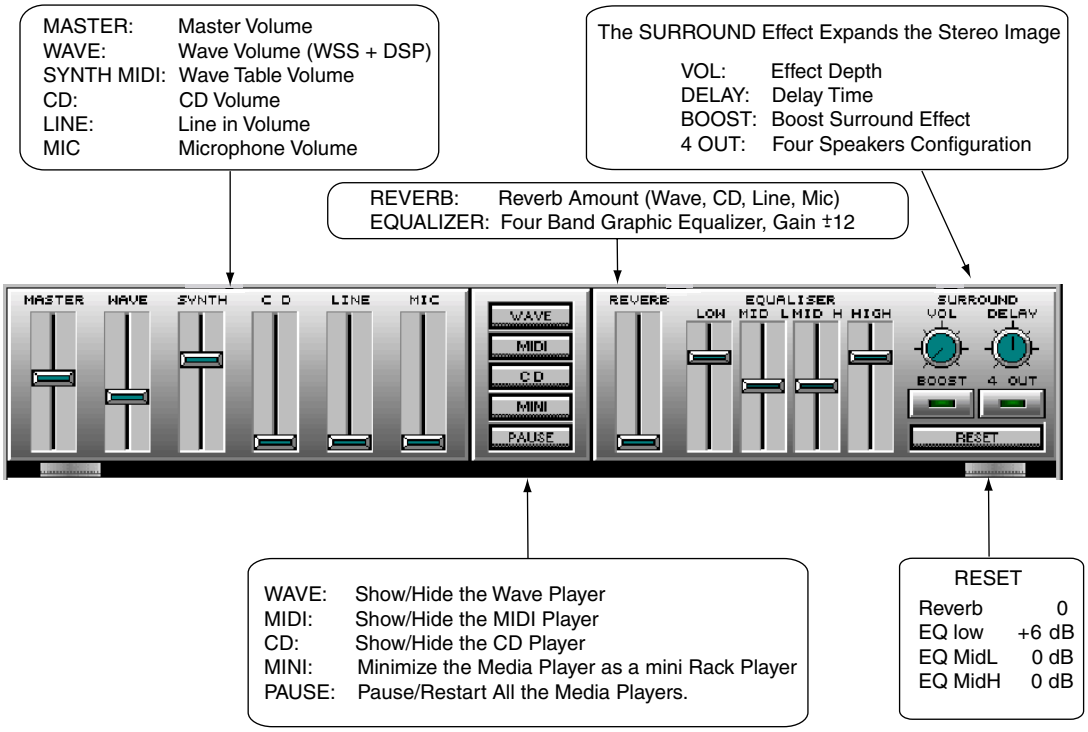
The MIDI Player can play .mid and .rmi files. .rmi is the Microsoft file format for MIDI file. It facilitates the inclusion of additional information into the MIDI sequence. Dream uses this format to include the wave-table sounds into the sequence. The sound is down-loaded into the card when opening the sequence.

The CD-ROM gives *.rmi examples:

- CD-ROM:\94demo\rmi_2m*.rmi (These sequences require 2M bytes of memory.)
- CD-ROM:\94demo\rmi_4m*.rmi (These sequences require 4M bytes of memory.)

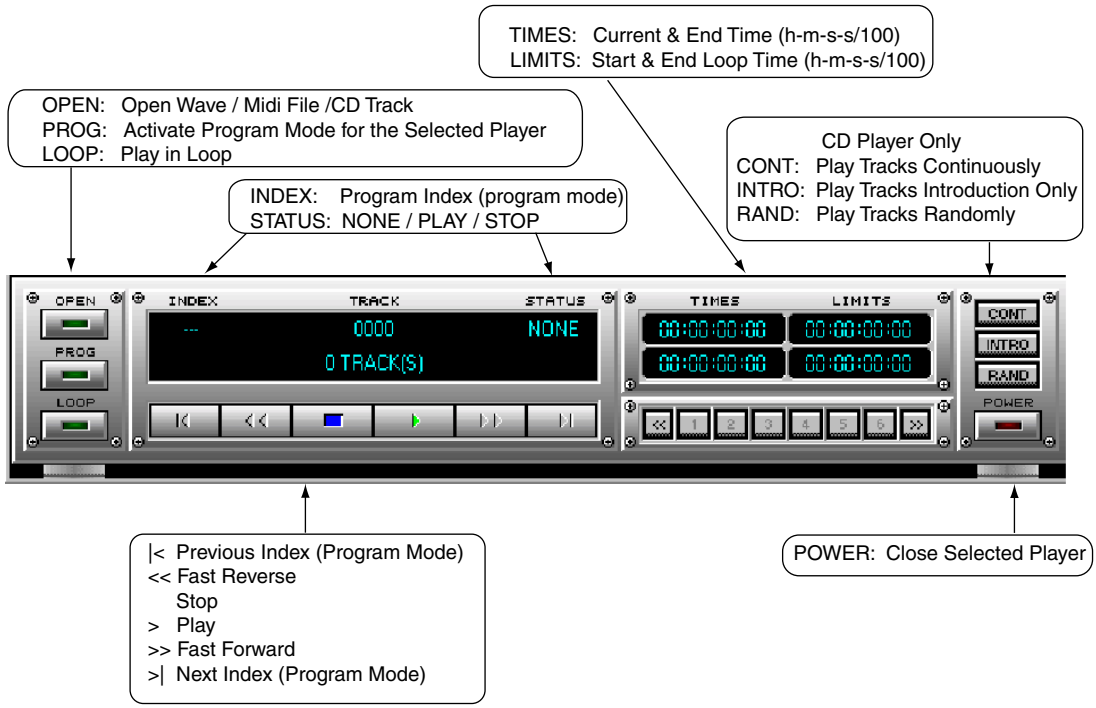
3.11 Mixer

Figure 3-10. View of Mixer Controls and Indicators with Functional Description



3.12 Media Player Components

Figure 3-11. View of Media Player Components Controls and Indicators with Functional Description



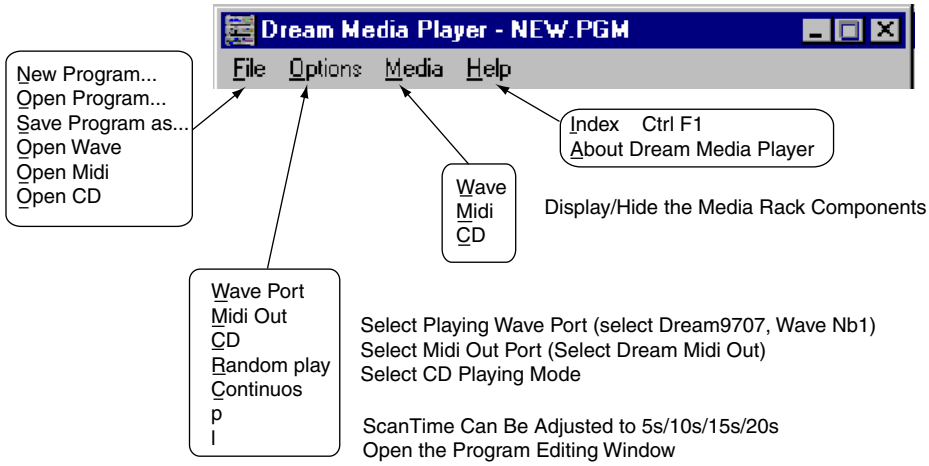
3.13 Mini Rack

The Mini Rack design is selected by pushing the MINI button on the control block.

Figure 3-12. View of Mini Rack Control and Indicators with Functional Description

3.14 Menu

Figure 3-13. View of Menu and Functional Usage Guide



Section 4

MIDI Implementation

4.1 Dream Specific MIDI Messages

Various features of the SAM9707 can also be controlled by NRPN MIDI messages as follows.

Table 4-1. SAM9707 Features Controlled by NRPN MIDI Messages

NRPN # (High/Low)	Description		Power-up Default
3700H	Equalizer Low-band (bass)	0 = -12 dB, 40H = 0 dB, 7FH = +12 dB	60H (+6 dB)
3701H	Equalizer Med Low-band	0 = -12 dB, 40H = 0 dB, 7FH = +12 dB	40H (0 dB)
3702H	Equalizer Med High-band	0 = -12 dB, 40H = 0 dB, 7FH = +12 dB	40H (0 dB)
3703H	Equalizer High-band (treble)	0 = -12 dB, 40H = 0 dB, 7FH = +12 dB	60H (+6 dB)
3708H	Equalizer Low Cutoff Frequency	0 = 0Hz, 7FH = 4.7 kHz	0CH
3709H	Equalizer Med Low Cutoff Frequency	0 = 0Hz, 7FH = 4.2 kHz	1BH
370AH	Equalizer Med High Cutoff Frequency	0 = 0Hz, 7FH = 4.2 kHz	72H
370BH	Equalizer High Cutoff Frequency 0 = 0 Hz, 7FH = 1 8.75 kHz	40H	
3720H	Spatializer Effect Volume	0 = no effect, 7FH = maximum effect	00H
3724H	Mike1/AUXL Volume	0 to 7FH	40H
3725H	Mike2/AUXR Volume	0 to 7FH	40H
3726H	Mike 1/AUXL Pan	0 = hard left, 40H = center, 7FH = hard right	00H (left)
3727H	Mike 2/AUXR Pan	0 = hard left, 40H = center, 7FH = hard right	7FH (right)
372CH	Spatializer Effect Delay	0 to 7FH	2
372DH	Spatializer Effect Input 0 = Mono Input (left + right), 7Fh = Stereo Input (left - right)	0	
372EH	Spatializer Effect Output Mode	0 = 2 speaker mode, 7Fh = 4 speaker mode	0
3751H	ROM + 32K x 16 SRAM Test	nprn data must be 23h to start test.	

4.2 Detailed MIDI Implementation

Table 4-2. Detailed MIDI Implementation

MIDI Message	Hex Code	Description		Compatibility
NOTE ON	9nH kk vv	MIDI channel n (0 - 15) note ON #kk (1 - 127), velocity vv(1-127), vv = 0 means NOTE OFF.		MIDI
NOTE OFF	8nH kk vv	MIDI channel n (0 - 15) note OFF #kk (1 - 127), vv is don't care.		MIDI
PITCH BEND	EnH bl bh	Pitch Bend as specified by bh/bl (14 bits) Maximum swing is ± 1 tone (power-up). Can be changed using "pitch bend sensitivity". Center position is 00H 40H.		GM
PROGRAM CHANGE	CnH pp	Program (patch) change. Specific action on channel 10 (n = 9): Select Drumset. Refer to sounds/drumset list. Drumsets can be assigned to other channels (see SYSEX MIDI channel to part assign and part to rhythm allocation).		GM/GS
CHANNEL AFTERTOUCH	DnH vv	vv Pressure Value. Effect set using Sys. Ex. 40H 2nH 20H - 26H		MIDI
MIDI RESET	FFH	Reset to Power-up Condition		
CTRL 00	BnH 00H cc	Bank Select: Refer to sounds list. No action on drumset. cc = 64 reserved for Dream Sound Editor.		GS/Dream
CTRL 01	BnH 01H cc	Modulation Wheel. Rate and maximum depth can be set using SYSEX.		MIDI
CTRL 05	BnH 05H cc	Portamento Time		MIDI
CTRL 06	BnH 06H cc	Data Entry: Provides data to RPN and NRPN.		MIDI
CTRL 07	BnH 07H cc	Volume (default = 100)		MIDI
CTRL 10	BnH 0AH cc	Pan (default = 64 center)		MIDI
CTRL 11	BnH 0BH cc	Expression (default = 127)		MIDI/GM
CTRL 64	BnH 40H cc	Sustain (damper) Pedal		MIDI
CTRL 65	BnH 41H cc	Portamento ON/OFF		MIDI
CTRL 66	BnH 42H cc	Sostenuto Pedal		MIDI
CTRL 67	BnH 43H cc	Soft Pedal		MIDI
CTRL 80	BnH 50H vv	Reverb program vv = 00H to 07H (default 04H)		Dream
		00H: Room1	01H: Room2	
		02H: Room3	03H: Hall1	
		04H: Hall2	05H: Plate	
		06H: Delay	07H: Pan Delay	
CTRL 81	BnH 51H vv	Chorus program vv = 00H to 07H (default 02H)		Dream
		00H: Chorus1	01H: Chorus2	
		02H: Chorus3	03H: Chorus4	
		04H: Feedback	05H: Flanger	
		06H: Short delay	07H: FB delay	

Table 4-2. Detailed MIDI Implementation (Continued)

MIDI Message	Hex Code	Description	Compatibility
CTRL 91	BnH 5BH vv	Reverb Send Level vv = 00H to 7FH	GS
CTRL 93	BnH 5DH vv	Chorus Send Level vv = 00H to 7FH	GS
CTRL 120	BnH 78H 00H	All Sound Off (abrupt stop of sound on channel n)	MIDI
CTRL 121	BnH 79H 00H	Reset All Controllers	MIDI
CTRL 123	BnH 7BH 00H	All Notes Off	MIDI
CTRL 126	BnH 7EH 00H	Mono On	MIDI
CTRL 127	BnH 7FH 00H	Poly On (default power-up)	MIDI
CTRL CC1	BnH ccH vvH	Assignable Controller 1. cc = Controller number (0 - 5Fh). vv = Control value (0 - 7Fh). Control number (ccH) can be set on CC1 CONTROLLER NUMBER (Sys. Ex. 40 1x 1F). The resulting effect is determined by CC1 controller function (Sys. Ex. 40 2x 40 - 4A)	GS
CTRL CC2	BnH ccH vvH	Assignable Controller 2. cc = controller number (00h - 5Fh). vv = control value (0 - 7Fh). Control number can be set on CC2 CONTROLLER NUMBER (Sys. EX. 40 1x 20). The resulting effect is determined by CC2 controller function (Sys. Ex. 40 2x 50 - 5A).	
RPN 0000H	BnH 65H 00H 64H 00H 06H vv	Pitch Bend Sensitivity in Semitones (default = 2)	MIDI/GM
RPN 0001H	BnH 65H 00H 64H 01H 06H vv	Fine Tuning in Cents (vv = 00 - 100, vv = 40H 0, vv = 7FH + 100)	MIDI
RPN 0002H	BnH 65H 00H 64H 02H 06H vv	Coarse Tuning in Half-tones (vv = 00 - 64, vv = 40H 0, vv = 7FH + 64)	MIDI
NRPN 0108H	BnH 63H 01H 62H 08H 06H vv	Vibrate Rate Modify (vv = 40H - > no modification)	GS
NRPN 0109H	BnH 63H 01H 62H 09H 06H vv	Vibrate Depth Modify (vv= 40H - > no modification)	GS
NRPN 010AH	BnN 63H 01H 62H 0AH 06H vv	Vibrate Delay Modify (vv = 40H - > no modification)	GS
NRPN 0120H	Bnh 63H 01H 62H 20H 06H vv	TVF Cutoff Frequency Modify (vv = 40H - > no modification)	GS
NRPN 0121H	BnH 63H 01H 62H 21H 06H vv	TVF Resonance Modify (vv = 40H - > no modification)	GS
NRPN 0163H	Bnh 63H 01H 62H 63H 06H vv	Env. Attack Time Modify (vv = 40H - > no modification)	GS
NRPN 0164H	BnH 63H 01H 62H 64H 06H vv	Env. Decay Time Modify (vv = 40H - > no modification)	GS
NRPN 0166H	BnH 63H 01H 62H 66H 06H vv	Env. Release Time Modify (vv = 40H - > no modification)	GS
NRPN 18rrH	BnH 63H 18H 62H rr 06H vv	Pitch Coarse of Drum Instrument Note rr in Semitones (vv = 40H - > no modification).	GS
NRPN 1ArrH	BnH 63H 1AH 62H rr 06H vv	Level of Drum Instrument Note rr (vv = 00 to 7FH).	GS
NRPN 1CrrH	BnH 63H 1CH 62H rr 06H vv	Pan of Drum Instrument Note rr (40H = middle).	GS
NRPN 1DrrH	BnH 63H 1DH 62H rr 06H vv	Reverb Send Level of Drum Instrument Note rr (vv = 00 to 7FH).	GS
NRPN 1ErrH	BnH 63H 1EH 62H rr 06H vv	Chorus Send Level of Drum Instrument Note rr (vv = 00 to 7FH)	GS
NRPN 37xxH	BnH 63H 37H 62H xx 06H vv	Special SAM9503 features controls (see §1- above).	Dream
SYSEX	F0H 7EH 7FH 09H 01H F7H	General MIDI Reset	GM
SYSEX	F0H 7FH 7FH 04H 01H 00H ll F7H	Master Volume (ll = 0 to 127, default 127)	GM

Table 4-2. Detailed MIDI Implementation (Continued)

MIDI Message	Hex Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 00H 00H dd dd dd dd xx F7H	Master Tune (default dd = 00H 04H 00H 00H) - 100.0 to + 100.0 00H cents. Nibblized data should be used (always four bytes). For example, to tune to + 100.0 cents, sent data should be 00H 07H 0EH 08H.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 00H 04H vv xx F7H	Master Volume (default vv = 7FH)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 00H 05H vv xx F7H	Master Key-shift (default vv = 40H, no transposition)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 00H 06H vv xx F7H	Master Pan (default vv = 40H, center)	
SYSEX	F0H 41H 00H 42H 12H 40H 00H 7FH 00H xx F7H	GS Reset	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 30H vv xx F7H	Reverb Type (vv = 0 to 7), default = 04H 00H: Room1 01H: Room2 02H: Room3 03H: Hall1 04H: Hall2 05H: Plate 06H: Delay 07H: Pan Delay	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 31H vv xx F7H	Reverb Character, default 04H.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 33H vv xx F7H	Reverb Master Level, default = 64	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H GS 34H vv xx F7H	Reverb time	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 35H vv xx F7H	Reverb Delay Feedback. Only if reverb number = 6 or 7 (delays)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 38H vv xx F7H	Chorus Type (vv = 0 to 7), default = 02H 00H: Chorus1 01H: Chorus2 02H: Chorus3 03H: Chorus4 04H: Feedback 05H: Flanger 06H: Short delay 07H: FB Delay	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3AH vv xx F7H	Chorus Master Level, default = 64.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3BH vv xx F7H	Chorus Feedback	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3CH vv xx F7H	Chorus Delay	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3DH vv xx F7H	Chorus Rate	GS
SYSEX	F0H 41H 00H 42H 12H 40H 01H 3EH vv xx F7	Chorus Depth	GS

Table 4-2. Detailed MIDI Implementation (Continued)

MIDI Message	Hex Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 1pH 02H nn xx F7H	MIDI Channel to Part Assign, p is part (0 to 15), nn is MIDI channel (0 to 15, 16 = OFF). This SYSEX permits the assignment of several parts to a single MIDI channel or to mute a part. Default Assignment: Part — MIDI channel 0 — 9 (DRUMS) 1 - 9 — 0 - 8 10 - 15 — 10 - 15	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1pH 15H vv xx F7H	Part to Rhythm Allocation, p is part (0 to 15), vv is 00 (sound part) or 01 (rhythm part). This SYSEX allows a part to play sound or drumset. There is no limitation to the number of parts playing drumset. Default assignment: part 0 plays drums (default MIDI channel 9) all other parts play sound.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 40H v1 v2... v12 xx F7H	Scale Tuning, n is MIDI channel (0 to 15), v1 to v12 are 12 semitones tuning values (C, C#, D,... A#, B), in the range -64 (00H) 0 (40H) + 63(7FH) cents. This SYSEX allows non chromatic tuning of the musical scale on a given MIDI channel. Default: v1, v2,...,v12 = 40H, 40H,...,40H (chromatic tuning). Scale tuning has no effect if the part is assigned to a rhythm channel or if the sound played is not of a chromatic type.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 1AH vv xx F7H	Velocity Slope from 00H to 7FH (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 1BH vv xx F7H	Velocity Offset from 00H to 7FH (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 1FH vv xx F7H	CC1 Controller Number (00 to 5FH) (default = 10H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 1nH 20H vv xx F7H	CC2 Controller Number (00 to 5FH) (default = 11H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 00H vv xx F7H	Mod Pitch Control (-24, +24 semitone) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 01H vv xx F7H	Mod tvf Cutoff Control (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 02H vv xx F7H	Mod Amplitude Control (-100% to +100%) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 03H vv xx F7H	Mod lfo1 Rate Control (default = 40H). n is don't care. Rate is common on all channels.	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 04H vv xx F7H	Mod lfo1 Pitch Depth (0 to 600 cents) (default = 0AH).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 05H vv xx F7H	Mod lfo1 tvf Depth (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 06H vv xx F7H	Mod lfo1 tva Depth (0–100%) (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 10H vv xx F7H	Bend pitch control (-24,+24 semitone) (default = 42H)	GS

Table 4-2. Detailed MIDI Implementation (Continued)

MIDI Message	Hex Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 11H vv xx F7H	Bend tvf Cutoff Control (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 12H vv xx F7H	Bend Amplitude Control (-100 to +100) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 14H vv xx F7H	Bend lfo1 Pitch Depth (0-600 cents) (default = 0AH).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 15H vv xx F7H	Bend lfo1 Pitch Depth (default = 0H.)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 16H vv xx F7H	Bend lfo1 tva Depth (0-100%) (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 20H vv xx F7H	CAF Pitch Control (-24, +24 semitone) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 21H vv xx F7H	CAF tvf Cutoff Control (default = 40H)	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 22H vv xx F7H	CAF Amplitude Control (-100% to +100%) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 24H vv xx F7H	CAF lfo1 Pitch Depth (0-600 cents) (default = 0AH).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 25H vv xx F7H	CAF lfo1 tvf Depth (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 26H vv xx F7H	CAF lfo1 tva Depth (0-100%) (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 40H vv xx F7H	CC1 Pitch Control (-24, +24 semitone) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 41H vv xx F7H	CC1 tvf Cutoff Control (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 42H vv xx F7H	CC1 Amplitude Control (-100% to +100%) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 44H vv xx F7H	CC1 lfo1 Pitch Depth (0-600 cents) (default = 0AH).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 45H vv xx F7H	CC1 lfo1 tvf Depth (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 46H vv xx F7H	CC1 lfo1 tva Depth (0-100%) (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 50H vv xx F7H	CC2 pitch control (-24, +24 semitone) (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 51H vv xx F7H	CC2 tvf Cutoff Control (default = 40H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 52H vv xx F7H	CC2 Amplitude Control (-100% to +100%) (default = 40H).	GS

Table 4-2. Detailed MIDI Implementation (Continued)

MIDI Message	Hex Code	Description	Compatibility
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 54H vv xx F7H	CC2 lfo1 Pitch Depth (0-600 cents) (default=0AH).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 55H vv xx F7H	CC2 lfo1 tvf Depth (default = 0H).	GS
SYSEX	F0H 41H 00H 42H 12H 40H 2nH 56H vv xx F7H	CC2 lfo1 tva Depth (0-100%) (default = 0H).	GS

4.2.1 NPRN Sending Method and Example

NPRN sending method: CTRL#99 = high byte, CTRL#98 = low byte, CTRL#6 = vv

Example: NRPN 0108h = 40h - >CTRL#99 = 1, CTRL#98 = 8, CTRL#6 = 64
x or xx = “don’t care”

4.3 Sound List

4.3.1 Main Sounds General MIDI (All Channels Except 10)

Table 4-3. Program Change (PC)

PC	General MIDI	PC	General MIDI	PC	General MIDI	PC	General MIDI
1	(Grand) Piano 1	33	Acoustic Bass	65	Soprano Sax	97	FX 1 (rain)
2	(Bright) Piano 2	34	Finger Bass	66	Alto Sax	98	FX 2 (sound track)
3	(Electric Grand) Piano 3	35	Picked Bass	67	Tenor Sax	99	FX 3 (crystal)
4	Honky-tonk Piano	36	Fretless Bass	68	Baritone Sax	100	FX4 (atmosphere)
5	Electric Piano 1	37	Slap Bass 1	69	Oboe	101	FX 5 (brightness)
6	Electric Piano 2	38	Slap Bass 2	70	English Horn	102	FX 6 (goblins)
7	Harpsichord	39	Synth Bass 1	71	Bassoon	103	FX 7 (echoes)
8	Clavi	40	Synth Bass 2	72	Clarinet	104	FX 8 (sci-fi)
9	Celesta	41	Violin	73	Piccolo	105	Sitar
10	Glockenspiel	42	Viola	74	Flute	106	Banjo
11	Music Box	43	Cello	75	Recorder	107	Shamisen
12	Vibraphone	44	Contrabass	76	Pan Flute	108	Koto
13	Marimba	45	Tremolo Strings	77	Blown Bottle	109	Kalimba
14	Xylophone	46	Pizzicato Strings	78	Shakuhachi	110	Bagpipe
15	Tubular Bells	47	Orchestral Harp	79	Whistle	111	Fiddle
16	Santur	48	Timpani	80	Ocarina	112	Shanai
17	Drawbar Organ	49	String Ensemble 1	81	Lead1 (square)	113	Tinkle Bell
18	Percussive Organ	50	String Ensemble 2	82	Lead2 (sawtooth)	114	Agogo
19	Rock Organ	51	Synth Strings 1	83	Lead3 (calliope)	115	Steel Drums
20	Church Organ	52	Synth Strings 2	84	Lead4 (chiff)	116	Woodblock
21	Reed Organ	53	Choir Aahs	85	Lead 5 (charang)	117	Taiko Drum
22	Accordion (French)	54	Voice Oohs	86	Lead 6 (voice)	118	Melodic Tom
23	Harmonica	55	Synth Voice	87	Lead7 (fifths)	119	Synth Drum
24	Tango Accordion	56	Orchestra Hit	88	Lead 8 (bass + lead)	120	Reverse Cymbal
25	Acoustic Guitar (nylon)	57	Trumpet	89	Pad 1 (fantasia)	121	Guitar. Fret Noise
26	Acoustic Guitar (steel)	58	Trombone	90	Pad 2 (warm)	122	Breath Noise
27	Electric Guitar (jazz)	59	Tuba	91	Pad 3 (polysynth)	123	Seashore
28	Electric Guitar (clean)	60	Muted Trumpet	92	Pad 4 (choir)	124	Bird Tweet
29	Electric Guitar (muted)	61	French Horn	93	Pad 5 (bowed)	125	Telephone Ring
30	Overdriven Guitar	62	Brass Section	94	Pad 6 (metallic)	126	Helicopter
31	Distortion Guitar	63	Synth Brass 1	95	Pad 7 (halo)	127	Applause
32	Guitar Harmonics	64	Synth Brass 2	96	Pad 8 (sweep)	128	Gunshot

4.3.2 Sound Variations (All Channels Except 10)

To select variation: Send CTRL 0, then PC

PC = Program Change

C0 = Controller 0 value (zero for General MIDI capital sounds).

Table 4-4. Program Change with Controller 0 Value

PC	General MIDI	C0	First Variation	C0	Second Variation	C0	Third Variation
1	(Grand) Piano 1					127	Acoustic Piano 1
2	(Bright) Piano 2						Acoustic Piano 2
3	(Electric) Grand Piano 3						Acoustic Piano 3
4	Honky-tonk Piano						Electric Piano 1
5	Electric Piano 1	8	Detuned EP 1				Electric Piano 2
6	Electric Piano 2	8	Detuned EP 2				Electric Piano 3
7	Harpsichord	8	Detuned EP 3				Electric Piano 4
8	Clavi						Honky -tonk
9	Celesta						Electric Organ 1
10	Glockenspiel						Electric Organ 2
11	Music Box						Electric Organ 3
12	Vibraphone						Electric Organ 4
13	Marimba						Pipe Organ 1
14	Xylophone						Pipe Organ 2
15	Tubular Bells						Pipe Organ 3
16	Dulcimer (Santur)						Accordion
17	Drawbar Organ	8	Det. Organ				Harpsichord 1
18	Percussion Organ	8	Det. Organ				Harpsichord 2
19	Rock Organ						Harpsichord 3
20	Church Organ	8	Church Organ 2				Clavi 1
21	Reed Organ						Clavi 2
22	Accordion (French)	8	Accordion (Italian)				CLavi 3
23	Harmonica						Celesta 1
24	Tango Accordion						Celesta 2
25	Acoustic Guitar (nylon)	8	Ukulele				Syn Brass 1
26	Acoustic Guitar (steel)	8	12-string Guitar				Syn Brass 2
27	Electric Guitar (jazz)	8	Hawaiian Guitar				Syn Brass 3
28	Electric Guitar (clean)	8	Chorus Guitar				Syn Brass 4
29	Electric Guitar (muted)	8	Funk Guitar				Syn Bass 1
30	Overdriven Guitar						Syn Bass 2
31	Distortion Guitar	8	Feedback Guitar				Syn Bass 3
32	Guitar Harmonics	8	Guitar Feedback				Syn Bass 4
33	Acoustic Bass						Fantasy

Table 4-4. Program Change with Controller 0 Value (Continued)

PC	General MIDI	C0	First Variation	C0	Second Variation	C0	Third Variation
34	Finger Bass						Harmo Pan
35	Picked Bass						Chorale
36	Fretless Bass						Glasses
37	Slap Bass 1						Soundtrack
38	Slap Bass 2						Atmosphere
39	Synth. Bass 1	8	Synth. Bass 3				Warm Bell
40	Synth. Bass 2	8	Synth. Bass 4				Funny Vox
41	Violin					127	Echo Bell
42	Viola						Ice Rain
43	Cello						Oboe 2001
44	Contrabass						Echo Pan
45	Tremolo Strings						Doctor Solo
46	Pizzicato Strings						School Daze
47	Orchestral Harp						Bell Singer
48	Timpani						Square Wave
49	String Ensemble 1	8	Orchestra				String Section 1
50	String Ensemble 2						String Section 2
51	Synth. Strings 1	8	Syn Strings 3				String Section 3
52	Synth. Strings 2						Pizzicato
53	Choir Aahs						VIolin 1
54	Choir Oohs						VIolin 2
55	Synth. Voice						Cello 1
56	Orchestra Hit						Cello 2
57	Trumpet						Contrabass
58	Trombone						Harp 1
59	Tuba						Harp 2
60	Muted Trumpet						Guitar 1
61	French Horn						Guitar 2
62	Brass Section	8	Brass 2				Electric Guitar 1
63	Synth. Brass 1	8	Syn Brass 3				Electric Guitar 2
64	Synth Brass 2	8	Syn Brass 4				Sitar
65	Soprano Sax						Acoustic Bass 1
66	Alto Sax						Acoustic Bass 2
67	Tenor Sax						Electric Bass 1
68	Baritone Sax						Electric Bass 2
69	Oboe						Slap Bass 1

Table 4-4. Program Change with Controller 0 Value (Continued)

PC	General MIDI	C0	First Variation	C0	Second Variation	C0	Third Variation
70	English Horn						Slap Bass 2
71	Bassoon						Fretless Bass 1
72	Clarinet						Fretless Bass 2
73	Piccolo						Flute 1
74	Flute						Flute 2
75	Recorder						Piccolo 1
76	Pan Flute						Piccolo 2
77	Blown Bottle						Recorder
78	Shakuhachi						Pan Pipes
79	Whistle						Sax 1
80	Ocarina						Sax 2
81	Lead 1 (square)	1	Square	8	Sine Wave		Sax 3
82	Lead 2 (sawtooth)	1	Saw				Sax 4
83	Lead 3 (calliope)						Clarinet 1
84	Lead 4 (chiff)						Clarinet 2
85	Lead 5 (charang)						Oboe
86	Lead 6 (voice)						English Horn
87	Lead 7 (fifths)						Bassoon
88	Lead 8 (bass+lead)						Harmonica
89	Pad 1 (new age)						Trumpet 1
90	Pad 2 (warm)						Trumpet 2
91	Pad 3 (polysynth)						Trombone 1
92	Pad 4 (choir)						Trombone 2
93	Pad 5 (bowed)						French Horn
94	Pad 6 (metallic)						French Horn
95	Pad 7 (halo)						Tuba
96	Pad 8 (sweep)						Brass Section 1
97	FX1 (rain)					127	Brass Section 2
98	FX 2 (soundtrack)						Vibe 1
99	FX 3 (crystal)						Vibe 2
100	FX4 (atmosphere)						Syn Mallet
101	FX 5 (brightness)						Wind Bell
102	FX 6 (goblins)						Glock
103	FX 7 (echoes)						Tube Bell
104	FX 8 (sci-fi)						Xylophone
105	Sitar						Marimba

Table 4-4. Program Change with Controller 0 Value (Continued)

PC	General MIDI	C0	First Variation	C0	Second Variation	C0	Third Variation
106	Banjo						Koto
107	Shamisen						Sho
108	Koto	8	Taisho Koto				Shakuhachi
109	Kalimba						Whistle 1
110	Bagpipe						Whistle 2
111	Fiddle						Bottleblow
112	Shanai						Breathpipe
113	Tinkle Bell						Timpani
114	Agogo						Melodic Drum
115	Steel Drums						Deep Snare
116	Woodblock	8	Castanets				Electric Percussion 1
117	Taiko Drum	8	Concert BD				Electric Percussion 2
118	Melodic Tom	8	Melo Tom				Taiko
119	Synth Drum	8	808 Tom				Taiko Rim
120	Reverse Cymbal						Cymbal

4.3.3 SFX Variations (All Channels Except 10)

Table 4-5. SFX Variations (All Channels Except 10)

Program Change	Instrument Name
121	Guitar. Fret Noise
122	Breath Noise
123	Seashore
124	Bird Tweet
125	Telephone Ring
126	Helicopter
127	Applause
128	Gunshot

4.3.4 MT32 (Variation 127)

Table 4-6. MT 32 (Variation 127)

Program Change	Instrument Name
121	Castanets
122	Triangle
123	Orchestra Hit
124	Telephone
125	Bird Tweet
126	One Note Jam
127	Water Bell
128	Jungle Tune

4.4 Drumset (MIDI Channel 10)

The Drumset Program Table is presented in two parts: Table 4-7 and Table 4-8.

Table 4-7. Drumset Program Table (MIDI Channel 10)

Midi Note	Program 1 Standard	Program 9 Room	Program 17 Power	Program 25 Electronic
27 - D#1	High Q	(1)		
28 - E1	Slap			
29 - F1	Scratch Push			
30 - F#1	Scratch Pull			
31 - G1	Sticks			
32 - G#1	Square Click			
33 - A1	Metronome Click			
34 - A#1	Metronome Bell			
35 - B1	Kick Drum 2			
36 - C2	Kick Drum 1		Power Kick	
37 - C#2	Side Stick			
38 - D2	Snare Drum 1		Gated Snare	
39 - D#2	Hand Clap			
40 - E2	Snare Drum 2			Gated Snare
41 - F2	Low Floor Tom	Room Low Tom 2	Room Low Tom 2	Electronic Low Tom 2
42 - F#2	Closed Hi-hat [EXC1](3)			
43 - G2	High Floor Tom	Room Low Tom 1	Room Low Tom 1	Electronic Low Tom 1
44 - G#2	Pedal Hi-hat [EXC1]			
45 - A2	Low Tom	Room Mid Tom 2	Room Mid Tom 2	Electronic Mid Tom 2
46 - A#2	Open Hi-hat [EXC1]			
47 - B2	Low Mid Tom	Room Mid Tom 1	Room Mid Tom 1	Electronic Mid Tom 1
48 - C3	Hi Mid TOm	Room Hi Tom 2	Room Hi Tom 2	Electronic Hi Tom 2
49 - C#3	Crash Cymbal 1			
50 - D3	High Tom	Room Hi Tom 1	Room Hi Tom 1	Electronic Hi Tom 1
51 - D#3	Ride Cymbal 1			
52 - E3	Chinese Cymbal			Reverse Cymbal
53 - F3	Ride Bell			
54 - F#3	Tambourine			
55 - G3	Splash Cymbal			
56 - G#3	Cowbell			
57 - A3	Crash Cymbal 2			
58 - A#3	Vibraslap			
59 - B3	Ride Cymbal 2			
60 - C4	Hi Bongo			

Table 4-7. Drumset Program Table (MIDI Channel 10) (Continued)

Midi Note	Program 1 Standard	Program 9 Room	Program 17 Power	Program 25 Electronic
61 - C#4	Low Bongo			
62 - D4	Mute Hi Conga			
63 - D#4	Open High Conga			
64 - E4	Low Conga			
65 - F4	High Timbale			
66 - F#4	Low Timbale			
67 - G4	High Agogo			
68 - G#4	Low Agogo			
69 - A4	Cabasa			
70 - A#4	Maracas			
71 - B4	Short Whistle [EXC2]			
72 - C5	Long Whistle [EXC2]			
73 - C#5	Short Guiro [EXC3]			
74 - D5	Long Guiro [EXC3]			
75 -D#5	Claves			
76 - E5	Hi Wood Block			
77 - F5	Low Wood Block			
78 - F#5	Mute Cuica [EXC4]			
79 - G5	Open Cuica [EXC4]			
80 -G#5	Mute Triangle [EXC5]			
81 - A5	Open Triangle [EXC5]			
82 - A#5	Shaker			
83 - B5	Jingle Bell			
84 - C6	Bell Tree			
85 - C#6	Castanets			
86 - D6	Mute Surdo [EXC6]			
87 - D#6	Open Surdo [EXC6]			
88 - E6				

Table 4-8. Drumset ProgramTable (MIDI Channel 10)

MIDI Note	Program 26 TR-808 Set	Program 41 Brush	Program 49 Orchestra	Program 57 SFX Set (Partial)	Program 127 CM -64/32 (Partial)
27 - D#1	(1)		Closed Hi-hat	* (2)	*
28 - E1			Pedal Hi-hat	*	*
29 - F1			Open Hi-hat	*	*
30 - F#1			Ride Cymbal	*	*
31 - G1				*	*
32 - G#1				*	*
33 - A1				*	*
34 - A#1				*	*
35 - B1				*	Kick Drum
36 - C2	808 Snare Drum			*	Kick Drum
37 - C#2				*	Rim Shot
38 - D2	808 Snare Drum	Brush Tap	Snare Drum 2	*	Snare Drum
39 - D#2		Brush Slap	Castanets	High Q	Hand Clap
40 - E2		Brush Swirl	Snare Drum 2	Slap	Electric Snare Drum
41 - F2	808 Low Tom 2		Timpani F	Scratch Push	Acoustic Low Tom
42 - F#2	808 CHH [EXC1](3)		Timpani F#	Scratch Pull	Closed Hi-hat [EXC1]
43 - G2	808 Low Tom 1		Timpani G	Sticks	Acoustic Low Tom
44 - G#2	808 CHH [EXC1]		Timpani G#	Square Click	Open Hi-hat 2
45 - A2	808 Mid Tom 2		Timpani A	Metronome Click	Acoustic Middle Tom
46- A#2	808 OHH [EXC1]		Timpani A#	Metronome Bell	Open Hi-hat 1 [EXC1]
47 - B2	808 Mid Tom 1		Timpani B	Guitar Slide	Acoustic Middle Tom
48 - C3	808 Hi Tom 2		Timpani C	*	Acoustic High Tom
49 - C#3	808 Cymbal		Timpani C#	*	Crash Cymbal
50 - D3	808 Hi Tom 1		Timpani D	*	Acoustic High Tom
51 - D#3			Timpani D#	*	RIde Cymbal
52 - E3			Timpani E	*	*
53 - F3			Timpani F	*	*
54 - F#3				*	Tambourine
55 - G3				*	*
56 - G#3				*	Cowbell
57 - A3				*	*
58 - A#3				Applause	*
59 - B3				*	*
60 -C4				*	

Table 4-8. Drumset ProgramTable (MIDI Channel 10) (Continued)

MIDI Note	Program 26 TR-808 Set	Program 41 Brush	Program 49 Orchestra	Program 57 SFX Set (Partial)	Program 127 CM -64/32 (Partial)
61 - C#4				*	
62 - D4	808 High Conga			*	
63 - D#4	808 Mid Conga			*	
64 - E4	808 Low Conga			*	
65 - F4				*	
66 - F#4				*	
67 - G4				*	
68 - G#4				*	
69 - A4				*	
70 - A#4				Helicopter	
71 - B4				*	
72 - C5				Gun Shot	
73 - C#5				*	Vibrato Slap
74 - D5				*	*
75 - D#5				*	Claves
76 - E5				*	*
77 - F5				*	*
78 - F#5				Birds	*
79 - G5				Rain	*
80 - G#5				*	*
81 - A5				Wind	*
82 - A#5				Sea Shore	Applause
83 - B5				Stream	*
84 - C6				*	*
85 - C#6				*	*
86 - D6				*	*
87 - D#6				*	*
88 - E6			Applause	*	*
89 -F6				*	*
90 - F#6				*	*
91 - G6				*	*
92 - G#6				*	*
93 - A6					*
94 - A#6					Helicopter
95 - B6					*
96 - C7					*

Table 4-8. Drumset ProgramTable (MIDI Channel 10) (Continued)

MIDI Note	Program 26 TR-808 Set	Program 41 Brush	Program 49 Orchestra	Program 57 SFX Set (Partial)	Program 127 CM -64/32 (Partial)
97 - C#7					Gun Shot
98 - D7					*
99 - D#7					*
100 - E7					*
101 - F7					*
102 - F#7					Birds
103 - G7					Rain
104 - G#7					*
105 - A7					Wind
106 - A#7					Sea Shore
107 - B7					Stream

Notes: 1. A blank cell indicates Same sound as “Standard Set”.
2. * Indicates no sound.
3. [EXC] Sounds with the same EXC number are mutually exclusive.

Section 5

Appendix

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