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# **Soft YAMAHA Synthesizer**

## **S-YXG100**

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YAMAHA CORPORATION JAPAN

Nov. 1998

 **Features**

**Yamaha SoftSynthesizer is a virtual instrument designed to play MIDI music on a personal computer through software alone without using a hardware sound source such as a sound card.**

**S-YXG100 uses a Plug-in System, so it is possible to add Plug-in software to S-YXG100 as it becomes available in the future.**

- **YAMAHA XG Format Compatible.**
- **CODEC Independent.**
- **Simultaneous Playback Of Wave And MIDI Data.**
- **DirectSound Support.**
- **For MMX Technology.**
- **Professional Sound Quality (44 kHz Sampling Rate).**
- **Maximum Polyphony Is 128 Voices.**
- **Uses A Plug-In System.**
- **The Plug-In Software VA Sound Engine Is Included(\*1).**
- **Variety Of Controllable Effects.**

(\*1) Software VA Sound Engine is optional specifications. In some case, S-YXG100 installer doesn't include Software VA.

 **Specifications**

===== **S-YXG100 Specifications** =====

**Sound Engines**

|                      |  |
|----------------------|--|
| Format               | Wavetable synthesis  |
| Waveform size        | 2 MB   |
| Maximum Polyphony    | 128 voices   |
| Instruments          | 676 instruments + 21 drum kits/SFX kits<br>(XG mode : 480 voices + 9 drum kits + 2 SFX kits) |
| Playback frequencies | 44.1 kHz / 22.05 kHz / 11.025 kHz  |
| Output               | Stereo   |

**Dynamic Filters**

|        |                                       |
|--------|---------------------------------------|
| Filter | Time difference filter for each sound |
|--------|---------------------------------------|

**Effects**

|             |                                       |
|-------------|---------------------------------------|
| Effects Set | 3 systems (Reverb, chorus, variation) |
|-------------|---------------------------------------|

|                             |      |                   |          |
|-----------------------------|------|-------------------|----------|
|                             | Type | Reverb            | 11 types |
|                             |      | Chorus            | 11 types |
|                             |      | Variations        | 43 types |
| <b>Midi (Input Drivers)</b> |      |                   |          |
| Compatible MIDI Message     |      | GM System Level 1 |          |
|                             |      | XG                |          |
|                             |      | TG300B Mode       |          |

===== **VA Sound Engine Specifications** =====

|                               |                                      |
|-------------------------------|--------------------------------------|
| <b>Format of Sound Engine</b> | S/VA Sequence System (VLR algorithm) |
| <b>Maximum Polyphony</b>      | 1 voice (Last in First Out priority) |
| <b>Voices</b>                 | 256 VL-XG instruments                |

---

**Cautions**

1. A sound production processing time of approximately 80~400 ms (1 sec. = 1000 ms) is required from reception of MIDI data to sound production.  
\* In a DirectSound environment.
2. Cannot be operated under the DOS and MS-DOS prompt.
3. Tow more MIDI applications cannot be used simultaneously.



## Soft Operating Environment

|                       |   |
|-----------------------|---|
| <b>CPU</b>            | INTEL Pentium II 233 MHz or Higher --- When using the VA sound engine alone.<br>INTEL Pentium 166 MHz or higher -- When using S-YXG100 alone. |
| <b>OS</b>             | Windows95 / Windows 98  |
| <b>Main Memory</b>    | 16MB or more  |
| <b>Sound Function</b> | 16 bit Stereo/Monaural playback   |

\* **DirectSound Ver.5.2 is recommended.**

- In some cases when a notebook PC is used, the number of simultaneous notes cannot be assured.
- CPU conditions may vary depending on the selected playback quality. For example, When S-YXG100 is used alone, CD quality playback is possible using an MMX Pentium 166 MHz or higher CPU.

# Installation

## A: Installing the S-YXG100

It is not possible to install 2 versions of the SoftSynthesizer simultaneously.

Double-clicking Setup.exe file in the S-YXG100 folder and following the on screen instructions starts the installation process automatically. However, if there is an existing version of the SoftSynthesizer (S-YG20 or S-YXG50) already installed on your system, the S-YXG100 installation is halted. If that is the case, you should proceed with uninstalling the present version of the software as described below.

Uninstall Process:

1. Select the items <Start - Programs - Yamaha SoftSynthesizer S-YXG100 - Uninstall S-YXG100>.
2. After removal of the old version of the software, you will be prompted to re-install your computer.
3. Complete the uninstallation process by restarting your computer.

### Caution

If the YAMAHA folder or the SYXG100 folder is to be deleted, follow the above procedure to uninstall !

## B: Installation Steps and Content of Operations

The default installation of S-YXG100 will create the following folder and data file structure. In addition, commands necessary for starting up S-YXG100 will be added to the system.ini file.

### Folder and file structure

- \* C:\YAMAHA (the S-YXG100 folder within this folder).
- \* The following files are created in the C:\windows\system folder.

sxgma.drv  
sxgapi.dll  
sxgapi32.dll  
sxgcpu.dll  
sxgma32.dll  
sxgmasys.dll  
sxgmacpl.cpl  
sxgmx.dll  
sxgmx32.dll  
sxgsg.dll  
sxgsgknl.vxd  
sxgwave2.tbl  
sxgtkbar.exe  
sxgvl.dll  
sxgvlcpl.dll  
sxgvlknl.vxd  
sxgunins.dll

\* Additions to the system.ini file:

Appended to the [drivers] section

midi# =sxgma.driv

wave# =sxgma.driv

mixer# =sxgma.driv

(# signifies a number. This may not be displayed depending on the PC.)

## C: Multimedia Driver Settings

During installation, S-YXG100 is automatically set as the default MIDI driver.

<In the Audio Tab>

Audio Playback: The **Hardware device CODEC Driver** is selected as the default.

<In the MIDI tab>

MIDI Output: The **YAMAHA SXG Driver** is selected as the default.

## D: Adding a MIXER

During installation, the “**YAMAHA SXG Driver**” **MIXER** is added as the hardware device MIXER.

To display the S-YXG100 Mixer, double-clicking the speaker icon in the task bar (clock display area).

You can adjust the S-YXG100's audio volume level by adjusting the [SXG] slider. The [MIDI] slider controls the volume level of the sound card's sound engine.

Within the multimedia audio tab, if a driver other than the YAMAHA SXG Driver is selected as the “Default device” for audio playback, the mixer included in your personal computer's sound function will start up. In that case, please use the [WAVE] slider to control the volume level.

# SoftSynthesizer Settings

Performance settings can be set to match your system's performance (playback sound quality priority/CPU load reduction priority, etc.). There are 6 setting panels, including those for the Plug-in sound engines, which are supplied as standard items. If the Plug-in software is included, the numbers of panels increase automatically. (Each screen is a sample - version information differs depending on the product.)

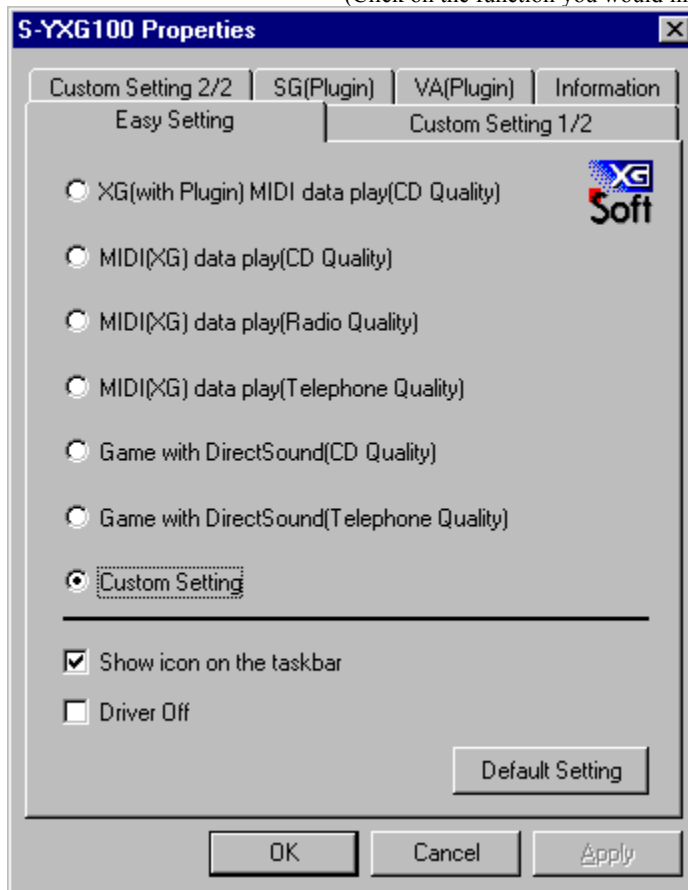
## Starting the Setting Screens

- Right-click on the XG icon on the taskbar and select “SoftSynthesizer Settings.”
- Double-click on the XG icon on the taskbar and click the started player’s [SoftSynthesizer] logo.
- Select <Start – Settings – Control Panel>, then double click on the XG Synth Driver icon.
- Select <Start – Programs – YAMAHA SoftSynthesizer S-YXG100 – S-YXG100 setup>.

## Panel 1: Simple Settings

Select the use and set the sound source. Sound sources can also be disabled so they won’t start. If you are making corrections in the use selection, also go to “Detailed Settings 1/2” and “Detailed Settings 2/2” and make adjustments there.

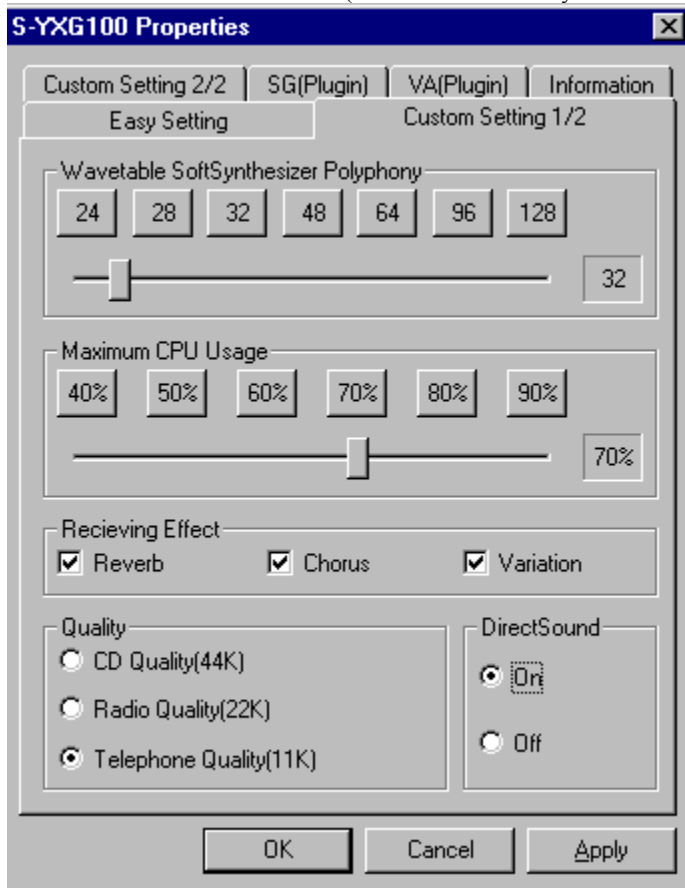
(Click on the function you would like to know more about.)



## Panel 2: Detailed Settings 1/2

Here adjustments are made to match the playback data, software, operating environment of the personal computer you are using, etc.

(Click on the function you would like to know more about.)

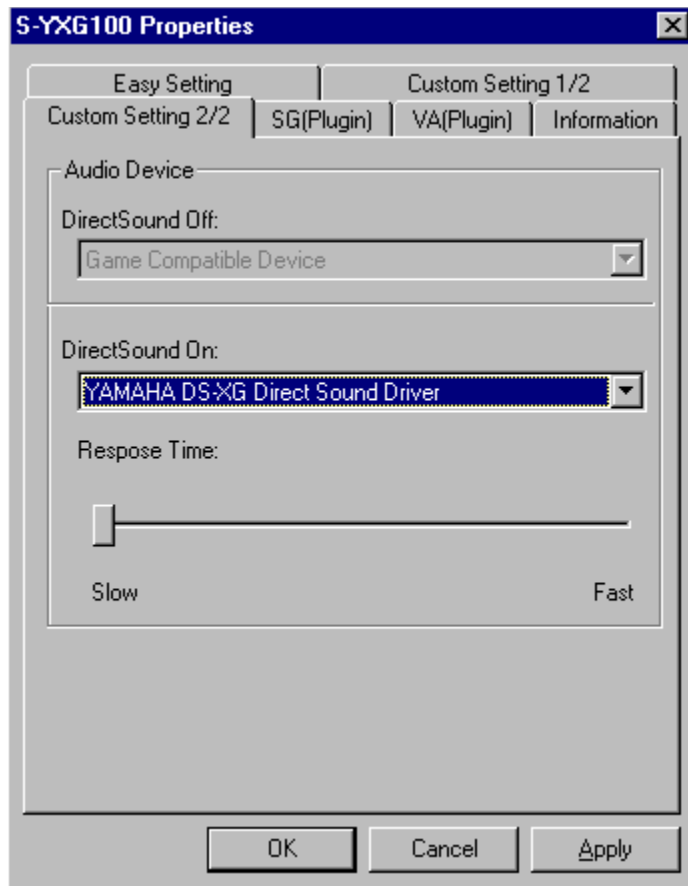


### Panel 3: Detailed Settings 2/2

If you are selecting an audio playback device, the S-YXG100 sound production response time when DirectSound is being used is adjusted.

(Click on the function you would like to know more about.)

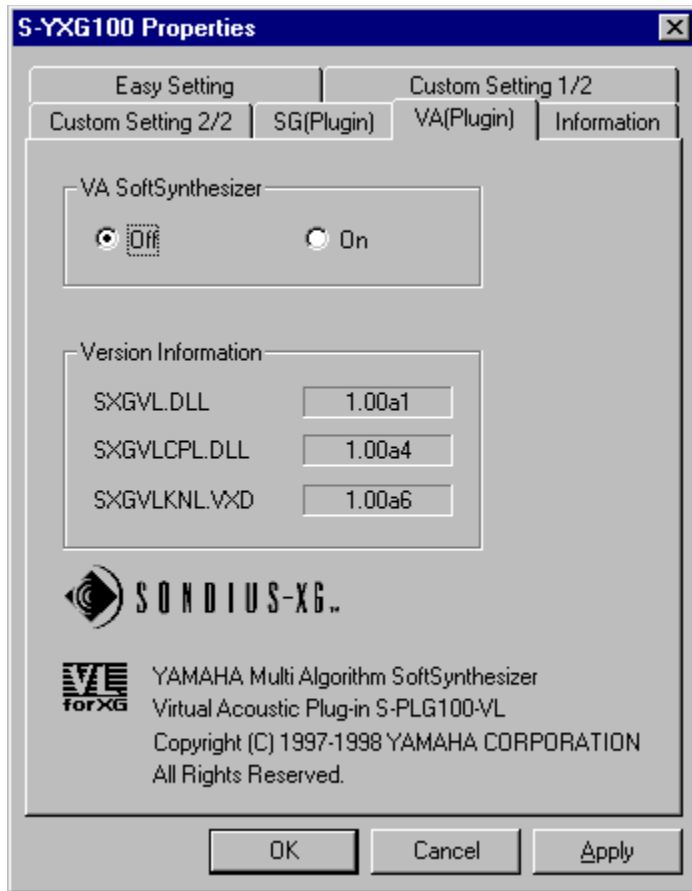




**Panel 4: VA Sound engine (Plug-in)**

This turns the VA sound engine ON or OFF. The configuration module unit's version is displayed.

(Click on the function you would like to know more about.)



**Panel 5: Information**

The version is displayed in configuration module units.

(Click on the function you would like to know more about.)


**S-YXG100 Properties** [X]

Easy Setting | Custom Setting 1/2

Custom Setting 2/2 | SG(Plugin) | VA(Plugin) | Information

Version Information

|              |          |
|--------------|----------|
| SXGMA.DRV    | 1.00a6   |
| SXGAPI.DLL   | 1.00a6   |
| SXGAPI32.DLL | 1.00a6   |
| SXGMA32.DLL  | 1.00a6   |
| SXGMASYS.DLL | 1.00a6   |
| SXGMACPL.CPL | 1.00a6   |
| SXGMX.DLL    | 1.00a3   |
| SXGMX32.DLL  | 1.00a2   |
| SXGXG.DLL    | 1.00a2   |
| SXGXGKNL.VXD | 1.00a6   |
| SXGWAVE2.TBL | MU50 2MB |
| SXGTKBAR.EXE | 1.00a7.0 |



YAMAHA Multi Algorithm SoftSynthesizer S-YXG100  
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OK Cancel Apply

**XG (with plug-in) Song File Playback - High Sound Quality**

XG song files containing VA sound engine data are played back at CD-quality fidelity (44 kHz).

CPU Requirements: Pentium II at 266 MHz ~ when using the VA sound engine.

**MIDI (XG) Sound File Playback - High Sound Quality**

XG/GM song files are played back at CD-quality fidelity (44 kHz).

CPU Requirements: MMX Pentium at 166 MHz ~

**MIDI (XG) Sound File Playback - Medium Sound Quality**

XG/GM song files are played back at radio-quality fidelity (22 kHz).

CPU Requirements: MMX Pentium at 166 MHz ~

**MIDI (XG) Sound File Playback - Low Sound Quality**

XG/GM song files are played back at telephone-line-quality fidelity (11 kHz).

CPU Requirements: Pentium at 166 MHz ~

**DirectSound compatible games - Medium Sound Quality**  
Song files are played back at radio-quality fidelity (22 kHz).



**DirectSound compatible games - Low Sound Quality**

Song files are played back at telephone-line-quality fidelity (11 kHz).

**Custom Settings**

Select this item when you are not making simple settings and only the necessary items are being set. It is also possible to change the items on other pages after selecting simple settings.

**Show icon on the taskbar.**

Adds an icon to the task bar for starting up the Player.

Right-clicking on the icon enables you to select the SoftSynthesizer settings or the help function.

**Driver Off**

This item disables the S-YXG100.

It is necessary to restart your PC for the ON/OFF selection to take effect.

**Default settings.**

This is the same as selecting XG (with Plug-in) song file playback (high quality).

**OK**

Changes made to all selected settings since starting the panel will become effective. It will then close the panel.

**Cancel**

This will nullify all the settings that have been changed since starting the panel. It will then closes the panel.

**Apply**

This will temporarily make the changes to the settings that had been changed since starting the panel (for temporary confirmation).



**Wavetable SoftSynthesizer Polyphony**

This sets the number of simultaneous notes that need to be generated (Polyphony) in playback.

The CPU load increases as you increase the value.

The default setting is 32 notes.

For details, please read “Maximum Number of Simultaneous Sounds” under “Sound Engine Functions.”

**Maximum CPU Usage**

This sets the available CPU capacity (CPU load) that can be used by SoftSynthesizer.

The SoftSynthesizer's performance can be improved by increasing this value.

The default setting is at 70%.

Please note that even if this value is made smaller, depending on the volume of data in a MIDI file, some sounds may still be omitted.

**Receiving Effect**

This can be used to turn ON or OFF data related to various kinds of effects.

The default is set at the ON position for all three effects.

In song files, which contain no effect-related data, activation of effects is not indicated.

**Reference**

The S-YXG100 Player's effects function enables effect results to be added even to song files, which include no effect-related data.

**Quality**

The playback sound quality (sampling rate) can be set.

A higher quality of sound can be obtained by a larger numerical value set. However, the load imposed on the CPU increases accordingly.

The default setting is for CD-quality fidelity (44 kHz).

Depending on the MIDI file, there may be circumstances where there is no sound in the file.

Try reducing the values for the maximum polyphony and for the maximum CPU-usage rate.

**DirectSound**

Set this ON/OFF when it is necessary to make adjustments in relation to DirectSound.

The default setting is ON.

The S-YXG100 sound production response setting is limited to the ON position.

If DirectSound is not installed, the ON position cannot be selected.

**Audio Device Setting (DirectSound ON/OFF)**

The device used to play back WAVE files can be set each time DirectSound is turned ON or OFF.  
If there are multiple internal sound cards, the desired output destination may be selected.  
If there is only one internal sound card, it is not necessary to change the settings.

**Response**

This adjusts the sound production processing time from the point when the SXG driver receives the MIDI data until the sound is produced.

Sound production processing time is related to <CPU Processing> and <CODEC Processing>.

The setting is made to match the load condition (sounds are cut off, etc.), but when adjustment is not necessary, leave the setting on <Slow>.

CPU processing takes 61~371 ms (1 sec. = 1000 ms) and the CODEC processing time (in the standard, this is within 20 ms) is added to this.

This adjustment is effective only when DirectSound is on.

**VA SoftSynthesizer**

The VA sound engine is activated when this item is selected and then the Update or OK buttons are pressed.  
(it is not necessary to restart your PC).

It is turned on automatically if [XG (with Plug-in) Song File Playback – High Sound Quality]  
is selected in the simple settings.



**Sondius-XG**

This sophisticated program is made possible through a combination of patents obtained on the “Physical Model Sound engines” held by the Stanford University, as well as software development tools and patents related to “Physical Model Sound engines” held by Yamaha, in addition to patents related to the “Wave Table Sound Sources”, “XG Format”, and technical licenses which summarizes the know-how involved in both.

The VA sound engine is consisted of one “Physical Model” sound engine.

For details: [News Release Page](#)

([Click here to access the Yamaha Home Page via the Internet.](#))

### **Version Information**

This shows the version of the modules (files) that compose each sound engine.



# Sound Engine Function

The following description is for the S-YXG100 (VA sound engines are proportional) SoftSynthesizer.

## **Performance Mode**

S-YXG100 is equipped with two performance modes, **XG** and TG300B, and they start in the XG mode. If you are playing back the song data from a commercially available XG song collection or GM song collection, the performance mode specification signal recorded at the beginning of the data (exclusive message) is read and the XG automatically selects the performance mode to match.

Even if you are creating song data yourself, you can do so in such a way that, when the XG system is turned ON and other exclusive messages are included at the top of the data, the performance mode will also be switched automatically.

- All the settings are initialized when the computer is started up.
- A period of approximately 0.5 sec. is required to switch the performance mode automatically. It is recommended that a few blank measures be left between the performance mode message and the performance data.

## **XG Mode**

This mode uses multiple sound engines which are compatible with XG.

By playing back commercially available song data with the XG mark, complex functions, from tone production to effects processing, can be fully utilized to facilitate enjoyment of splendid performances.

This program also functions as a multi-sound engine which is fully compatible with the **GM system level 1**, so the performance quality of the commercially available song data with the GM mark will be excellent.

Number of usable parts: 16 parts

Number of usable voices: 480 normal instruments + 11 drum instruments (including 2 SFX kits)

## **TG300B Mode**

In this mode, S-YXG100 can be used as an XG compatible multi-timbral tone generator.

## **Voice (Wave)**

A voice is a tone program that is basically configured from the elements (basic waveform data) which, in turn, are the smallest units of a sound engine.

Among S-YXG100 voices, there are two types, the 1-element type and the 2-element type. In particular, voices which are configured from 2-element type voices are thick voices or voices that change in tone when the keys of a keyboard are being played rapidly (velocity value). These are used in voices where different sounds are blended together, such as a piano and strings, or sounds that invoke a feeling of presence.

The maximum number of simultaneous sounds is determined by the number of elements.

## **Normal Voice and Drum Voice**

There are two types of voices, the normal voice and the drum voice.

- A normal voice is an instrument sound that expresses musical intervals matching the notes of a keyboard (or effect sounds). When simply expressing a voice, a normal voice is specified.
- A drum voice is a special voice that assigns the tone of a drum, percussion instrument or effect sound to each note (of a keyboard). There are many drum voices with a name like <xxx Kit>.

In a normal type voice, the musical interval changes according to the rapidity with which the keys are played (the notes received). However, with the drum voice, only the tone assigned to that keyboard sounds, and the musical interval information has no relationship to the tone.

## **Maximum Number of Simultaneous Voices**

S-YXG100 is capable of playing up to 128 voices simultaneously.

These 128 voices are calculated in element units. As was explained earlier, there are 1-element voices and 2-element voices. The overall number of sound engine that can be used is 128 when voices configured of the 1-element voices are used, but when voices configured by blending 2-element voices are used, the total number of voices will be fewer.

If certain performance data is received that exceeds the maximum number of simultaneous sounds, it will be forcibly omitted from the sound as it is reproduced. The latest performance information sent will be given priority when sounds are generated. (latest has priority)

## **Priority Order in Generating Parts**

When the maximum number of voices that can be played simultaneously is exceeded, voices are generated in the order of priority shown below.

### **Channel (Part) Sound Generation Priority Order**

10 (Drum Part) - 1 - 2- 3 - 4 - 5 -6- 7 - 8- 9- 11- 12- 13- 14- 15- 16

By assigning major parts such as the melody and bass to a channel with a high priority level, even if the maximum number of sounds that are generated simultaneously is exceeded, the result will not be considerably detracting from the atmosphere of the song.

## **Element Reserve**

This function assures the number of specified channels (parts) are preserved even if the maximum number of sounds that can be generated simultaneously is exceeded.

For example, if the element reserve for a given part is set at "10," the number of elements preserved for that part is set at 10, without any relation to the part generation priority order.

Sending an element reserve message through the "XG Native Parameter Change" sets element Reserve.

## **Instruments Selection (Bank Number and Program Number)**

S-YXG100 can reproduce 676 normal instruments sounds and 21 drum kits.

The program numbers which select voices are 1~128. In order to select voices exceeding 128 types, a bank number and program number are used in combination.

The basic 128 voices, when applied without using bank numbers, are compatible with GM system level 1.

### **Program Change Number and Program Number**

The program change number has a range of 0~127, and the program number has a range of 1~128, so depending on the sequencer and sequence software, the set values may differ by one. Please confirm this by reading the user's manual of the sequencer or that of the sequence software you prefer to use.

## **Effects**

S-YXG100 includes 2 sets of system effects: **reverb effects** (11) and **chorus effects** (11). It also features a set of **variation effects** (43) which is an insertion effect that can be used in conjunction with the other 2 system effects, for a total of 3 sets of system effects.

**System Effects:** A type of effect which acts through signals sent to and received from all the parts.

**Insertion Effects:** Effects which can be used by 1 specified part.

Setting of the type of effect can be set and changed through "XG Native Parameter Change."

# XG Player

## Major Functions

### MIDI File Continuous Playback Function (Max. 100 songs)

If the playback file is for the VL sound engine, the VL mark is displayed beneath the XG mark.

### Tempo/Key Change Function

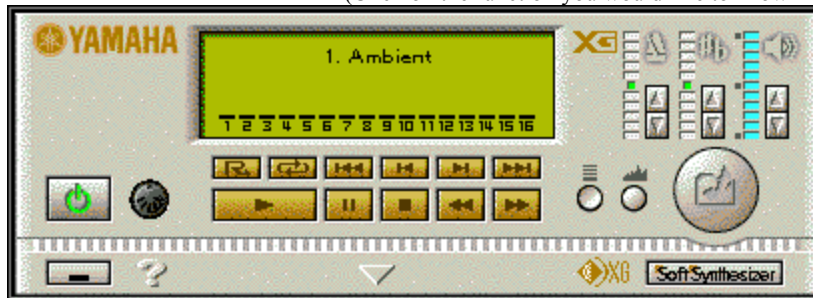
### Effects Adding Function

Effects such as reverb, echo and chorus can be added to playback sounds.

### Smart Arrangement Function

This changes the instrument arrangement in one stroke.

(Click on the function you would like to know more about.)



**YAMAHA logo (Version Information Display)**

This displays the Player's version information.

The [Information] button in this display is a clickable link that connects to the Yamaha Home Page via the Internet.

**POWER (End)**

This ends the S-YXG100 Player.

Shortcut Keys: [Alt] + [F4]

**Minimize Display**

This minimizes the S-YXG100 Player (stores it on the Task Bar).



**Sound Engine Settings**

Clicking on this opens the Sound engine Settings Dialog box.

It does not function during a performance or during a pause.

<MIDI Output Port>

Sound sources other than the SoftSynthesizer can be used.

Select a MIDI driver corresponding to the sound source you desire to use.

Please see the operation manual for each respective MIDI sound source or sound card concerning the MIDI driver.

**Help**

This displays helps. Help is not functional during performance.

Shortcut Key: [F1]

**Random Playback**

Plays back multiple songs in the song list in a random order.

**Repeat Playback**

After playing multiple songs consecutively from the song list, it repeats playback of the same sequence of songs over and over again until the Pause or Stop button is pressed. This is a convenient feature when it is used as background music.

**Playback**

Reads the MIDI file for the song that currently has its name displayed in the display panel and begins performing it.

When the performance ends, performance of the next song begins.

When performance of all the MIDI files on the song list is ended, the Player stops and the name of the song at the top of the song list is displayed in the display panel.

The Playback button does not function if no song list has been created.

**Select Top Song**

This selects the song that is at the top of the song list (P).

**Pause**

This temporarily stops a song that is being played.

Clicking the Pause button again or the Play button results in continuation of playback of the interrupted song from the point where it was stopped.

**Select Previous Song**

Selects the song that is registered just before the currently selected song (the song that currently has its name displayed in the display panel).



**Stop**

This stops playing and returns the player to the top position of the song, where playing begins.

**Select Next Song**

Selects the song that is registered just after the currently selected song (the song that currently has its name displayed in the display panel).

**Rewind**

Returns performance to the Playback position.

The adjustment time and the total time are displayed in the data display only while the button is being pressed.

**Select Final Song**

This selects the song that is at the end of the song list (P).

**Fast Forward**

Moves the performance ahead to the Playback position.

The adjustment time and the total time are displayed in the data display only while the button is being pressed.

**Level Meter Display**

This displays the song name for the selected song and the 16-track volume level monitor. Pressing the right button cuts off the display.

**Performance Meter Display**

This displays the CPU usage rate and the number of notes currently being produced while the song is in a playback state. Pressing the left button cuts off the display.

**Tempo Control**

This enables adjustment of the tempo or speed of a performance.

The tempo can be changed during a performance or when it is stopped.

It is reset when playback changes to another song.

▲ Up Button : The tempo is increased each time it is clicked.

▼ Down Button : The tempo is decreased each time it is clicked.



**Key Control**

This increases or decreases the overall musical interval of the performance by half note units.

It is reset when playback changes to another song.

\* Up Button : The musical interval is increased each time it is clicked.

\* Down Button : The musical interval is decreased each time it is clicked.

**Volume Control**

This adjusts the Playback Volume.

As long as it is not changed (until you stop), the adjustment remains in effect.

\* Up Button : The volume is raised each time it is clicked.

\* Down Button : The volume is lowered each time it is clicked.

Reference

Clicking the speaker mark on the task bar enables your PC's overall volume to be adjusted, but if you double click on it, individual volume adjustments can be made.

**Song Selection**

This creates a list of songs to be performed automatically in the Song List Setting Dialog.

Shortcut Keys: [Ctrl] + [O]

\* A maximum of 100 songs can be registered and played back continuously.

**Up to 100 song files can be recorded and erased.**

{bmc list.bmp}

**Procedure for Creating a Song List**

- 1 Select the directory where the MIDI file is located in "File Location."
- 2 Select the MIDI file by the file name. (Or click on the file name.)
- 3 Click the Add (A) button and the selected MIDI file will be added to Song List (P).  
Clicking on the Add All (L) button causes all the MIDI files to be added to the "Song List (P)."

----- Erasing Recorded Files -----

A: Click on an unneeded file in the "Song List (P)", then click Erase (E) to erase the song.

B: Clicking the Clear (C) button erases all the MIDI files.

- 4 Clicking the OK button sets the contents of the Song List (P) and closes the list creation operation.

Clicking the Cancel button causes the program to disregard any changes made to the list by being recorded or erased and closes the list creation operation.

MIDI files that can be used are standard MIDI files (the format is 0/1).

## Effects/Smart Arrangement Panel Display

This panel is used to add reverberation, echo and other effects to playback sounds, as well as carry out changes in the instrument arrangement (smart arrangement). For example, it is possible to change rock music to an Orgel (music box) performance in a large hall.

Each time the button is pressed, the display toggles between the ON and OFF state.

### Effects Block (Top row)

When this is selected, the button display becomes bright.

The results remain in effect only when one song is being performed (including pause and play), and it is reset at the start of the next song.

### Smart Arrangement Block (Bottom row)

When this is selected, the button display becomes bright.

Click on the bright button to return to the original instrument arrangement.

(Click on the function you would like to know more about.)



(Press "Return (B)" in the HELP Menu to return to the original display.)

**Hall (Reverb – Deep)**

The reverb effect of a large space is obtained.

As a result, reverberations last a long time.

**Room (Reverb Shallow)**

The reverb effect of a small space is obtained.

As a result, reverberations fade out quickly.

**Live Stage**

The reverb and echo effects of a large space are obtained.

As a result, it feels like hearing a live performance from a seat in the concert hall.



**Delay**

A short echo effect is obtained.

**Echo**

A long echo effect is obtained.

**Auto Pan**

An effect of the sound moving from left to right at fixed intervals is obtained.

**Flanger**

The effect of the sound undulating is obtained.

**Chorus**

This will provide an effect of multiple sounds being output simultaneously to just one sound that is being played. This creates a feeling of depth and richness.

**Piano**

All the parts are played with a piano sound.

**Orchestra**

Each part is played as an orchestra instrument.

**Percussion Instrument**

All the parts are played as a marimba, vibraphone or other percussion instrument.



**Synthesizer**

Each part is played as a synthesized sound.

**Choir**

Each part is played as the voices of a choir (aaa, uuu).

**Techno**

Each part is played as a synthesized sound.

**Music Box**

Each part is played as a Music Box sound.

**Healing**

All parts are played as an SFX type voice such as a wave, bird's call or pistol shot.

**Effect Control**

The original playback volume is otherwise adjusted so that it is the volume of the effect only.

### **SoftSynthesizer Setting Panel Display**

This panel is used to use sound sources other than SoftSynthesizer and make settings which match the playback files.



# MIDI Implementation Chart

YAMAHA [ SoftSynthesizer Driver ]

Date:21-JUL-1998

MODEL SXG Driver MIDI Implementation Chart Version : 1.0

| Function ...         | Transmitted | Recognized      | Remarks            |
|----------------------|-------------|-----------------|--------------------|
| :Basic Default       | : x         | : 1 - 16        | :                  |
| :Channel Changed     | : x         | : 1 - 16        | :                  |
| : Mode Default       | : x         | : 3             | :                  |
| : Mode Messages      | : x         | : 3,4(m = 1) *2 | :                  |
| : Mode Altered       | : *****     | : x             | :                  |
| :Note                | : x         | : 0 - 127       | :                  |
| :Number : True voice | : *****     | : 0 - 127       | :                  |
| :Velocity Note ON    | : x         | : o 9nH,v=1-127 | :                  |
| : Note OFF           | : x         | : x             | :                  |
| :After Key's         | : x         | : o *1          | :                  |
| :Touch Ch's          | : x         | : o *1          | :                  |
| :Pitch Bender        | : x         | : o 0-24semi *1 | :                  |
| : 0,32               | : x         | : o *1          | :Bank Select       |
| : 1,5,7,10,11        | : x         | : o *1          | :                  |
| : 6,38               | : x         | : o             | :Data Entry        |
| : 64-67              | : x         | : o *1          | :                  |
| : Control 71-74      | : x         | : o             | :Sound Controller: |
| : Change 84          | : x         | : o             | :Portamento Cntrl: |
| : 91,93,94           | : x         | : o             | :Effect Depth      |
| : 96-97              | : x         | : o *1          | :RPN Inc,Dec       |
| : 98-99              | : x         | : o *1          | :NRPN LSB,MSB      |
| : 100-101            | : x         | : o *1          | :RPN LSB,MSB       |
| : 120                | : x         | : o             | :All Sound Off     |
| : 121                | : x         | : o             | :Reset All Cntrls: |
| : Prog               | : x         | : o 0-127       | :                  |
| :Change : True #     | : *****     | :               | :                  |
| :System Exclusive    | : x         | : o *3          | :                  |
| :System : Song Pos.  | : x         | : x             | :                  |
| : : Song Sel.        | : x         | : x             | :                  |
| :Common : Tune       | : x         | : x             | :                  |
| :System :Clock       | : x         | : x             | :                  |
| :Real Time :Commands | : x         | : x             | :                  |



:Aux :Local ON/OFF : x : x : :  
: :All Notes OFF: x : o (123-127) : :  
:Mes- :Active Sense : x : x : :  
:sages:Reset : x : x : :  
:-----+-----+-----+-----:

:Notes: \*1 ; receive if switch is on. :  
: \*2 ; m is always treated as "1" regardless of its value. :  
: \*3 ; transmit/receive if exclusive switch is on. :  
: : :  
: : :

+-----+-----+-----+-----+  
Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes  
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No



## **Glossary**

**CODEC**

**CPU Load**

**Direct Sound**

**Effect**

**(Reverb/Chorus/Variation)**

**Filter**

**GM**

**MIDI**

**MMX Technology**

**Multi Sound engine**

**Polyphony**

**Plug-in System**

**Sampling Rate**

**SoftSynthesizer**

**Standard MIDI File format**

**VA Sound engine**

**Voice Processing Time**

**XG format**

**Chorus**

An effect which adds depth and thickness to musical sound. This is a system effect (it applies to the overall sound).

**CODEC**

A hardware system consisting of A/D (Analog/Digital) converter, D/A (Digital/Analog) converter, and analog mixer which is indispensable in multimedia computers. Converts the digital data generated by the soft synthesizer to analog signals for output as sound.

**CPU Load**

A parameter which determines how much processing load the SoftSynthesizer places on the your PC's CPU. Reducing the value of this parameter reduces the amount of processing power the computer assigns to the SoftSynthesizer, thereby reducing the number of simultaneous notes that can be produced.

## **Direct Sound**

This is one of the DirectX components offered by Microsoft Corporation. DirectX is a technology for high speed processing of drawings and sounds, etc. in the Windows environment.

Utilization of DirectSound by S-YXG100:

DirectSound is used to cut short the MIDI sound production processing time. It is also used in voice (WAV file) multi-processing .

Voice Multi-processing:

Ordinarily, in order to play a WAV file, a single wave device driver is used.

For that reason, simultaneous playback of multiple files cannot be done and it is not possible to play them except in sequence, one at a time.

If the DirectSound driver is installed, it operates with any DirectSound compatible software as if multiple drivers existed. Hence, it becomes possible to play multiple files simultaneously even though the sampling rates may be different.

\*DirectSound Ver. 5.2 is recommended.

**Effect**

This is a device designed to generate effects that alter sounds.

Roughly divided, there are three types of effect: Reverb; Chorus; and Variation.

Reverb and Echo are system effects.

Variation can be used both as a system effect and as an insertion effect.

**System Effect**

This effect is constructed as such that it is obtained for all the parts in common.

(The amount of the effect can be adjusted part by part.)

**Insertion Effect**

This effect is constructed as such that it is obtained for specific parts only.

**Reverb**

This effect adds reverberation to the sound.

The reverb system is an exclusive system effect.

**Chorus**

This effect adds depth and richness to the sound (the sound is felt to undulate).

The chorus system is an exclusive system effect.

**Variation**

These are effects such as reverb, chorus, delay and distortion, all of which have various results.

They can be used either as system effects or insertion effects.

**Filter**

A filter can remove or emphasize certain parts of the frequency spectrum of a sound in order to change the overall timbre. The S-YXG100 features a time-variable digital filter.



**GM System Level 1**

This is a standard tone generator voice assignment agreed upon by most musical instrument and software manufacturers. It allows MIDI music data to be played back on just about any tone generator with predictable results.

## **MIDI**

MIDI, the **M**usical **I**nstrument **D**igital **I**nterface, is a world-standard communication interface that allows MIDI-compatible musical instruments and equipment to share musical information and control one another. This makes it possible to create "systems" of MIDI instruments and equipment that offer far greater versatility and control than is available with isolated instruments.

**MMX Technology**

MMX(TM) technology significantly increases CPU processing speed, allowing many functions which could previously only be handled using dedicated hardware to be comfortably handled using only software.

Full XG compatibility has been made possible thanks to MMX(TM) technology.

**MMX Technology Pentium Processor**

This is the product name of a CPU from Intel Corporation that features the MMX technology incorporated into it.

**Multi Sound Engine**

This is a sound engine in which multiple instrument parts can be played simultaneously.

**Polyphony: Maximum Polyphony**

This is the maximum value for the number of sounds that can be generated simultaneously.

The maximum polyphony of S-YXG100 is 128 voices.

For details, please see [Sound Engine Functions](#).

**Plug-in System**

This is a function expansion system whereby related software can be added to S-YXG100.

As a standard feature, the VA sound engine has been added, as a Plug-in components, to S-YXG100.

Any existing sound engines or sound engines developed in the future that feature Plug-in capabilities may be used with S-YXG100.

**Reverb**

This effect adds reverberation to the sound.

The reverb system is an exclusive system effect.

(The Echo effect is called Delay and is a variation effect.)

**Sampling Rate**

This is the digital processing density of the original (analog) sounds. It is defined as the number of times, in a period of one second, that analog information is processed in order to convert it to data as the original sounds are undergoing digital processing.

The higher the number, the more linearly the data is processed and, as a result, the sound quality output is higher.

44K = Sound quality corresponding to the CD-quality fidelity.

22K = Sound quality corresponding to the radio-quality fidelity.

11K = Sound quality corresponding to the telephone-line quality fidelity.



**SoftSynthesizer(TM)**

A SoftSynthesizer is an advanced technology that uses the computer's CPU to perform MIDI music (using only software) without tapping into a hardware MIDI sound source.

**Variation**

These are effects such as reverb, chorus, delay and distortion.  
They can be used either as system effects or insertion effects.

**VA Sound Engine**

This is a single sound engine developed from the otherwise known “Physical Model” tone generation theory. When performance information is provided for a “Virtual instrument (physical model)” program, it results in a simulation whereby “the reaction of an actual instrument would produce this kind of sound” and then that translates into the intended sound. Wind instruments and stringed instruments sounds, for example, can be reproduced in incredible realism. Instruments with imaginary layout and structure can also be simulated.

**Voice Processing Time**

In CPU processing time, this takes between 61 to 371 ms (1 sec. = 1000 ms). The CODEC processing time (about 20 ms in most cases) is then added to the original time.

Adjustment is carried out in the [SoftSynthesizer setting screen](#).

The adjustment is effective only when DirectSound is enabled.

**XG format**

This is a next generation sound source format pioneered by Yamaha. Yamaha XG format expands on the GM System Level 1 and it is compatible with the ever increasing complexity and sophistication of the computer peripheral environment in this age. It also makes possible a rich power of expression and data continuity. An XG mark can be found on sound source devices and song data that are compatible with XG.

**Standard MIDI File (SMF)**

This is a unified standard for the format in which performance data from various computer music programs or digital instruments can be saved in a common format.

The performance data compatible with the standard MIDI file can be played back easily using music software or MIDI standard compatible electronic instruments.

Performance data can also be transferred between different music programs and electronic instruments. It is also called SMF or MIDI File.

**Drag**

This is moving the mouse pointer's position while holding down the left button on the mouse.

**Drop**

This is releasing the mouse button after dragging an object with the mouse.



## Troubleshooting

Trouble occurred during Installation or Uninstallation.

The message "Use limit was exceeded" or "Already installed" is output.

It cannot be installed.

It will not start.

The sound cannot be heard, or is not output.

The performance tempo is distorted, or the sound is choppy. Mouse reaction becomes slow.

No sound can be heard in MIDI compatible games, or it is not output.

The result sounds in MIDI compatible games are generated late.

Noise gets mixed in with the playback sound.

What is volume adjustment?

The recording volume control cannot be used.

The SoftSynthesizer cannot be used even after the driver is turned On.



## Trouble occurred during Installation or Uninstallation.

It is impossible to determine how far the installation or uninstallation process has progressed. Please perform the following deletion operations.

\*\*\*\*\* Check the screen display. \*\*\*\*\*

Depending on the Windows setting state, existing files may not be displayed.  
Please follow the procedure below (There is no effect on the computer's operation from this setting.)

- (1) Right-click the Start button and select "Explorer."
- (2) From the top menu, select [View], then [Options].
- (3) Select "Show all files."
- (4) Remove the check mark from the box in front of "Hide MS-DOS file extensions for file types that are registered."

\*\*\*\*\*

1. Select <Start – Find – Files or Folders...>.
2. Type system.ini, then press [Enter].
3. If system.ini is displayed in the search results, press [Enter]. The system.ini file will be displayed in the Memo Pad.  
¥ Delete the midi#=sxgma.driv, wave#=sxgma.driv and mixer#=sxgma.driv comments from the [drivers] item.  
(The # is a number. This will differ depending on the user's personal computer.)  
(If there are no comments, proceed to step 8.)
4. Save the system.ini file in the Memo Pad, overwriting the previous copy.
5. Close Find.
6. Select <Start – Shut down – Restart computer>.
7. Select <Start – Find – Files or Folders...>.
8. Type sxg, then press [Enter].
9. Select the following files from the search results, right click with the mouse and select <Delete>.  
sxgma.driv  
sxgapi.dll  
sxgapi32.dll  
sxgma32.dll  
sxgmasys.dll  
sxgmacpl.cpl  
sxgmx.dll  
sxgmx32.dll  
sxgxg.dll  
sxgxgknl.vxd  
sxgwave2.tbl  
sxgtkbar.exe  
sxgvl.dll  
sxgvlcpl.dll  
sxgvlknl.vxd  
sxgunins.dll
10. Close Find

## The message "Use limit was exceeded" or "Already installed" is output.

If the Uninstaller included with your SoftSynthesizer is not used to uninstall the program, uninstallation process may fail. Try deleting the files that are still remaining as indicated below:

### A: In the case of S-YXG100 / S-YXG50 Ver.2.1

Select and run <Start – Programs – YAMAHA SoftSynthesizer S-YXGxx – Uninstall S-YXGxx>.

If this does not solve the problem, run the uninstaller according to the procedure in the previous item, in S-YXG100 case. In accordance with <In the case of S-YXG50 Ver.2.0>, which follows below.

### B: In the case of S-YXG50 Ver.2.0

\*\*\*\*\* Check the screen display. \*\*\*\*\*

Depending on the Windows setting state, existing files may not be displayed.

Please follow the procedure below (There is no effect on the computer's operation from this setting.)

- (1) Right-click on Start button and select "Explorer."
- (2) From the top menu, select [View], then [Options].
- (3) Select "Show all files."
- (4) Remove the check mark from the box in front of "Hide MS-DOS file extensions for file types that are registered."

\*\*\*\*\*

1. Select <Start – Find – Files or Folders...>.
2. Type system.ini, then press [Enter].
3. When system.ini is displayed in the search results, press [Enter]. The system.ini file will be displayed in the Memo Pad.
  - Delete the comment device=vswp.vxd from the [386Enh] item.
  - Delete the comments midi#=srgb.driv, wave#=srgb.driv and mixer#=srgb.driv from the [drivers]

item.

(The 3 is a number. This will differ depending on the user's personal computer.)

(Depending on the version, there are some models which do not have the mixer#=srgb.driv

comment.)

(If both of these items have no comments, proceed to step 8.)

4. Save the system.ini file in the Memo Pad, overwriting the previous copy.
5. Close Find.
6. Select <Start – Shut down – Restart computer>.
7. Select <Start – Find – Files or Folders...>.
8. Type srg, then press [Enter].

(It is assumed that all the files found in previous searches are still remaining.)
9. Select the following files from the search results, right click with the mouse and select <Delete>.  
srgb.driv    srg05mx1.dll    srg05mx3.dll    srgbcpl.cpl    srgbsys.dll    srgwave2.tbl
10. Type mmx, then press [Enter].
11. From the search results, select the following files, then right click them with the mouse and select <Delete>.  
mmxswp00.dllmmx32x00.dll
12. Type vswp.vxd, then press [Enter].
13. From the search results, select the vswp.vxd file, then right click it with the mouse and select <Delete>.
14. Close Find.
15. Right-click the Start button, then select <Explorer>.
16. Delete the YAMAHA folder in C:, then close Explorer.
17. Select <Start – Settings – Task Bar – (T)>.

18. Click on Delete in the [Start] menu settings.
19. Select YAMAHA SoftSynthesizer S-YXG50, then click on Delete, Close and OK, in order.

**C: In the case of S-YG20**

\*\*\*\*\* Check the screen display. \*\*\*\*\*

Depending on the state of the settings of Windows, existing files may not be displayed.

Please follow the procedures below (There is no effect on the computer's operation from this setting.)

- (1) Right-click the Start and select "Explorer."
- (2) From the top menu, select [View], then [Options].
- (3) Select "Show all files."
- (4) Remove the check mark from the box in front of "Hide MS-DOS file extensions for file types that are registered."

\*\*\*\*\*

1. Select <Start - Find - Files or Folders>.
2. Type system.ini, then press Enter.
3. When system.ini is displayed in the search results, press Enter. The system.ini file will be displayed in the Memo Pad.
  - Delete the comment midi#=sgmpdrv00.dll and wave#=sgmpdrv00.dll from the [drivers] item. (# is a number. This number will differ depending on your computer.) (If there are no comments, please go to step 8.)
4. Save the system.ini file in the Memo Pad, overwriting the file so as to include the changes.
5. Close Find.
6. Select <Start - Shut Down - Restart the Computer>.
7. Select <Start - Find - Files or Folders>
8. Type sgp\*.\* , then press Enter. (It is premised that all the files found in previous searches are still remaining.)
9. Select the following 5 files from the Find results, right click the mouse and select <Delete>.
 

sgpctl.exe sgpdrv00.dll sgpm00.dll sgpswp00.dll sgpwav00.tbl
10. Close Find. (That is the end of file deletion.)
11. Select <Start - Settings - Task Bar (T).>
12. Click on Delete in the [Start] menu settings.
13. Select YAMAHA SoftSynthesizer S-YG20, then click on Delete, Close and OK, in that order.

**It cannot be installed.**

- ? Necessary Condition = Is the operating environment saturated? Check hard disk capacity, memory capacity, OS, etc.
- ? If the hard disk's capacity is insufficient, the software cannot be installed. Please delete unneeded files to provide sufficient vacant space on the hard disk for installation.

**It will not start.**

- ? Necessary Condition = Is the operating environment saturated? Check hard disk capacity, memory capacity, OS, etc.
- ? Is the correct procedure being followed during installation? Uninstall the program, then try installing it again.

- ? Is the driver section of the Softsynthesizer setting screen Control in the OFF position? Turn it ON
- ? Is there an SXG Driver being used with some other previously existing MIDI Player?

**The sound cannot be heard, or is not output.**

- ? Please check the settings and volume of the computer, amplifier, speakers, etc.
- ? Is the "YAMAHA SXG Driver" set for the computer's MIDI setting?  
Check the MIDI tab under Multimedia in the Control Panel.
- ? This software cannot be used with a 8-bit or 16-bit monaural sound card.
- ? Is there an SXG Driver being used with some other previously existing MIDI Player?
- ? If a demonstration model's use period has expired, it can be selected, but no music will be output. It cannot be used with an 8-bit sound card.

**The performance tempo is distorted, or the sound is choppy. Mouse reaction becomes slow.**

- ? This will happen if you put an extra load on the CPU during a performance by starting another application, accessing a floppy disk, or CD-ROM driver, etc.
- ? Processing requirements may exceed the performance capabilities of your CPU. Please reduce the number of sounds generated to reduce the load on the CPU and/or lower the sound quality setting in the SoftSynthesizer setting screen under Control.

**No sound can be heard in MIDI compatible games, or there does not seem to be any sound output.**

- ? S-YXG100 cannot be used in DOS mode or at the MS-DOS prompt.

**The generated sounds in MIDI compatible games are generated late.**

- ? Certain games that are not compatible with DirectSound, delays in the voice (Wave) data may be detectable.

**Noise gets mixed in with the playback sound.**

- ? Noise will be mixed in with the playback sound if you are using a computer with DirectX2 installed. In this case, the sound quality is set on 11K and DirectSound is ON when a MIDI file is played. Please install DirectX3 or 5 or use the current setup with the DirectSound feature turned OFF.
- ? If the CPU's load is increased, there will be deviations in the timing of data transfer to the CODEC. As a result, noise may be generated. In such a case, open the SoftSynthesizer setting screen and click OK. The timing discrepancy will be reset.

**What is Volume Control?**

- ? Volume can be adjusted using the volume control (mixer). Double-click the speaker icon on the right side of the task bar.  
Depending on the device which is selected as the "Default Device" for audio playback under

Multimedia in the Control Panel, the displayed mixer and the sliders may differ.

In case of a hardware device: Adjust the Wave section.

In case of the SXG Driver: Adjust in the SoftSynthesizer section.

**The recording volume control cannot be used.**

? Select Hardware Device for the “Default Device” for the Multimedia Audio Playback in the Control Panel.

The YAMAHA SXG Driver Mixer does not support recording adjustments. Select Hardware Device for the “Default Device” in the Multimedia Audio Playback of the Control Panel.

The YAMAHA SXG Driver Mixer does not support recording adjustments.

**The SoftSynthesizer cannot be used even after the driver is turned ON.**

? After switching the ON/OFF switch, click on OK, and then restart the computer.



## Connecting to the Yamaha XG Home Page!



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