S-YG20 Ver.3.0

CONTENTS

YAMAHA CORPORATION
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Features

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

Specifications

Sound Engines

Format	Wave table synthesis
Maximum Polyphony	32 notes
Voices	360 voices + 11 drum kits/SFX kits
Playback frequencies	22.05 kHz / 11.025 kHz
Output	Stereo

Effect

Type	Reverb

Midi (Input Drivers)

Compatible MIDI Message	GM System Level 1 XG

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. Can not be operated from the DOS and MS-DOS prompt.
3. Tow more MIDI applications cannot be used simultaneously.

Operating Environment

CPU	INTEL **Pentium 66** MHz or higher
OS	Windows95 / Windows 98
Main Memory	8MB or more
Sound Function	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.

Installation

A: Installing the S-YG20

SoftSynthesizer Settings

Performance settings can be set to match your system's performance (playback sound quality priority/ CPU load reduction priority, etc.). There are 4 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.)

Panel 2: Custom 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: Custom Settings 2/2
If you are selecting an audio playback device, the S-YG20 sound production response time when DirectSound is being used is adjusted.

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

Panel 4: Information
The version is displayed in configuration module units.

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

MIDI (XG) Sound File Playback - Medium Sound Quality

Sound Engine Function

Performance Mode

S-YG20 is equipped with two performance modes, **XGlite** and **GM**(GM system level 1)..
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 On and other exclusive messages are included at the top of the data, the performance mode will also be switched automatically.

XG Player

Major Functions

***MIDI File Continuous Playback Function (Max. 100 songs)**
***Tempo Change Function**

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

YAMAHA logo (Version Information Display)
This displays this Player’ s version information.
The [Information] button in this display is a link which you can click to connect to the Yamaha Home Page via the Internet.

POWER (End)
This ends the XG Player.
Shortcut Keys: [Alt] + [F4]

Minimize Display
This minimizes the XG Player (stores it on the Task Bar).

Help
This displays helps. This does not function during performance.
Shortcut Key: [F1]

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 stops a song that is being played temporarily.
Clicking on the pause button again or on the Play button causes the interrupted song to continue playing from the point where it was stopped.

Select PreviousSong
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).

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

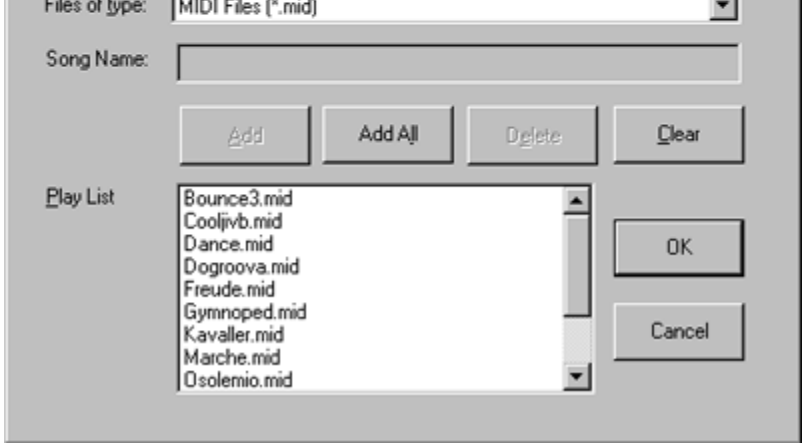
Song Name display box
By clicking in this window, you can switch between the song name display and the level meter display.

Tempo Control
The enables adjustment of the tempo (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.

Volume Control
This adjusts the playback volume.
As long as it is not changed (until you stop), the adjustment remains effective.
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 the personal computer’ 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.

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.



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.
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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).

MIDI Implementation Chart

YAMAHA [SoftSynthesizer XGlite Driver] Date:21-JUL-1998
MODEL SXG Driver MIDI Implementation Chart Version : 1.0

Function ...	Transmitted	Recognized	Remarks
Basic	Default	1 - 16	
Channel	Changed	1 - 16	
Mode	Default	3	
	Messages	x	
	Altered	**********	
Note Number		0 - 127	
	True voice	**********	0 - 127
Velocity	Note ON	x	o 9nH,v=1-127
	Note OFF	x	x
After Touch	Key's	x	x
	Ch's	x	x
Pitch Bender		x	o 0-24semi
Control Change	0,32: Bank Select	x	o
	1: Modulation	x	o
	6,38: Data Entry	x	o
	7: Volume	x	o
	10: Pan	x	o
	11: Expressino	x	o
	64: Hold1	x	o
	66: Sostenute	x	o
	91: Effect Depth	x	o
	96,97: Data Entry SW	x	o
	100,101: RPN	x	o
	120: All Sound Off	x	o
	121: Reset All Cntrls	x	o
Prog Change		o 0-127	
	True #	**********	
System Exclusive		x	o
System Common	Song Pos.	x	x
	Song Sel.	x	x
	Tune	x	x
System Real Time	Clock	x	x
	Commands	x	x
Aux Mes- sages	Local ON/OFF	x	x
	All Notes OFF	x	o (123-127)
	Active Sense	x	x
	Reset	x	x

Notes:

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

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DirectSound

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(Reverb)

GM

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CODEC
This is hardware configured from an A/D converter (analog to digital converter) and a D/A converter (digital to analog converter), and an analog mixer, and is a necessity in a computer equipped for multimedia.
The results of processing of MIDI data received by the S-YG20 (digital) are converted in the CODEC and become sound signals (analog) which can be listened to.

CPU Load
This controls the proportion of the CPU's time that can be used by the S-YG20.
If the value is made small, the S-YG20's functions are limited and the number of sounds that can be generated is reduced.

DirectSound
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 by S-YG20
DirectSound is used in shortening the MIDI sound production voice processing time and in voice (WAV file) multi-processing.

Voice Multi-processing
In order to play a WAV file, ordinarily, a single wave device driver is used. For that reason, simultaneous playback of multiple files cannot be done and there is no way to play them except one at a time in sequence.
If the DirectSound driver is installed, it operates in DirectSound compatible software as if multiple drivers existed and it becomes possible to play multiple files simultaneously (even though the sampling rates may be different).

Using DirectSound with the S-YG20 requires that DirectX5 be installed and that the sound function (CODEC) supports DirectSound.
When operating on DirectSound, use multimedia programming to specify the SXG driver in MIDI device and specify the sound function device in audio device.

*DirectSound Ver. 5.2 is recommended.

Effect
This is a device which generates effect that alter sounds.

Reverb effect adds reverberation to the sound.
The reverb system is an exclusive system effect.

System Effect
This is an effect that is so constructed that the effect is obtained for all the parts in common.
(The amount of the effect can be adjusted part by part.)

GM System Level 1
This is a formal name for “ Voice standardization standards related to voice arrangement and MIDI control functions.” It is also called GM (using the first letters of General MIDI) for short. By creating MIDI data in accordance with GM, even if the type of sound engine is different, the data can be reproduced with virtually the same nuance.
(If this standard did not exist, it would have been necessary to create MIDI data for every type of sound engine.)
The XG format is an expansion based on GM.

MIDI
This is a mnemonic for **M**usical **I**nstrument **D**igital **I**nterface. It is a standard for mutual connections between electronic devices related to music, and in reality is a unified standard that is recognized worldwide.
The instruments and related devices and computers from different makers can be connected together, and
performance information, tone information and control information, etc. can be exchanged between them.
With MIDI, other than information related to performance, such as keyboard rebound and tone selection,
various types of information, such as switching of settings and control of tempo are specified.

If these standards are utilized fully, not only can performances be done using the basic tones in S-YG20, but
tones can be processed, pan, effect and other settings can be changed, and genuine as well as intricate musical
expression can be achieved.

Multi Sound Engine
This is 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-YG20 is 32 notes.
For details, please see Sound Engine Functions.

Reverb
This effect adds reverberation to the sound.
The reverb system is an exclusive system effect.

Sampling Rate
This is the digital processing density of original (analog) sounds.
The number of times analog information is processed to convert it to data in a period of one second when original sounds are undergoing digital processing.
The higher the number, the more linearly the data are processed and the higher the sound quality that results.

22K = Sound quality corresponding to the FM radio level.
11K = Sound quality corresponding to the telephone level.

SoftSynthesizer(TM)
MIDI tone generation software is prepared in a program for the data processing structure of MIDI instruments on a computer.
Receiving MIDI data outputs sound processing data and the sound function (CODEC) converts digital sound to analog (so that the sound can be heard) for listening from audio output.

“ SoftSynthesizer” is a Yamaha trademark and it is commonly called
“ software-based synthesizer” and “ MIDI tone generation software ”

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Voice Processing Time
In CPU processing, this is 61~371 ms (1 sec. = 1000 ms), then CODEC processing time (in the standard, less than 20 ms) is added to this value.
Adjustment is carried out in the SoftSynthesizer setting screen.
The adjustment is effective only when DirectSound is on.

XGlite format

This format which expands on the GM System Level 1(adds reverberation effect).
XG data is re-produced simply in this format.

XG format

This is a next generation sound source format advocated by Yamaha which expands on the GM System Level 1, is compatible with the ever increasing complexity and sophistication of the computer peripheral environment in this age, and makes possible a rich power of expression and data continuity.
An XG mark is attached to sound source devices and song data which 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 common.
The performance data compatible with the standard MIDI file can be played back easily using music software or electronic instruments which are compatible with standard MIDI files. Performance data can also be transferred between different music programs and electronic instruments. It is also called simply 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

Q1:Trouble occurred during Installation or Uninstallation.
A1: It is impossible to determine how far the operation progressed. Please perform the following deletion operations.

********* Check the screen display. **********
Depending on the Windows setting state, existing files may not be displayed.
Please check by the following procedure. (There is no effect on the computer's operation from this setting.)
(1) Right click on Start and select " Explorer."
(2) From the top menu, select [View], then [Options].
(3) Select " Show all files."
(4) Remove the check 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 Memo Pad.
   ¥ Delete the midi#=sxgma.drv, wave#=sxgma.drv and mixer#=sxgma.drv 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 the operation in 8.)
4. Save the system.ini file in 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.drv
sxgapi.dll
sxgapi32.dll
sxgcpu.dll
sxgma32.dll
sxgmasys.dll
sxgmacpl.cpl
sxgmx.dll
sxgmx32.dll
sxgxg.dll
sxgxgknl.vxd
sgpwav00.tbl
sxgtkbar.exe

10. Type sgpwav00.dll then press [Enter].
11. Select the sgpwav00.dll file from the search results, right click with the mouse and select <Delete>.
12. Close Find

Q2:The massage "Use limit was exceeded" or " Already installed" is output.

A2: This is a case of not using the Uninstaller included with SoftSynthesizer and the resulting failure to uninstall. Try deleting the files that still remain of the model that is indicated in the message.

a) In the case of S-YG20 Ver.3.0
Select and run <Start – Programs – YAMAHA SoftSynthesizer S-YG20 – Uninstall S-YG20>.

If this does not solve the problem, run the uninstaller according to the procedure in the previous item.

b) In the case of S-YG20 Ver.1.0

********* Check the screen display. **********
Depending on the Windows setting state, existing files may not be displayed.
Please check by the following procedure. (There is no effect on the computer's operation from this setting.)
(1) Right click on Start and select " Explorer."
(2) From the top menu, select [View], then [Options].
(3) Select " Show all files."
(4) Remove the check 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 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, go to the operation in 8.)
4. Save the system.ini file in 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 sgpmod00.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 [Start] Menu settings.
13. Select YAMAHA SoftSynthesizer S-YG20, then click on Delete, Close and OK, in that order.

c) 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 check by the following procedure. (There is no effect on the computer's operation from this setting.)
(1) Right click on Start and select " Explorer."
(2) From the top menu, select [View], then [Options].
(3) Select " Show all files."
(4) Remove the check 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 Memo Pad.
   • Delete the comment device=vswp.vxd from the [386Enh] item.
   • Delete the comments midi#=sxgb.drv, wave#=sxgb.drv and mixer#=sxgb.drv 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#=sxgb.drv comment.)
(If both of these items have no comments, proceed to the operation in 8.)

4. Save the system.ini file in 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].
(It is premised 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>.
sxgb.drv sxg05mx1.dll sxg05mx3.dll sxgbcpl.cpl sxgbsys.dll sxgwave2. 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 on Start, 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.

Q3:It cannot be installed.

A3: Necessary Condition = Is the operating environment saturated? (hard disk capacity, memory capacity, OS, etc.)
If the hard disk's capacity is insufficient, this software cannot be installed. Please delete unneeded files and provide sufficient vacant space on the hard disk for installation.

Q4:It will not start.

A4: Necessary Condition = Is the operating environment saturated? (hard disk capacity, memory capacity, OS, etc.)
Is the correct procedure being following for installation? Uninstall the program, then try installing it again.
Is the driver section of the Softsynthesizer setting screen Control Off?
Is there a SXG Driver being used with some other previously existing MIDI Player?

Q5:The sound cannot be heard, or is not output.

A5: 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 a 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.

Q6: The performance tempo is distorted, or the sound is choppy. Mouse reaction becomes slow.

A6: This will happen if you put a load on the CPU during a performance by starting another application, or accessing a floppy disk or CD-ROM driver, etc.
Probably the processing being attempted is exceeding the performance capacity of your CPU. Please reduce the number of sounds generated, reduce the load on the CPU and lower the sound quality setting in the SoftSynthesizer setting screen under Control.

Q7: No sound can be heard in MIDI compatible games, or it is not output.

A7: S-YG20 cannot be used from DOS or from the MS-DOS prompt.

Q8: The result sounds in MIDI compatible games are generated late.

A8: In games which are not compatible with DirectSound, there are delays in the voice (Wave) data.

Q9:Noise gets mixed in with the playback sound.

A9: Please install DirectX5. Or use it with DirectSound turned Off.
I If the CPU' s load is increased, there will be deviations in the timing of data transfer to the CODEC, and noise may be generated. In such a case, open the SoftSynthesizer setting screen and click on OK. The timing discrepancy will be reset.

Q10:What is Volume Control?

A10: 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 mixer that is displayed and the sliders may differ.
In the case of a hardware device: Adjust in the Wave section.
In the case of the SXG Driver: Adjust in the SXG section.

Q11:The recording volume control cannot be used.

A11: Select Hardware Device for the " Default Device" for the Multimedia Audio Playback in Control Panel.
The YAMAHA SXG Driver Mixer does not support recording adjustments.

Q12:The SoftSynthesizer cannot be used even after the driver is turned On.

A12: After switching the On/Off switch, click on OK, then restart the computer. Then this switch will be effective.

Q13:Why doesn't reaction time change even though the slider for sound reaction programming is on "fast"

A13: It doesn't work because direct sound is installed and the sound function (CODEC) does not support direct sound.

Q14:Why is direct sound delayed even though the direct sound response game has turned it on?

A14: The audio device is delayed when the SXG driver is on. Choose the hardware driver.

Connecting to the Yamaha XG Home Page!

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