

The Clavinova-Computer Connection

“What can I do using a computer with the Clavinova?” “What do I need to do that?”
“How do I connect them?” We will answer these and other questions.
Please enter the world of “Clavinova & Computer”!

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- The illustrations in this site are intended only to illustrate the connections and may appear somewhat different from your Clavinova.

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What is MIDI?

To enjoy playing or composing music on a computer, you need a computer and a MIDI instrument, such as the Clavinova.

To make an analogy, think of the computer as a Russian musician and the Clavinova as a Japanese musician. Both musicians have musical knowledge and talent, but they don't speak the other's language, and thus cannot communicate. Then, they find out that both understand English. Now, they can communicate and exchange musical knowledge. In this example, English is MIDI. A computer (the Russian musician) can communicate with a Clavinova (the Japanese musician) using MIDI (their common language: English). "MIDI" is a "language that lets digital devices exchange musical information so you may enjoy computer music.

"MIDI" is a standard data format for music that is recognized by both computers and electronic musical instruments.

What can I do using the Clavinova and a computer?

You can connect the computer to the Clavinova and use different types of computer music software to do the following:

- Obtain songs that the Clavinova will display the score and/or lyrics in the LCD and synchronize the auto accompaniment with the internal style of your choice. →[Scorch XF](#)
- Practice your performance on the Clavinova at your own pace whenever you like. →[Piano Suite](#)
- The Clavinova will perform automatic playback of the performance data created by computer music software. →[XGworks](#)
- Use the Clavinova as a master keyboard to input performance data into music software. →[XGworks](#)
- Record your performance on the Clavinova to music software. →[XGworks](#)

 If performance data contains any voices that are not included in the Clavinova, playing the data using the Clavinova as the sound source will not reproduce the music correctly.

How do I connect the Clavinova to a computer?

Step 1 Which connector and port should I use?

There are four ways to connect the Clavinova to a computer.

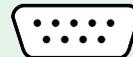
1. Using the Clavinova's TO HOST connector

Connect the TO HOST connector on the Clavinova to the serial port on the computer.

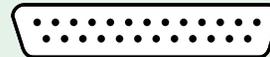
IBM-PC or compatible with Windows

A serial port on an IBM-PC or compatible computer varies depending on the model. Check the serial port on your computer.

D-sub 9-pin



D-sub 25-pin



Macintosh

Macintosh modem port



2. Using the Clavinova's MIDI connectors

Connect a MIDI interface device between the computer's serial port and the Clavinova's MIDI connector.

MIDI connectors

IN OUT.....



MIDI

3. Using the computer's USB port

Connect a USB interface device between the computer's USB port and the Clavinova's TO HOST connector or MIDI connector. Use this connection if your computer does not have a serial port but has a USB port and your Clavinova does not have a USB connector.

Computer's USB port



USB



4. Using the Clavinova's USB connector

Connect the USB connector on the Clavinova to the USB port on the computer.

Clavinova's USB connector



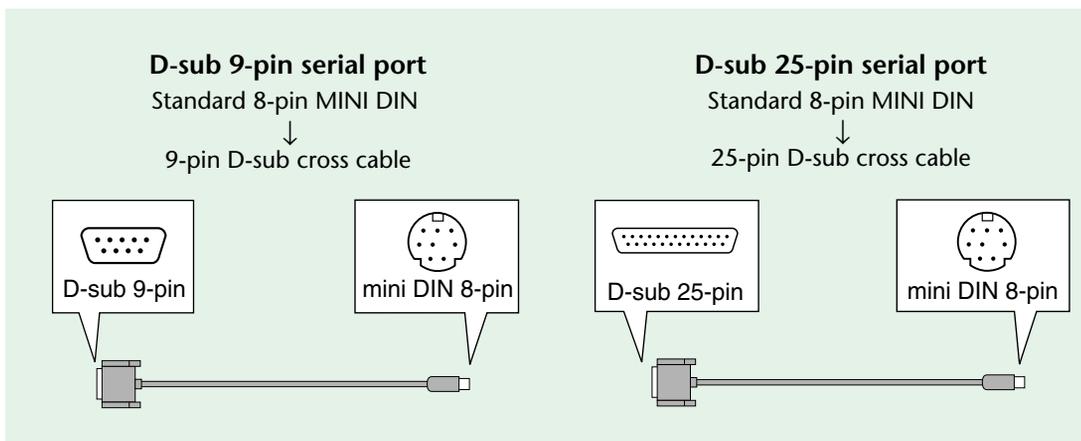
Step 2 What do I need to make the connection?

1. Using the Clavinova's TO HOST connector

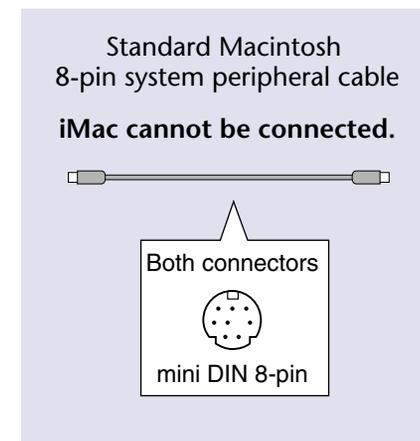
You need a serial cable. The required type varies depending on the type of the computer.

Serial cable

Windows



Macintosh



2. Using the Clavinova's MIDI connectors

You need a MIDI interface device and a MIDI cable.

3. Using the computer's USB port

You need a USB interface device, and a serial cable or a MIDI cable.

Yamaha offers the following products:

Yamaha USB-MIDI interface "UX16"
"UX96"
"UX256"

4. Using the Clavinova's USB connector

You need a USB cable.

Step 3 How do I connect the devices?

CAUTION

Before making any connections, make sure that the power to the Clavinova and the computer is turned off. Connect a cable and set the [HOST SELECT] switch. Turn on the power first to the computer, then to the Clavinova.

♪ If you are not using the connection between the Clavinova and your computer, you must disconnect the cable from the [TO HOST] connector or [USB] connector. The Clavinova may not operate correctly if a cable is left connected.

♪ If the Clavinova or the connected computer does not operate correctly after you make connection, the power to the computer may be turned off, the cable may not be connected appropriately, the [HOST SELECT] switch may not be set correctly, or the driver or MIDI application program on the computer may not function.

In this case, turn off the power to the Clavinova and the computer, and check the cable connection and the [HOST SELECT] switch setting. Then, turn on the power first to the computer, then to the Clavinova and check to see if the driver or the MIDI application program functions correctly on the computer.

♪ The connectors that can be used will depend on the setting of the HOST SELECT switch.

HOST SELECT switch setting

[MIDI]
[PC-2], [PC-1], or [Mac]
[USB]

Usable connectors

[MIDI] connectors (all: [IN][OUT][THRU])
[TO HOST] connector
[USB] connector

1. Using the Clavinova's TO HOST connector

[Click here for connection details.](#)

2. Using the Clavinova's MIDI connectors

[Click here for connection details.](#)

3. Using the computer's USB port

[Click here for connection details.](#)

4. Using the Clavinova's USB connector

[Click here for connection details.](#)

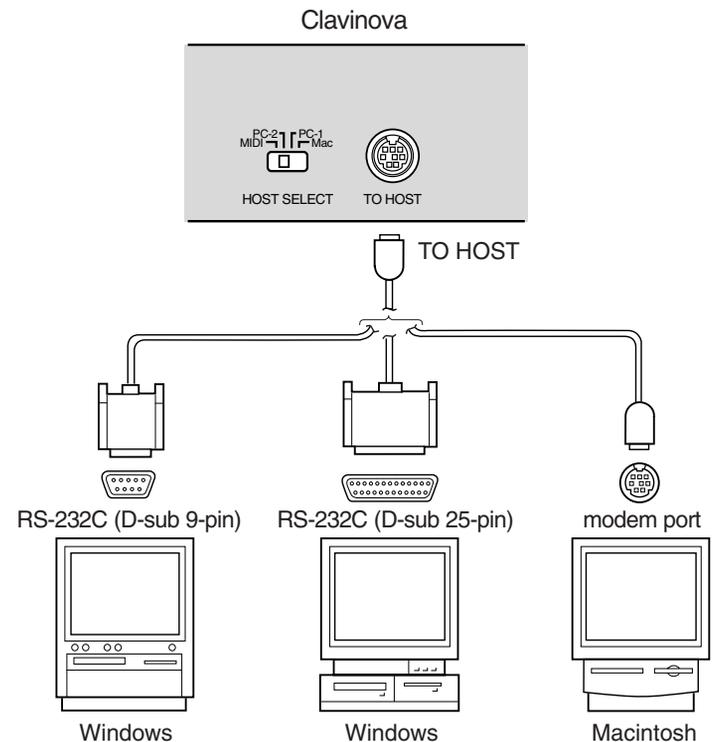
1. Connecting the serial port on a computer to the Clavinova's [TO HOST] connector

Connect the computer's serial port (RS-232C or RS-422) to the Clavinova's [TO HOST] connector. With this connection, the Clavinova functions as a MIDI interface device (a device that helps a computer communicate with a MIDI instrument). You do not need a special MIDI interface device.

You must install a MIDI driver to the computer so that the computer's serial port can handle MIDI information. [Click here for more information on the MIDI driver.](#)

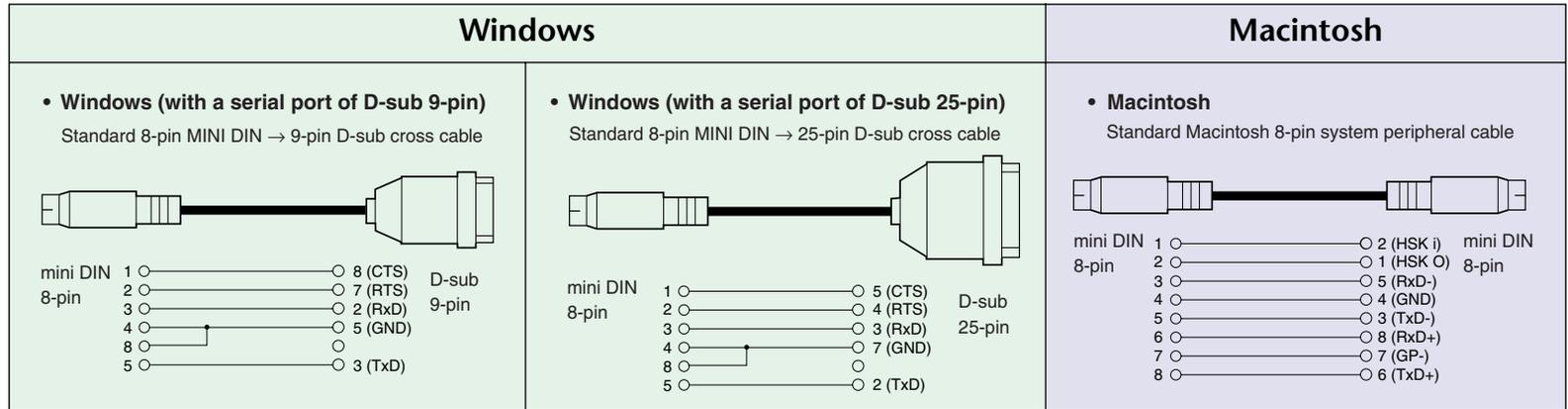
Making a connection

Use a special serial cable to connect the computer's serial port (RS-232C or RS-422) to the Clavinova's [TO HOST] connector.



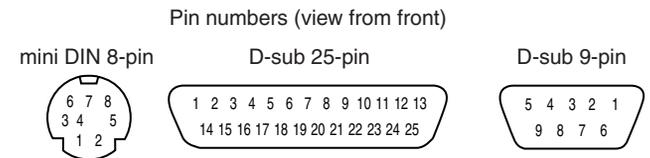
Type of serial cables and pin assignment

Choose one of the following serial cables, depending on to the type of connected computer.



- **Pin assignment**

The pin assignment of each plug is shown on the right.



Setting the Clavinova's [HOST SELECT] switch

Set the Clavinova's [HOST SELECT] switch according to the type of the connected computer.

Windows: [PC-2] (baud rate: 38,400bps)

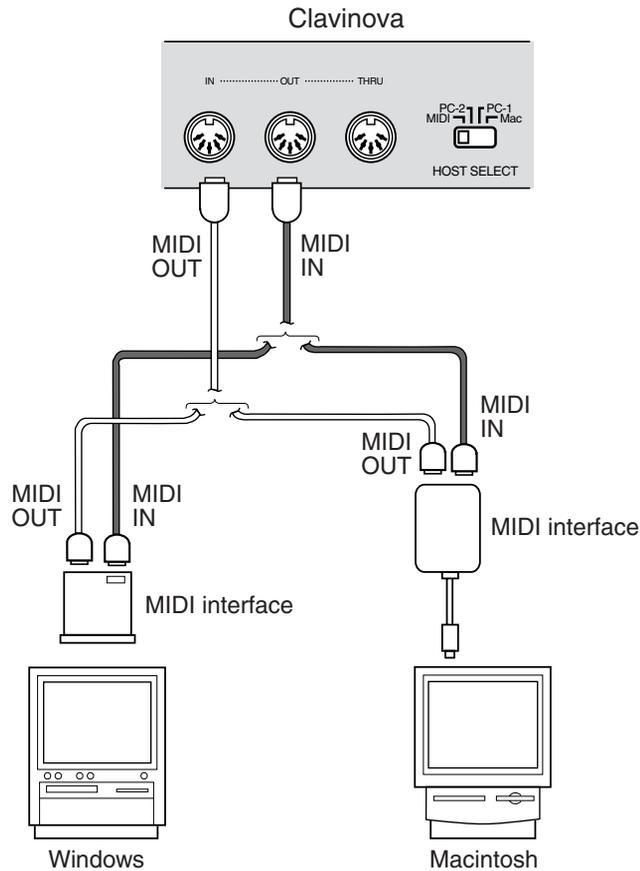
Macintosh: [Mac] (baud rate: 31,250 bps, 1MHz clock)

- 🎵 This setting may not work with some application software. Refer to the documentation of the software and set the [HOST SELECT] switch to an appropriate baud rate. (The baud rate with the [PC-1] setting is 31,250bps.)

2. Using a MIDI interface device and the Clavinova's MIDI connectors

Making a connection

Connect a MIDI interface device to the Clavinova's MIDI connectors using a special MIDI cable.



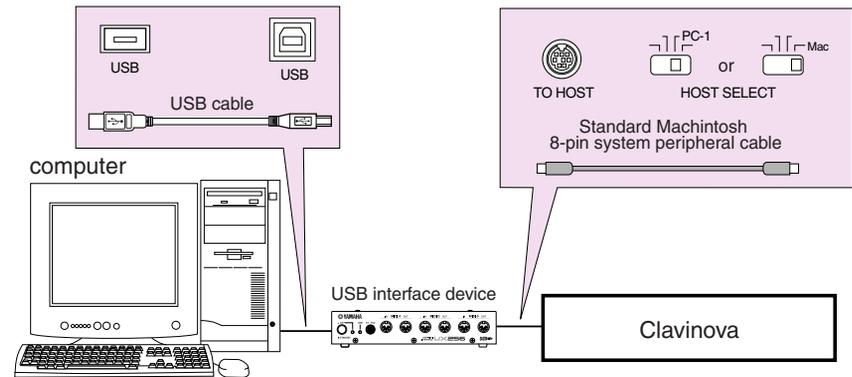
Set the Clavinova's [HOST SELECT] switch to "MIDI."

3. Using the computer's USB port to the Clavinova via a USB interface device

Use a USB cable to connect the computer's USB port and a USB interface device.
Install the MIDI driver (shipped with a USB interface device) in the computer.
Use a serial cable or a MIDI cable to connect a USB interface device and the Clavinova.
Refer to the documentation that came with a USB interface device for more information.

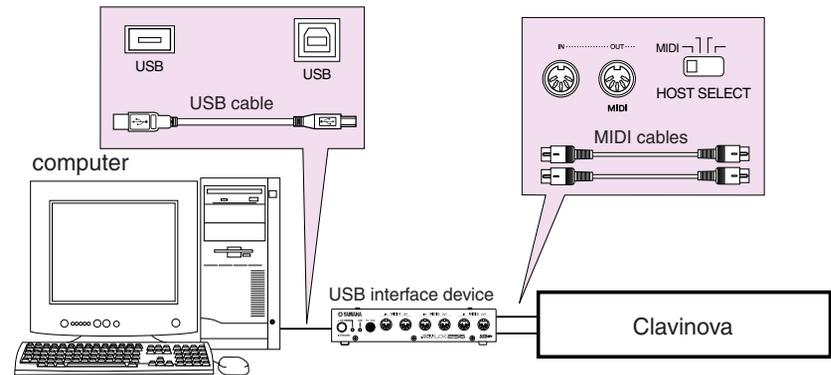
Using a serial cable to connect a USB interface device and the Clavinova:

Set the Clavinova's [HOST SELECT] switch to "PC-1" or "Mac."



Using a MIDI cable to connect a USB interface device and the Clavinova:

Set the Clavinova's [HOST SELECT] switch to "MIDI."



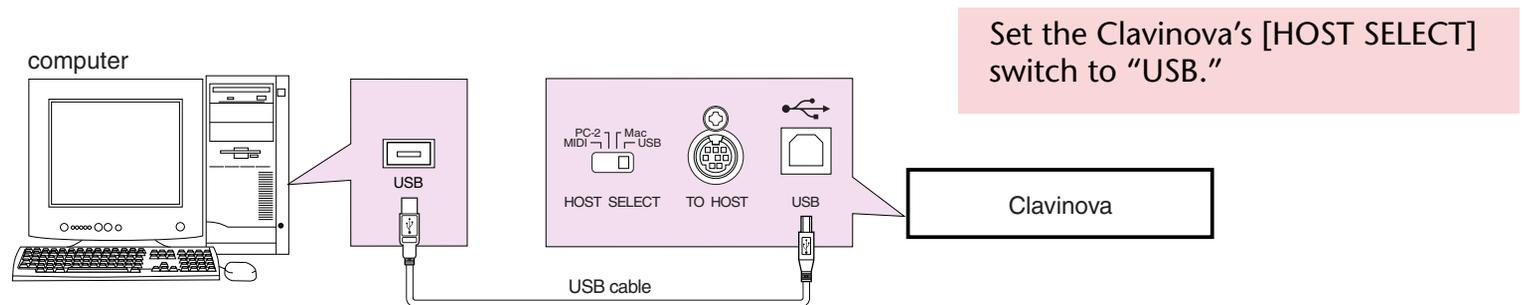
4. Connecting the USB port on a computer to the Clavinova's [USB] connector

Connect the computer's USB port to the Clavinova's [USB] connector.

You must install a USB-MIDI driver in the computer so that the computer's USB port can handle MIDI information. [Click here for more information on the USB-MIDI driver.](#)

Making a connection

Use a USB cable to connect the computer's USB port to the Clavinova's [USB] connector.



About the USB connection

- When using a USB cable to connect the Clavinova to your computer, make the connection directly without passing through a USB hub.
- Do not turn the power to the Clavinova on or off while the USB-MIDI driver is running.
- The Clavinova will begin transmission a short time after the USB connection is established.
- Depending on the state of your computer, the operating state of the Clavinova may become unstable. Do not use your computer in a way that causes it to enter an unstable state.
- If you are using Windows 2000, problems may occur on your computer when your computer starts up. In this case, turn on the power of the Clavinova when your computer is running.

CAUTION

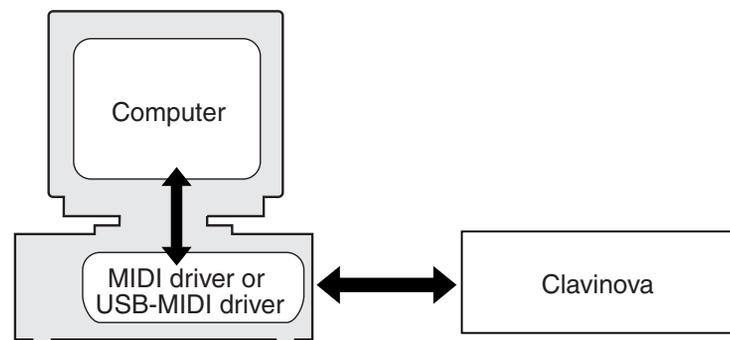
- **If you turn the power of the Clavinova on/off or connect/disconnect the USB cable in the following states, problems will occur in the computer system, possibly causing it to “freeze” (hang up), or causing the Clavinova to stop functioning.**
 - While installing the driver
 - While starting-up or shutting-down the operating system
 - While your computer is suspended (sleeping)
 - While a MIDI application is running
- **Performing the following actions may cause your computer to hang up or the Clavinova to stop functioning.**
 - Frequently turning the power on/off or connecting/disconnecting the cable
 - Shifting to power-conservation (sleep) mode while MIDI data is being transferred, or returning from sleep mode
 - Connecting/disconnecting the cable while the power of the Clavinova is on
 - Turning the power of the Clavinova on/off, starting up your computer, or installing the driver while a large amount of data is being transferred

Step 4 If you connect the Clavinova to the computer using the Clavinova's [TO HOST] or [USB] connector, make the necessary settings on the computer.

You won't hear any sound immediately after connecting the computer's serial port to the Clavinova's [TO HOST] connector or connecting the computer's USB port to the Clavinova's [USB] connector. This is because the computer does not yet recognize the information at its port as MIDI. For the computer to recognize MIDI data, you need to install "MIDI driver" or "USB-MIDI driver" software. Use "MIDI driver" when you connect the computer to the Clavinova's [TO HOST] connector using a serial cable. Use "MIDI-USB driver" when you connect the computer to the Clavinova's [USB] connector using a USB cable.

What are MIDI drivers and USB-MIDI drivers?

Have you ever installed "driver software" to allow you to use a connected peripheral device (such as a printer) from the computer? A MIDI driver and a USB-MIDI driver are kinds of the same things. You need to install "MIDI driver" or "USB-MIDI driver" software so that the computer can handle MIDI data when you connect the Clavinova to the computer. MIDI is a common music data format that is recognized by both Clavinova and computer. "Installing a MIDI driver and a USB-MIDI driver" means to set up the computer so that it can handle MIDI information.



Installing and setting up the MIDI driver

If your MIDI device or music software comes with a MIDI driver, refer to the documentation for the corresponding device or software.

You can also download a generic MIDI driver from the following Web sites.

Windows

You can download the YAMAHA CBX Driver at the following site:

<http://www.yamaha-xg.com/>

Macintosh

You can download OMS (Macintosh MIDI driver) at the following site:

<http://www.opcode.com/>

Installing and setting up the USB-MIDI driver

Refer to the documentation for the corresponding CD-ROM.

Technical jargon is explained here.

Terminology	Description
Baud rate	A rate (speed) of data transfer. Unit: bps (bit per second)
Clock	A computer processes data while synchronizing with a digital signal generated in cycles. The electronic circuit that generates this digital signal is called the clock.
Download	To get data or programs from another computer on a network and copy them to your own computer.
DTM	Desk Top Music. To create, play, and enjoy music using a computer.
GM System Level 1	“GM System Level 1” is an addition to the MIDI standard which guarantees that any data conforming to the standard will play accurately on any GM-compatible instruments from any manufacturer. The instruments and music data disks that support this GM System Level 1 carry an “GM” mark.
Hard disk	A type of data storage. It can read and write a huge amount of data at very fast speeds.
Install	To copy software to a computer hard disk and set it up for use.
MIDI	Musical Instrument Digital Interface. A worldwide standard music data format that allows performance data and various commands to be transferred between electronic musical instruments and computers.
MIDI cable	A MIDI cable is a special cable that connects the MIDI connectors of an electronic musical instrument to the MIDI connectors of another instruments, or MIDI interface connected to the computer.

Terminology	Description
MIDI channel	When you watch TV, your TV set receives a broadcast program of the station that corresponds to the channel you selected. MIDI data is also transmitted via channels. If the receive and transmit channels match, the MIDI data can be processed. There are 1–16 MIDI channels (1–32 MIDI channels depending on the model).
MIDI connector	MIDI connectors receive and transmit MIDI signals. There are three types of connectors: IN, OUT, and THRU. To connect MIDI devices A and B, you need to connect the cables between device A's "OUT" and device B's "IN," and between device A's "IN" and device B's "OUT." The "THRU" connector transmits the MIDI signal (received at the "IN" connector) to another device without modifying it.
MIDI driver	A MIDI driver is computer software that allows the computer to recognize and process MIDI signals. When you connect the computer's serial port to the Clavinova's [TO HOST] connector, you must install the driver to the computer.
MIDI interface	Usually, electronic musical instruments are connected via special MIDI cables. Standard computers do not have connectors that accept these MIDI cables. Therefore, you will need an adapter to connect MIDI cables. This adapter is called a MIDI interface.
MIDI keyboard	A MIDI keyboard is a musical keyboard instrument that can send and receive MIDI signals. It includes Clavinova, synthesizers, Electone, and portable keyboards, etc. It detects how forcefully you play the keys (touch sensitive) and sends the data to the computer.
MIDI tone generator	A MIDI tone generator is sound source that contains various tones or voices. A MIDI tone generator produces sound by receiving MIDI performance data.
Modem port	A modem port convert a computer's digital signal into an audio signal and enables computers to communicate each other via telephone or radio lines.
OMS	This is a MIDI driver for Macintosh provided by Opcode.
RS-232C	This is a type of serial port.
RS-422	This is a type of serial port.

Terminology	Description
Serial cable	A serial cable connects to a serial port.
Serial interface	A communication configuration that sends out data continuously in sequence.
Serial port	A serial cable is connected here. RS-232C, RS-422, and USB are all serial ports.
TO HOST connector	This connector can be directly connected to a computer via a cable. The Clavinova, which has a TO HOST connector, has a built-in MIDI interface.
USB	Universal Serial Bus. This is a serial interface that enables you to connect a computer to peripheral devices. It allows much faster data transfer rate (12Mbps) compared to conventional serial ports. You can also connect to and disconnect from peripheral devices (hot swap) while the power to the computer is on.
USB cable	A USB cable is a cable that connects the USB port of the computer to the USB connector of an electronic musical instrument, or a USB interface to the USB port of computer.
USB connector	This connector can be directly connected to a computer via a cable. The Clavinova, which has a USB connector, has a built-in MIDI interface.
USB-MIDI driver	A USB-MIDI driver is computer software that allows the computer to recognize and process MIDI signals. When you connect the computer's USB port to the Clavinova's [USB] connector, you must install the driver in the computer.
XG	XG is a new Yamaha MIDI specification which significantly expands and improves on the "GM System Level 1" standard with greater voice handling capacity, expressive control, and effect capability while retaining full compatibility with GM. The tone generators and music data disks that support this XG specification carry an "XG" mark.

Expanding the possibilities

Here are some computer software programs you can use if you connect the Clavinova to a computer.

♪ *The available software differs depending on locale.*

Scorch XF

Digital Interactive Sheetmusic Scores from your PC to your Clavinova.

Complete Digital Score, including melody, chords, and musical expressions, are displayed in the Clavinova LCD screen and auto accompaniment interprets and plays the score in whatever style you select.

For more details, visit <http://www.yamahamusicsoft.com/scorch/>

Yamaha's popular sequence software:

XGworks for Windows

For more information on XGworks, visit

<http://www.yamaha.co.uk/XG>

Piano Suite

Piano Suite will help you through the learning process and provide continuous feedback until you master the music. With intuitive controls, speaking menus, extensive curriculum and successful teaching methods, Piano Suite is designed to suit beginners of all ages and to interact positively with personal lessons.

For more details, visit <http://www.yamahamusicsoft.com/search/index.php?keyword=Piano+Suite>

