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*** All features and specifications subject to change without notice.**

1. Introduction to WaMi Rack 192 Series

Thank you for choosing WaMi Rack 192 Series of ESI.

There are WaMi Rack 192X and WaMi Rack 192L with same out look and features except the quality of A/D & D/A converters of each product.

The WaMi Rack 192 Series is a professional digital audio/midi interface different from other conventional sound cards. You will be amazed at the various and powerful functions and features of WaMi Rack 192 Series. WaMi Rack 192 Series will satisfy beginners who have just become involved in digital audio to professional musicians produce music at the professional level with its various features and useful functions. Especially, 'Dolby Surround 5.1 channel' will lead you to the true surround experience.

1. Up to 192KHz sampling rate support

WaMi Rack 192 Series is one of the few 192KHz support digital recording devices. The digital recording capability constantly progressed from 44.1KHz to 96KHz and even up to 192KHz. Especially WaMi Rack 192 Series will prove their value in multi-track recording, mastering application.

*** WaMi Rack 192X can support 192kHz 24bit resolution for DVD Audio format.
Because it has not only 192kHz A/D and but also 192kHz D/A converters.**

2. Perfect compatibility with EWDM driver

WaMi Rack 192 Series adopts the EWDM (Enhanced Audio MIDI driver model), providing superior data processing and compatibility. Until now, Windows native drivers such as MME, Direct Sound and the WDM driver could not show satisfied performance for serious music production scene. Furthermore, Steinberg's ASIO driver and TASCAM's GSIF drivers were not supported fully. WaMi Rack 192 Series employ the EWDM driver to provide the best solution for users in to take advantage under newer Windows OS environment and concentrate on their work, not their system. The E-WDM supports MME, ASIO, GSIF, and Direct X taking all the merits of these drivers. One of its advantages is OS support that range from Windows 98SE and Windows ME to Windows 2000 and XP, thus allowing the users to choose the OS of his or her preference.

3. Professional Digital Recording Device

WaMi Rack 192 Series can be used for the beginners to professionals of hard-disk recording application. The EWDM will work at its best in multi-track hard disk recording. The WaMi

Rack 192 Series is fully compatible with multi-track recording software such as Sonar/Cakewalk, Cubase, Logic and Nuendo; mastering software such as Sound Forge and Wave Lab; software sampler like GigaStudio, EXS and Halion and most of Virtual Instruments such as Reason, Reactor.

4. Multimedia / 5.1 channel surround device

WaMi Rack 192 Series delivers super high-quality sound from Windows multimedia tools with various additional features, which will be worth to replace the soundcard in your computer. WaMi Rack 192 Series is capable of playing back MPEG, MP3, wav files, and playing DVD and Video CDs. As the Internet becomes more and more popular, multimedia contents on the web is also useful, such as Flash media and Internet Broadcast. WaMi Rack 192 Series supports all of these features and, most importantly, 5.1 channel Dolby Surround format that will turn your computer system into a DVD AV system better than expensive AV equipment for Hi-Fi users.

As the evolution of the computer system continues, digital audio is becoming more and more common. With WaMi Rack 192 Series, you can complete your Desk Top Music Production System easily. WaMi Rack 192 Series will be the center of your DTMP system providing high quality sound which is not less than the quality of a professional studio and a guide to the world of digital audio music and multimedia.

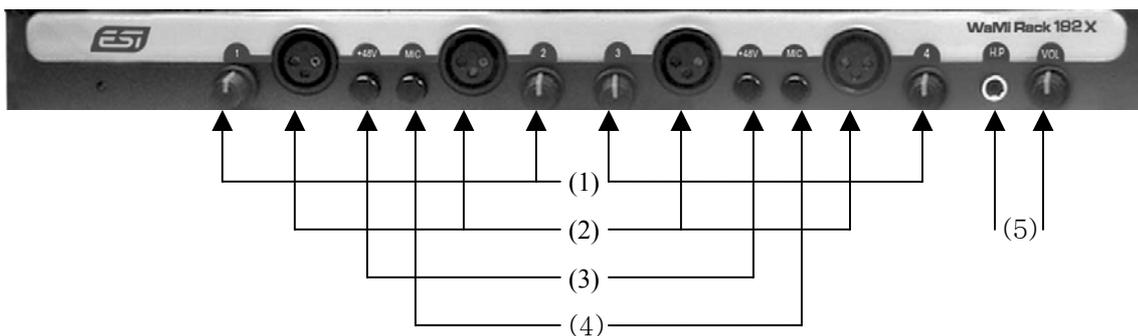
5. DirectWire feature

WaMi Rack 192 Series supports DirectWire function that is provided by E-WDM supported products from ESI. This unique feature will simplify the hassles of wiring externally for inter-driver/inter-application audio data transfer. Especially when you use software synthesizers or virtual instrument, DirectWire will help you to simplify your setup.

2. Description of WaMi Rack 192 Series

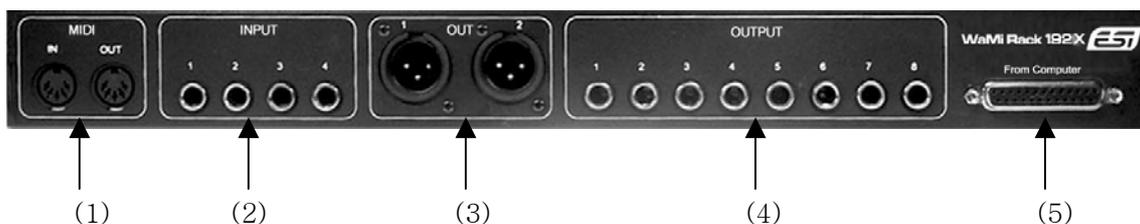
Here are the short descriptions of WaMi Rack 192 Series's outlook.

1. Front Panel



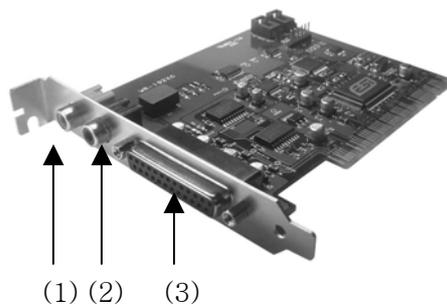
- 1) MIC/Line Input Level knob: Control the amount of input level through XLR type of each MIC input or Line input through the TRS connectors on the rear panel of WaMi Rack 192 Series.
- 2) MIC Input port: 4 low-Z XLR type MIC Input ports
- 3) Phantom Power switch: 48VDC of Phantom Power will be supplied by depressing the buttons, each switch covers stereo pair.
- 4) MIC switch: When the switch is depressed, MIC Input engaged as input source, while in normal position, when it is not depressed, Line Input will be chosen for input source.
- 5) Headphone Output and level knob: You can monitor all the input sources and wave output1,2 through this headphone output. Output level can be adjusted with the pot.

2. Rear Panel



- 1) MIDI I/O : WaMi Rack 192 Series provides 1in 1out 16ch MIDI I/O
- 2) Line Input : 4 analog Line Input ports with balanced TRS phone connector
- 3) Monitor out : Stereo low-Z XLR type monitor output
- 4) Line Out : 8 analog Line Output ports with balanced TRS phone connector
- 5) D-Sub connector : Connect WaMi Rack 192 Series breakout box with PCI card on the computer through this connector

3. PCI Card



- 1) Digital Coaxial Input : Digital Input in Coaxial type
- 2) Digital Coaxial Output : Digital Output in Coaxial type
- 3) D-Sub connector : Connect WaMi Rack 192 Series PCI card with the breakout box

3. Hardware Installation

WaMi Rack 192 Series requires couple of installation procedure: 'PCI card installation', and 'Driver installation'. The 'PCI card installation' step includes install the WaMi Rack 192 Series PCI card into the PCI slot. 'Driver installation' is having the operating system in your computer recognize WaMi Rack 192 Series and building the communication channel.

1. System Requirement

To take advantage of WaMi Rack 192 Series and their full capacity, the computer specifications are very important. Even though WaMi Rack 192 Series is built to have low-CPU resource dependability, the computer needs to meet certain requirements in order to get maximum performance. WaMi Rack 192 Series is not just a simple soundcard, but a professional digital audio/midi device with various functions. Therefore, the performance of WaMi Rack 192 Series would be affected by the computer specs that are required to process the vast amount of digital data. A faster CPU, faster hard disk, and larger amounts of RAM are generally recommended.

ⓘ WaMi Rack 192 Series gets power from computer power supplier, it is strongly recommended to use 300W rated power supplier for maximum performance.

Minimum System Requirement

1. Intel Pentium II 350 MHz CPU or equivalent AMD CPU
2. Mainboard with Intel chipsets
3. 128MB of RAM
4. Microsoft Windows 98SE/ME/2000/XP operating system
5. Ultra DMA 33 hard disk drive

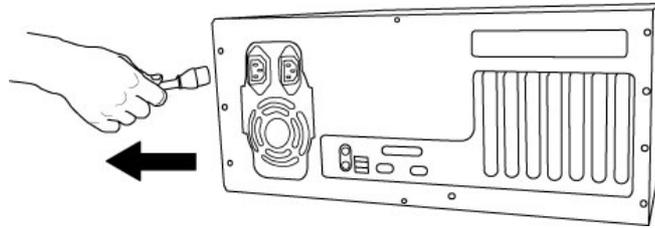
Recommended System Requirement

1. Intel Pentium III CPU or IV CPU or equivalent AMD CPU
2. Motherboard with Intel series chipsets(BX,820,815 and so on)
3. More than 256MB of RAM
4. Microsoft Windows 98SE/ME/2000/XP operating system
5. UDMA66/100 7200rpm hard disk drive

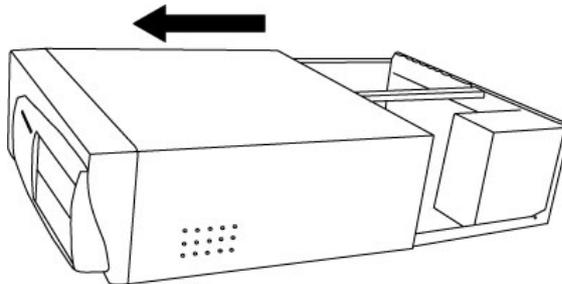
2. Preparation for hardware installation

WaMi Rack 192 Series PCI card and other components in the computer can be easily damaged by electrical shock. You need to use an anti-static device that can discharge the static electricity of your body to avoid potential static damage to the cards.

1. WaMi Rack 192 Series PCI card is placed into the anti static plastic pouch as it is packaged. Do not open the pouch before you install the card.
2. Turn off the computer power and remove the power cable from your computer power supply.



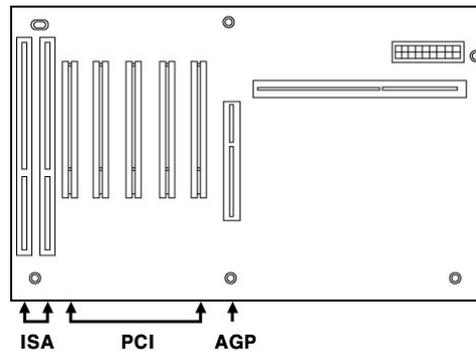
3. Remove the computer cover. Make sure that you have an available PCI slot in your motherboard to install WaMi Rack 192 Series. Please, refer to your computer user's manual to remove the cover.



4. To avoid possible static shock to the computer parts, discharge it by touching the computer case or something grounded. We recommend you to use an anti-static device such as an anti-static wrist band.
5. When you need to hold the WaMi Rack 192 Series PCI card, please hold it on the guide or the edge of card. Do not grab the card by the board.

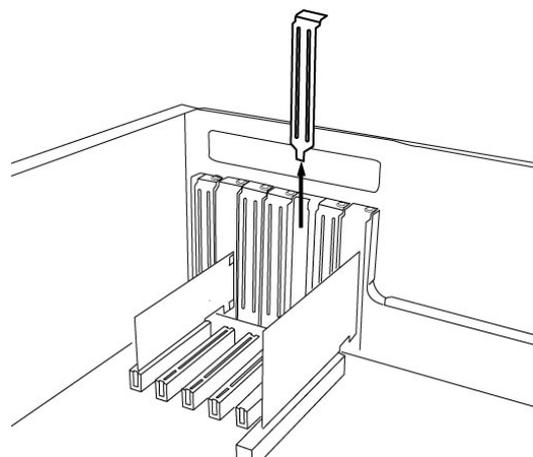
3. Installing WaMi Rack 192 Series PCI card

Please look for an empty PCI slot. If you do not know which one is an actual PCI slot, please, read the following;

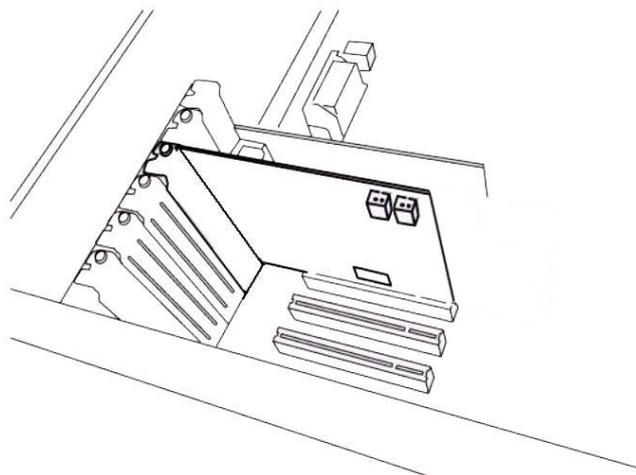


There are 3 kinds of slots in most of recent computers. The PCI slot is most common and is used for different types of devices from the soundcard to the modem. Usually, the PCI slot is the white-colored slot. The ISA slot is used in older computers and it is marked with a black slot. The AGP slot is only for the video card and is the most recent type of slot. It is marked with a brown slot and is located close to the CPU. It will be not too hard to find the PCI slot for WaMi Rack 192 Series.

If there is a guide blocking the empty slot, please remove the guide using the proper screwdriver.



Next, put the WaMi Rack 192 Series PCI card into the slot and make sure it is placed in the slot correctly. The card will fit into your slot and then tighten the screw.



Close the computer case.

4. WaMi Rack 192 Series Software Installation

After completing the installation of hardware for WaMi Rack 192 Series, you need to install its driver software to use it. The software installation is not too hard, even for computer beginners. Just follow the steps below and you will complete it without hassle. The installation steps under Windows 98SE, Windows ME, Windows 2000 and XP are a little bit different from each other. Below installation procedure is for the Windows XP. However, Driver installation procedure is similar to other Windows version.

* **Caution:** Depend on your operating system, you may need Windows install CD. You need to prepare Windows installation CD before the installation procedure begins.

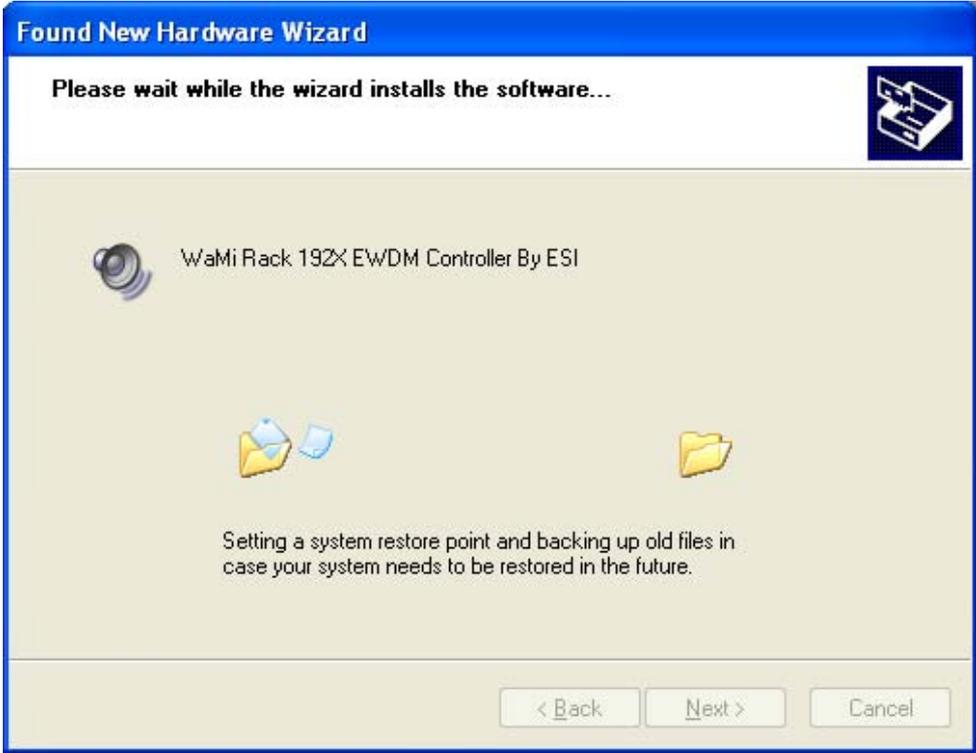
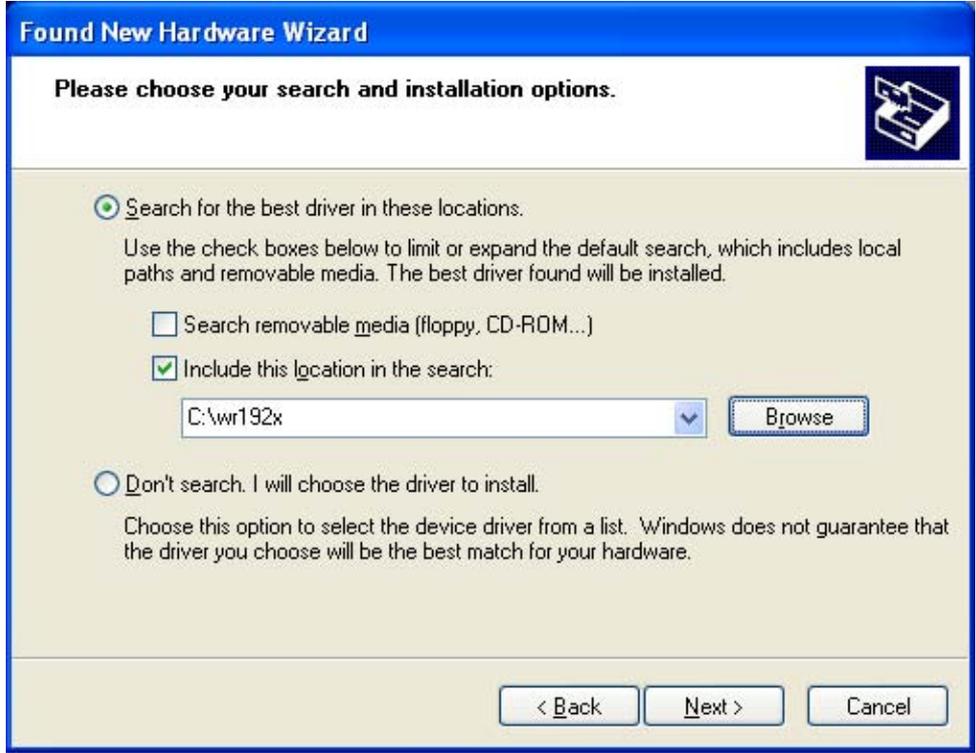
* **Caution:** Because of the driver characteristic, WaMi Rack 192 Series installs several drivers and continuously try to reboot the system. Unless the driver installation is completely finished until the system cannot detect driver anymore, DO NOT reboot the system. After all the driver is installed, restart your computer.

1 **Turn your computer's main power on.** Windows will automatically detect a new device has been installed and "Found New Hardware Wizard" will appear.

Choose Install from a list or specific location and click next.



2. Choose 'Search for the best driver in these locations' and Specify the location of the driver. Insert the provided Driver CD into the CD-Rom drive and select 'Include this location in the search' and click 'Browse' to find the accurate location.



3. On **Windows 2000 and XP**, there might be a **message appeared** that says “The software has not passed Windows Logo testing to verify its compatibility with Windows XP.” You can simply **ignore** it and just select ‘*Continue Anyway*’.

Though, the message is appeared, the driver is completely tested and verified by manufacture (ESI) and safe to use it.

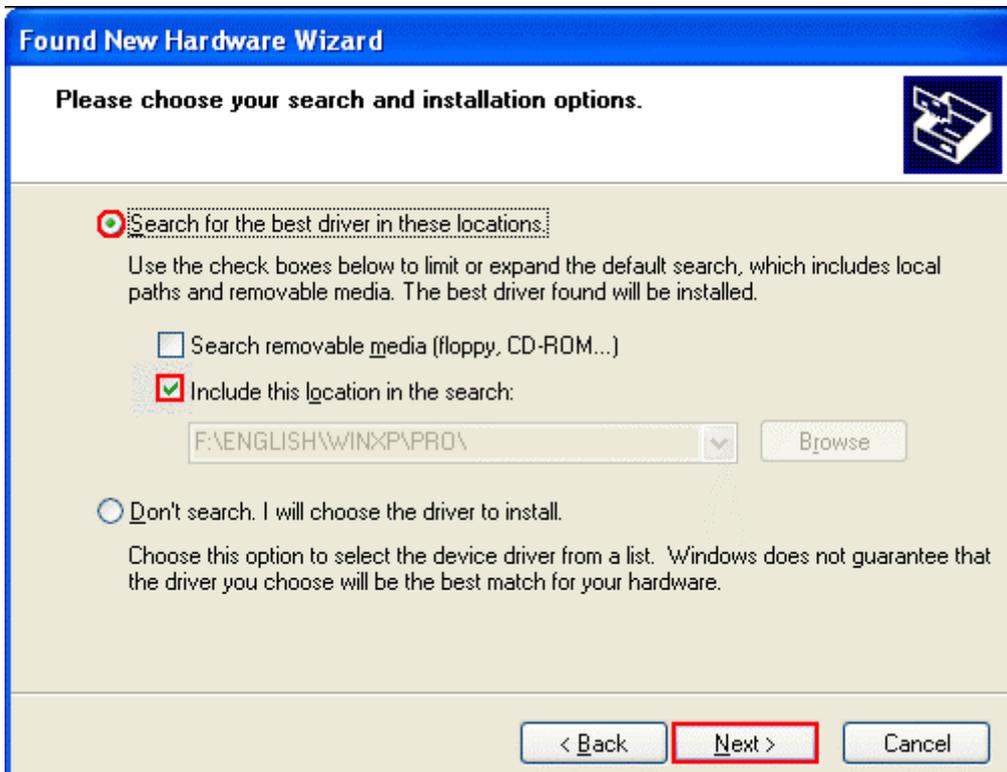
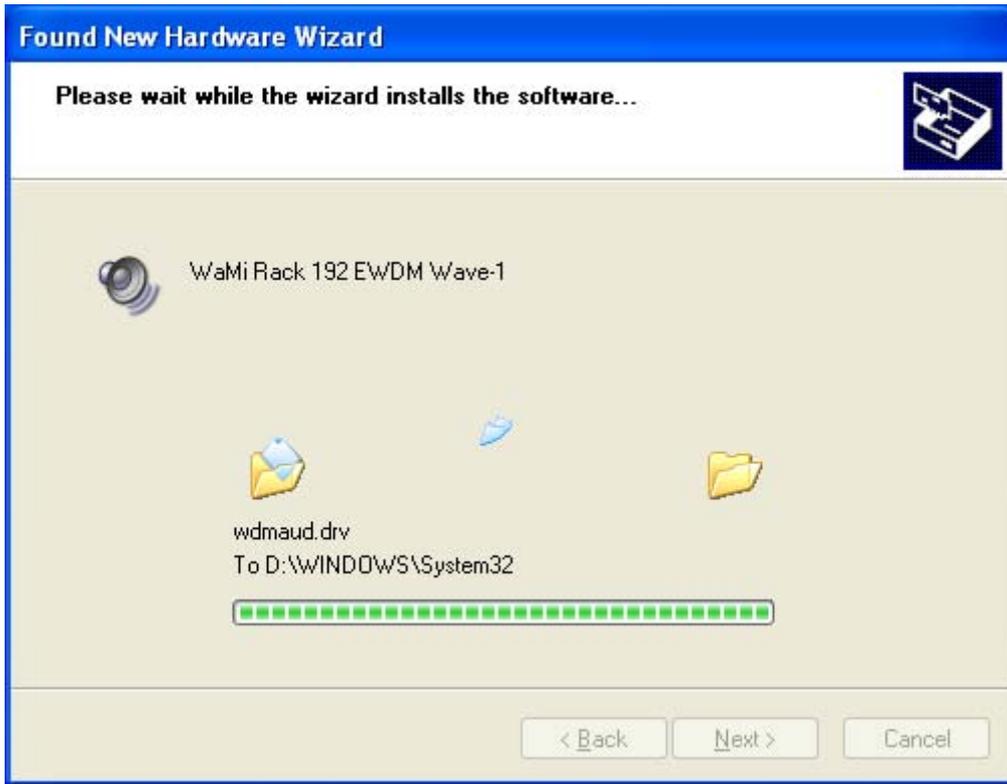
4. First WaMi Rack 192 Series driver will be installed.





5. Windows will automatically install second driver. It's same as above procedure.





6. **Windows will continuously install more drivers from *WaMi Rack 192 EWDM Wave2 to Wave5*. And finally Windows will recognize and install '*WaMi Rack 192 EWDM Midi*' at the end of the session. Though, several devices will be detected and installed, just follow above step 1 ~4. When your system keeps asking restart the computer, just **ignores** that and keep going to install. When all the necessary drivers are installed and the system doesn't ask to install the drivers any more, **restart the computer**.**

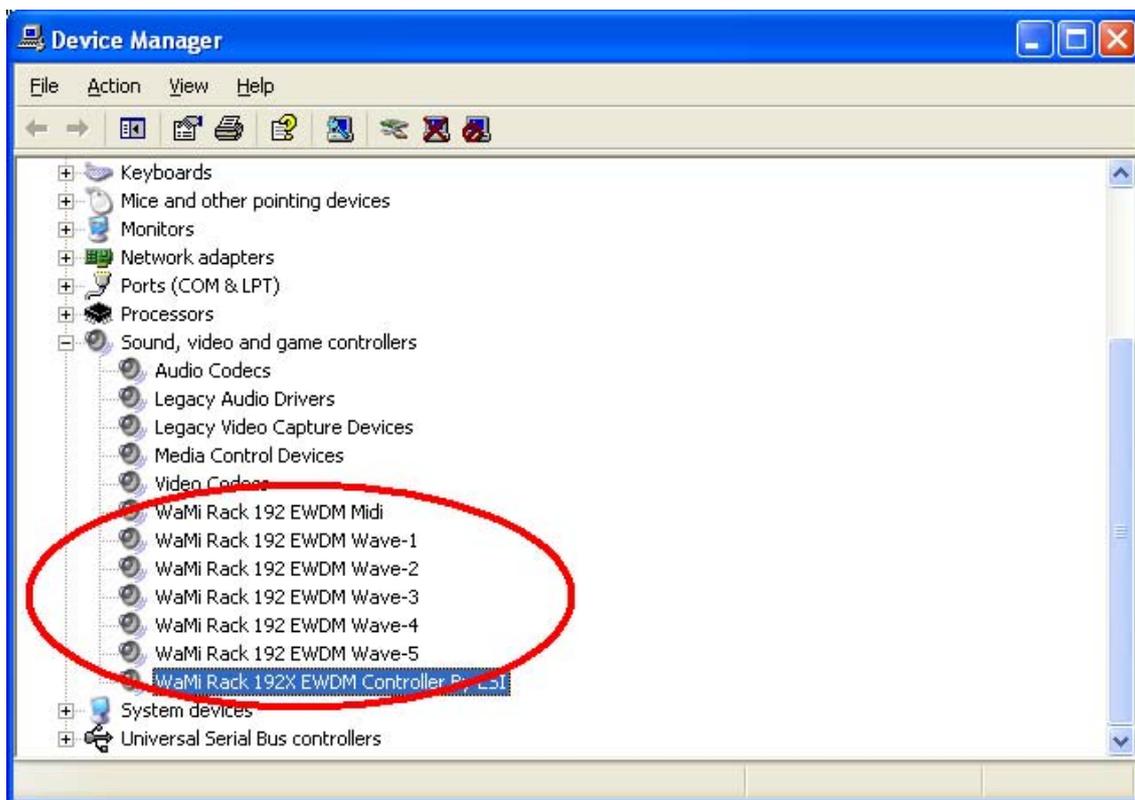


7. After restart the windows, please confirm if 'M' icon is on the system tray.



8. Checking your system.

After rebooting, go to *'My computer -> Console -> System -> Device Manager'*. Check the devices under *'Sound, video and game controllers'*, if they are installed correctly.



According to the unit, Controller name of the very bottom of Device list will be changed like "WaMi Rack 192L EWDM Controller by ESI" or "WaMi Rack 192X EWDM Controller by ESI".

5. WaMi Rack 192 Series Console

If you complete the WaMi Rack 192 Series hardware driver installation, you need to learn about the WaMi Rack 192 Series Console. This console is what you can control your setup for the WaMi Rack 192 Series.

The WaMi Rack 192 Series Console is built for easy to use. However, it could give a complicated look since there are many inputs and outputs. All input and output controls are the same. So, if you learn about one control, you can use the others easily.

After successfully installing WaMi Rack 192 Series hardware and driver, you can see the  icon on the system tray. It is the WaMi Rack 192 Series console icon and clicking on this icon will launch the console.



1. Pull Down Menu

The WaMi Rack 192 Series console includes a pull down menu bar that contains the configuration menus for the Console.



1. File - Exit

File – Exit will close the WaMi Rack 192 Series Console window but it will not shut down the Console. You can always launch the Console by clicking  icon on the system tray.

2. Config – Mouse Wheel

Mouse Wheel will control the mouse wheel adjustment. When you use the mouse wheel to adjust the volume level, the adjustment step is set to $\pm 1.5\text{dB}$ as default. You can configure the adjustment steps to your preference.

- **Step 1:** When you move the mouse wheel one step, the fader will move by $\pm 1.5\text{dB}$.
- **Step 2:** When you move the mouse wheel one step, the fader will move by $\pm 3.0\text{dB}$.
- **Step 4:** When you move the mouse wheel one step, the fader will move by $\pm 6.0\text{dB}$.
- **Step 8:** When you move the mouse wheel one step, the fader will move by $\pm 12.0\text{dB}$.

3. Config – Latency

This will decide the latency of the WaMi Rack 192 Series. You have to set proper

latency depends on your situation. Generally, higher latency is fit for Multi-track recording software using multiple tracks. Process time maybe longer, but it's stable. Lower latency is fit for software synthesizer, mastering software or Multi-track software using only few tracks.

4. Config – Factory Default

This returns all the WaMi Rack 192 Series configurations to factory default setting.

5. Config - Always On Top

This will set the WaMi Rack 192 Series console to always over other Windows. If this is not selected, the active windows will be set over the WaMi Rack 192 Series Console.

6. Config - Card

In the case of using two or more WaMi Rack 192 Series in one computer system, this button shows you status of console of each card.

For example, if you choose CARD2, The console becomes second card's console.

7. DirectWire

By clicking this menu, DirectWire window will be appeared. DirectWire is a unique feature of E-WDM driver that make possible to transfer digital audio data within different applications using same/different drivers.



As you can see, MME, Multi-MME, ASIO and GSIF indicate driver names of WaMi Rack 192 Series. Along the vertical channel indicate number, output and input ports of each driver are showed.

Just click desired output number of the driver and drag it to the input of the driver you want to record the source.

Next image shows all the possible combination of DirectWire configure console.

Please refer to the “Using DirectWire” on Page 37 for the detailed direction of DirectWire.



2. Clock

Select the menu for choosing clock source for the WaMi Rack 192 Series.

- **INTERNAL:** Selecting ‘Internal’ causes the WaMi Rack 192 Series’s internal clock becomes master clock. When you use only one WaMi Rack 192 Series or other device is set as slave, WaMi Rack 192 Series should be in this mode.

- **DIGITAL:** By selecting ‘Digital’ you will be using the incoming digital clock from the external device with audio data as the clock source. External device will be Master device and WaMi Rack 192 Series will become slave device in this mode.

- **CARD SYNC:** This is for using more than one WaMi Rack 192 Series in one computer system. Because all digital devices have their own clock source, you have to choose one among them as the Master and others as slaves. Connect from Sync out of Master Clock card to Sync In of slave card. **In Master clock card, set clock source as ‘INTERNAL’. Slave card should set**

as this **'CARD SYNC**. You can connect two cards using 2 pin sync cable of WaMi Rack 192 Series.

3. SAMPLE RATE

-AUTO: Selecting 'AUTO' sets sample rate automatically detected and locked according to the sample rate of audio source.

-LOCK: In this mode, you can set sample rate manually.

4. INPUT 3,4

Line Input 1,2 of WaMi Rack 192 Series are fixed as analog input channel, but Line Input 3,4 can be switched between analog and digital input channels.

-ANALOG: Selecting this button makes Input 3,4 as analog input and analog source through Line Input 3 and 4 are routed to input channel

-DIGITAL: Selecting this button makes Input 3,4 as digital input and digital input through SPDIF Coaxial

5. SPDIF(Digital Type Selector)

- **PRO** (IEC 958 Type I): WaMi Rack 192 Series's digital in/out format is AES/EBU.

- **CONSUMER** (IEC 958 Type II): WaMi Rack 192 Series's digital in/out format is S/PDIF.

6. MONITOR

There are two switches under the MONITOR, which can select monitoring modes between Stereo and Mono for each pair of input channels.

7. MONIT

When you activate this button, Input signals route to Output 1,2 and you can monitor input signal in real-time.

8. Input level fader & meter

1. Input 1,2

Under the Monitor select button, this is where to control and see input level of WaMi Rack 192 Series through Input 1,2 fixed as Analog input channel. You can change the input level by click and drag the fader and the number at the bottom shows you relative amount of level in dB, by clicking it you can MUTE the channel.

2. Input 3,4

Under the Monitor select button, this is where to control and see input level of WaMi Rack 192 Series through Input 3,4, which can be switched between analog and digital channels. You can change the input level by click and drag the fader and the number at the bottom shows you relative amount of level in dB, by clicking it you can MUTE the channel.

9. Output level fader & meter

1,2/3,4/5,6/7,8

Output goes to Output port 1,2/3,4/5,6/7,8 directly as you set on your application unless you click the MONIT button above the Output1,2 fader to activate input monitor function through the Output1,2 port. Even in Input Monitoring mode, rests of the output channels are still in direct out mode that is

Click and drag the fader to change the level. The numbers at bottom show the relative amount of level in dB. By clicking it, you can MUTE the channel.

10. SPDIF Output Meter

It shows digital output level of WaMi Rack 192 Series.

11. MME Output Meter

1,2/3,4/5,6/7,8

You can adjust level of MME supporting software in here. MME driver output level sometimes lower than its actual output level. In this case, you should adjust level using this fader. The ‘%’ of bottom means volume level indication.

🔇Mute

When you click the number (amount of level) on bottom of each fader, selected fader will be muted. And the number on bottom is changed to display ‘Mute’.

6. Setting in Applications

WaMi Rack 192 Series is a premium professional audio/midi device designed to be used for professional audio work in a Windows environment. It has a wide range of usage from game sound to DVD surround sound. It is very easy to set up the WaMi Rack192X in the multimedia setup of the windows console. Also the WaMi Rack 192 Series can be used with digital audio software to perform hard disk recording. This chapter includes set up guide for some common software. Especially, WaMi Rack 192 Series uses the EWDM driver that supports the audio dedicated drivers such as WDM, MME, ASIO, GSIF and Direct Sound.

This chapter only contains the basic setup for some of the software. For more detailed info, please refer to the manual of the software.

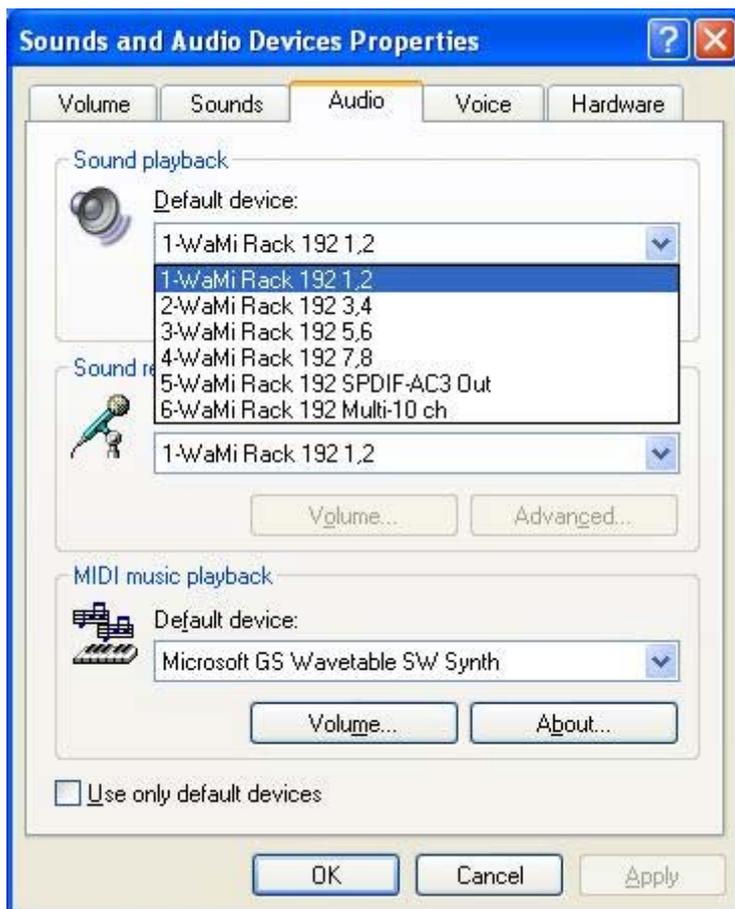
Driver name and Output

1. 1-WaMi Rack 192 1,2	Analog Output 1,2
2. 2-WaMi Rack 192 3,4	Analog Output 3,4
3. 3-WaMi Rack 192 5,6	Analog Output 5,6
4. 4-WaMi Rack 192 7,8	Analog Output 7,8
5. 5-WaMi Rack 192 SPDIF-AC3 OUT	Digital Output
6. WaMi Rack 192 Multi-10ch	Analog Output 1~6 Surround output

1. Windows Multimedia setup

The Windows Multimedia setup is required to use WaMi Rack 192 Series as the sound system for Windows multimedia applications.

Go to 'My computer-> Console -> Sounds and Audio Device Properties -> Audio tab. Select WaMi Rack 192 driver as your playback device.



2. 5.1 channel for DVD Player application

(Ex. Power DVD)

WaMi Rack 192 Series can be used with 5.1 channel DVD software player to provide 5.1 channel analog surround sound. Since WaMi Rack 192 Series is built for professional audio, it will deliver optimal sound for your DVD player. You can configure WaMi Rack 192 Series easily to use it for surround sound.

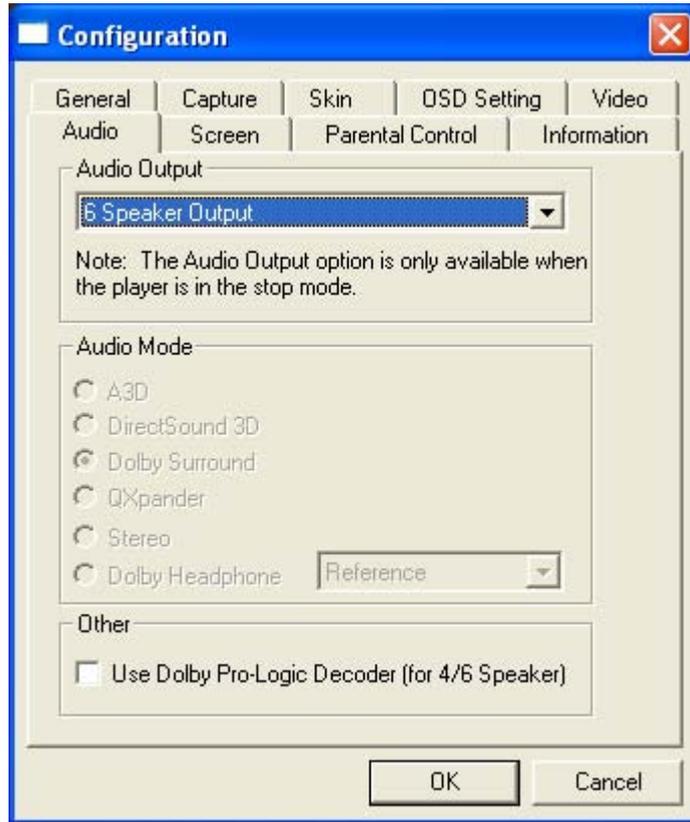
Go to 'My computer-> Console -> Sounds and Audio Device Properties -> Audio tab. Select '6-WaMi Rack 192 Multi-10ch' driver as your playback and Recording device.



*** You must check “DMA” in your DVD-Rom drive settings. IF you don’t check DMA, you cannot attain a crisp picture.**

On the Power DVD main applet, click the right mouse button, and choose ‘Configuration.’

Select ‘6 Speaker Output’. Now you can enjoy DVD with 5.1 channel surround sound.



Caution: This is 5.1 channel surround sound route
 This order will be varied by your operating systems.

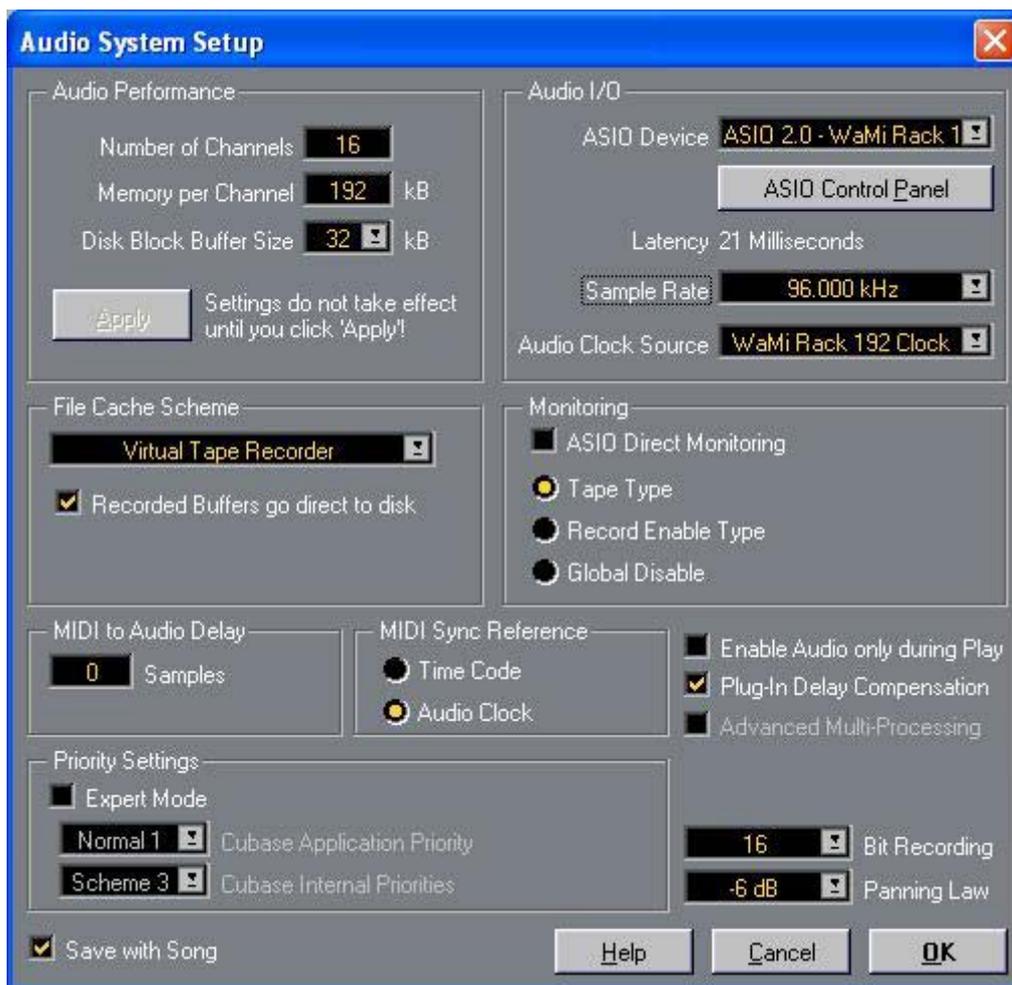
WaMi Rack 192 Series Output	1	2	3	4	5	6
Speaker Configuration	Front Left	Front Right	Center	Sub Woofer	Surround Left	Surround Right

Caution: When you use 5.1 channel surround, you have to turn off 'Input Monitor'.

3. ASIO 2.0- Cubase, Logic, Nuendo

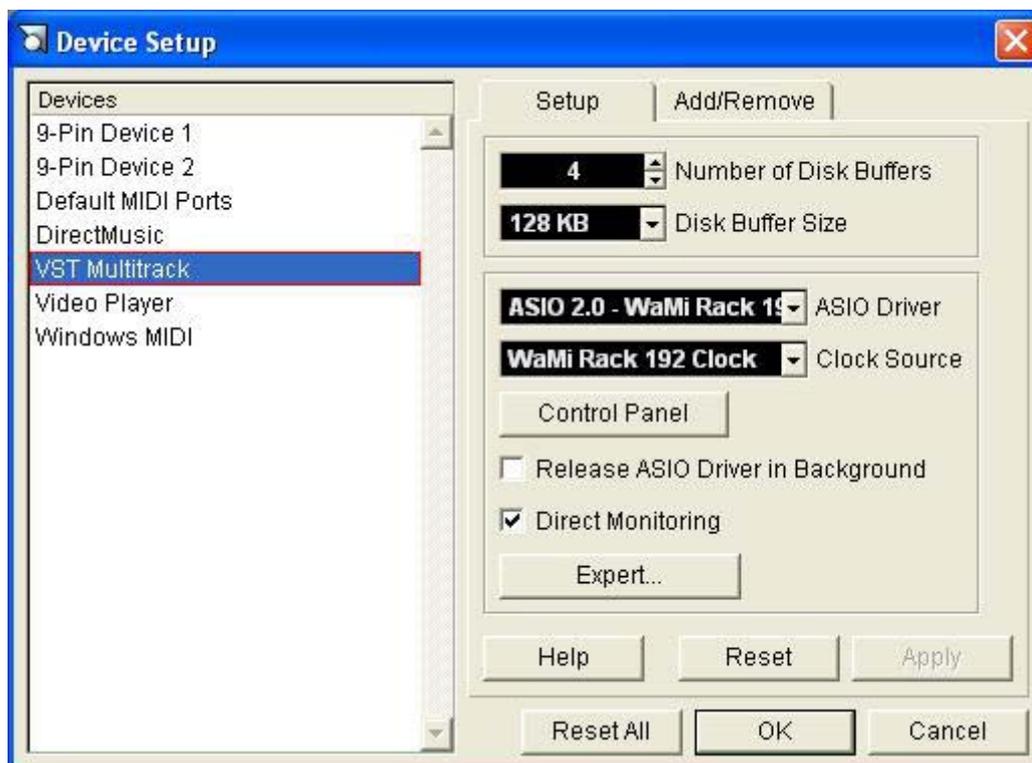
-Cubase

After launching Cubase, go to 'System' under 'Audio' menu. Select 'ASIO 2.0 –WaMi Rack 192' for the ASIO device and 'WaMi Rack 192 Clock' for the Audio clock source.



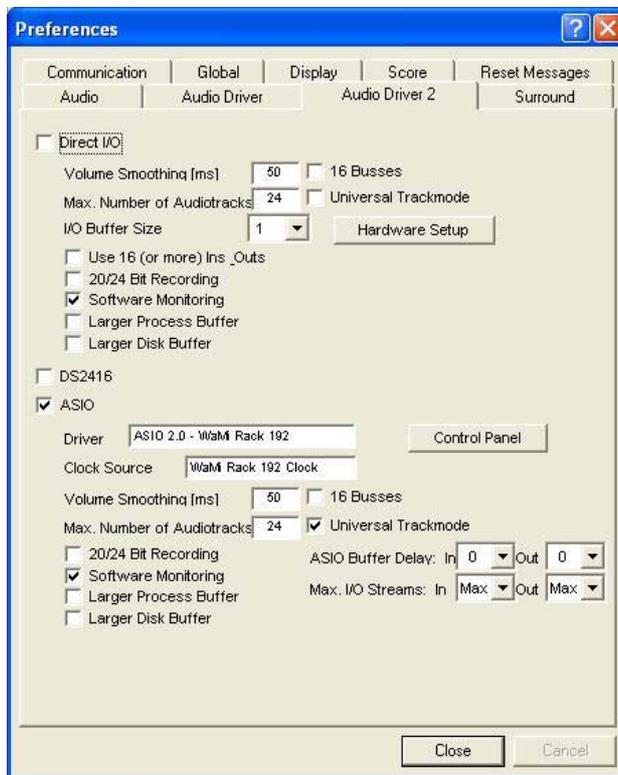
-Nuendo

After launching Nuendo, go to Device -> Device setup ->VST Multitrack. Select 'ASIO 2.0 - WaMi Rack 192' for the ASIO device and 'WaMi Rack 192 Clock' for the Audio clock source.



-Logic

After launching Logic, go to Preference -> Audio Drivers2. Check the ‘ASIO’ and select ‘ASIO 2.0 –WaMi Rack 192’.



And go to ‘Option>Setting>Synchronisation Setting>MIDI’ and uncheck ‘Transmit MIDI Clock’ for better performance.

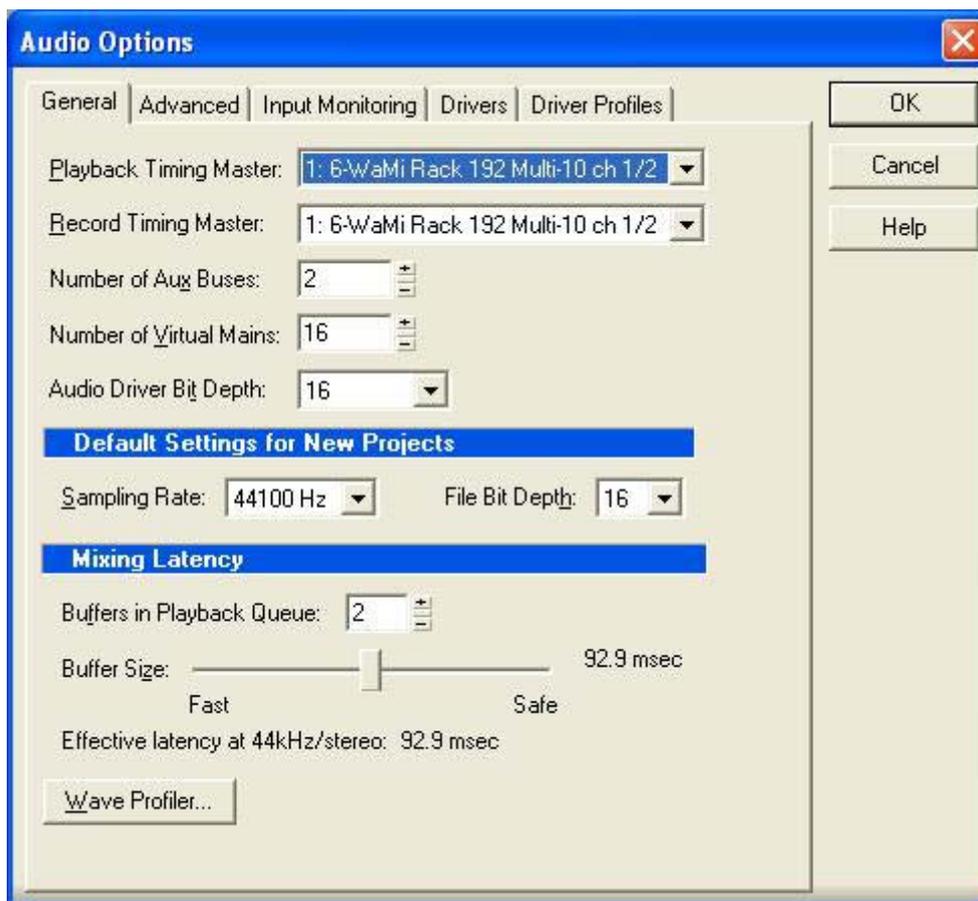


4. Sonar/Cakewalk

Before you using Sonar, you have to do several setting first.

You have to set proper latency on the console of WaMi Rack 192 Series.

After launching sonar, Go to 'Option' -> Audio and select 'Wave Profiler' of 'General' tab. Unless Sonar can't recognize buffer of WaMi Rack 192 Series.



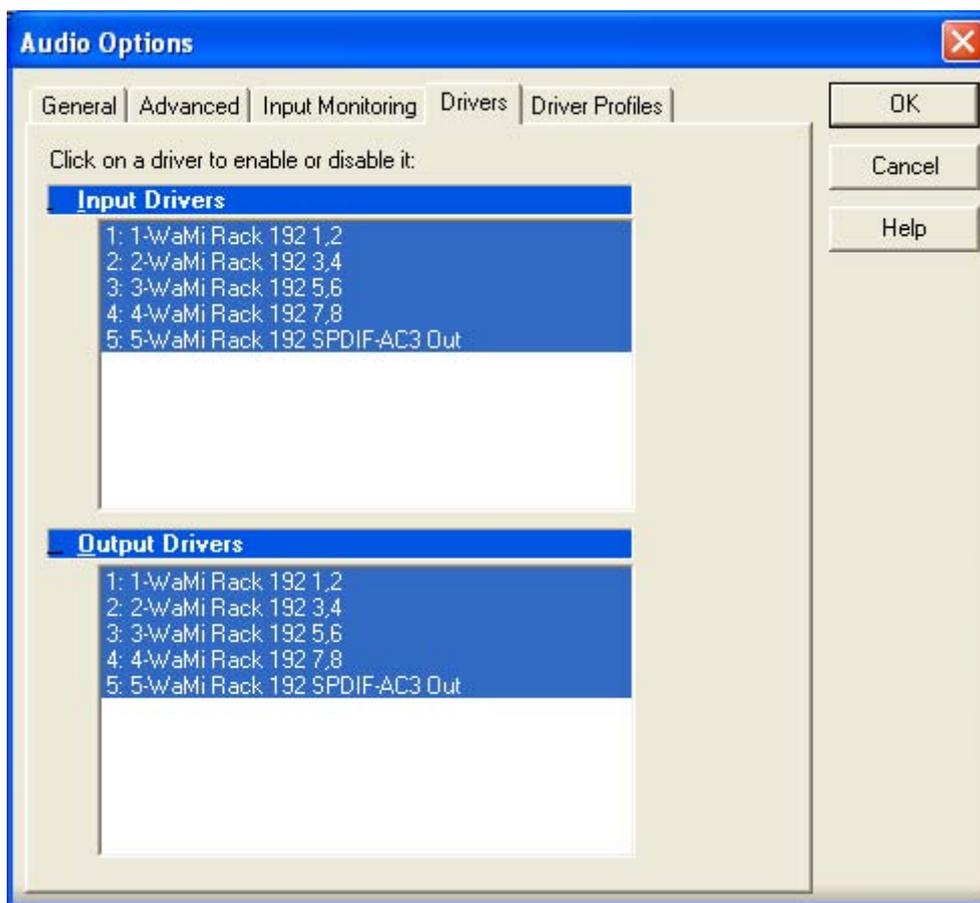
In case of Sonar:

Like a next picture, select 'WaMi Rack 192 Multi-10ch 1~10' for using WDM driver.

Do not select 2 ch driver.

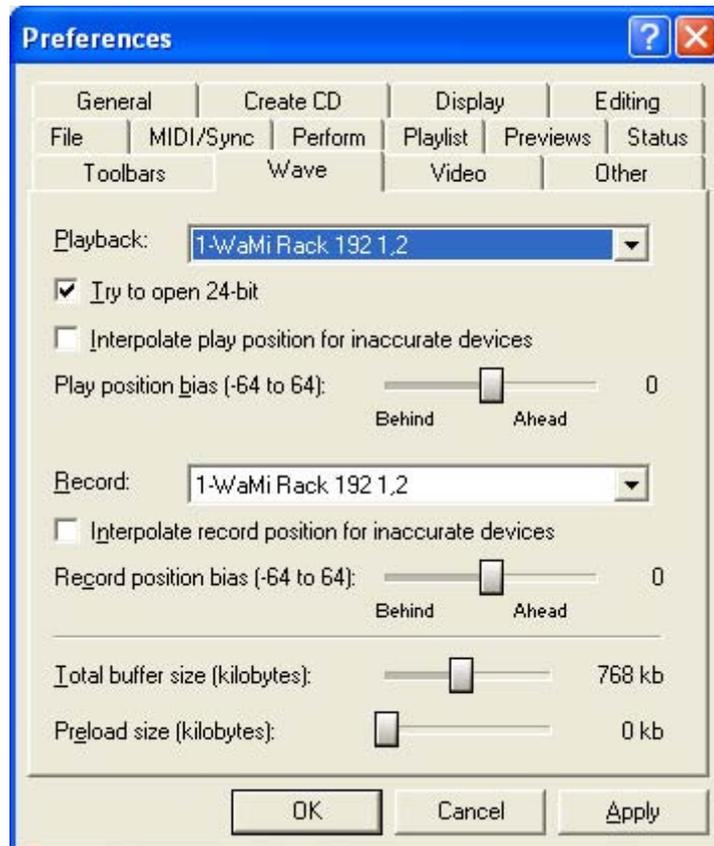
In case of Cakewalk:

Cakewalk has to use MME driver, therefore **select 'WaMi Rack 192 1,2'(2 ch) driver.**



5. Sound Forge

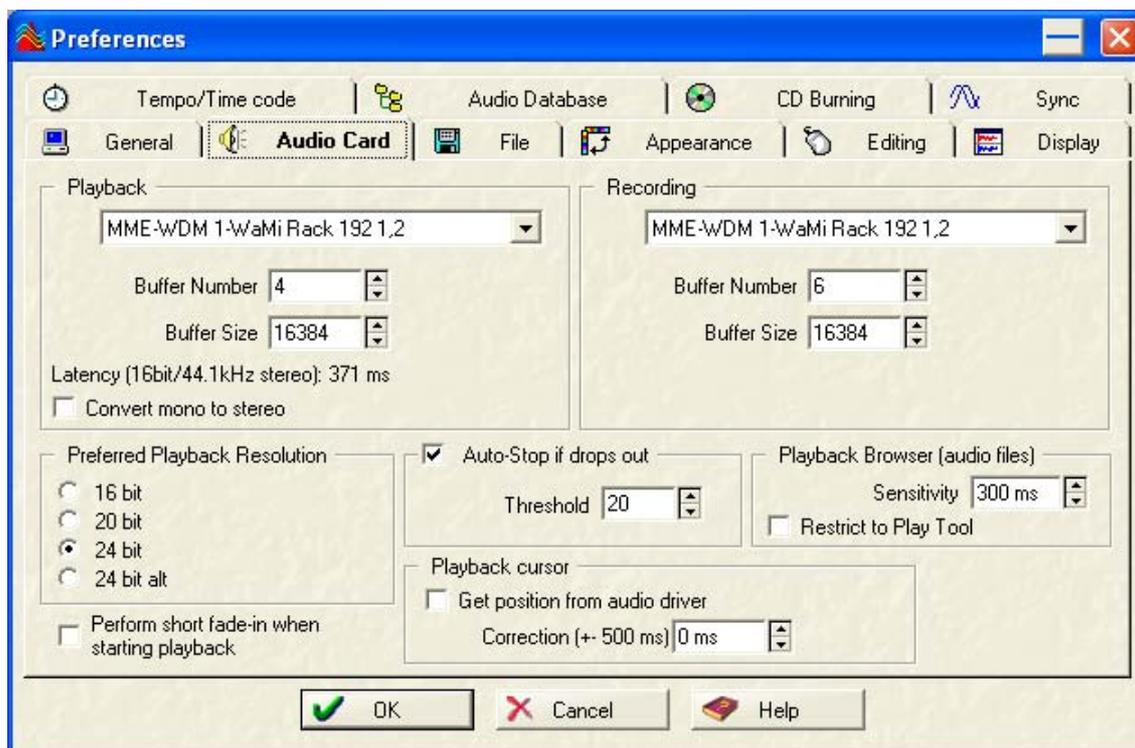
In Sound Forge, select 'Option' from menu bar. Select 'Preference...' then Wave tab. Choose 'WaMi Rack 192 1,2' (2ch) as Playback and Record device.



6. Wave Lab

In Wave Lab, Go to Option -> Preferences -> Audio Card.

Choose 'WaMi Rack 192 1,2'(2ch) as Playback and Record device.

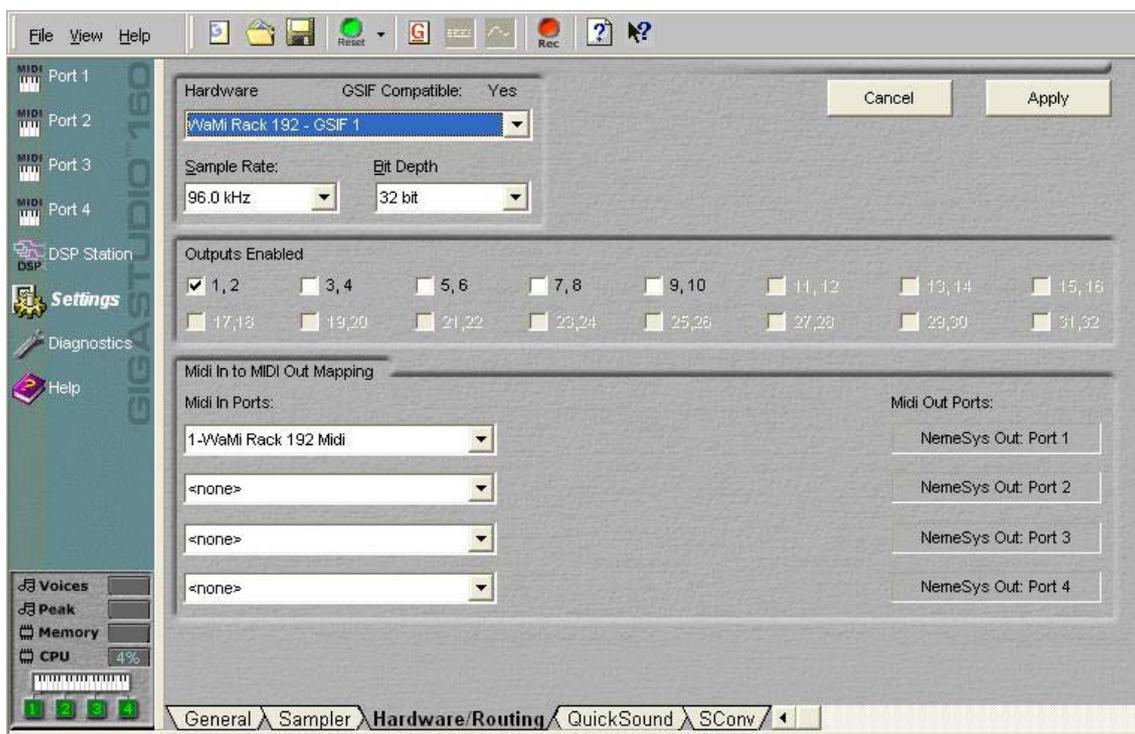


7. Giga Studio (v. 2.20.42 or higher)

If you want to use WaMi Rack 192 Series with Giga Studio, you have to use Giga Studio v.2.20.42 or higher.

Caution: If you want to use Giga Studio in Windows 2000 or XP, you need to use Giga Studio v.2.5.

Set as below picture.



8. Using Direct Wire

By clicking this menu on WaMi Rack 192 console, DirectWire window will be appeared. DirectWire is a unique feature of E-WDM driver that make possible to transfer digital audio data within different applications using same/different drivers.



As you can see, MME, Multi-MME, ASIO and GSIF indicate driver names of WaMi Rack 192 series. Along the vertical channel indicate number, output and input ports of each driver are showed.

Just click desired output number of the driver and drag it to the input of the driver you want to record the source.

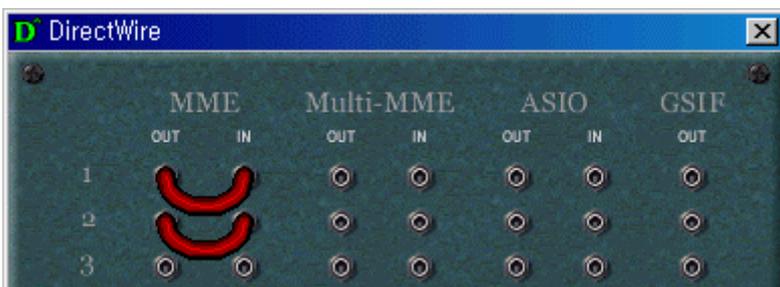
MME section means normal stereo application's I/O, ex.) WinAmp, WavLab ...

Multi-MME section means SONAR, PowerDVD, Win DVD I/O ...

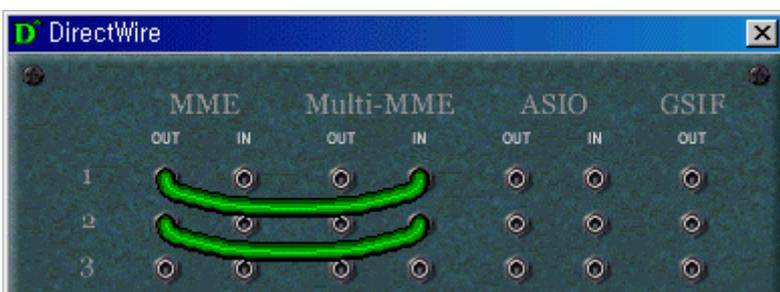
ASIO section means Cubase, Logic, Reason I/O ...

GSIF section means GigaStudio I/O.

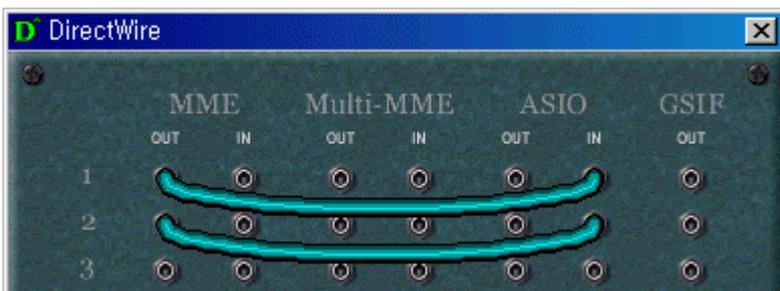
EX1. Recording from Winamp to WaveLab



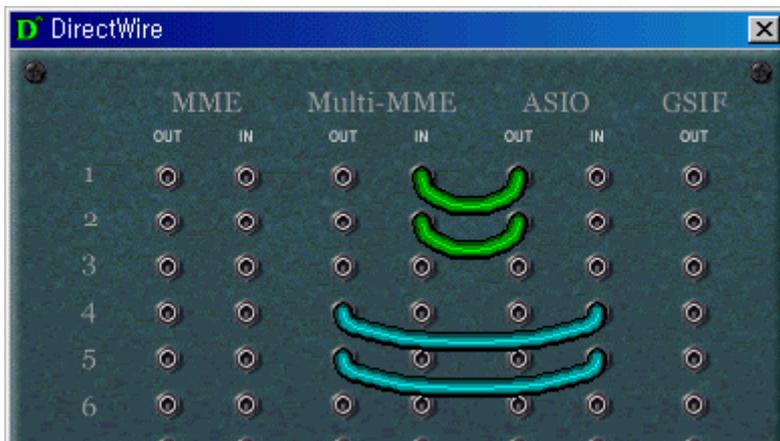
EX2. Recording from Winamp to Sonar



EX3. Recording from Winamp to Cubase



EX4. Recording from Sonar to Cubase or Vice versa



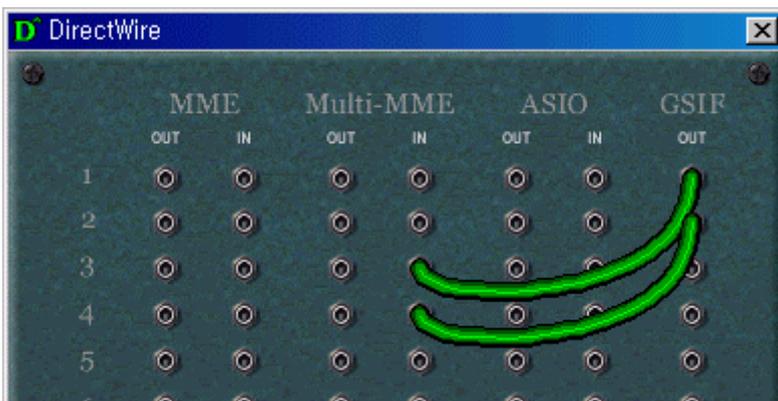
EX5. Recording from Power DVD 5.1 to Sonar



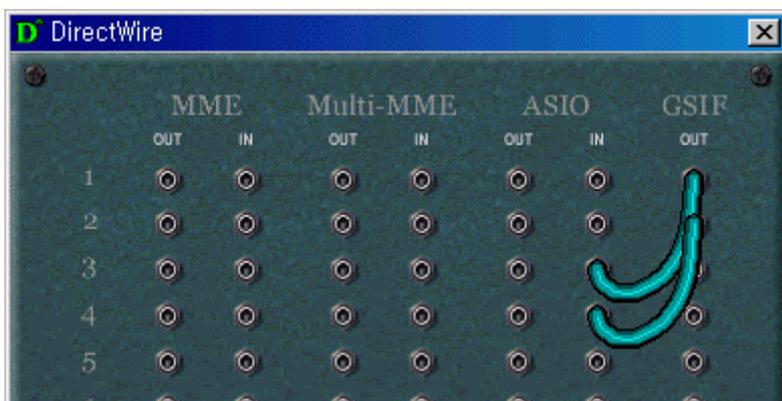
EX6. Recording from Power DVD 5.1 to Cubase



EX7. Recording from GigaStudio to Sonar



EX8. Recording from GigaStudio to Cubase



7. Specifications

<WaMi Rack 192X>

1. Analog Input Specification
 - 1) Type : 4 channel analog line input - 1/4" TRS Phone jack (X4)
- Balanced XLR Connector (X4)
 - 2) Level : +4dBu balanced, +4dBu Nominal, +22.5dBu Max (Gain +0dB)
 - 3) Gain Adjustment : +0dB ~ +20dB
 - 4) Impedance : 10K ohm
2. Analog Output Specification
 - 1) Type : 8 Channel analog line output - 1/4" TRS Phone jack (X8)
- Balanced XLR Connector (X2)
 - 2) Level : +4dBu balanced, +4dBu Nominal, +22.5dBu Max
 - 3) Attenuation : Digital -127dB ~ 0dB, 0.5dB Step Size (with Mute)
 - 4) Impedance : 100 ohm
3. Mic preamplifier Specification
 - 1) Sensitive : 66.5mV max (Gain +0dB)
 - 2) Gain Adjustment : +20dB ~ +40dB
 - 3) Impedance : 1.5K ohm
 - 4) +48V Phantom power
4. Headphone Amplifier Specification
 - 1) Output Power : 60mW Max
 - 2) Dynamic Range : 110dB (Typical)
 - 3) S/(N+D) Ratio : 101dB, 0.03% (Typical)
5. Sample rate : 16, 22, 24, 32, 44.1, 48, 88.2, 96, 176.4, 192 KHz
6. A/D Convertor Specification
 - 1) Type : 24bit, 192KHz, 128X Oversampling (Full Differential Input)
 - 2) Dynamic Range : 123dB (@ -60dBFS with A-Weighted)
 - 3) S/(N+D) Ratio : 105dB (@ -1dBFS, measurement method)
 - 4) Frequency Response : 6.5 ~ 21.768KHz, +/- 0.001dB (@ fs=48KHz)
6.5 ~ 43.536KHz, +/- 0.003dB (@ fs=96KHz)
6.5 ~ 87.072KHz, +/- 0.007dB (@ fs=192KHz)
 - 5) Interchannel Isolation : 120dB
 - 6) Interchannel Gain Mismatch : 0.1dB
7. D/A Convertor Specification
 - 1) Type : 24bit, 192KHz, 128X Oversampling, 8times Digital filter
 - 2) Dynamic Range : 106dB (@ -60dBFS with A-Weighted)
 - 3) S/(N+D) Ratio : 90dB (@ -1dBFS, measurement method)
 - 4) Frequency Respons : 0 ~ 21.768KHz, +/- 0.05dB (@ fs=48KHz)
0 ~ 43.536KHz, +/- 0.05dB (@ fs=96KHz)
0 ~ 87.072KHz, +/- 0.05dB (@ fs=192KHz)
 - 5) Interchannel Isolation : 100dB
 - 6) Interchannel Gain Mismatch : 0.2dB
8. Digital I/O Specification
 - 1) Type : Coaxial I/O Connector
 - 2) Format : IEC-958 Consumer(S/PDIF), IEC-958 Professional(AES/EBU)
 - 3) Sample Rate : 32,44.1,48,88.2,96,176.4,192 KHz
 - 4) Resolution : 24 Bits

<WaMi Rack 192L>**1. Analog Input Specification**

- 1) Type : 4 Channel analog input
 - * 4 Unbalanced 1/4" TRS Phone Jack(Line in)
 - * 4 Balanced XLR Connector(Line in, Mic in)
- 2) Level :
 - * +4dBu UnBalanced, +4dBu Nominal, +17dBu Max (Gain +0dB)
 - * +4dBu Balanced, +4dBu Nominal, +22.5dBu Max (Gain +0dB)
- 3) Gain Adjustment : +0dB ~ +20dB
- 4) Impedance : 10K Ohm

2. Analog Output Specification

- 1) Type : 8 Channel analog line output
 - * 8 Unbalanced 1/4" TRS Phone Jack
 - * 2 Balanced XLR Connector(OUT1,2)
- 2) Level :
 - * +4dBu UnBalanced, +4dBu Nominal, +17dBu Max (Gain +0dB)
 - * +4dBu Balanced, +4dBu Nominal, +22.5dBu Max (Gain +0dB)
- 3) Attenuation : Digital 0dB ~ -96dB with mute, 0.75 step size
- 4) Impedance : 100 Ohm

3. Mic Preamplifier Specification

- 1) Sensitive : 66.5mV Max
- 2) Gain Adjustment : +20dB ~ +40dB
- 3) Impedance : 1.5K ohm
- 4) +48V Phantom Power

4. Headphone Amplifier Specification

- 1) Output Power : 60mW Max
- 2) Signal to Noise Ratio: 110dB (Typical)
- 3) (THD+N)/S : -70dB, 0.03% (Typical)

- 5. Sample rate supports : 16,22,24,32,44.1,48,88.2,96,176.4,192 KHz(176.4,192Khz only playback)

6. A/D Converter Specification

- 1) Type : High performance SIGMA-DELTA ADC
- 2) Dynamic Range (S/N) : 100 dB A-Weighted (Typical)
- 3) Frequency Response : 20 ~ 22.5KHz (@ fs=48kHz)
- 4) Sample Rate Supports : Up to 96KHz
- 5) Resolution : 24 Bits
- 6) Interchannel Gain Mismatch : 0.5dB

7. D/A Converter Specification

- 1) Type : High performance SIGMA-DELTA DAC
- 2) Dynamic Range (S/N) : 104dB A-Weighted (Typical)
- 3) Frequency Response : 20 ~ 22.5KHz (@ fs=48kHz)
- 4) Sample Rate Supports : Up to 192KHz
- 5) Resolution : 24 Bits
- 6) Interchannel Gain Mismatch : 0.5dB

8. Digital I/O Specification

- 1) Type : Coaxial I/O connector
- 2) Format : IEC-958 Consumer(S/PDIF),IEC-958 Professional(AES/EBU)
- 3) Sampling Rate : 32,44.1,48,88.2,96,176.4,192 KHz
- 4) Resolution : 24 Bits