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# 1. Introduction to Audioterminial 010

Thank you for choosing Audioterminial 010. The Audioterminial 010 is a 100% full digital I/O Audio Interface card different from other EGO-SYS product.

This card adopts ADAT format and the entire major digital format available in the market.

It is the first card that supporting TDIF of TASCAM and R-BUS of Roland.

The Audioterminial 010 has various features.

It supports various digital format converting, 24-bit 96kHz Hard disc recording and MIDI Interface and Synchronization.

Professional users will be satisfied with powerful functions of the Audioterminial 010.

The Audioterminial 010 adapts the 'E-WDM' driver model to provide superior data processing and compatibilities. Until now, Windows native drivers such as MME, Direct Sound and the WDM driver did not have enough performance for serious music production. Furthermore, Steinberg's ASIO and Nemesys' GSIF drivers do not support fully. Audioterminial 010 employs the E-WDM driver to provide a new solution for users in to take advantage of newer Windows versions 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 98 SE and Windows ME to Windows 2000 and XP, thus allowing the users to choose the OS of his or her preference.

Audioterminial 010 is the hard disk recording card suitable for professional musicians rather than beginners. Audioterminial 010 is compatible with multi-track recording software such as Cakewalk, Sonar, Cubase, Nuendo; mastering software such as Sound Forge and Wave Lab; software sampler and most virtual synthesizers and virtual Instrument.

## Features

### **ADAT 8 channel interface support**

Audioterminal 010 supports ADAT format. You can use it with various digital mixer, digital recorder and hard disk recording devices which supporting ADAT format of Alesis.

### **TDIF Digital Interface Support**

Audioterminal 010 supports TDIF, which adapts DSUB 25-pin cable of TASCAM. You can use it with various digital mixer, digital recorder and hard disk recording devices of TASCAM.

### **R-BUS Digital Interface Support**

Audioterminal 010 supports R-BUS from Roland. You can also use it with various multitrack recorders and digital mixers of Roland.

### **SPDIF Optical, Coaxial digital Input/Output**

Audioterminal 010 has SPDIF digital input and output ports in optical and coaxial connections. You can easily switch ADAT, TDIF, R-BUS 8 channel Interface and SPDIF 2 channel Interface and can mix down your work to 2 channel SPDIF.

### **CD-ROM Digital Input**

Audioterminal 010 provides an on-board 2-pin port that can be used to connect directly with CD-ROM that has digital audio output pins. Most CD-Rom drives have a 2-pin digital output port. You can connect it with CD In port of Audioterminal 010 easily. This allows you to transfer CD digital audio directly to your PC with ease, and you can play back your CD audio with Audioterminal 010.

### **Multiple Sample Rate / Bit support**

The Audioterminal 010 supports all denominations of 44.1kHz or 48kHz standards sample rates from 32kHz to 96kHz. It supports 16~24bit also.

### **32bit PCI Bus Mastering**

Usually, a PCI card and a PC system exchange data via a 32-bit PCI bus. The Audioterminal 010 adapts PCI bus mastering that makes a low-CPU load possible to enable faster data processing and optimized CPU performance. PCI bus mastering allows more plug-ins to be used in the audio software.

### **1 in /1 out 16 channel MIDI interface**

The Audioterminal 010 supports 1 in/1 out MIDI interface using external connection cable. You can use it for MIDI works using synthesizer, sound module and Sync function such as MTC or MMC.

## 2. Hardware Installation

If you follow the instructions on this section in the sequence that it is written, you will have properly installed all components.

### 1. System Requirements

To take advantage of the Audioterminal 010 and its full capacity, the computer specifications are very important. Even though the Audioterminal 010 is built to have low-CPU dependability, the computer needs to meet some requirements in order to get maximum performance. The Audioterminal 010 is not just a simple sound card, but also a multimedia digital audio device with various functions. Therefore, the performance of the Audioterminal 010 is 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 recommended.

#### Minimum System Requirement

1. Intel Pentium II CPU 450MHz
2. Main board with Intel chipsets
3. 128MB of RAM
4. One available PCI slot
5. Microsoft Windows 98SE/ME/2000/XP

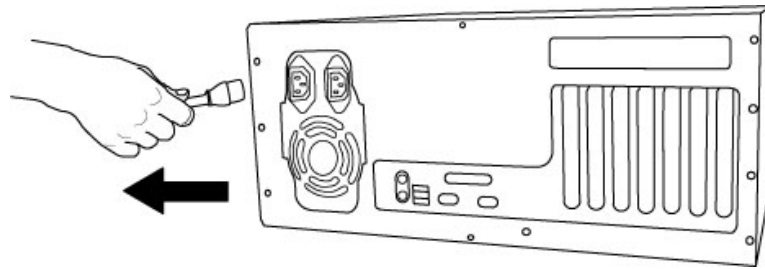
#### Recommended System Requirement

1. Intel Pentium III CPU or higher
2. Motherboard with Intel series chipsets (BX, 815, 845,850 and so on)
3. More than 256MB of RAM
4. One available PCI slot
5. Microsoft Windows 98SE/ME/2000/XP operating system
6. UDMA 66/100 7200 rpm hard disk drive

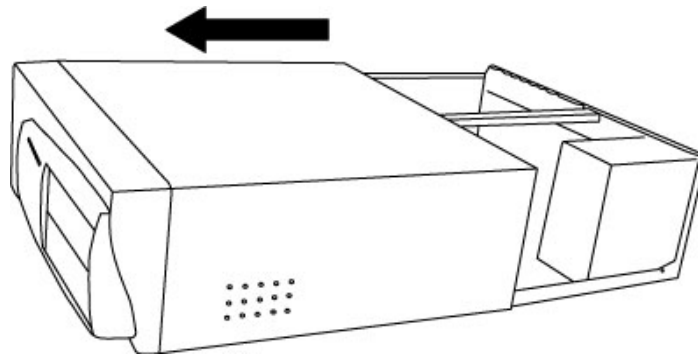
### 2. Preparation for Hardware Installation

The Audioterminal 010 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. The Audioterminal 010 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.



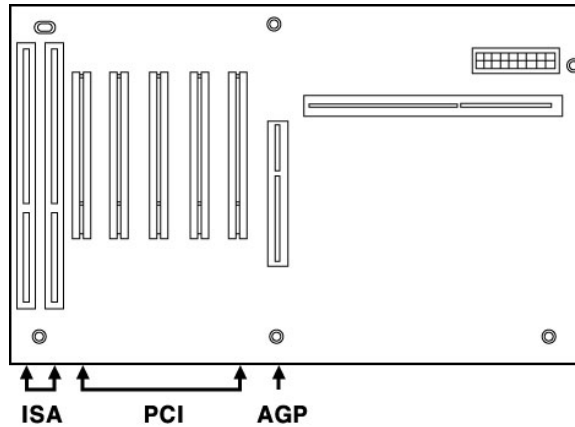
3. Remove the computer cover. Make sure that you have an available PCI slot in your motherboard to install the Audioterminal 010. Please refer to user's manual of your computer to remove the cover.



4. To avoid possible static shock to the computer parts, discharge it by touching the computer case or grounded ports. We recommend you to use an anti-static device such as anti-static wristband.
5. When you need to hold the Audioterminal 010 PCI card, please, hold it on the guide. Do not grab the card by the board.

### 3. Installing Audioterminial 010 PCI card

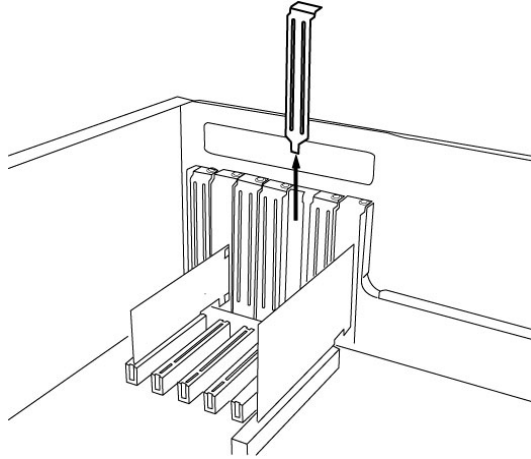
1. Please look for an empty PCI slot. IF you do not know which one is an actual PCI slot, Please read the following;



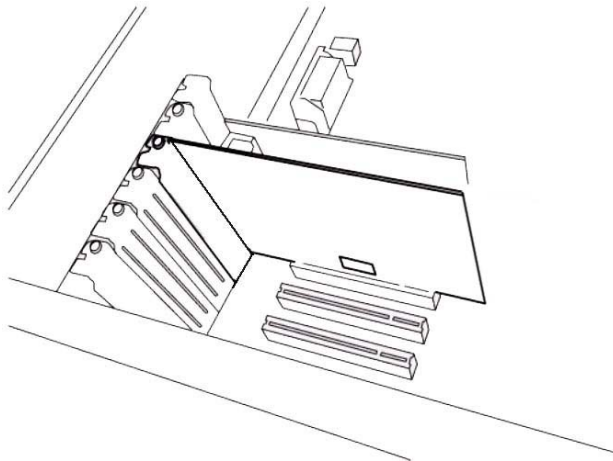
There are 3 kinds of slots in recent computers. The PCI slot is most common and is used for different types of devices from soundcard to the modem. Usually, the PCI slot is the white-colored slot. The ISA slot is used in older computers and it is marked with a black slot. The AGP slot is only for the 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 the Audioterminial 010.

2. If there is a guide next to the empty slot, please remove the guide using the proper screwdriver.



3. Next, Put the Audioterminale 010 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.



4. Close the computer case.



### 3. Audioterminal 010 Software Installation

After completing the installation of hardware for the Audioterminal 010, you need to install its driver's software to use it under Windows. The software installation is not too hard, even for computer beginners. Just follow the steps below and you will complete it without any problems.

**\*\*\* Caution – The Main board, which adapts new chipset, have to be install patch provided by Main Board Company or Chipset manufacturer.**

First, You have to check the company, model number, chipset of your main board and then download patch from below links.

<http://support.intel.com/support/chipsets/>

<http://www.amd.com/support/software.html>

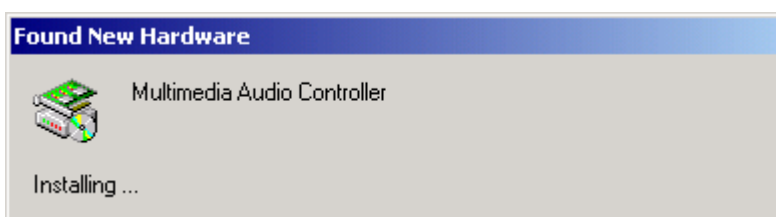
<http://www.viatech.com/jsp/en/dr/driver.jsp>

The installation steps under Windows 98SE, Windows Me, Windows 2000 and XP are a little bit different from each other.

Below installation is the case of Windows 2000.

However, Driver installation procedure is similar to other Windows version.

1. After the hardware installation, turn on your computer. Windows will automatically recognize the AT 010 showing the message that it detected a 'PCI Multimedia Audio Device.'



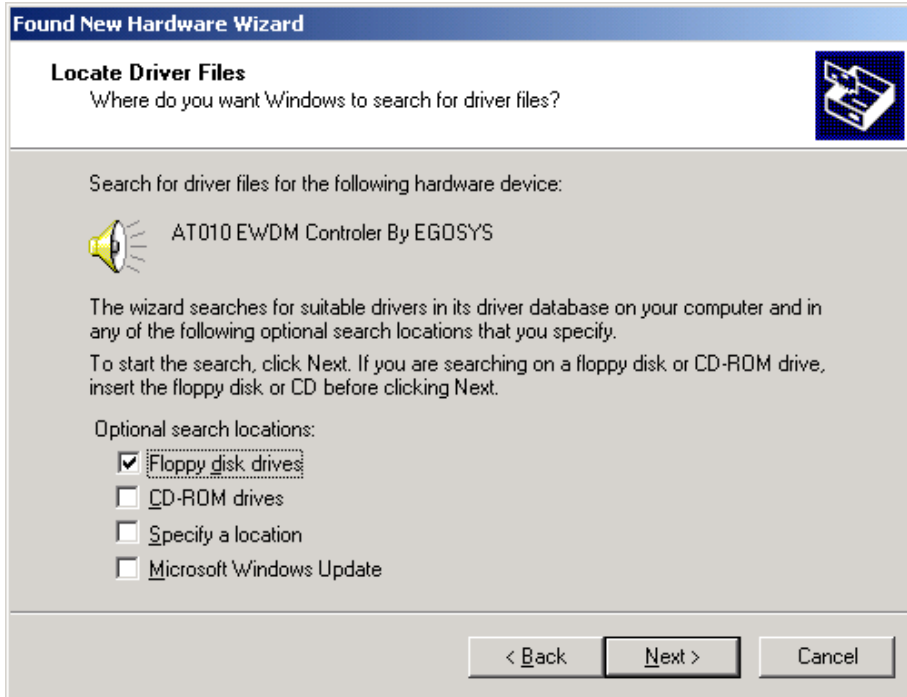
2. The 'Found New Hardware Wizard' will pop up in the following windows. Press Next.



3. Select 'Search for a suitable driver for my device (recommended)'.

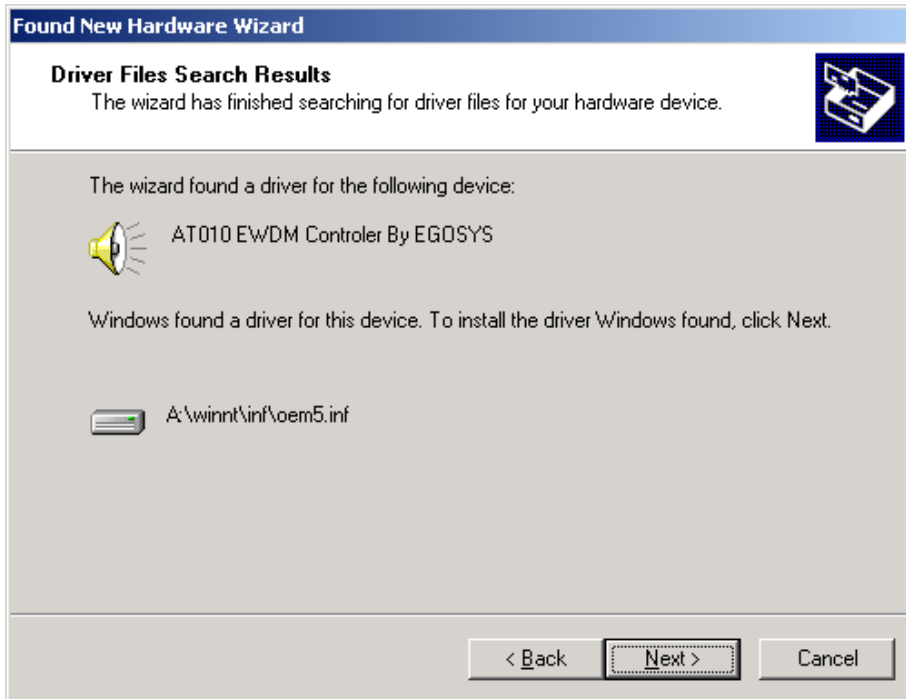


4. Specify the location of the driver. Insert the provided diskette into the floppy disk drive and select 'floppy disk drives.'

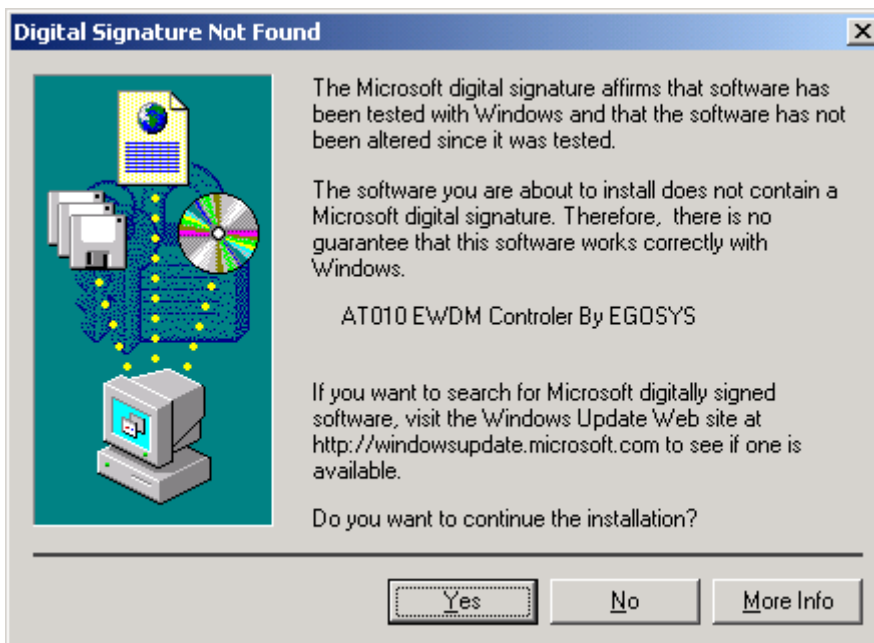


5. Now Windows will recognize the AT010 after searching for the installation files in drive A: and copy them to the system.





6. When you see this kind of messages, simply ignore it and just select 'Yes'.



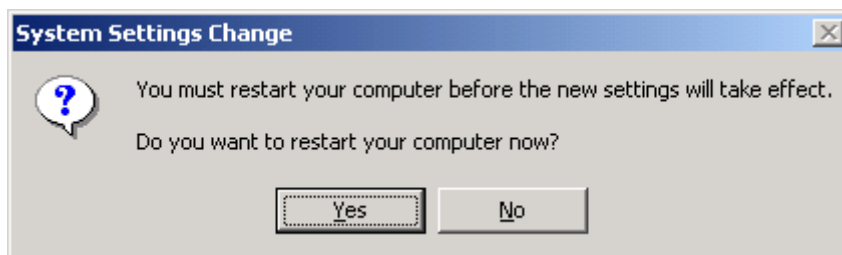
7. Please follow Windows instruction, step by step.



Even your computer keep asking restart your computer, Keep going to install it step by step.

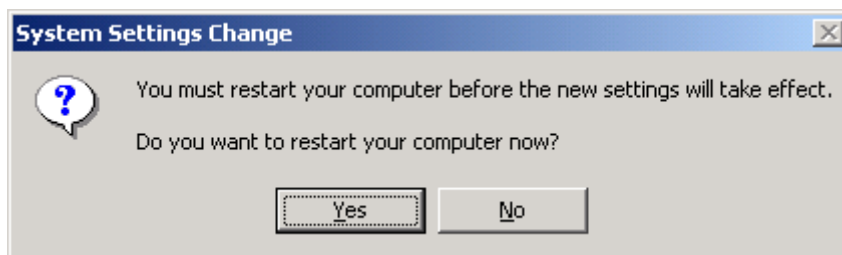
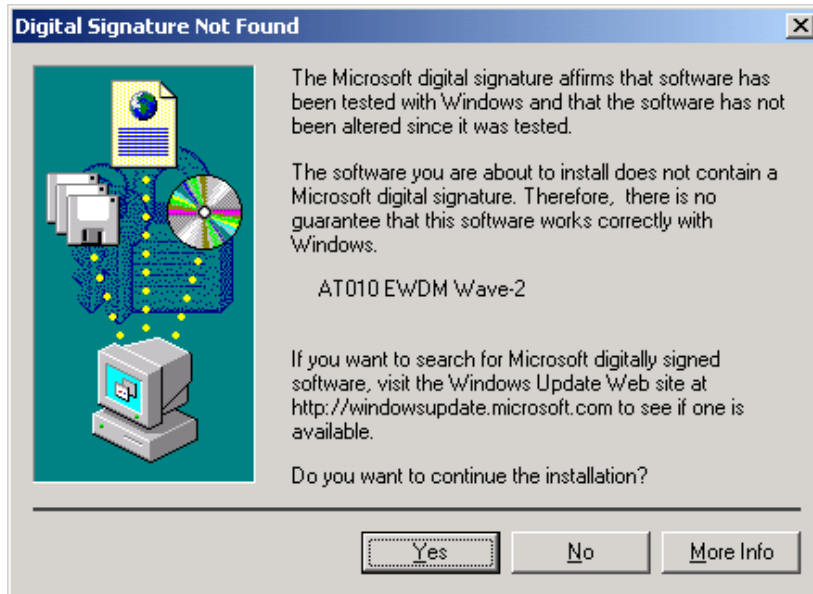
You need to install the rest of drivers.

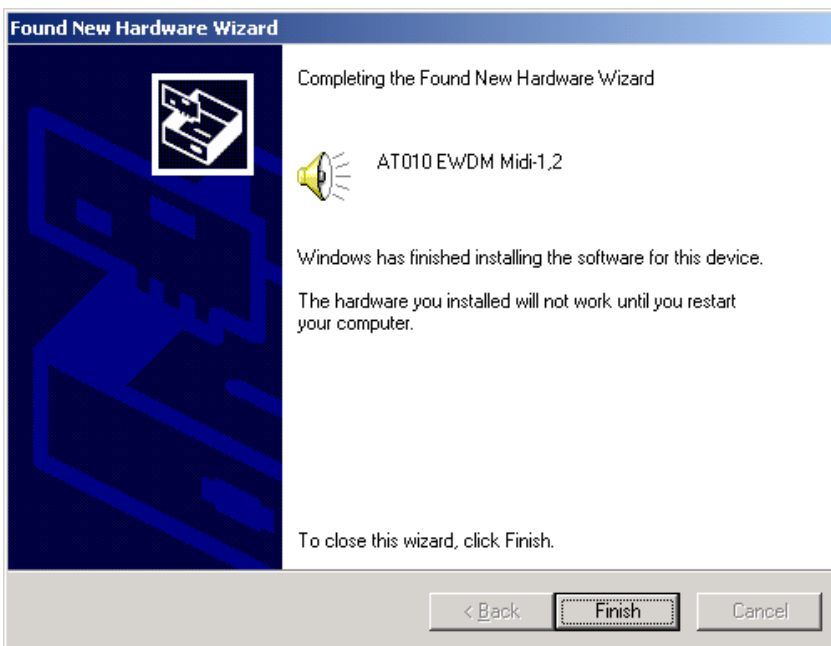
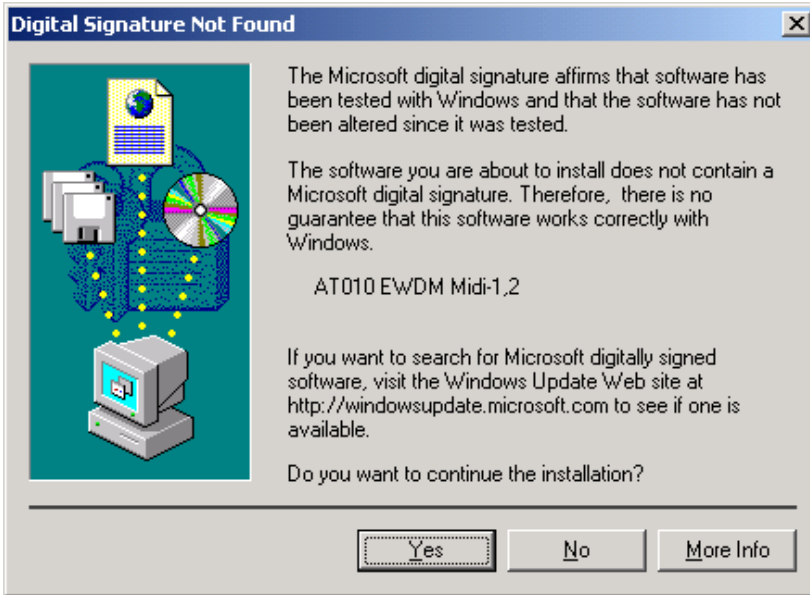
When you see this kind of messages, simply ignore it and just select 'No'.



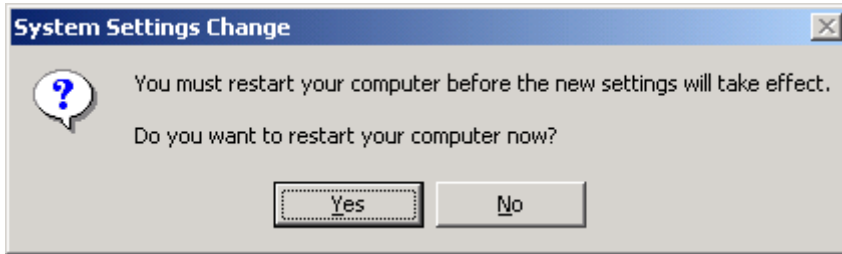
8. When you see this kind of messages again, simply ignore it and just select 'No'.

Even your computer keep asking restart your computer, Keep going to install it step by step.

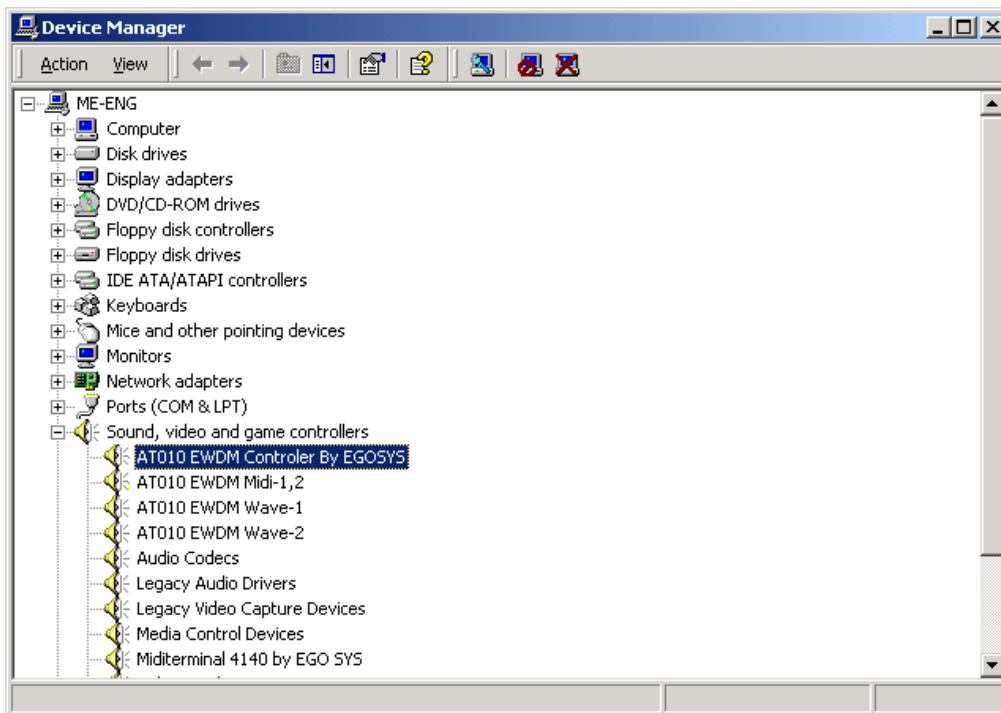




9. After install AT010 EWDM Midi1,2 , Finally You need to Reboot your computer.



10. After rebooting, Go to 'My computer -> Control Panel -> System -> Device Manager'.  
Check the devices under 'Sound, video and game controllers'.





## 4. Input/Output of the Auditerminal 010

Auditerminal 010 supports various multiple digital formats such as ADAT, TDIF, and R-BUS.

These formats support multi-channel (8 channel In/Out) via only one cable different from analog type.

You can connect the Auditerminal 010 with external devices via Optical cable, TDIF cable or R-BUS cable.

Please read carefully this manual and manuals of each relative devices such as multi-channel recorder, digital mixer and digital mastering recorder.

Then you can use variety functions of the Auditerminal 010.

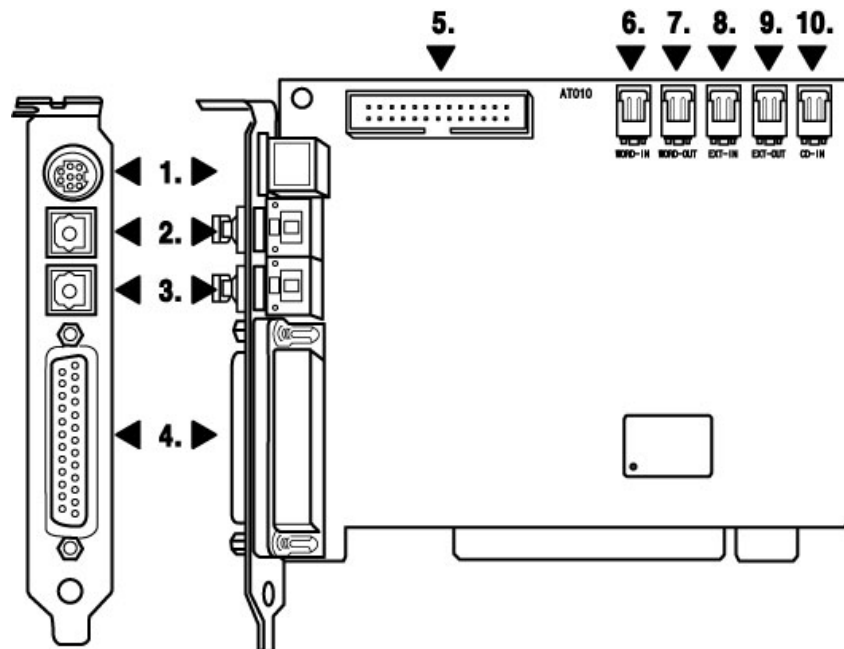
The Auditerminal 010 consists of a PCI card and an external connection cable.

In the PCI card, there are some connectors for important connection.

There are ADAT Optical In/Out port, 25-pin connector for TDIF, R-BUS and external connection cable port.

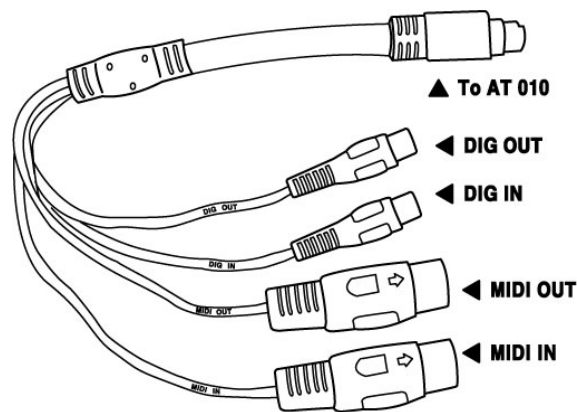
Inside of the card, there are 2-pin connectors for word clock and CD digital Input.

The external connection cable has 1In/1Out MIDI interface and SPDIF digital In/Output (Coaxial).



### 1. External Connection Cable Port

This port is connecting for the exclusive external connection cable that has 1In/1Out 16 channels MIDI Interface and SPDIF (Coaxial) connection. This cable is provided with the Audioterminale 010. As below picture, the cable consists of total 5 connectors. In the one side, there is an 8-pin connector to Audioterminale 010. The other side, there are two small connectors for SPDIF digital In/Out port and large connectors for MIDI interface In/Out. These 4 cables are labeled for distinction.



### 2. Optical IN-ADAT 8 channel/ SPDIF 2 channel Input

This Optical Input port is used two different ways. You can select it on the Audioterminale 010 control panel.

- You can connect from external devices supporting ADAT format (ADAT multi channel recorder or digital mixer)'s output to this port.
- You can connect from external device supporting SPDIF format (CD, MD, DAT)'s output to this port.

### 3. Optical OUT-ADAT 8 channel/SPDIF 2 channel out

This Optical Output port also supports two different formats. You can select it on the Audio terminal 010 control panel.

- You can connect from this port to external device supporting ADAT format (ADAT multi channel recorder or digital mixer)'s input.
- You can connect from this port to external device supporting SPDIF format (CD, MD, DAT)'s input.

#### **4. 25pin Dsub-TDIF/R-BUS Connection port**

In this port, you can connect TDIF and R-BUS format. You can select it on the Audioterminial 010 control panel.

- You can connect external devices that adapting TDIF format from TASCAM via this port. It's possible to playback and recording 8 channel digital In/out in same time using this one connector.
- You can connect external devices that adapting R-BUS format from Roland. It's possible to playback and recording 8 channel digital In/out in same time using this one connector.

◆ **Caution – You cannot use TDIF and R-BUS format at the same time.**

#### **5. The Audioterminial 010 Interface connection port**

This port is made for the upgrade in the future. Don't connect anything in this port because there are no functions until now.

#### **6. 7. WORD-IN/OUT**

This port is for the matching Word Clock with other audio card/device. You can set Word Clock between other card (ex.Waveterminial 2496) and Audioterminial 010 in this port. Word Clock Out becomes a Master Word Clock and Word Clock In will be a Slave Word Clock.

#### **8.9. EXT-IN/OUT**

This port is for the matching Digital Clock with other audio card/device. Digital Clock Out becomes a Master and Digital Clock In will be a slave.

#### **10. CD-ROM Digital Audio Input**

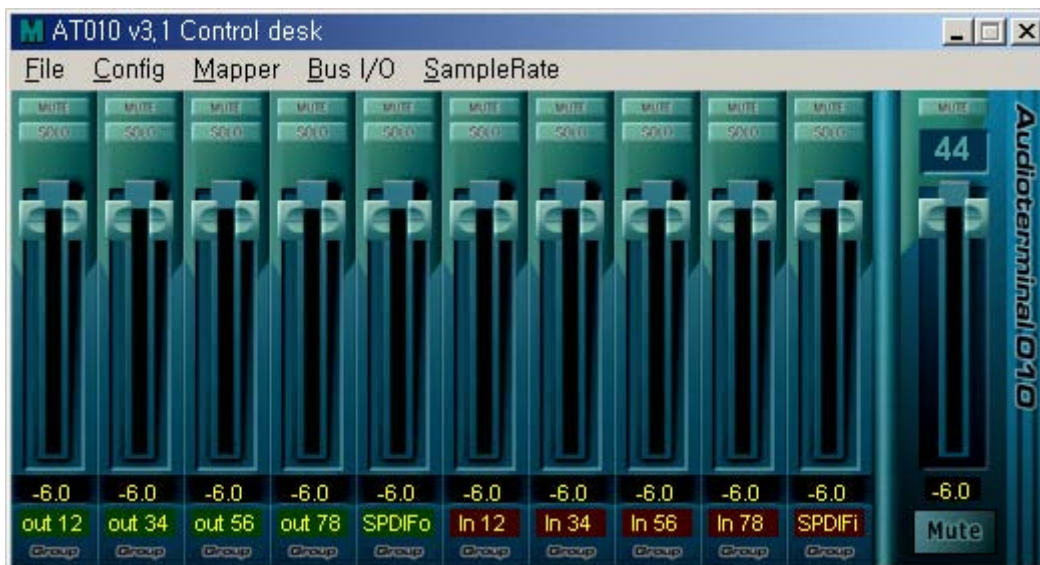
Audioterminial 010 provides an on-board 2-pin port that can be used to connect directly with CD-ROM that have 2-pin digital output port. This allows you to transfer CD digital audio directly to your PC with ease, and you can playback and recording your CD audio with Audioterminial 010.

## 5. Audioterminal 010 Control Panel

If you complete the Audioterminal 010 hardware installation and software setup, you need to learn more about the Audioterminal 010 Control Panel. This control panel is where you to control your setup for the Audioterminal 010.

The Audioterminal 010 Control Panel 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 the Audioterminal 010 hardware and software, you can see the AT010 icon in the system tray. This is the Audioterminal 010 control panel icon and the control panel will be launched as you click on this icon.



1. Output Level Fader / Level Meter
2. Input Level Fader / Level Meter
3. Master Mixer Fader
4. Pull Down Menu

## 1. Output Level Fader/Level Meter

These faders are the output volume control faders that controls 10 outputs of the Audioterminal 010.

10 outputs consist of 5 Stereo channels and you can adjust 8 Multi channels and SPDIF 2 channel. Each faders act the same so you need to learn only one.

### a. MUTE – Channel Mute button

Press these buttons to mutes the selected channel. When you press middle of this button, 2 channels become muted. If you press left or right of this button, selected channel becomes muted.

**\* This function only works when the Master Fader selected as 'MAIN'.**

### b. SOLO – Channel SOLO Button

Press these buttons to output only the sound of a selected channel. When you press middle of this button, 2 channels become muted. If you press left or right of this button, selected channels becomes SOLO mode.

**\* This function only works when the Master Mixer Fader selected as 'MAIN'.**

### c. Level Fader

Level Faders would change the level of the output volume. Each fader consists of stereo pairs. However, you can control outputs individually or stereo pairs. You need to move the mouse pointer over the specific port fader to adjust it individually or move the mouse pointer over the middle of the two ports to adjust it as a stereo channel. If the port fader is selected, it will turn into a brighter color.

You can move the fader in three different ways. Basically, the volume level can be adjusted by  $\pm 1.5\text{dB}$ .

- Drag the fader as you press the left mouse button.
- Select the fader with the mouse cursor and adjust with the mouse wheel. You can select the steps from the pull down menu, 'Config' -> 'Mouse Wheel'
- Select the fader with the mouse cursor and use the up and down arrows of your keyboard.

**\* This function only works when the Master Mixer Fader selected as 'MAIN'.**

**d. Level Meter**

The Level meter displays the signal level of the wave signal. You can see the level of each output to compare them and adjust the level on the basis of these meters. If you wish to send out a wave file to an external device, refer to the level meters to adjust the signal to the proper level.

**e. Output Level Indicator**

The Output Level Indicator shows the current level setting for each of the outputs. You can compare the output levels based on this indicator in order to adjust the output level to a desired level. Move the output level fader in order to set it to the proper level.

**f. Channel Name display**

It displays the function of each channel.

‘Out 1~8’ are output of multi channel port and ‘SPDIF’ are output of SPDIF port.

**g. Group – fader group select button**

You can make a group of 10 faders of the Audioterminial 010. Initial mode display ‘Group’. In this mode, you can adjust level independently. When you press this button, it is changed from A to D. Same groups are adjusted simultaneously.



## 2. Input Level Fader

Input Level Fader's functions are same as Output Level fader. See the 'output level fader' part for reference.

## 3. Master Mixer Fader

### a. MUTE – Master channel mute

Press this button to mute the sound of Mater Mixer

### b. Sample Rate Display

It display selected sample rate. When you check 'Lock', you can set sample rate only in AT010 control panel and you cannot change sample rate in your applications. In this case, AT010 control panel becomes the master clock provider.

### c. Master Level Fader

Master Level Faders would change the level of the Master output.

### d. Level Meter

The Level meter displays the signal level of whole signals.

### e. Output Level Indicator

The Output Level Indicator shows the current level setting for Master output.

### f. Master Mixer Mode select button

Master Mixer mode has three different modes.

-**Mute** – Master Mixer doesn't work. 20 In/Out channels send signal directly without Master Mixer.

-**MAIN**- Send 20 channel's signals to Multi channel 1,2. You can adjust each volume in each channel's fader. Multi channel 1,2 will adjusted in Master Mixer level fader.

-**SPDIF** – Same function as MAIN mode. Instead of Multi channel 1,2 send master output to SPDIF Output port.

## 4. Pull Down Menu

The Audioterminal 010 control panel includes a pull down menu bar that contains the configuration for the Control Panel.

### 1. File - Exit

File – Exit will close the Audioterminal 010 Control Panel window but it will not shut down the Control Panel. You can launch the Control Panel by clicking on the Audioterminal 010 icon in the system tray.

### 2. Config – Mouse Wheel

The Config –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  $\pm 1.5\text{dB}$ . 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 Audioterminal 010. The Audioterminal 010 provides 7 different sample buffer size; 48 sample ~2048 sample.

- You must close your applications before change latency.
- In case of Sonar, after change latency you need to click 'Wave profiler' again.
- If the latency is changed, all your applications will be affected.

### 4. Config – Factory Default

This returns all the Audioterminal 010 configurations to their default setting.

### 5. Config – Always On Top

This will set the Audioterminal 010 control panel to always over other Windows. If this is not selected, the active windows will be set over the Audio terminal 010 Control Panel.

### 7. Mapper

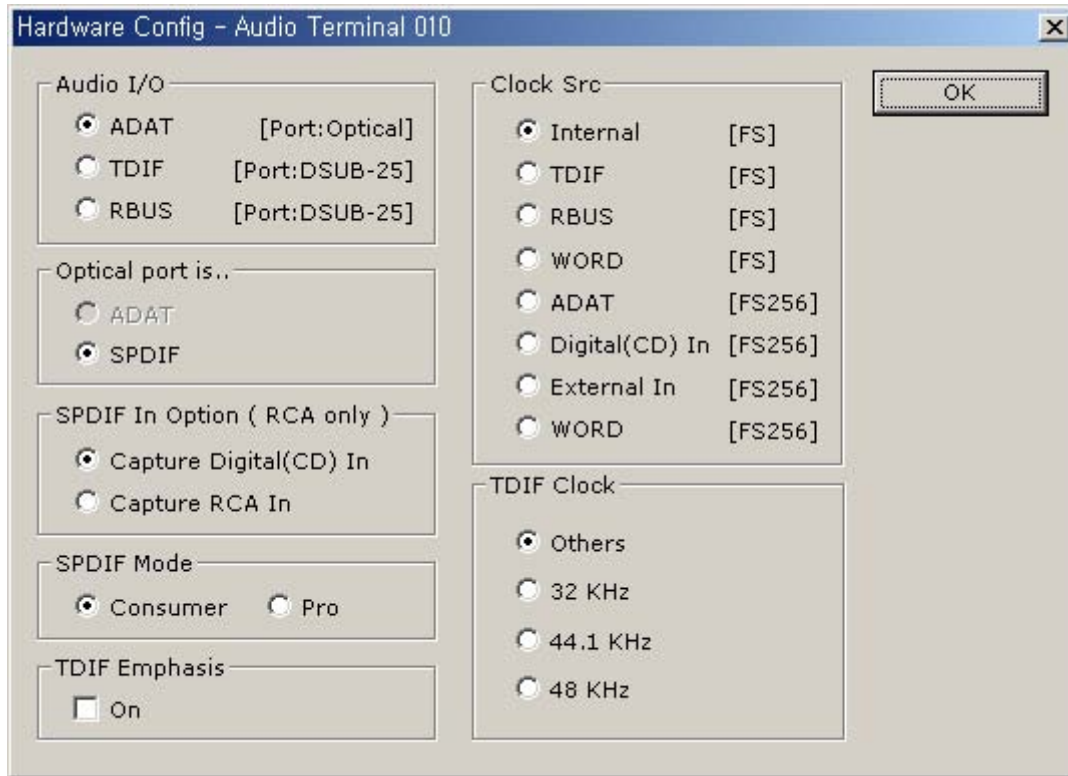
In case of using Direct Sound or MME driver, you can make selected 2 channel from 10 output port of the Audioterminal 010 to stereo out. Driver device's name is 'AT010 STEREO Wave'. You need to set it up in Multimedia Setup or system setup of applications and you can select Multi



channel in this 'Mapper' menu.

## 8. Bus I/O

In this menu, you can make specific setting of the Audioterminal 010. Select multi channel port such as ADAT, TDIF, R-Bus, Optical Port and digital clock.



### <Audio I/O>

You need to select multi channel port in this menu.

You can select one format from ADAT, TDIF and R-Bus.

### <Optical Port is.. >

You need to choose Optical port using as either ADAT format or SPDIF format.

### <SPDIF In Option (RCA only)>

This will set the Audioterminal 010's SPDIF input from RCA Coaxial port of external connection cable or internal CD\_IN port.

When you want to record or playback music CD of CD-Rom drive, you need to connect digital output of your CD-Rom and CD\_In of the Audioterminal 010. Then, select 'Capture Digital (CD) In'.

### <SPDIF Mode>

This will set 2 channel digital output format of the Audioterminial 010.

- Consumer: (IEC 958 Type II)
- Pro: (IEC 958 type I)

### <TDIF Emphasis>

When you select TDIF, you can select Emphasis function of TDIF in this menu.

### <Clock Src>

Select this menu for choosing digital clock source of the Audioterminial 010.

- Internal: Selecting Internal makes the Audioterminial 010 as the master digital clock.
- TDIF : Selecting TDIF makes external TDIF device as the master digital clock.
- R-Bus: Selecting R-Bus makes external R-Bus device as the master digital clock.
- WORD [Fs]: Accept clock from external Word Clock [Fs] device via internal Word Clock of the Audioterminial 010.
- ADAT: Selecting ADAT makes external ADAT device as the master digital clock.
- Digital (CD) In: When you accept input signal via CD\_IN port of the Audioterminial 010, selecting 'Digital In' makes CD-Rom the master digital clock
- External In: Using when you accept digital clock of the other Audio card via EXT\_IN port of the Audioterminial 010.
- WORD [Fs256]: Using when you accept digital clock of external Word Clock device [Fs256] via Word Clock port of the Audioterminial 010.

### <TDIF Clock>

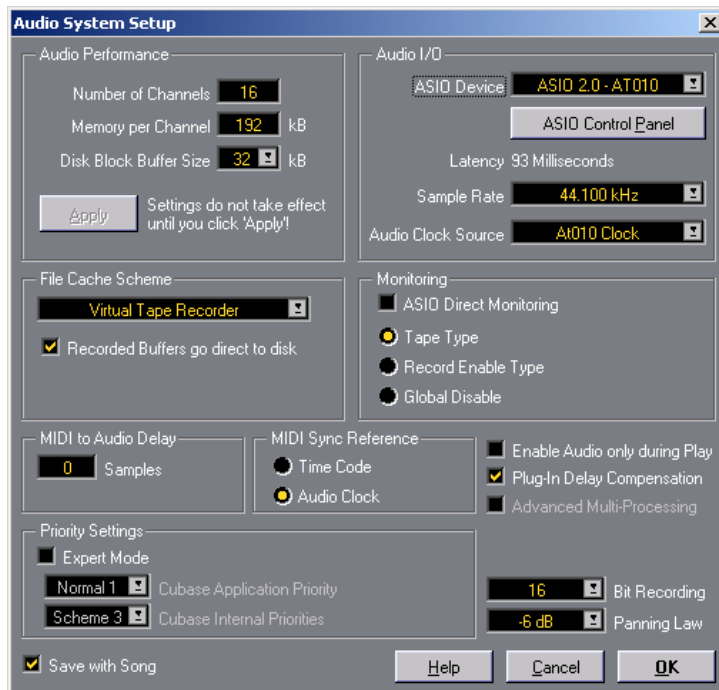
Using when you choose TDIF or set clock format of TDIF.

## 6. Working with Applications

### 1. Cubase VST

After launching Cubase, go to 'Option' -> 'Audio setup' -> System.

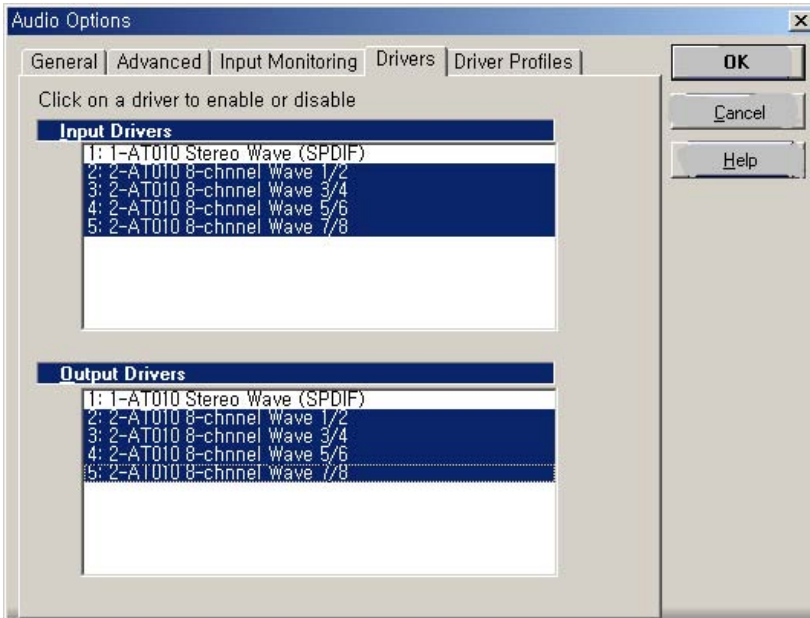
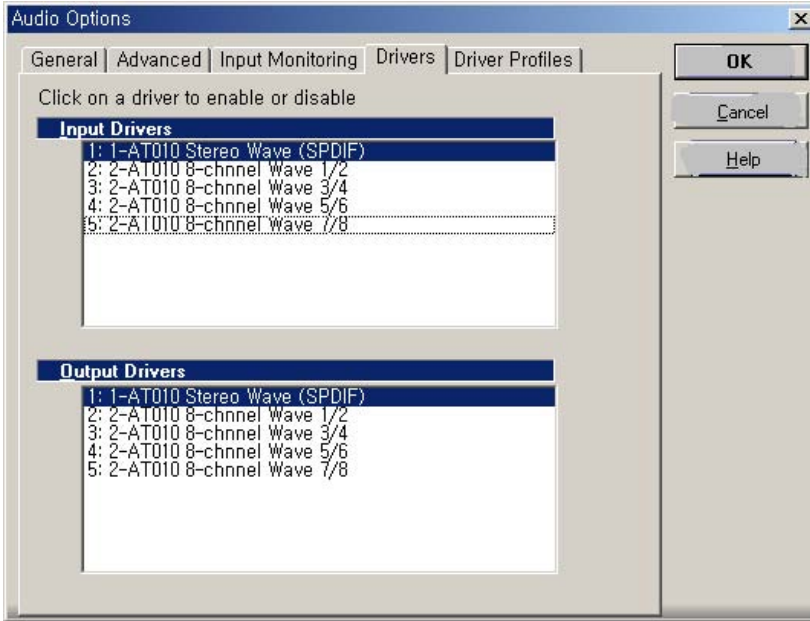
Select 'ASIO2.0-AT010' for the ASIO device.



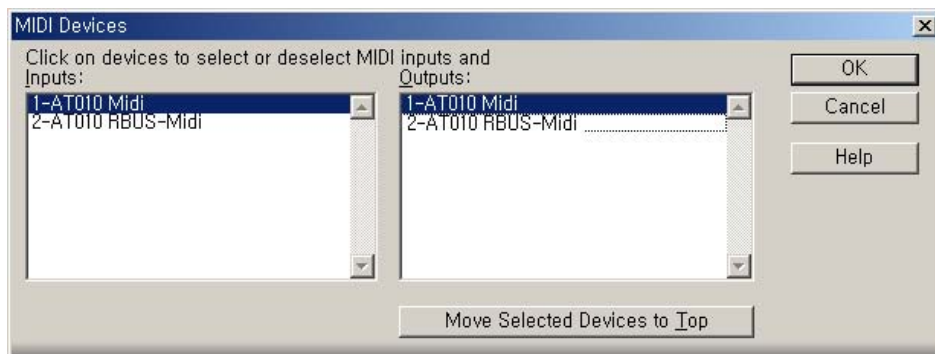
## 2. Sonar

After launching Sonar, go to 'Option' -> 'Audio'. Check 'AT010 Stereo wave' or 'AT010 8channel wave'.

Go to 'Option' -> 'Audio'. Choose 'AT010 Stereo wave' or 'AT010 8channel wave'.

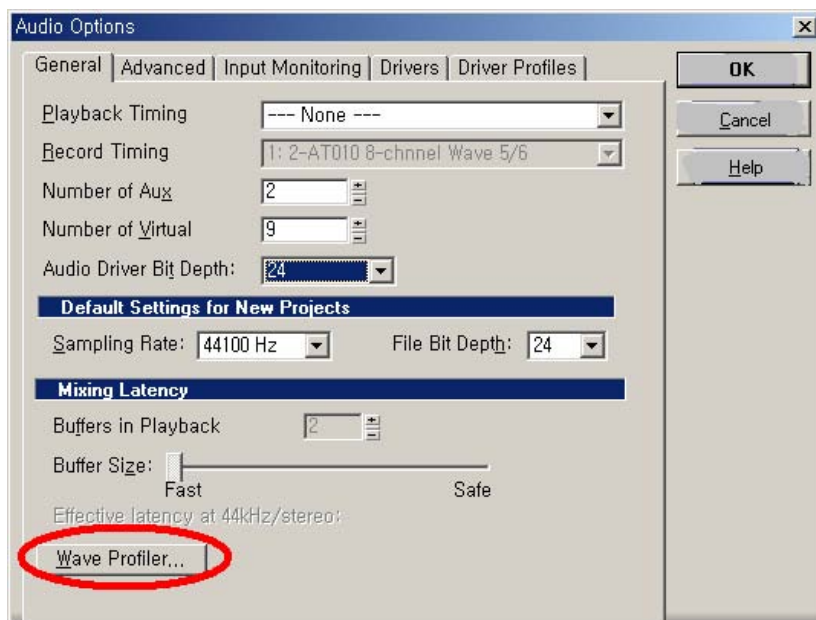


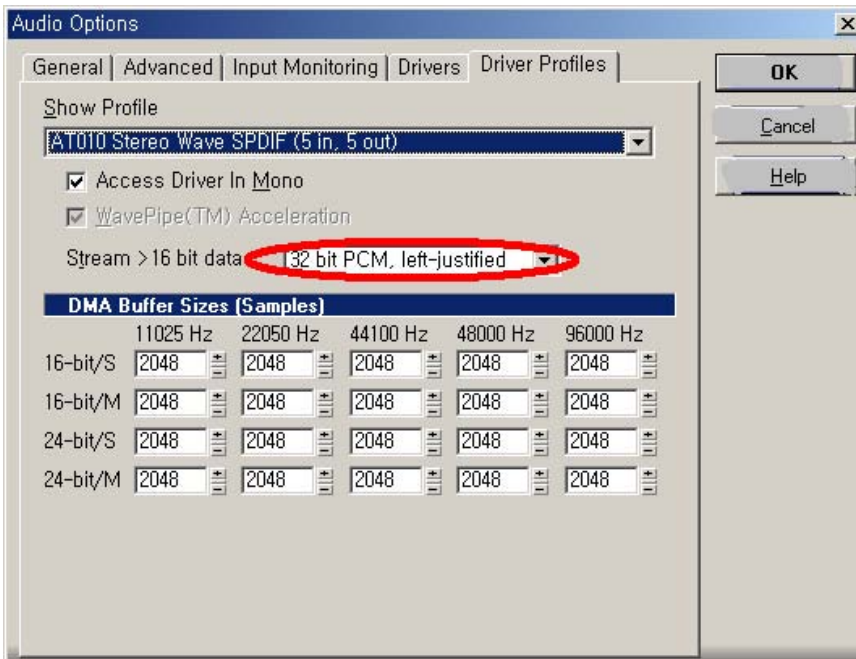
Go to 'Option' -> 'MIDI Devices'. Choose 'AT010 Midi' for MIDI port.



After set Latency you must click 'Wave Profiler' again.

When you work in 24bit mode, you must set '32bit PCM, left justified'

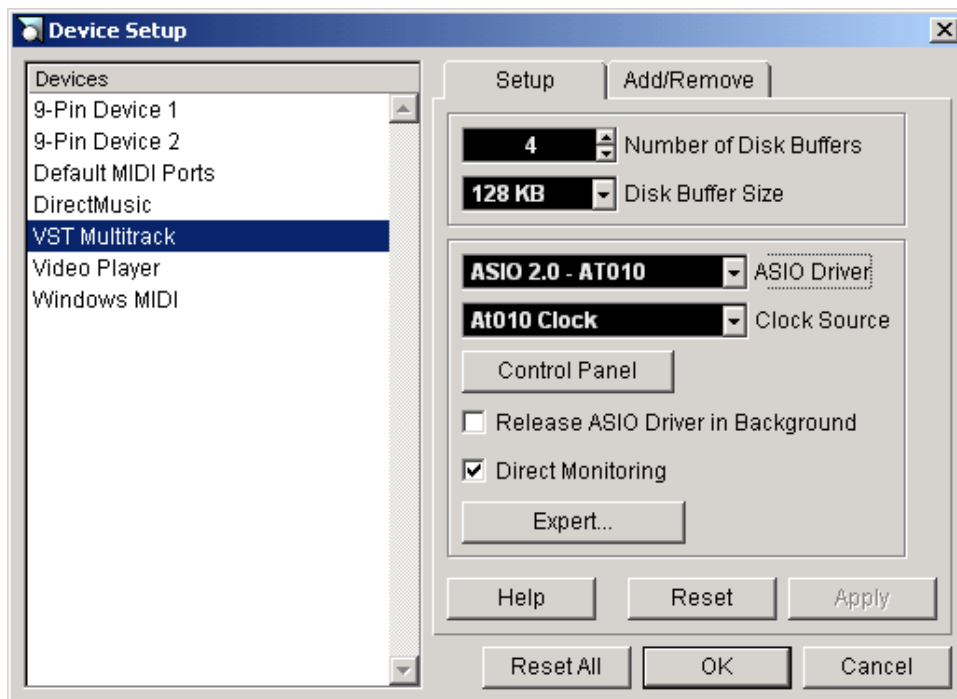




### 3. Nuendo

Go to “Device” -> Device Setup” -> VST Multitrack

Select ‘ASIO2.0 – AT010 for the ASIO Driver.



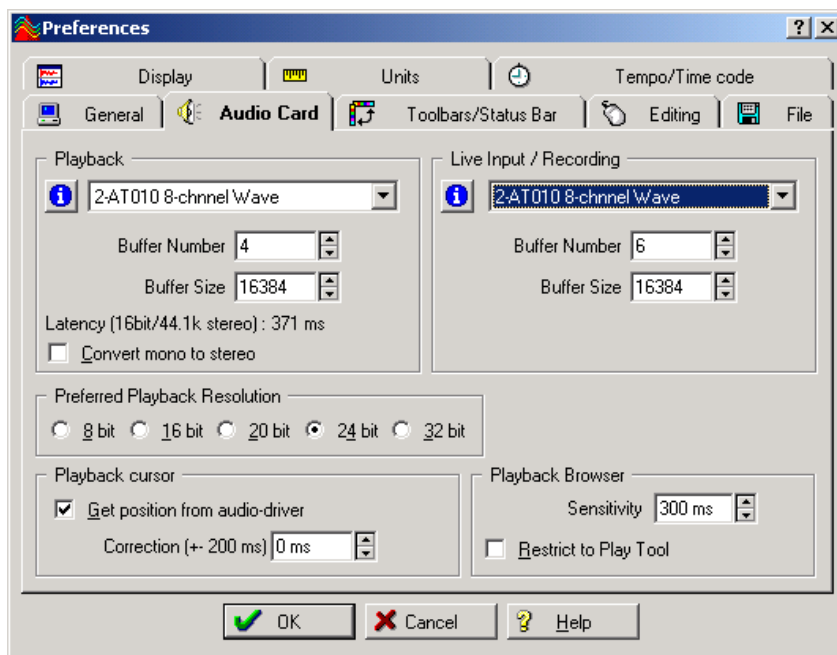
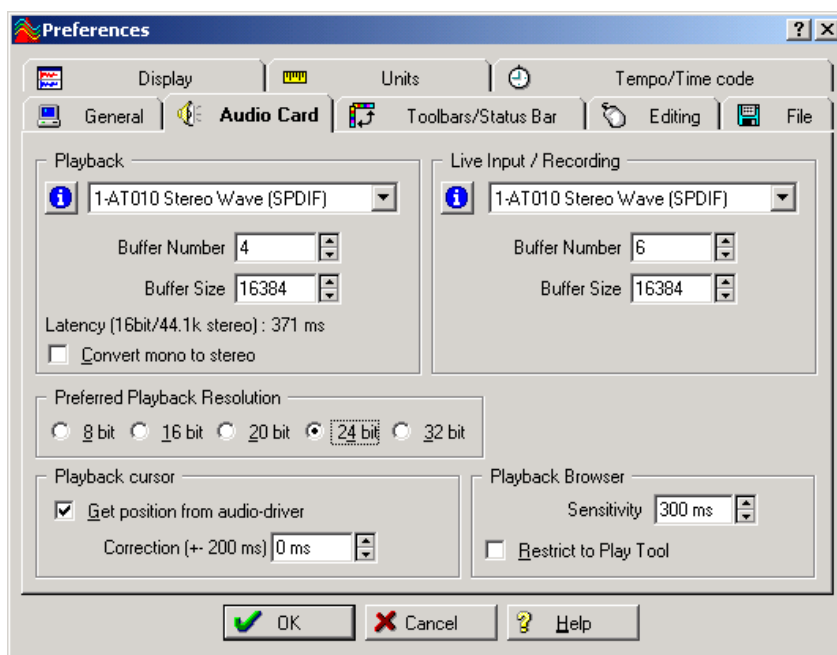
#### 4. Wave Lab

Go to 'Option' -> Preference -> Audiocard.

Choose 'AT010 Stereo wave' or 'AT010 8 channel wave'.

- 24bit play works only on Win ME and 98SE+ QFE(patch from Microsoft.).
- In Win XP and 2000+ Service Pack 2 doesn't work.

However, recording has no problem.





## Specification

1 ADAT Toslink I/O (8 channels)

1 TDIF/R-BUS I/O (25pin D-sub)

Supports 16 and 24 bit resolution

32, 44.1, 48, 64, 88.2, 96 kHz sampling rate support

1 in/ 1 out MIDI port, 16 MIDI channels

S/PDIF Digital Coaxial I/O

MIDI I/O can be used for MTC sync and MMC devices

On-Board S/PDIF CD Digital In

On-Board Word Clock I/O (Fs)

On-Board External Clock I/O (256Fs) for multiple card