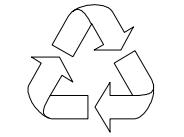
AW744 Series Audio Card

User's Guide



100% Recycled Paper

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FCC Class B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/television technician for help.

Notice 1:

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2:

Shielded interface cables must be used in order to comply with the emission limits.

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Appendix A : FAQs

1.1 Features

AOpen ***AW744 Series(AW744S-L, AW744S, AW744PRO, AW744 DELUXE..)*** with Yamaha YMF744 sound chip inside is a high performance PCI audio sound card. It consists of two major separated functional blocks. One is the PCI audio block and the other is the legacy audio block.

PCI audio block allows Software Driver to support 676 instruments Sondius-XG Capital Synthesizer. The PCI audio Engine converts the sampling rate of each audio stream and the streams are mixed without utilizing the CPU or causing system latency. By using the Software Driver, PCI audio provides 64-voice XG wavetable synthesizer with Reverb and variation. Its also supports DirectSound hardware accelerator, Downloadable Sound (DLS) and DirectMusic accelerator.

Legacy audio block supports FM Synthesizer, Sound Blaster Pro, MPU401 UART mode and Joystick function in order to provide hardware compatibility on the PCI. In addition, ***AW744 Series*** supports consumer ICE958, Audio Digital Interface(S/PDIF, excluded AW744-L), to connect external audio equipment by digital.

AW744 Series audio card has the following features:

Advanced technology support

- PCI 2.2 Compliant
- PC'98/PC'99 specification Compliant
- PCI Bus Power Management rev. 1.0 Compliant (Support D0, D2 and D3 state)
- PCI Bus Master for PCI Audio
- True Full Duplex Playback and Capture with
  Different Sampling Rate
- Support 676 instruments Sondius-XG Capital Synthesizer
  including GM compatibility

- Sensaura 3D positional audio with EAX technology support
- DirectSound Hardware Acceleration
- DirectMusic Hardware Acceleration
- Downloadable Sound (DLS) level-1
- Legacy Audio compatibility
- FM Synthesizer
- Hardware Sound Blaster Pro compatibility
- MPU401 UART mode MIDI interface
- Supports Consumer IEC958 Output (S/PDIF OUT) (excluded AW744-L)
- Supports Consumer IEC958 Input (CD Digital IN) (excluded AW744-L)
- Supports External Optical/Coaxial S/PDIF IN Connector(For ***AW744 DELUXE*** only)
- Supports AC'97 Interface (AC-Link) Revision 2.1

Software-controllable audio

- Supports various audio devices all controllable through software
- Adjusts master volume, CD audio, line-in, and microphone inputs

Stereo digitized voice channel

- Full-duplex, digital audio playback and recording in both stereo and mono modes

3D Surround Enhancement

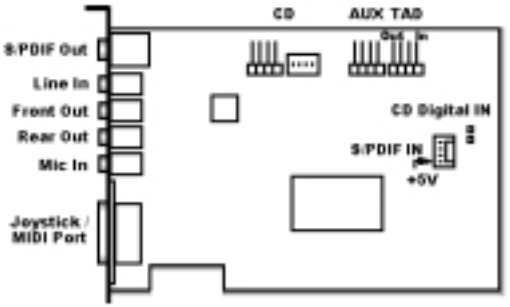
- Adjusts AC97 CODEC to enhance 3D Surround effect

Driver Support

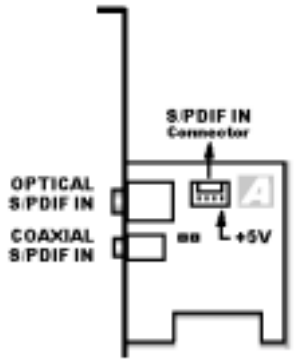
- Microsoft Windows 95/98 VXD driver
- Microsoft Windows 98 WDM driver***(For 2 Channel Only)***
- Microsoft Windows NT 4.0
- Microsoft Windows 2000 driver***(For 2 Channel Only)***
- MS-DOS***(For 2 Channel Only)***

1.2 Card Components

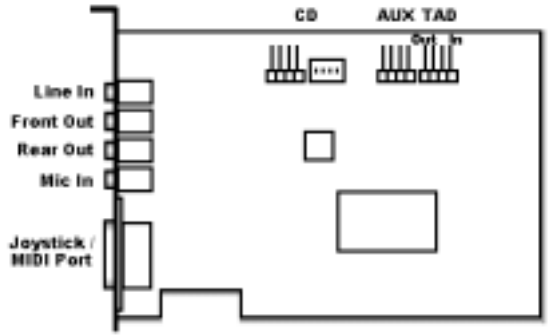
AW744 Series



Optical/Coaxial S/PDIF IN Daughter Card(For AW744DELUXE Only)



AW744-L


CD
AUX TAD
Ctrl In
Line In
Front Out
Rear Out
Mic In
Joystick /
MIDI Port

2.1 Installing the Card

2.1.1 Installing Sound Card.

Please Follow these steps to install the card:

1. Turn off the system and all the peripherals connected to it.
2. Remove the system cover to access the expansion slots.



Caution: *Touch an unpainted portion of the system before handling components to discharge any static electricity that you may have accumulated.*

3. Remove the metal bracket from an empty PCI slot. Save the screw to secure the card.
4. Align the card with the slot guide and press it down into the slot.



Important: *Make sure that the card is seated firmly in the slot.*

5. Secure the card with a screw.



Caution: *Do not neglect this step. The card uses the bracket for grounding.*

6. Attach the required cables to the card.
7. Replace the system cover, connect the cables, and turn on the system.

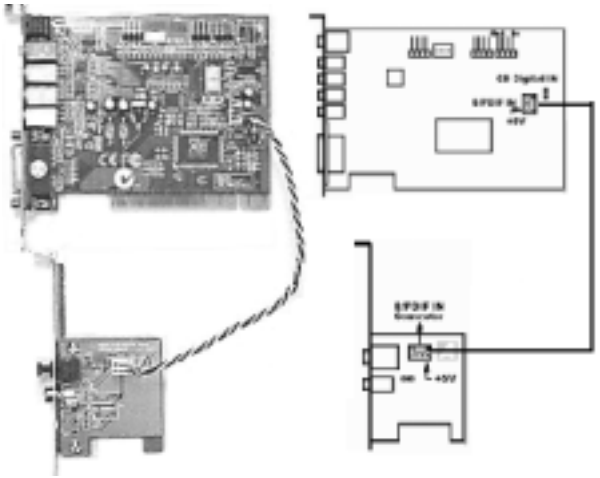
2.1.2 Installing S/PDIF IN Daughter Card.

This section is for ***AW744DELUXE*** only, please follow these steps to install the card:

1. Turn off the system and all the peripherals connected to it.

Caution: *Touch an unpainted portion of the system before handling components to discharge any static electricity that you may have accumulated.*

2. Remove the system cover to access the expansion slots.
3. Remove the metal bracket from an empty PCI slot. Save the screw to secure the card.
4. Connect 4-pin housing cable to wafer connectors both on AW744DELUXE Card and S/PDIF IN Daughter card.

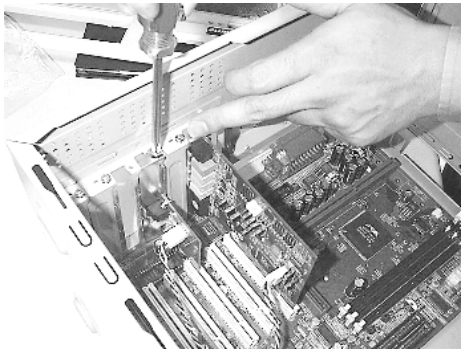


Warning : Please connect the 4-pin housing cable to wafers with the right orientation to prevent system damage.

5. Align the card with the slot guide and press it down into the slot.

Important: *Make sure that the card is seated firmly in the slot.*

6. Secure the card with a screw.



Caution: *Do not neglect this step. The card uses the bracket for grounding.*

7. Attach the required cables to the card.

8. Replace the system cover, connect the cables, and turn on the system.

2.2 Connecting Peripherals

To fully utilize the card functions, you may connect various peripheral devices that the card supports. Figure 2.1 shows the different devices that you can connect.

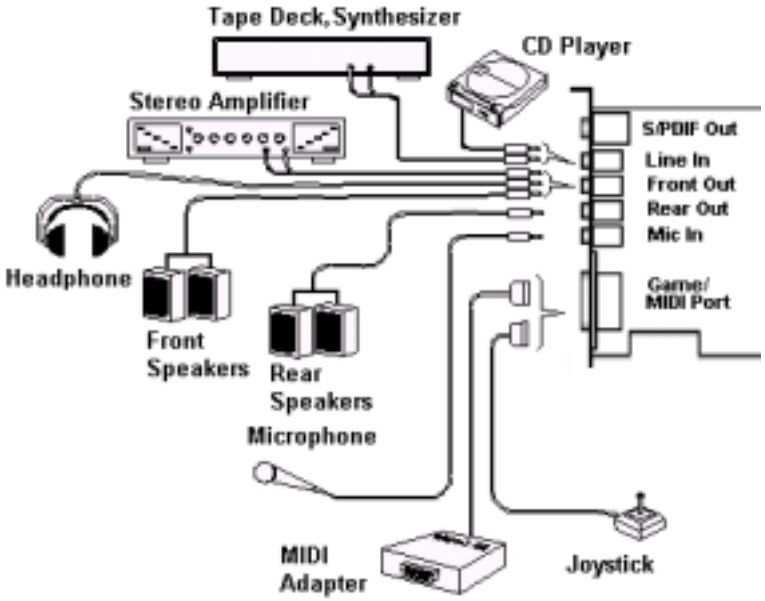


Figure 2-1 Connecting Peripheral Devices

2.2.1 Audio Output Devices

There are three common connection type for the output devices(Figure 2.2.1)

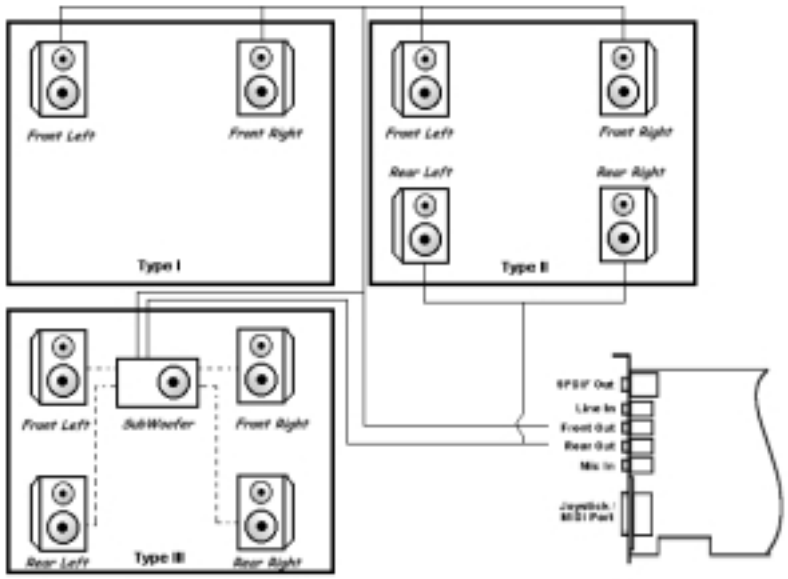


Figure 2.2.1

AW744 Series supports lists functions for 4 channels output.

1. WAVE files
2. MIDI files with Wavetable output
3. Computer games support Sensaura 3D Positional Audio Technology.
4. Computer games support Microsoft DirectSound3D.
5. Computer games support EAX.
6. Support various Software DVD player to down-mix real Dolby AC3 5.1 channels output to 4 channels output. (excluded AW744-L)

2.2.2 Audio Input Devices

The audio Line-in port is available for different audio input devices such as CD player, cassette, synthesizer, etc. The microphone-in port is available for the external microphone. And the internal connector of CD-in, AUX-in are avaviable for CD-ROM, DVD-ROM, etc.

2.2.3 MIDI/Joystick

The Game/MIDI port on the card is compatible with the standard PC joystick. You may also choose to connect a MIDI adapter with a joystick port to use the MIDI and joystick simultaneously.

2.2.4 S/PDIF In/Out(excluded AW744-L)

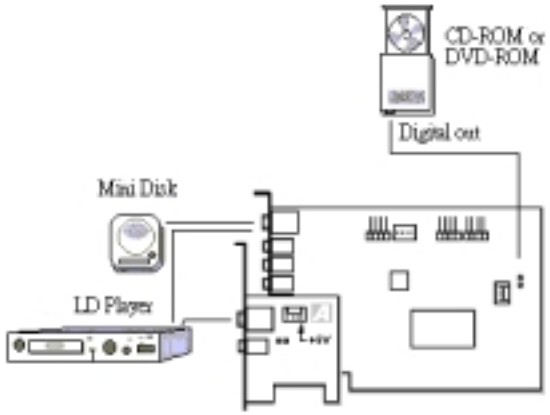


Figure 2.2.4

S/PDIF Out Connector :
The S/PDIF-Out port is available for Mini Disk, LD player, set-top box etc. and support 48KHz sample rate digital signal.

CD Digital IN Connector :
The CD Digital IN connector is available for CD-ROM digital out.

S/PDIF IN Connector (For AW744DELUXE Only):
The external S/PDIF-In is available for any 32KHZ, 44.1KHz, 48KHz sample rate PCM digital signal.

2.3 Setting Up in Windows 95/98

The card package may come with either a set of diskettes or a CD-ROM containing the Windows 95/98 drivers and software (including the Music Center application). Refer to their online help for details.



Note: *Refer to your Windows 95/98 manual or online help for any questions on Windows 95/98.*

2.3.1 Installing the Drivers and the Application

After turning on the system, Windows 95/98 begins loading and starts detecting new hardware installed on the system.

1. When Windows 95/98 detects the presence of the ***AW744 Series*** audio card, it begins to build the ***AW744 Series*** driver database. The New Hardware Found dialog box displays.



2. Insert the ***AW744 Series*** driver disk in the appropriate drive.



3. Select '***Specify a location***', browse and assign driver path as '***X:\Driver\AW744\Win9x***'. (***X***: represent the drive letter of your CD-ROM, please change it to the actual driver letter on your system.)

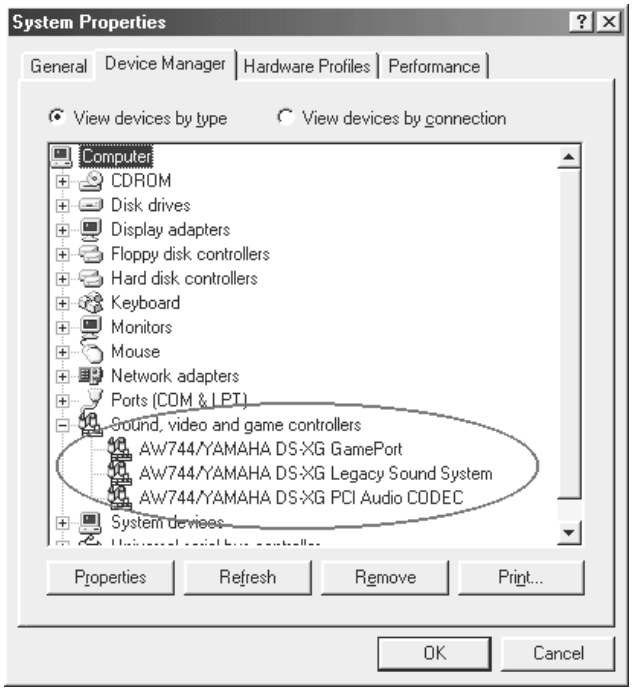
4. Click the ***Next*** button to continue and finish the installation procedures.



Tip: *Prepare the Windows 95/98 CD-ROM disk before setting up the sound card. Windows 95/98 will prompt you to insert the Windows 95/98 CD-ROM disk when you install the joystick or MIDI device.*

Note: *If the file being copied is older than the file currently existing in your system, we recommend that you keep the existing file.*

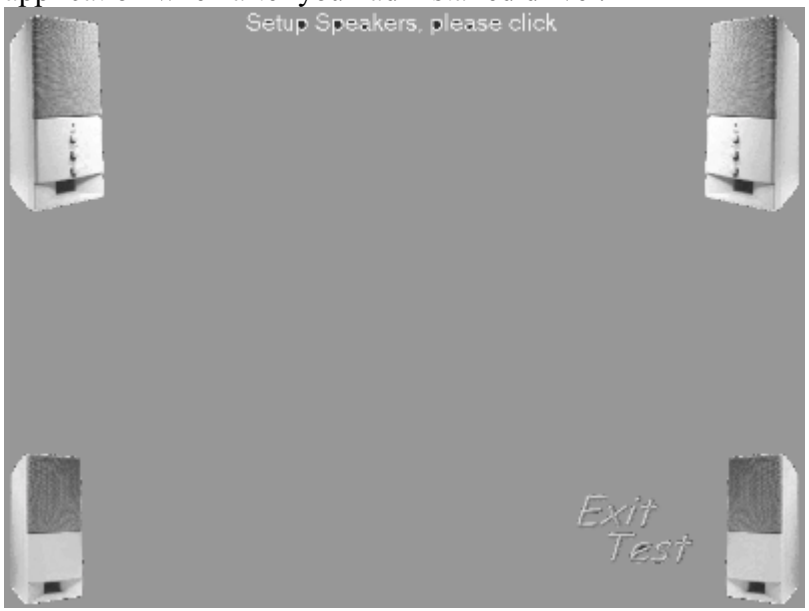
5. Windows 95/98 makes changes to the system settings and begins detecting the following new hardware components:



- AW744/YAMAHA DS-XG GamePort
- AW744/YAMAHA DS-XG Legacy Sound System
- AW744/YAMAHA DS-XG PCI Audio CODEC

2.3.1-2 Setting Real Speakers.

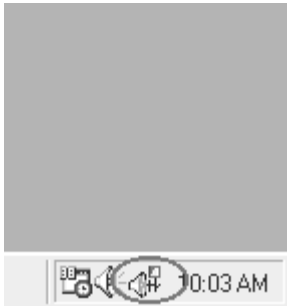
To make sure speakers was correctly connected to ***AW744 Series***, AOpen driver will show up 'Speaker Position' application when after you had installed driver.



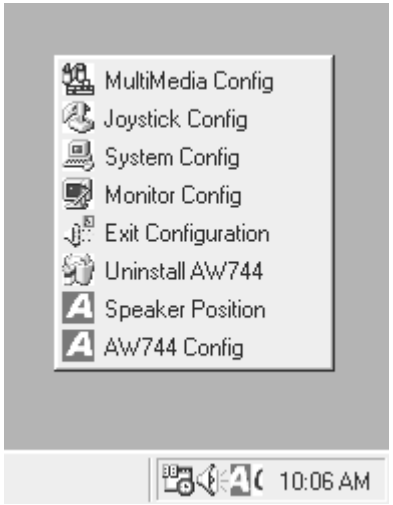
Simply click the speaker image to check if the real speakers have the right position.
When finished tested, please click 'Exit Test' then back to system.

2.3.1-3 AOpen System Tray Icon.

AOpen supplies a way to let users easily config ***AW744 Series*** audio sound system



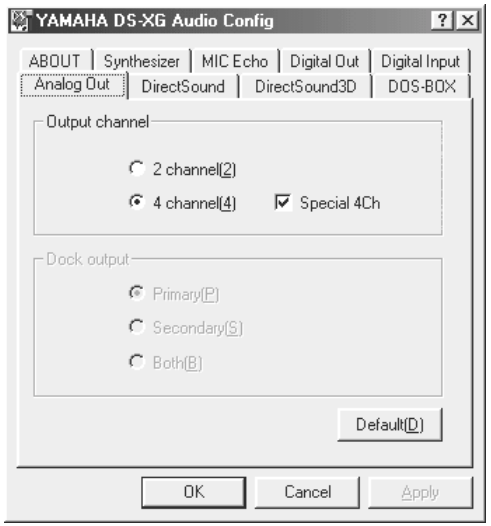
For all ***AW744 Series*** Configurations, users can easily click mouse right button upon AOpen Sound tray locate on system tray bar.



2.3.1-4 AW744 Series Main Configuration.

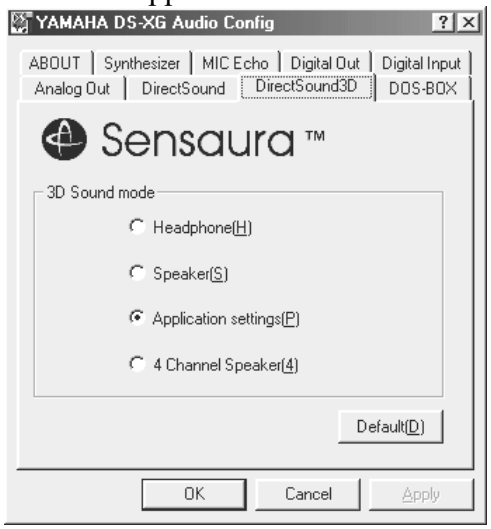
Users can simply click the ‘AW744 Config’ item to begin setup.
This page shows how to config ***AW744 Series*** 2 or 4 channel mode.

1. When user select Output channel to '2 Channel(2)', ***AW744 Series*** outputs all sound streams only from the front channel.
2. When user select Output channel to '4 Channel(4)', ***AW744 Series*** outputs all sound streams via front channel and rear channel.
3. When user select Output channel of 'Special 4Ch', ***AW744 Series*** outputs Wave and Midi sound streams both front channel and rear channel.



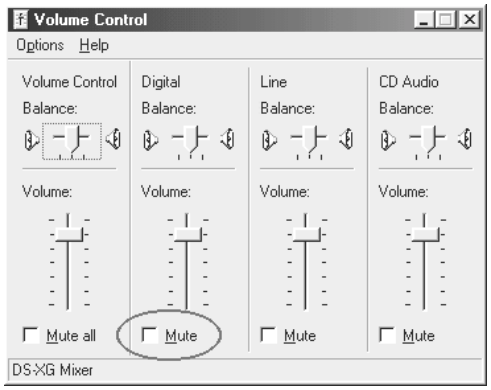
2.3.1-5 AW744 Series 3D Sound Configuration.

AW744 Series supplies Sensaura 3D Positional Audio with EAX technology that enhance games sound realizable.



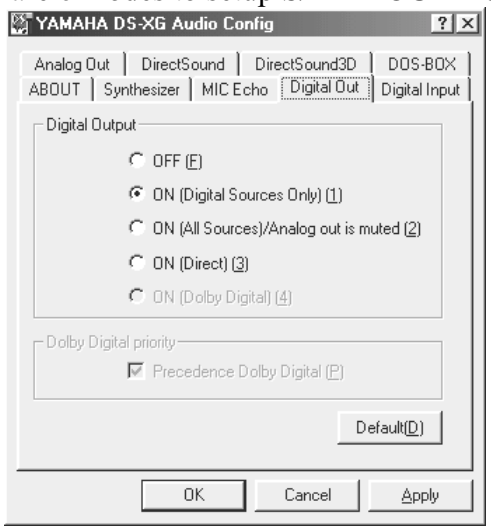
2.3.1-6 Enable S/PDIF IN function. (excluded AW744-L)

To enable S/PDIF IN function, please dis-mute the 'Digital Balance' on Volume Control.



2.3.1-7 Setup S/PDIF OUT mode. (excluded AW744-L)

There are 6 modes to setup S/PDIF OUT mode, fully support your sound card connect to digital devices.



2.3.1-8 Install the Application

1. AOpen Supplies various applications together with the Driver disc, please refer to ***README.TXT*** in the root directory of Driver Disc.

2.3.2 Removing the Drivers

Follow these steps to remove or uninstall the drivers:
1. Click mouse right button upon AOpen sound configuration on System Tray bar, select 'Uninstall AW744' item.
The uninstallation process automatically removes the drivers and changes the system registry settings.



Important: *After removing the drivers, remember to remove the audio card when you shutdown from the current Windows 95/98 session; otherwise, Windows 95/98 will again detect the* ***AW744 Series*** *audio card at the next startup.*

2.4 2.4 Setting Up in NT4.0

The card package also comes with NT4.0 drivers. Please refer to your NT4.0 manual or online help for any questions on NT4.0.

2.4.1 Installing the Audio Drivers

Follow these steps to install the audio drivers:

1.Install the audio drivers by auto-run :

1-1. Boot up Windows NT and insert driver disc..
1-2. Setup program will auto-run, or browse CD and select X:\SETUP.EXE,
1-3. AOpen Setup program will auto detect and auto install NT driver.
1-4. Restart Windows NT.

2.Install the audio drivers by self-trigger :

2-1. Boot up Windows NT and insert driver disc..
2-2. Setup program will auto-run, or browse CD and select X:\SETUP.EXE,
2-3. Click the ***Driver*** button on Setup menu.
2-4. Restart Windows NT.

Note: (***X***: represent the drive letter of your CD-ROM, please change it to the actual driver letter on your system.)

2.4.2 Install MPU-401/Joystick Driver

Follow these steps to install the MPU401 or joystick drivers:

1. Select MULTIMEDIA from control panel and click on the Devices tab.
2. Press the ADD button. Select MPU-401 Compatible Driver /Microsoft Sidewinder 3D Pro Joystick and press OK.
3. Place your NT4.0 installation CD and press OK (the default path is the i386 directory).
4. The Generic MPU-401/Joystick Setup dialog box will pop up. Select the default configuration resource and press OK.
5. Click on the Restart Now button.



Note: *X: means your CD drive letter, please change it according to the actual drive letter.*

2.5 Setting Up in Windows 2000

2.5.1 Install Windows2000 Driver

1 Boot up Windows2000.
2 After turning on the system, Windows2000 begins loading and starts detecting new hardware which installed on the system.
3 When Windows2000 detects a new presence on the system, it will search new drivers in its driver database automatically.
(Windows2000 will install built-in, compatible drivers for ***AW744 Series***)
4 When Windows2000 recognizes the new sound card presence from its database, it will install drivers for this presence from its driver database and **will not require from user**.

Windows2000 built-in, compatible drivers for AOpen Sound Cards

Windows2000 will install built-in, compatible drivers for ***AW744 Series***, then makes changes to the system settingsand adds new hardware components in Device Manager

AW744 Series **(Yamaha YMF744)**
1-1 Hardware components.
a. **YAMAHA Native DS1 WDM Driver.**
b. **YAMAHA Legacy DS1 WDM Driver.**
c. **Game port for Yamaha DS1**
1-2 Driver Version : 5.0.2184(Microsoft)

Upgrade Drivers

AOpen will regularly publish all models' upgrade drivers on our website.
To upgrade windows2000 drivers, please complete with the following installation procedures.

1. Boot up Windows2000.
2. Go through My Computer->Control Panel->Sounds and Media
   ->Hardware page.
3. For all **Hardware Components**(listed for each model above), click
   Properties button and select driver page.
4. Browse and assign driver path as '***X:\Driver\AW744\Win2000***'.

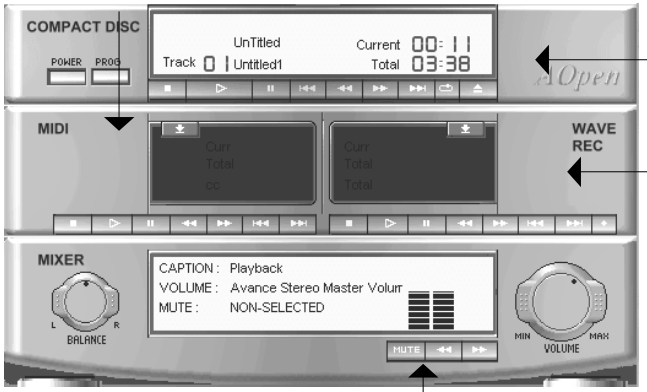
   (***X***: represent the drive letter of your CD-ROM, please change it to the actual

   driver letter on your system.)
5. Click Update driver button and go through the upgrade procedures.

3.1 Music Center

AOpen Music Center supports various windows platforms (Win95/98, WinNT and Win2000), providing you an easy tool to play CD, WAVE, MIDI and recording music.
To startup this application, please click the Music Center Icon.

MIDI Player: *plays MIDI audio files*



CD Player: *plays audio CDs*

Wave Player: *plays and records waveform audio files*

Multimedia Mixer: *controls the combination and balance of sound output from different channels*

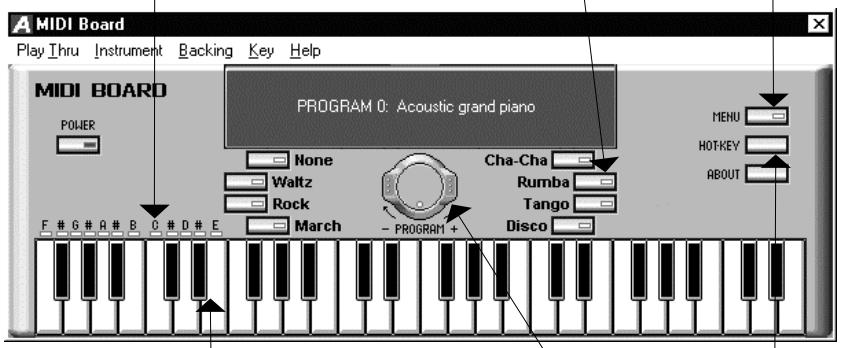
3.2 MIDI Board

To startup this application software, please click the MIDI Board Icon.

Tone Button: *Sharp or disminish background music by the 12 tone buttons.*

Rhythm & Tempo: *To play several types of background music.*

Menu Button*: Turn on/off Menu.*



MIDI Board Notes: *Move cursor over the screen keyboard and click for playing or strick corrospondence key on PC keyboard to play specific tone.*

Program Tuner: *Drag the yellow point to select specific program for different instrument tune.*

HotKey Button: *Show keyboard mapping.*

FAQ

Q: Why there was no sound of my Rear Out ?
A: Please check and set Output channel to '4 Channel(4)' from AW744 config page.Besides, if you want to play a Wave or a Midi with 4 Channel output,please also enable Output channel of 'Special 4Ch'. For games, please check 'DirectSound3D' page under AW744 config.

Q: Why there was no sound after I had installed ***AW744 Series*** driver?
A: Thats probably the system resources assign error. Please check lists item.
1. Please completely remove all the drivers from system of your previous Sound Card.
2. Please make sure ***AW744 Series*** had fine secure onto PCI slot.
3. Are there too many PCI cards plug on your PC ? Usually that might cause your sound card hungry for system resources. I strongly recommend you assign system resources for sound card from your Mainboard BIOS, Assign IRQ for the PCI slot which ***AW744 Series*** plug on.
4.Also, please check sound device component from system Device Manager if any exclamation marks show upon.

Q: Why there was no sound of my S/PDIF OUT?
A: Please check if you enable S/PDIF OUT mode from AW744 config

Q: Why there was no reaction of my CD Digital IN?
A: Please check if you enable S/PDIF IN mode from system Volume Control. Besides, make sure the cable is correctly connect.(CD Digital IN, Pin 1: Data, Pin 2: GND)

Q: Why there was no reaction of my Optical (or Coaxial) S/PDIF IN?
A: Please check if you enable S/PDIF IN mode from system Volume Control.

Q: Whats 'Special 4Ch' under AW744 config means?
A: 4Channel sound card was designed for support games, for general Wave and Midi file, they usually output as 2 channel. The 'Special 4Ch' allows users play Wave and Midi files as 4 Channel output.

Q: Does ***AW744 Series*** supports EAX ?
A: Yes, ***AW744 Series*** supports EAX.

Q: Does ***AW744 Series*** Windows98 WDM Driver support 4Channel ?
A: No, ***AW744 Series*** Win98 WDM Driver, NT Driver and Real Dos Driver do not support 4 Channel output.

Q: Does ***AW744 Series*** support hardware acceleration for DirectSound ?
A: Yes, ***AW744 Series*** support hardware acceleration for DirectSound.

Q: Does my sound card Mono In and Mono Out for Modem ?
A: Yes, please check ***AW744 Series*** hardware layout 'TAD' connector