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YAMAHA YMF724 PCI - SOUND CARD

Configuration and Hardware

USER MANUAL

June 1998

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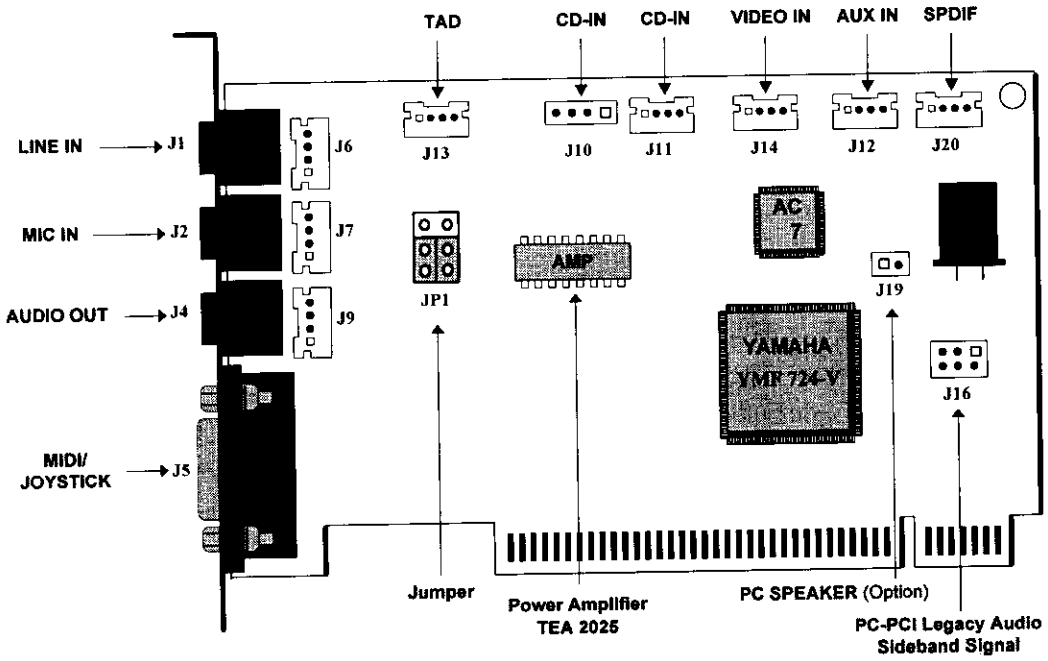
1. DESCRIPTION

This is a new audio adapter that provides the next generation of PCI audio performance to the PC market. The adapter not only meets the new demands of advanced PC audio applications but also enables the integration of a complete multimedia subsystem on a single adapter. The adapter functionality and interfaces are compliant with all major industry standards, including the SoundBlaster Compatible, PC'97, Windows 95 Direct Sound, Windows Sound System and PCI 2.1 bus specification.

1.1. Features

- PCI 2.1 compliant
- PCI Bus Power Management rev. 1.0 compliant
- PCI Bus master for PCI Audio
  - ⇒ True Full Duplex Playback and Capture with different Sampling Rate
  - ⇒ Maximum 64-voice XG capital Wavetable Synthesizer including
  - ⇒ GM compatibility
  - ⇒ Direct Sound Hardware Acceleration
  - ⇒ Direct Music Hardware Acceleration
  - ⇒ Downloadable Sound (DLS) level-1
- Legacy Audio compatibility
  - ⇒ Genuine OPL3
  - ⇒ Hardware SoundBlaster Pro compatibility
  - ⇒ MPU-401 UART mode MIDI interface
  - ⇒ Joystick
- Supports PC/PCI and distributed DMA for Legacy DMAC (8237) emulation
- Supports AC-1 interface (AC-Link)
- Single Crystal operation (24.576 MHz)
- 5V Power supply for I/O. 3.3V Power supply for internal core logic
- Compliant with AC'97 Requirements
  - ⇒ 4 Stereo Inputs: LINE, CD, VIDEO, AUX
  - ⇒ TAD connector for mono In and Output for modem Audio
  - ⇒ 1 MIC Input
  - ⇒ Stereo LINE Output/ Speaker Output
- 20 dB MIC Amplifier
- Analog Characteristics
  - ⇒ A/D S/N: 85 dB
  - ⇒ D/A S/N: 90 dB
- Low Power Consumption
- Built-in 2-Channel Power Amplifier

1.2. Card Figure



1.3. Connectors

This PCI Sound Card includes up to eight internal connectors, three external Jack Ports, one external MIDI/ Joystick connector, one VIDEO connector, one VOICE Modem connector, and one PC/PCI Legacy AUDIO SIDEBAND SIGNAL connector.

1.3.1. External Connectors:

J1:..... ∅ 3.5mm Phone Jack for **LINE IN.**
J2:..... ∅ 3.5mm Phone Jack for **MIC IN.**
J4:..... ∅ 3.5mm Phone Jack for **AUDIO OUT.**
J5:..... Connector for **MIDI/JOYSTICK.**

1.3.2. Internal Connectors:

J6:..... Internal connector for **LINE IN.** (optional)
J7:..... Internal connector for **MIC IN.** (optional)
J9:..... Internal connector for **AUDIO OUT.** (optional)

J10:..... Connector for **CD-AUDIO IN.**
J11:..... Connector for **CD-AUDIO IN.**

J12:..... Connector for **AUX IN.**
J13:..... Connector for **TAD/VOICE MODEM.**
J14:..... Connector for **VIDEO IN.**
J16:..... Connector for **PC/PCI Legacy Audio SIDEBAND SIGNAL.**
J19:..... Connector for **PC SPEAKER.** (optional)
J20:..... Connector for **SPDIF.** (optional)

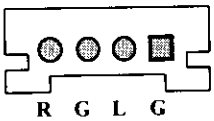
1.3.3. Audio Connectors:

J10: CD-Audio



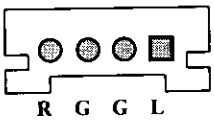
L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J11: CD-Audio



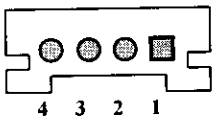
L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J12: AUX In



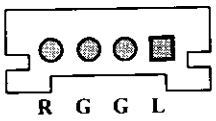
L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J13: TAD/Voice Modem



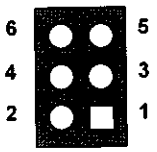
1 PHONE IN
2 GROUND
3 GROUND
4 MONO OUT

J14: VIDEO IN



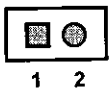
L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J16: PC/PCI



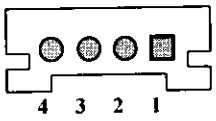
1 PCGNT #
2 GROUND
3 N.C.
4 PCREQ #
5 GROUND
6 SERIRQ #

J19: PC BEEP



1 PC SPEAKER OUT
2 + 5V

J20: SPDIF



1 SPDIF OUTPUT
2 GROUND
3 GROUND
4 SPDIF OUTPUT

2. HARDWARE INSTALLATION

2.1. Handling the PCI Sound Card

WARNING: Static electricity can damage your equipment. Do not take the card out of its static protective bag until you are ready to work with it.

Follow these precautions when handling the card:

- Before you open the static protective bag, touch it to a metal expansion slot cover on the back of your computer. This drains static electricity from the package and from your body.
- Do not touch any exposed printed circuitry after opening the package.
- Keep other people from touching the card. They might have a static-electricity build-up.
- Limit your movement. Movement causes a build-up of static electricity.

2.2. Installing the PCI Sound Card

Step 1. Turn off the system and all peripheral devices.

Step 2. Disconnect the power cord and all peripheral devices from the system.

Step 3. Remove the system cover and identify an unused PCI slot.

Step 4. Unscrew the slot cover plate, plug in the PCI Sound Card, and tighten it with the screw.

Step 5. If you have speakers or amplifiers, plug the cable into the **J4** Jack on the back of the Sound Card.

Step 6. Depending on what type of CD Audio cable you have connect **J10** or **J11** on the Sound Card and the Audio output at the back of the CD-ROM drive. Make sure pin 1 of **J10** or **J11** is connected to the leftmost pin of the CD-ROM Audio output.

Step 7. Put back the system cover, reconnect the system power cord and all peripheral devices. Check and make sure all connections are correct before you turn on the system.

NOTE: If you want to listen to the sound of DOS Games and your motherboard supplies the respective connector, please connect the cable for the PC/PCI Legacy Audio Sideband Signal to J16 on the PCI Sound Card.

Reference
Version 1.0

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1. DEVICE DRIVER SOFTWARE

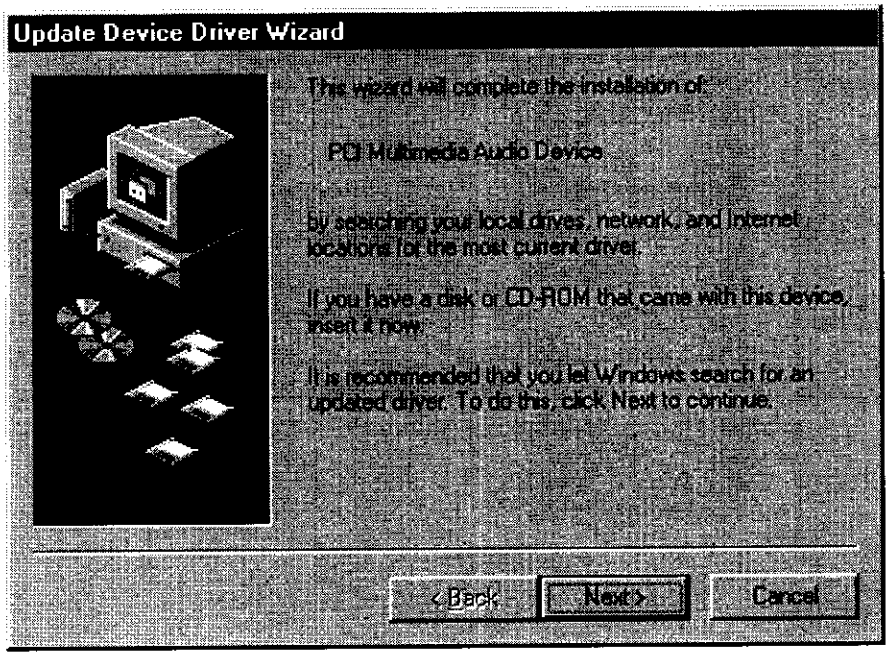
1.1. DS-XG Device Driver Installation Under Windows® 95 OSR2

This section contains the procedures for installing the DS-XG device driver software on your computer. The DS-XG is a Windows 95 Plug-and-Play device. Once the DS-XG is installed and your computer is rebooted, Windows 95 will automatically detect the device and start the Install Wizard. Follow the procedures in this section once the Install Wizard is started.

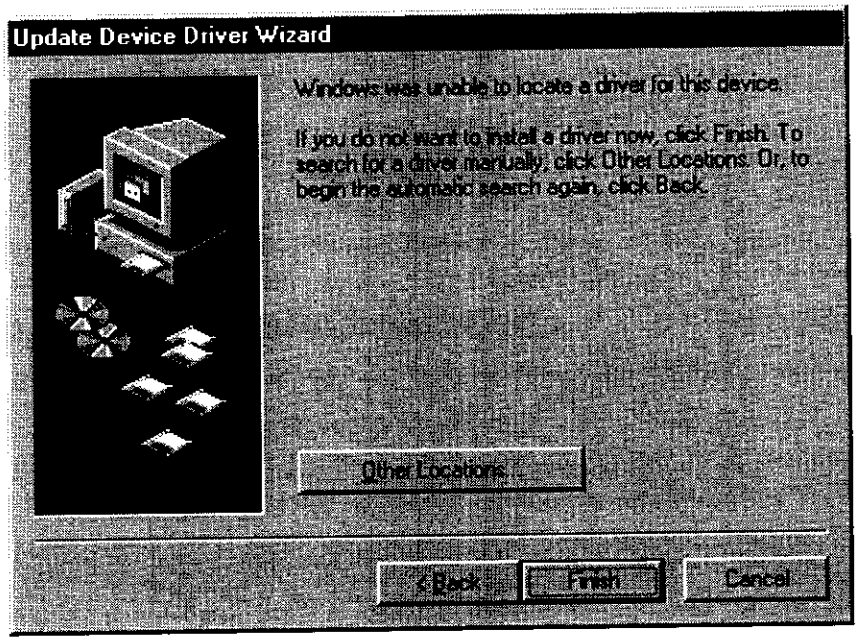
1.2. Installing the DS-XG Device Manager

This section explains how to install the DS-XG device manager.

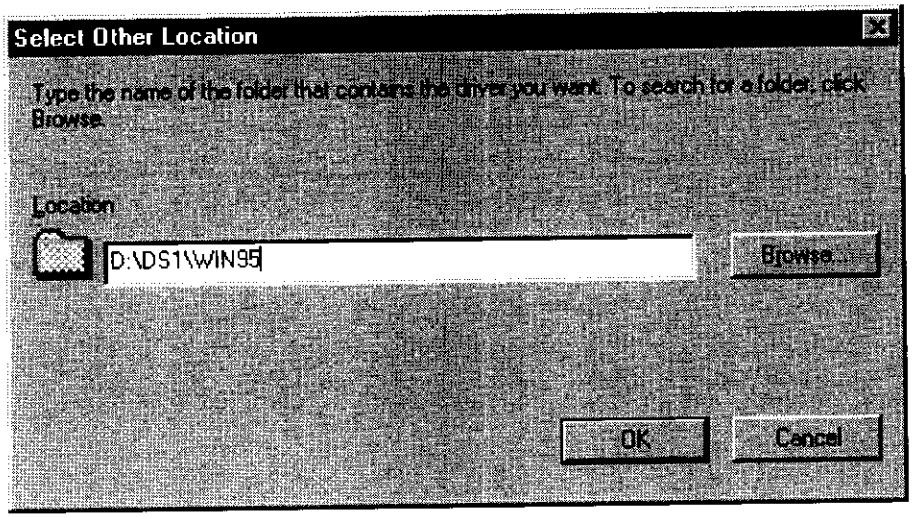
1.) Once the Install Wizard is started, the *Updated Device Driver Wizard* window will appear as shown below. If you are using an installation CD-ROM, then insert the CD in your CD-ROM drive now. Click on the **Next** button to continue.



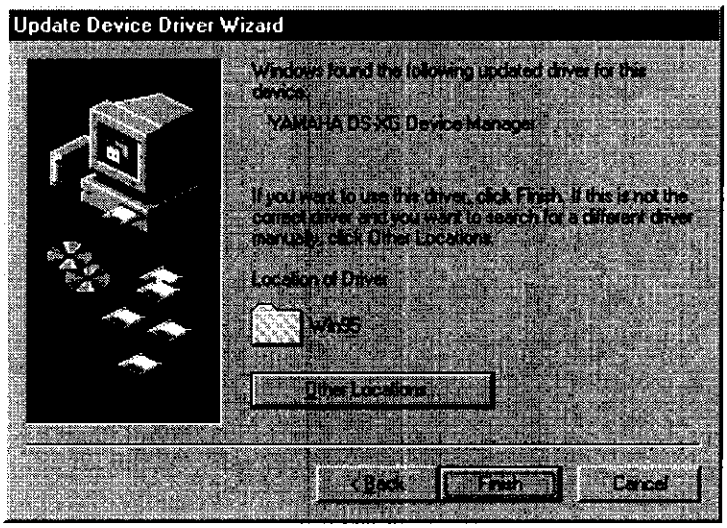
2.) The "Update Device Driver Wizard" window will appear as shown below. Please click on the "Other Locations..." push button.



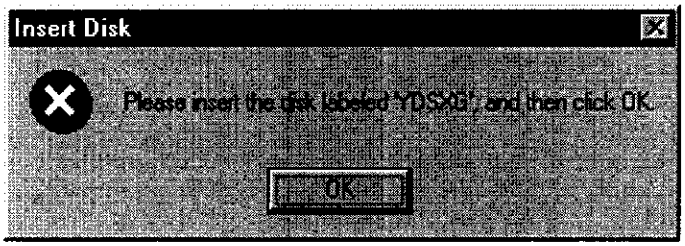
3.) Assuming your CD-ROM drive is D, type in the command line of the "Select Other Location" window the following path:
D:\DS1\Win95. Click on the **Next** button to continue.



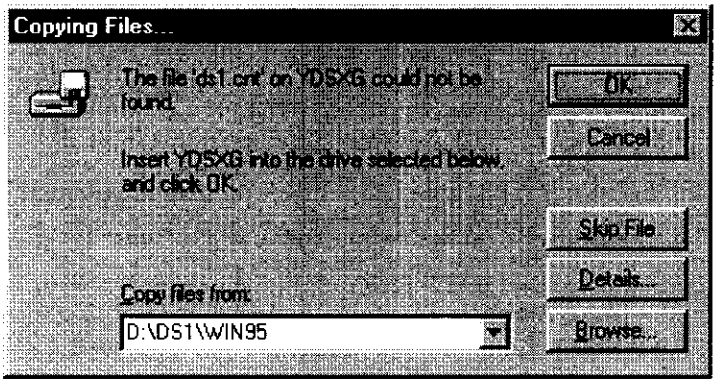
4.) The information displayed in the *Updated Device Driver Wizard* window will now change. Verify that YAMAHA DS-XG Device Manager is displayed as shown in the following Figure and click on the **Finish** button.



5.) The *Insert Disk* window will now appear as shown below and you will be prompted to insert a disk. Simply click on the **OK** button to continue.



6.) Windows 95 will now copy the necessary files to your computer. If the **Copying Files** window appears as shown below, then type the following command in the path box: **D:\DS1\Win95**

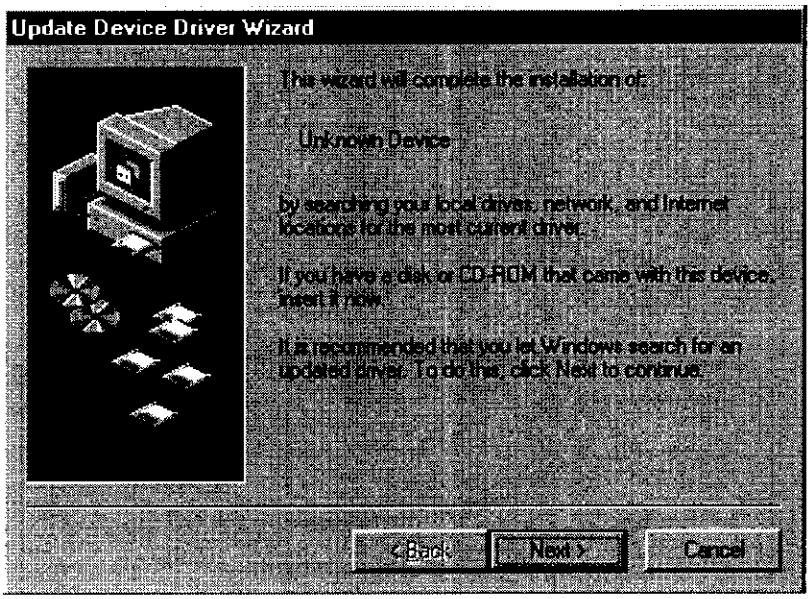


Click on the **OK** button to continue with the installation. This completes the installation process of the DS-XG device driver.

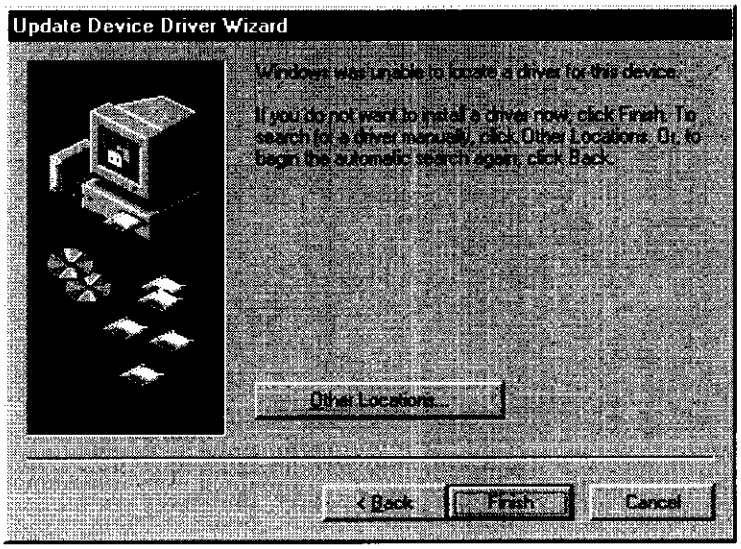
1.3. Installing the Device Drivers for PCI Audio Codec, Legacy Sound System and Legacy Game Port

This section explains how to install the device drivers for PCI Audio Codec, Legacy sound system and Legacy game port once the DS-XG drivers and device managers have been installed.

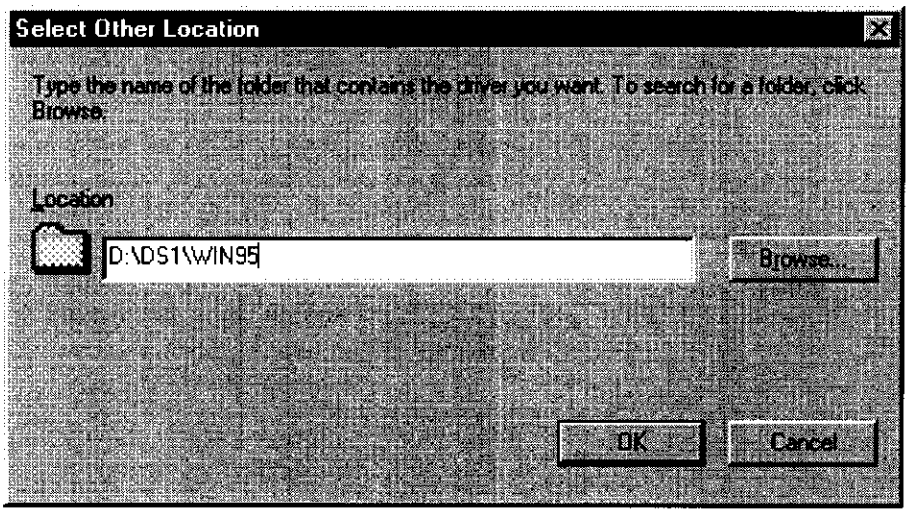
1.) Once the DS-XG Device Manager installation is complete, the *Update Device Driver Wizard* window will appear as shown below. If you are using an installation CD-title, then insert the CD into your CD-ROM drive now. Click on the **Next** button to continue.



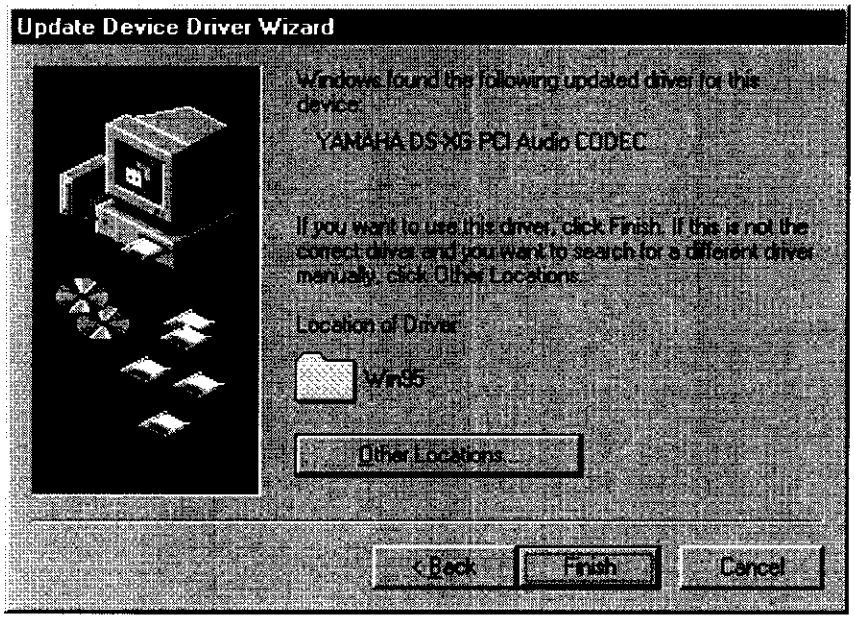
2.) The "Update Device Driver Wizard" window will appear as shown below. Please click on the "Other Locations..." push button.



3.) Assuming your CD-ROM drive is D, type the following path in the command line of the "Select Other Location" window:
D:\DS1\Win95. Click on the **Next** button to continue.

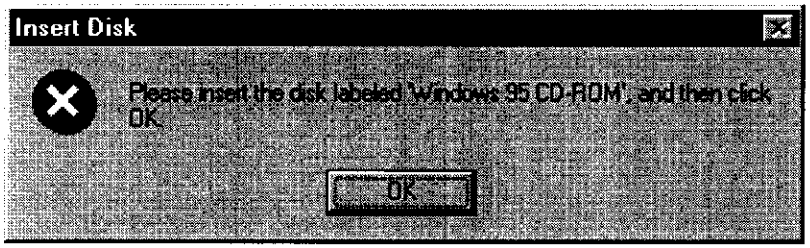


4.) The information displayed in the *Updated Device Driver Wizard* window will now change as shown below. Verify that YAMAHA DS-XG PCI Audio CODEC is displayed and click on the **Finish** button.



This completes all the installation procedures.

5.) The "Insert Disk" dialog box appears and asks you to insert the Windows 95 CD-ROM into your CD-ROM drive. Please click on the OK push button.

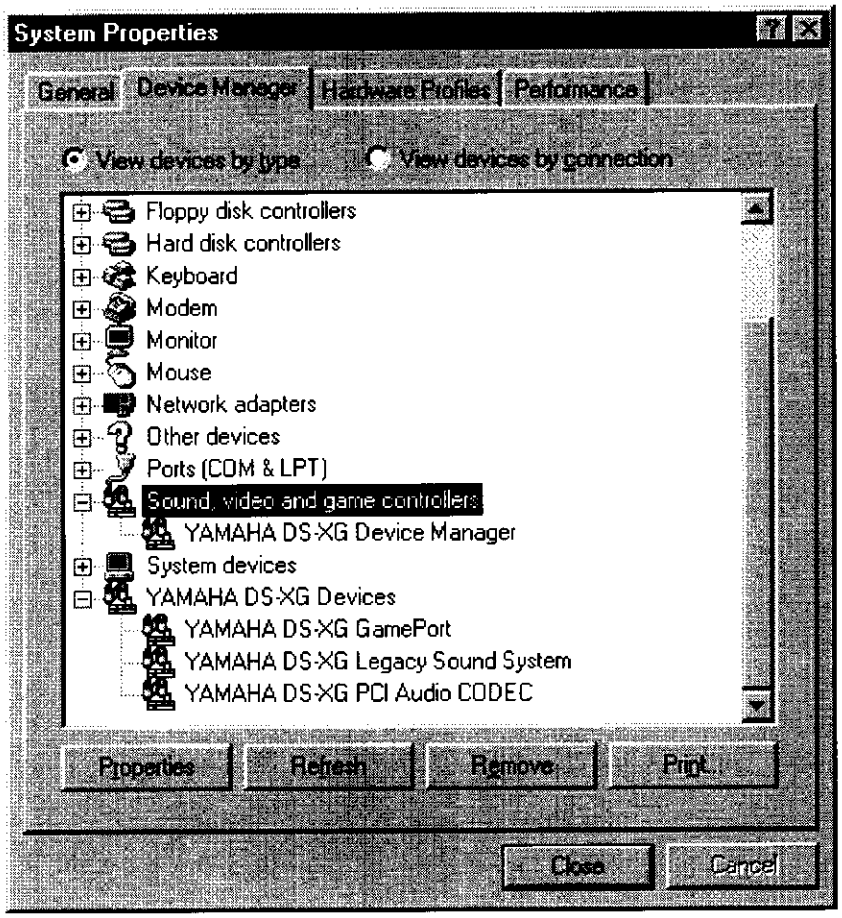


After you have proceeded with this step the installation of the Device Driver for the PCI Audio CODEC, Legacy Sound System and Legacy Game Port has been completed successfully.

1.4. Verifying the DS-XG Device Driver Installation

This section explains how to verify if the DS-XG device driver and software were installed successfully. To see if the DS-XG device driver has been installed successfully, complete the following steps:

1.) Click on the **Start** button on the Windows taskbar.
2.) Highlight **Settings** and click on the **Control Panel** icon.
3.) The *Control Panel* now appears. Double-click on the **System** icon.
4.) The *System Properties* window now appears. Click on the **Device Manager** tab and the *Device Manager* page appears as shown below.



5.) Double-click on **Sound, video and game controllers** and verify that YAMAHA DS-XG Device Manager is listed as shown.

6.) Double-click on **YAMAHA DS-XG Devices** and verify that the following devices are listed:

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

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