Pinnacle
Project Studio™
For Windows®

Turtle Beach™

Getting Started Guide

Turtle Beach Systems
A division of Voyetra Technologies Inc.
5 Odell Plaza
Yonkers, NY 10701-1406 USA

Sales & Information	800.233.9377 (inside USA)
	914.966.0600 (outside USA)
Sales	sales@tbeach.com
Fax	914.966.1102
Bulletin Board	914.966.1216 N, 8, 1
Technical Support	914.966.2150
	support@tbeach.com
Website	http://www.tbeach.com

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WELCOME...

And thank you for purchasing the Pinnacle Project Studio! This package combines the **MultiSound**® **Pinnacle**™— Turtle Beach Systems' premiere sound card — with all of the software necessary to turn your Windows PC into a MIDI and digital audio recording system.

The **Turtle Beach Applications CD**, the software suite which accompanies the Pinnacle Project Studio, includes: **Digital Orchestrator Plus**™**—** a full version of Voyetra Technologies' award-winning MIDI sequencing and direct-to-disk multitrack digital audio recording software, **AudioStation 2 —** an audio control center for your multimedia PC, the **Patch Librarian —** a 32-bit application (use the Control Panel for Windows 3.x) which enables you to load new patches (sounds) into the main Kurzweil synthesizer on the Pinnacle sound card, and the **PC Audio Mixer** — which automatically detects the components on your Pinnacle sound card and configures the display accordingly, with separate slider controls for recording, monitoring and playback.

> **NOTE**
>
> Be certain to check out "The Software" chapter in this Guide to learn more about the powerful programs included in the Pinnacle Project Studio!

The **Pinnacle Project Studio Installation and Overview Video** makes installing the sound card especially easy! Watch the step-by-step instructions on how to install the MultiSound Pinnacle and get an overview of the Project Studio.

REMEMBER TO REGISTER!

You can register by mail, fax, phone or on the Web — whichever is easiest for you. Refer to the front of this manual or the Registration Card for these addresses.

There are many benefits to registering your Pinnacle Project Studio. In addition to the warranty, you also will receive:

♦   **Update Notifications —** to keep you informed of software updates and new Voyetra/Turtle Beach products.

♦   **Upgrade Plan —** to provide you with discounts on our full-featured PC sound products.

♦   **Technical Support —** to help you get your hardware and software installed before you register. However, you must be a registered user to receive full technical support.

OUR WEB SITE

Be sure to visit the Turtle Beach web site for the latest information on new products, upgrades and to obtain the most recent drivers. You will find us at www.tbeach.com.

Click the **Turtle Beach Web Site** icon in the TBS Pro Audio program group for direct access to our web site — **www.tbeach.com**
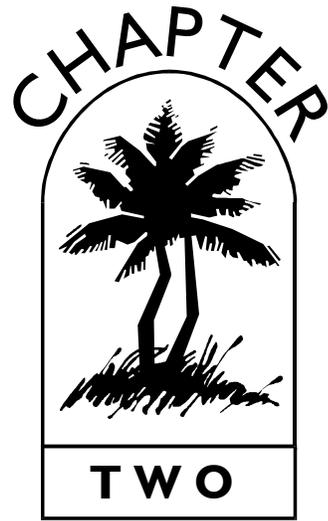
INTRODUCING THE PINNACLE SOUND CARD

The MultiSound Pinnacle sound card combines Windows 95 Plug and Play capabilities with the ultimate in audio quality. It has the Kurzweil MASS[ies] synth engine, with channelized effects and up to 48 MB of user expandable sample RAM so you can create your own MIDI instruments.

The amazing signal-to-noise ratio of this sound card is >97 dB! Pinnacle's digital I/O with daughterboard means improved audio transfer with zero generation loss.

NOTE

Be sure to watch the **Pinnacle Project Studio Installation and Overview Video** to learn more about the MultiSound Pinnacle sound card and the software applications included in this package.

THE MULTISOUND PINNACLE'S FEATURES

The MultiSound Pinnacle has many significant features, including:

♦   Compatibility with MPC standard for multimedia computing on the
    PC.

♦   A 32-voice Kurzweil Digital Synthesizer with an on-board channelized
    effects processor for reverb, chorus and other effects.

♦   A second Kurzweil Synthesizer (daughterboard) for an additional 32
    voices with global effects.

♦   Up to 48 MB of sample RAM can be added for uploading your own
    samples.

♦   A digital I/O card gives S/PDIF compatibility for connecting to DAT or
    other professional audio equipment.

♦   High-quality digital audio using 128x oversampled, 20 bit analog/
    digital converters. The 20-bit digital/analog converters use 128x
    oversampled fourth-order interpolating filters and delta/sigma
    conversion technology.

♦   Fast Motorola 56002 digital signal processor (DSP) providing 20
    million instructions per second (MIPS). This is the heart of the high
    throughput **Hurricane Architecture**.™ Hurricane Architecture moves
    sound data through the PC roughly eight times faster than DMA-
    based solutions.

♦   An onboard EIDE (Enhanced IDE) connector for connecting an
    EIDE/ATAPI CD-ROM drive.

SIGNAL FLOW DIAGRAM
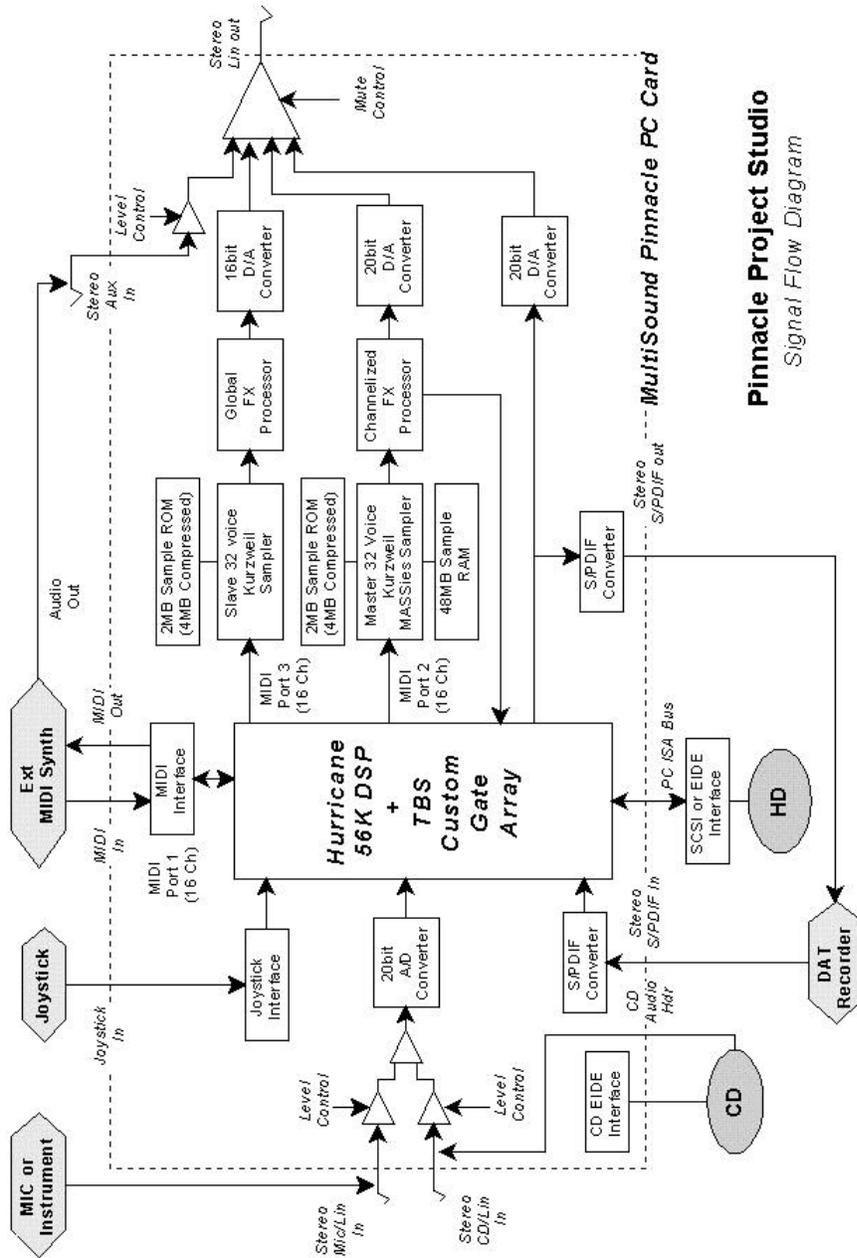
Pinnacle Project Studio
Signal Flow Diagram

RESOURCE USAGE

The MultiSound Pinnacle, like all plug-in cards, requires certain computer resources in order to operate. These resources are associated with specific board functions.

In Windows 3.x, the resources are selected by the user during driver installation.

In Windows 95, the resources are set automatically by the Configuration Manager, but can be adjusted using the Windows Device Manager.

♦   **Digital audio record/playback, header and external MIDI require:**
>   one IRQ
>
>   32 KB upper memory block
>
>   one I/O address range in Plug and Play mode
>   ~ or ~
>   two I/O address ranges in Non-Plug and Play mode

♦   **Kurzweil Synth MIDI port requires:**
>   one I/O address range
>
>   one IRQ

♦   **EIDE CD-ROM controller (if used) requires:**
>   two I/O address ranges
>
>   one IRQ

♦   **Joystick port requires:**
>   one I/O address range

INSTALLING THE
PINNACLE SOUND CARD

It's time to roll up your sleeves and install the MultiSound Pinnacle sound card. This chapter takes you through the process step-by-step.

Before you physically install the card, it is very important that you have enough resources available — port and memory addresses and IRQs. Refer to the Appendix on the "Device Manager" for more information.

IMPORTANT!

NOTE

If you have another sound card in your system that you are replacing with the Pinnacle, remove that sound card's drivers from your system, remove that sound card, then reboot the system to make certain no errors occur and no old sound card drivers remain. For information on removing that sound card's drivers, refer to that sound card's documentation.

SYSTEM REQUIREMENTS FOR THE SOUND CARD

Computer	IBM PC or compatible
Processor	486 DX2/66 (Pentium recommended)
RAM	8 MB (16 MB recommended)
Hard Drive	approx. 8 MB free for drivers and applications data files will require additional space
Operating System	Windows 3.1 Windows 95 Windows NT 4.0

Your computer also should have:

♦ Unused 16-bit ISA card slot.

♦ Unused expansion slot cover adjacent to the card's input slot for the digital I/O panel in the Pinnacle Project Studio.

♦ CD-ROM drive (to install the software applications).

♦ High-quality stereo sound system, powered speakers or headphones to properly hear Pinnacle's amazing sonic quality.

♦ Two free interrupt (IRQ) channels — three if you plan to use the EIDE port for the CD-ROM.

♦ 32 KB upper memory block.

OVERVIEW OF THE STEPS

NOTE Be sure to watch the **Pinnacle Project Studio Installation and Overview** video for step-by-step instructions on installing the Pinnacle sound card.

There is a specific sequence of steps that you need to take when installing the Pinnacle sound card.

You should already have taken the first step — removing the old sound card and its drivers from your system.

Here is an overview of the remaining steps:

♦   Determine whether you should use Windows 95 Plug and Play.

♦   Add sample RAM (optional).

♦   Configure the jumpers.

♦   Install the Pinnacle sound card in the computer.

♦   Attach the audio cable to the CD–ROM drive (optional).

♦   Attach the digital I/O cable to the sound card and install the bracket.

♦   Install the drivers.

♦   Install the Mixer (automatically installs in Plug and Play).

♦   Install the software.

THE MULTISOUND PINNACLE SOUND CARD

Here is a look at the Pinnacle sound card, to help you identify the various jumpers, connectors, daughterboards and ports.
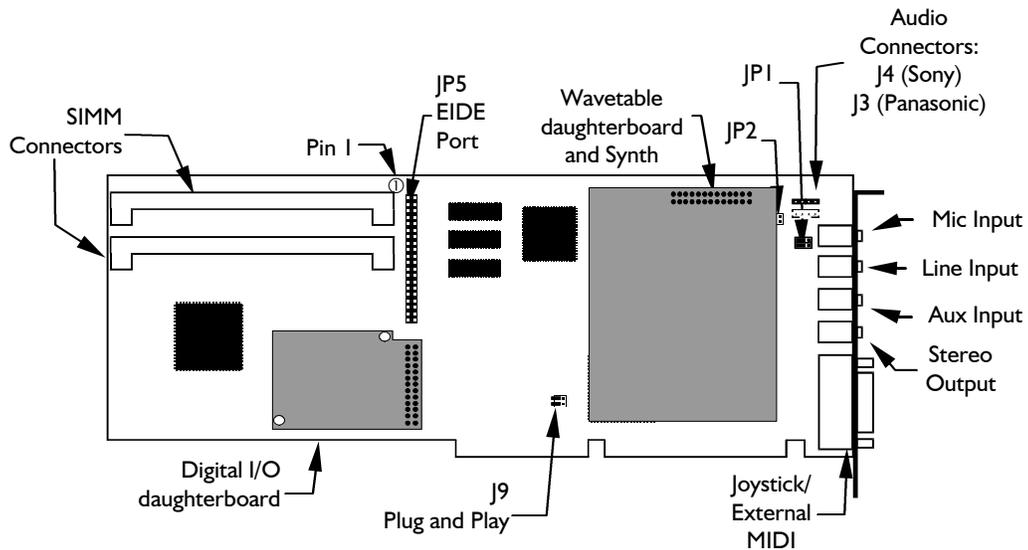
**The MultiSound Pinnacle sound card
with wavetable daughterboard synth
and digital I/O daughterboard**

WHAT IS PLUG AND PLAY?

Plug and Play (PnP) is a feature incorporated in Windows 95 that auto-mates the process of adding peripherals to your computer. With PnP, when a new device is detected in the computer, its settings — such as ports and IRQs — are determined and configured automatically.

The MultiSound Pinnacle is Plug and Play aware. This means that if you are running Windows 95, Windows should be able to detect and configure the sound card for you.

TO USE PLUG AND PLAY — OR NOT TO USE PLUG AND PLAY — THAT IS THE QUESTION…

Use these guidelines to determine whether Plug and Play is appropriate for your system.

USE PLUG AND PLAY…

♦   If you are running Windows 95, have a fairly new system and have not had problems with Plug and Play in the past.

> **NOTE** If you try installing the Pinnacle in Plug and Play mode and experience difficulties, refer to the Appendix "Troubleshooting in Windows 95." If you find that Plug and Play does not work on your system, then use the non-Plug and Play install.

DO NOT USE PLUG AND PLAY…

♦   If you are running Windows 3.x or Windows NT.

♦   If you are running Windows 95 and have had trouble using Plug and Play in the past.

♦   If you are using the Pinnacle sound card as the controller for a CD–ROM drive.

ADDING SAMPLE RAM (OPTIONAL)

Adding RAM memory SIMMs to the Pinnacle lets you download patches — such as new drum sounds, effects, multisampled instruments and more — using the Patch Librarian application. (The Patch Librarian application is a 32-bit application and does not work in Windows 3.x.)

Adding RAM is optional and can be done at any time. When SIMMs are added, the on-board processor automatically detects the RAM, so there is no need to change or switch jumper settings when modifying the memory configuration.

PURCHASING SIMMS

Before purchasing RAM SIMMs for the Pinnacle, it is important to note the following:

♦ The Pinnacle can accept any combination of 4 MB, 8 MB, 16 MB or 32 MB SIMMs.

♦ The Pinnacle will only access a maximum of 48 MB total.

♦ The SIMMs must be 72-pin SIMMs with an access time of 60 nanoseconds or better.

♦ Some double-sided SIMMs are too large to fit correctly on the Pinnacle. For this reason, we recommend using single-sided SIMMs.

♦ We recommend that you do NOT use EDO RAM.

NOTE We have seen some sampling errors when using SIMMs of different speeds. Therefore, we highly recommend using SIMMs of the same speed!

TO INSTALL A SIMM MODULE ON THE PINNACLE:

1. Hold the Pinnacle sound
    card with the SIMM connec-
    tors' opening facing down-
    ward. Carefully align the
    SIMM edge connector with
    the socket, making sure the
    notch (Pin 1) faces toward
    the right.
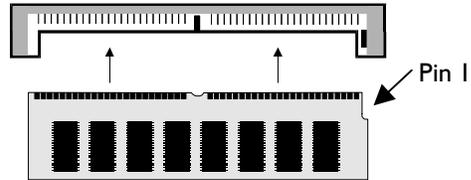
Pin 1

The SIMM module
with Pin 1 (notch)
on the upper right

Pin 1

2. Insert the SIMM module at
    approximately a 45° angle.
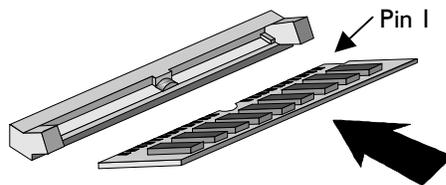
Align and insert
the SIMM module

3. Tilt the module downward until it
    snaps into place.
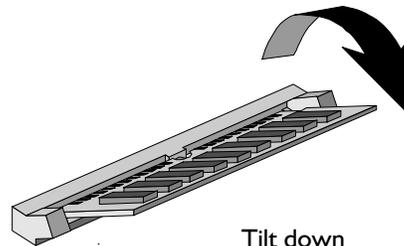
Tilt down
and snap into place

4. If the SIMM moves or feels loose in the connector, remove it and
    insert again.

UNDERSTANDING JUMPERS

Jumpers connect two copper leads to "turn on" a mode, feature or setting.

REMOVING A JUMPER
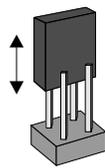
To remove a jumper from the pins, pull upward.
To connect a jumper, position it over the pins
and push downward.

JUMPER "OFF"
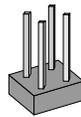
or
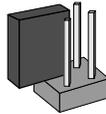
A setting is "Off" (unselected) when a
jumper rests on only one lead or there
is no jumper attached.

JUMPER "ON"
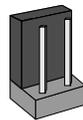
A setting is "On" (selected) when a jumper
is set on both leads.

JP2   JP1

J9
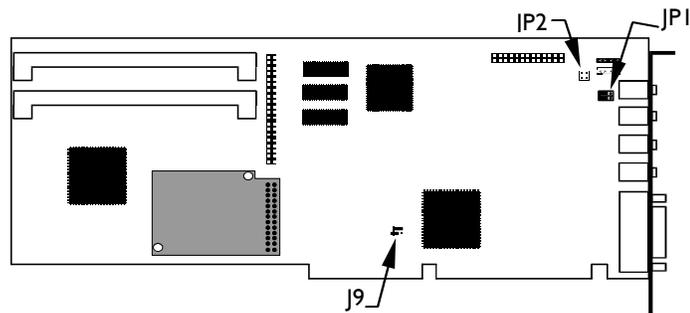
When changing the jumpers, be sure to hold the card as shown here.

SETTING THE JUMPERS

NOTE It is helpful to keep track of jumper settings, base addresses, and other configuration information. This data is useful if you need to changes settings or call for tech support.

J9 (PLUG AND PLAY)

The default setting for J9 is Plug and Play. *If you plan to use the Windows 95 Plug and Play install, do not change this jumper!*

If you are using Windows 3.x or Windows 95 Non-Plug and Play, set jumper J9 to one of the non-Plug and Play settings as shown below.

Settings for Jumper J9

	Plug and Play installation	**DEFAULT** This setting is for Plug and Play.
	Base Address = 250H *(For Windows 3.x, this address is recommended.)*	When installing in Windows 95 Non-Plug and Play, Windows 3.x or Windows NT, you must move the J9 jumper.
	Base Address = 260H	Base Address=250H is recommended for Windows 3.x; however, on some systems,
	Base Address = 270H	260H or 270H may be preferable.

JP2 (DYNAMIC/CONDENSER MIC)

The default setting for JP2 is for dynamic mic. If you have any doubts about which mic setting to choose, use dynamic microphone.

Dynamic microphones do not require an external power source — such as a battery or phantom power. Connecting a dynamic microphone to a Mic Input with phantom power may damage the mic. If you are using a dynamic stereo mic, you do not have to change this jumper. If you wish to route a mono dynamic mic to both the left and right channels, refer to the diagram that follows and set the jumpers on JP2 for dynamic mono.

Condenser microphones require a source of power. Some condenser mics are powered by a battery in the microphone casing, while others are powered by an external source through the mic cable (called "phantom power"). When set for stereo condenser mic, these jumpers supply a filtered +5 volt signal to the tip and ring of the stereo Mic Input. This "phantom power" is current limited to just under 1 milliampere (mA). If you are using a condenser mic that has a battery, set the jumpers on JP2 for the appropriate (stereo or mono) dynamic mic setting.

Settings for Jumper JP2

	Dynamic, Stereo **DEFAULT**	
	Dynamic, Mono	
	Condenser, Stereo	

NOTE

♦ If you connect a dynamic microphone to the input while JP2 is configured for a condenser Mic, you run the risk of damaging your microphone. Make certain you know which type of Mic you are using!

♦ If you are using Mic In as Line In, do not change this jumper. Use the default setting, dynamic stereo mic.

REMOVING THE DAUGHTERBOARD

To change JP2, the Dynamic/Condenser Mic jumper, it is necessary to first remove the wavetable daughterboard from the sound card.

TO REMOVE (AND REPLACE) THE DAUGHTERBOARD:

1. While holding the top of the daughterboard by the connector, gently rock the daughterboard back-and-forth while pulling the daughterboard up, off the sound card.

2. Make the necessary changes to the JP2 jumper. (Refer to the section that follows for these settings.)

3. To replace the daughterboard, carefully line up the pins on the Pinnacle card with the connector on the daughterboard. Gently push down until the connector completely covers the pins.
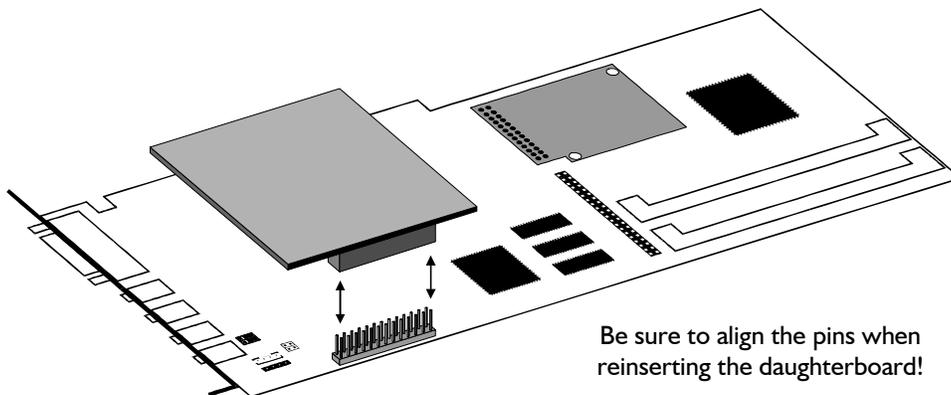
Be sure to align the pins when reinserting the daughterboard!

INSTALLING THE PINNACLE SOUND CARD

It is time to install the Pinnacle sound card in your system!

1. Turn off your PC and any connected peripherals and unplug the system

2. Remove the mounting screws from your computer's cover. Remove the cover.

3. Select an unused 16-bit ISA expansion slot for your card. ***Do not use a VLB (VESA local bus) slot or an 8-bit slot.*** For best results, choose a slot that is not immediately next to another board, since some boards emit signals that can interfere with the Pinnacle.

VLB (VESA Local Bus) slot
16-bit slot — use this type
8-bit slot

NO!   YES!   NO!
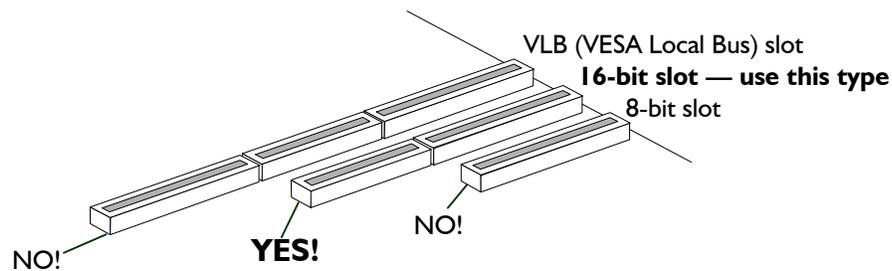
Locate a 16-bit ISA slot
for the Pinnacle

NOTE   Position the card as far away from the video card and power supply as possible.

4. Remove the selected expansion slot
    cover by unscrewing its securing screw.

    Save the screw to secure the Pinnacle
    to the chassis later.

Unscrew the
expansion slot cover
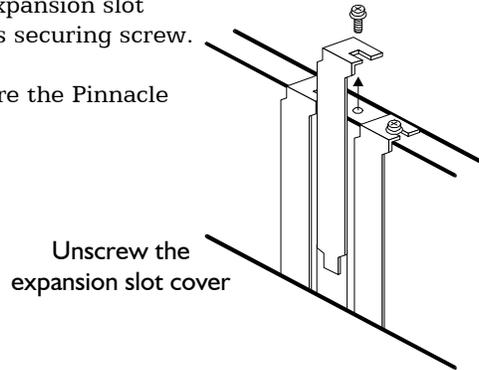
5. Align the card's gold-striped edge connector with the
    selected 16-bit expansion slot socket. With a
    gentle back-and-forth rocking motion,
    press the Pinnacle firmly into the
    slot until it snaps in place.
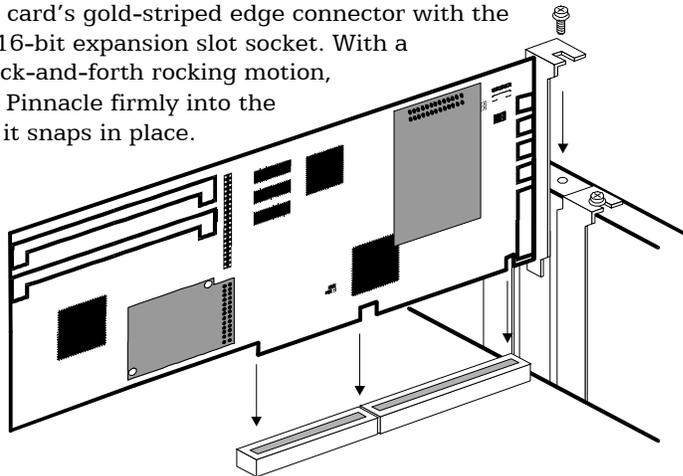
Gently press the Pinnacle card into
the slot

NOTE   It is possible run up to four Pro Series cards in one
        system! Refer to the "Running Multiple Pro Series
        Cards" Appendix for additional information.

6. Secure the Pinnacle sound card to the chassis with the expansion
    slot cover screw you removed earlier.

IT'S TIME TO INSTALL THE CD-ROM AUDIO CABLE

The Pinnacle Project Studio comes with an audio connector cable — one end is keyed (MPC-2), the other is not (Sony). All CD-ROM drives that adhere to the MPC-2 (Multimedia PC) standard have an MPC-2 jack.

The Pinnacle sound card has both a Sony audio connector (on top) and a Panasonic audio connector (beneath). If you already have an audio cable with a Panasonic end, you can use it.

If you have any questions about which connector to use, refer to your CD-ROM drive's manual or contact the manufacturer for assistance.

MPC-2 Connector (keyed)

Left
Ground
Ground   Right

Sony Connector

Left
Ground
Ground   Right
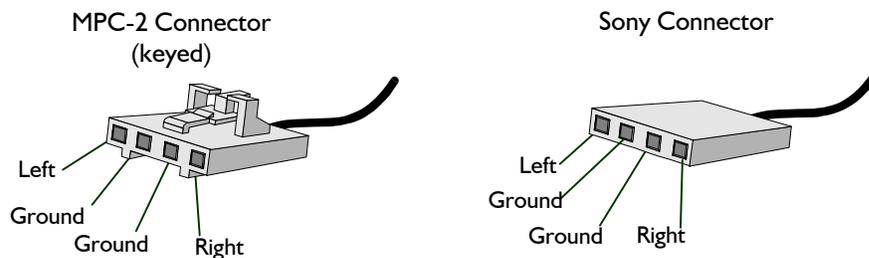
When connecting the CD-ROM audio cable, note that:

♦ The audio cable should be plugged into the CD-ROM drive first; then the other end of the interface should be plugged into the appropriate connector on the Pinnacle sound card.

♦ On the cable, "white" is "left" and "red" is "right."

♦ When connecting the cable to Sony connector, the red wire should be closest to the slot cover.

7. To connect the CD-ROM audio cable, determine which type of audio connector to use (refer to the illustrations on the previous pages) and attach the correct CD-ROM audio cable to your CD-ROM drive.

8. Attach the other end of the cable to one of the two connectorson the Pinnacle.

    Note that CD Audio is routed into the Line Input, so it is disconnected if you use Line In.
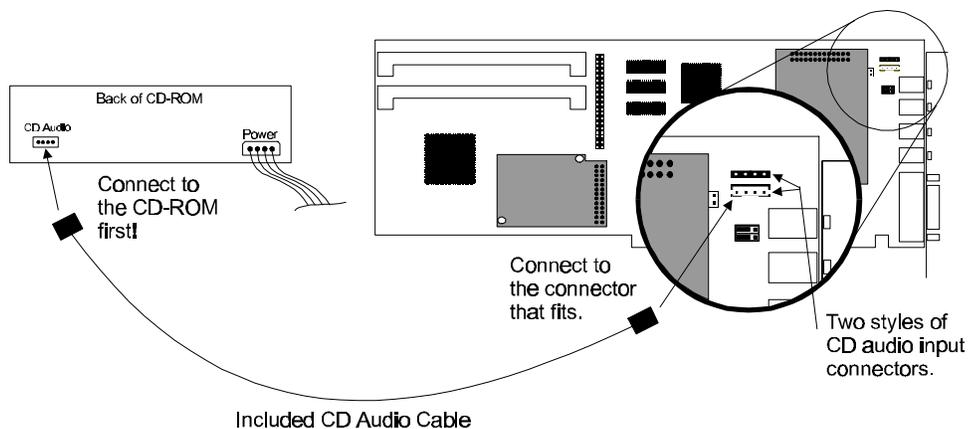
The Pinnacle showing
the EIDE, Sony and Panasonic connectors

9. **If you choose to connect a CD-ROM drive to the Pinnacle via the ATAPI/EIDE interface, you will need to note the following:**

    If you are adding a CD-ROM drive at this time, the Pinnacle supports a 40-pin header that can be connected to an EIDE/ATAPI CD-ROM drive. Since many motherboards are currently shipping with primary and secondary IDE or EIDE ports built-in, the default configuration for Pinnacle's EIDE port is **DISABLED**.

W A R N I N G ! !

NOTE

If you are connecting a CD-ROM drive to the Pinnacle sound card, make certain this drive is an EIDE or IDE drive.

Previously, there were four standards for CD-ROM drives — Sony, Panasonic, Mitsumi and EIDE.

Older CD-ROM drives which are not EIDE or IDE should NOT be connected to the Pinnacle, as such drives may damage both the Pinnacle sound card and the CD-ROM drive.

Even if you do not have the 40-pin ribbon cable controller hooked up to the Pinnacle, you should still connect the 4-pin CD audio connector from the back of the CD-ROM drive to the Pinnacle.

If you have a secondary IDE or EIDE port on your motherboard, you will not be able to use the Pinnacle's EIDE interface and should continue to use the controller on your motherboard. If you can use your current CD-ROM setup, then we strongly recommend you do not change it.

Install the CD-ROM drive in your computer's case according to the instructions that came with your drive. You will have to connect the 40-pin ribbon cable to the drive. The red stripe on the ribbon cable must be aligned with Pin 1 at the rear of the drive. Then connect the other end of the ribbon cable to JP5 on the Pinnacle. Make certain that the red stripe, indicating Pin 1, is at the **TOP**.

NOTE

After you have installed the drivers for the sound card and are certain everything is working properly, refer to the "Enabling Additional Hardware" chapter for instructions on enabling the EIDE port.

JP1 (S/PDIF I/O/MICROPHONE)

The JP1 jumper lets you use the 1/8-inch Mic In connector on the board for Mic Line Input or as an S/PDIF Input/Output. This is helpful if you do not have an extra slot to accommodate the S/PDIF bracket. (Another connection option is to use the Mic Input.)

If you use the Mic Connector for S/PDIF, attach the 1/8-inch stereo to dual RCA cable (supplied) to the Mic Input.

Settings for Jumper JP1

	Microphone Input	**DEFAULT**
	S/PDIF I/O	

CONNECTING THE DIGITAL I/O PANEL

With the digital I/O panel, you can hook-up external digital audio equipment — such as a DAT machine — to import or export audio data without any signal loss.

The digital I/O panel gets secured in an empty expansion slot.

Digital I/O Panel

ATTACHING THE DIGITAL I/O PANEL

1. Jumper JP1 should be set to Microphone Input. (This is the default.)

2. Attach the Pin Connector, at the end of the cable from the digital I/O board, to the two rightmost pins on jumper JP1. Make sure that the **red** wire is on **top,** the **white** wire is on **bottom**.

Audio Connectors:
J4 (Sony)
J3 (Panasonic)

JP2

JP1

Red is on the top
White is on the bottom
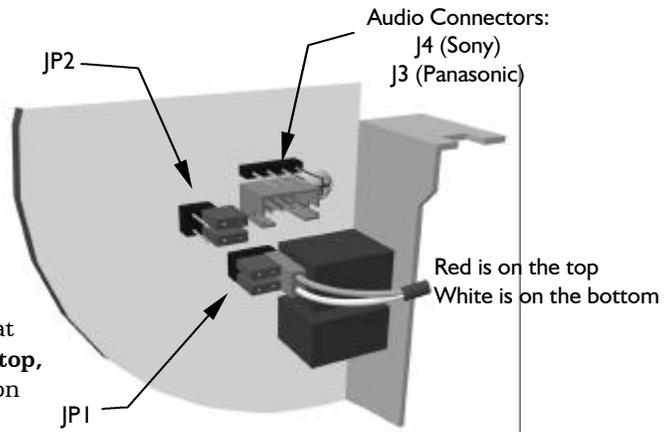
3. Locate an empty expansion slot and remove the selected expansion slot cover by unscrewing its securing screw. Save the screw to secure the digital I/O panel to the chassis.

4. Place the digital I/O panel in the slot and secure it with the screw.

Installing the
Digital I/O
Panel
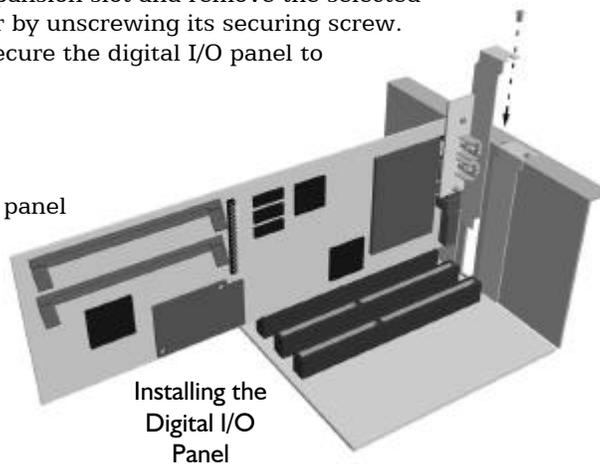
NOW YOU ARE READY TO INSTALL THE DRIVERS!

Proceed to the section that applies to your system: Windows 95 Plug and Play, Windows 95 Non–Plug and Play, Windows 3.x or Windows NT 4.0.

WINDOWS 95 PLUG AND PLAY INSTALLATION

NOTE

IMPORTANT!

The Plug and Play install should only be used if you are installing under Windows 95! If you are running Windows 95 and are uncertain as to whether you should use the Windows 95 Plug and Play install or the Windows 95 Non-Plug and Play install, refer to "What Is Plug and Play?" in the "Installing the Pinnacle Sound Card " chapter.

Now that the hardware is installed, it is time to configure the drivers. Plug and Play uses your system's BIOS and the Plug and Play features of Windows 95 to allocate resources for the Pinnacle. These include port and memory addresses and IRQs.

BEFORE YOU INSTALL THE DRIVERS, NOTE…

♦   The sound card must be installed in your system. If you have not already installed the sound card in your PC, refer to the previous chapter for instructions.

♦   The default setting for Jumper J9 is Plug and Play. If you are running Windows 95 and plan to use the Plug and Play installation, you should NOT have changed this jumper from its default setting!

IMPORTANT!

If you need to use the Plug and Play installation for a second time — for example, if you never fully completed the installation process or it did not work properly the first time — before you go through the install process again, you must run the CLEANUP utility located on the 3.5-inch Drivers diskette! Refer to the "Troubleshooting in Windows 95" Appendix at the back of this manual for additional information.

CAUTION!

DO NOT run SETUP.EXE on the Drivers diskette if you are installing the Pinnacle in Windows 95 Plug and Play. This file is for Windows 3.x and Windows 95 Non-Plug and Play installations ONLY!

TO INSTALL THE DRIVERS IN WINDOWS 95 PLUG AND PLAY:

1. **Turn on the computer** and **boot up Windows 95**. Windows 95 should automatically detect the Pinnacle on the first boot up after the card has been installed. If it does — and the New Hardware Found dialog box displays — move on to step #2.

   If the Pinnacle is not detected — and you have not changed jumper J9 from its default setting — then your motherboard or system BIOS may not be fully-compatible with the Plug and Play specification. If this is the case, turn off the computer and change jumper J9 to non-Plug and Play. (Refer to "Setting the Jumpers" in the previous chapter for instructions.) Then, turn to the following chapter for instructions on how to install the Pinnacle in non-Plug and Play mode.

2. When the New Hardware Found dialog box reports that it sees the Turtle Beach Pinnacle sound card, click to select **Driver from disk provided by hardware manufacturer**. Then click **OK**.

3. When the Install From Disk dialog box displays, put the **Pinnacle's Drivers diskette** in your computer's 3.5" disk drive and enter the letter of the drive. The default setting is A:\. If your floppy drive is B:, click the Browse button and choose the B: drive from the dialog box. Then click **OK**.

4. Windows then copies the files from the Drivers diskette. You may be prompted to insert your Microsoft Windows 95 CD or floppies, as the core sound components of the operating system may need to be copied as well. These include the audio codecs, the Mixer, the Sound Recorder program.

If you do not have your Microsoft Windows 95 installation CD or floppies available, you can choose **Skip File** for each of the Windows 95 Sound Options and install them later from the Windows 95 Control Panel.

To install the Windows Sound Options, click **Start**. Point to **Settings**. Click **Control Panel** from the submenu. Double-click **Add/Remove Programs**. Select the **Windows Setup** tab. Install the appropriate Sound Option components.

5. At the completion of the Program Group setup, a dialog box displays and asks you to choose the Kurzweil synth as the default synth. Select the **TBS Pro Series Kurzweil Synthesizer** from the list. Then press **OK** to close the Multimedia Properties box.

> **NOTE**
>
> In order to test the system, you will need to hook up some headphones or speakers to the Pinnacle output. For more information on hooking up speakers to the Pinnacle, refer to the "Making Connections" chapter later in this Guide.

Even if you received no error messages, we recommend you run the Testing and Troubleshooting file located in the TBS ProAudio program folder to test your system and make sure it is working properly.

If the installation detected that the drivers are not functioning properly, you are prompted with a dialog box asking you to run the Memory Troubleshooting Help application. Most Pinnacle installation problems are caused by memory conflicts in the system. This application helps you configure your system's memory to work with the Pinnacle board. Carefully follow the instructions in the Troubleshooting Help window.

After configuring your system's memory and rebooting the system, if the Pinnacle is still not working, run the Testing and Troubleshooting diagnostic and follow the instructions for troubleshooting the system.

TESTING AND TROUBLESHOOTING

If the Pinnacle or your system is not working properly, there is probably a resource conflict in your system. This means that two or more devices in the system are using the same resources. Resource conflicts are fairly typical and are a normal part of the PC hardware installation process — and they are easily resolved.

There are three common types of conflicts that users experience when installing the Pinnacle:

♦   Input/Output Port Address Conflict

♦   Interrupt (IRQ) Conflict

♦   Memory Conflict

Troubleshooting your system involves checking the current settings for each of these common conflicts and trying new settings for the resources that conflict. Note that you may need to try a number of different resource configurations before all of the peripherals work together in your PC.

The **Testing and Troubleshooting** diagnostic found in the TBS ProAudio group of the Windows Start menu helps you troubleshoot these resource conflicts.

Run **Testing and Troubleshooting** now and follow the instructions. More information about this application can be found in the "Troubleshooting in Windows 95" Appendix of this Guide.

> **NOTE**
>
> The **Testing and Troubleshooting** diagnostic provides an easy way to find and fix audio problems in your system. If you experience any problems installing the drivers, we recommend you run **Testing and Troubleshooting.** For more information on this utility, refer to the "Trouble-shooting in Windows 95" Appendix at the back of this Guide.

I CAN'T REBOOT!

In some rare cases, after installing the Pinnacle sound card, you may not be able to reboot your system. If you are unable to boot into Windows 95, you can restart in Safe Mode.

TO BOOT IN SAFE MODE:

1. **Restart** the system again.

2. When you see the message "Starting Windows 95..." press the **F8** key.

3. Select **Safe Mode** from the menu.

Now you can run the **Testing and Troubleshooting** file to help you diagnose the problem. Note that the audio and MIDI tests will not work, however, until the conflict(s) are resolved and Windows is restarted in Normal Mode.

> **NOTE**
>
> After the hardware is working properly,
> it is time to install the software!
> Refer to "The Software" chapter for instructions.
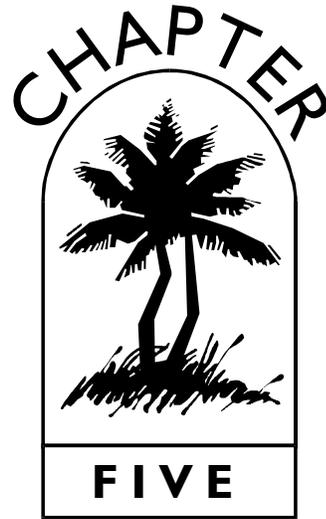
WINDOWS 95 NON-PLUG AND PLAY INSTALLATION

If your system does not support Windows Plug and Play — or if you want to use the Pinnacle sound card as a CD-ROM controller — you need to install the sound card with the Plug and Play option disabled.

When you install the Pinnacle in non–Plug and Play mode, the J9 jumper must be set to address 250, 260 or 270. (Refer to the Jumper Settings diagram that follows.) Be sure you record the address you choose so you will have it for future reference.

SETTINGS FOR JUMPER J9 IN NON-PLUG AND PLAY MODE

	Base Address = 250H
	Base Address = 260H
	Base Address = 270H

BEFORE YOU INSTALL THE DRIVERS…

♦ The sound card must be installed in your system. If you have not already installed the sound card in your PC, refer to the "Installing the Pinnacle" chapter for instructions.

♦ You will need to set the Plug and Play jumper (J9) for non–Plug and Play. Refer to "Setting the Jumpers" section in the "Installing the Pinnacle" chapter for additional information.

♦ If you have not already done so, free up all possible resources now! Refer to the Appendix on using the "Device Manager" for additional information.

♦ Be sure to remove all old drivers from any previously-installed sound cards. This is extremely important! Refer to the manual from that sound card for instructions on how this should be done.

I M P O R T A N T !

If you ran the Pinnacle Plug and Play install and now — for any reason — decide to use Non-Plug and Play, you need to clean out the Pinnacle's drivers before continuing.

Refer to the "Troubleshooting in Windows 95" Appendix for instructions on using the CLEANUP utility located on the Drivers diskette.

Installation Overview

Installing the Non-Plug and Play drivers is a four-step procedure:

1. Install the Digital Audio drivers.

2. Install the Kurzweil Synthesizer drivers.

3. Install the Mixer (by running Setup on the Drivers diskette).

4. Install the software applications (from the CD-ROM).

During the installation, the drivers are automatically checked to locate any conflicts. If any conflicts appear, the installation prompts you to troubleshoot these problems before continuing.

I M P O R T A N T !

In the Non-Plug and Play installation, each step must be properly completed before you proceed to the next step!

INSTALLATION FLOWCHART — NON-PLUG AND PLAY MODE

```
                   ┌──────────────────┐
                   │ Install the Digital │
                   │  Audio Drivers     │
                   └──────────────────┘
                             │
                             │          ◄───────────────┐
                             │                          │
                            ╱╲                ┌──────────────────────┐
                           ╱  ╲               │ Test and troubleshoot the │
                          ╱ Do ╲      No      │  Digital Audio drivers.    │
                         ╱ they ╲────────────│     (Refer to the          │
                         ╲ work? ╱            │  "Troubleshooting in       │
                          ╲    ╱              │  Windows 95" Appendix.)    │
                           ╲  ╱               └──────────────────────┘
                            ╲╱
                             │
                            Yes
                             │
                   ┌──────────────────┐
                   │ Install the Kurzweil │  ◄───────────────┐
                   │   Synthesizer      │                    │
                   │    Drivers         │                    │
                   └──────────────────┘                     │
                             │                                │
                            ╱╲                ┌──────────────────────┐
                           ╱  ╲               │ Test and troubleshoot the │
                          ╱ Do ╲      No      │  Kurzweil Synthesizer     │
                         ╱ they ╲────────────│       drivers.             │
                         ╲ work? ╱            │     (Refer to the          │
                          ╲    ╱              │  "Troubleshooting in       │
                           ╲  ╱               │  Windows 95" Appendix.)    │
                            ╲╱                └──────────────────────┘
                             │
                            Yes
                             │
                   ┌──────────────────┐
                   │  Run Setup on the  │
                   │  Drivers diskette to │
                   │  install the Mixer.  │
                   └──────────────────┘
                             │
                   ┌──────────────────┐
                   │  Run Setup on the  │
                   │  CD-ROM to install │
                   │   the software     │
                   │   applications.    │
                   └──────────────────┘
```

Installing the Digital Audio Drivers

The first step in installing the Pinnacle drivers in Non-Plug and Play Mode is to install its Digital Audio drivers.

TO BEGIN INSTALLING THE PINNACLE IN NON-PLUG AND PLAY MODE:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **Add New Hardware** icon. The Add New Hardware Wizard loads.

3. Click **Next**.

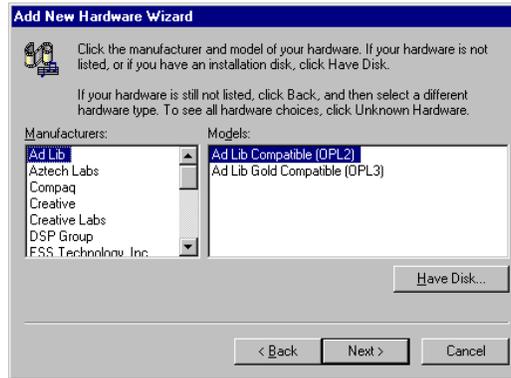4. Select **No** to keep Windows from searching for the new hardware.

5. Click **Next**.

6. From the Hardware types listed, select **Sound, video, and game controllers**.

7. Click **Next**

8. Click the **Have Disk** button.

9. Place the Pinnacle's **Windows 95 drivers diskette** in the floppy drive, making sure that the floppy is the drive shown in the **Install from Disk** dialog box. The default is A:\. If your floppy drive is B:, click the Browse button and choose the B: drive from the dialog box. Click **OK** to continue.

Each component of the Pinnacle is installed separately. You now need to choose the device to install.

NOTE

After installing the various components, refer to the "Enabling Additional Hardware" chapter if you need to enable the joystick port.

10. Click **TBS Pro Series Digital Audio** option to install the Digital Audio drivers.
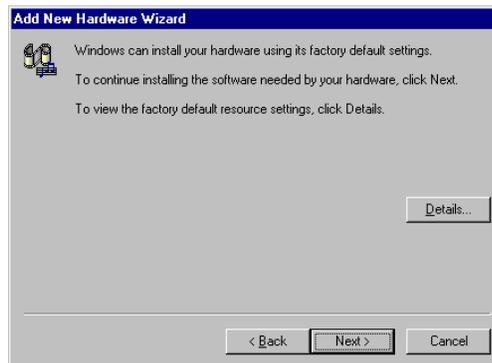
11. Then click **OK**.

12. Windows selects the settings for digital audio. If it can use the default, a dialog box states that it is using the default settings. Click the **Details** button to display these settings.

If the default settings cannot be used, the dialog box displays the settings that Windows will use instead.

13. Click **Next** to continue.

14. Windows then copies the files from the Pinnacle's driver diskette. You may be prompted to insert your Microsoft Windows 95 CD or floppies, as the core sound components of the operating system may need to be copied as well. These includes the audio codecs, the Mixer and the Sound Recorder program.
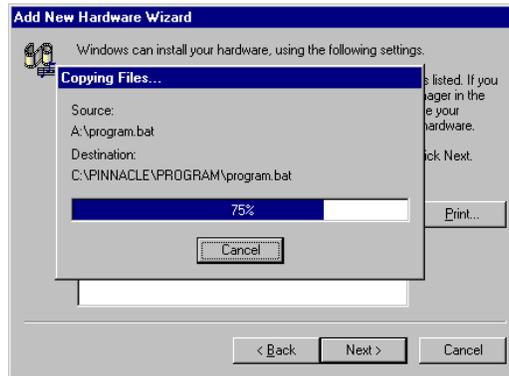
If you do not have your Microsoft Windows 95 installation CD or floppies, you can choose **Skip File** for each of the Windows 95 Sound Options and install them later from the Windows 95 Control Panel.

When you want to install the **Windows Sound Options**, click **Start**. Point to **Settings**. Click **Control Panel** from the submenu. Double-click **Add/Remove Programs**. Select the **Windows Setup tab**. Install the appropriate components.

15. Once all the files are copied, Windows displays the Finish dialog box. Click **Finish**.

At this point, the Digital Audio drivers are installed and Windows prompts you to shut down the computer. Since you still need to install the Kurzweil Synthesizer drivers, select **No.**

C A U T I O N !

It is imperative that you do NOT shut down the computer! If the computer is shut down, the setup will not be properly completed.

♦   If you received an Error
    dialog box, the Digital Audio
    drivers were not properly
    installed. This can be due to a
    Memory, IRQ or Input/Output Range Address conflict. Refer to the
    "Troubleshooting in Windows 95" Appendix for help on resolving
    conflicts.

♦   If you did not receive an error message, continue with the following
    steps on installing the Kurzweil Synthesizer drivers.

INSTALLING THE KURZWEIL SYNTHESIZER DRIVERS

The steps for installing the Kurzweil Synthesizer drivers are nearly
identical to the steps for installing the Digital Audio drivers.

1. The **Control Panel** should still be open from the install. If it is not,
    open it now.

2. Double-click the **Add
    New Hardware** icon.
    The Add New
    Hardware Wizard
    loads.

3. Click **Next**. Select **No**
    to keep Windows from
    searching for the new
    hardware. **Click Next**
    to continue.

4. From the Hardware types listed, select **Sound, video, and game
    controllers**.

5. Click **Next** to continue.

6. From the Manufacturers list box, scroll down and click **Turtle Beach**.
    The three Turtle Beach components display in the right-hand pane.

7. In the right-hand pane, click **TBS Pro Series Kurzweil Synthesizer** to
    select it.

8. Make sure the
    Pinnacle's Windows 95
    drivers diskette is still
    in your floppy drive.
    Click **Next** to continue.

9. Windows then selects the settings the synthesizer will use. If it can
    use the default, a
    dialog box lets you
    know that it is using
    the default settings.
    Click the **Details
    button** to display these
    settings.
    If the default settings
    cannot be used, the
    dialog box displays the
    settings that Windows
    will use instead.
    Click **Next** to continue.

10. Windows then copies the files from the Pinnacle's driver diskette. Once all the files are copied, Windows displays the finish screen. Click **Finish** to continue.

11. You are then prompted to shut down your computer. Click **No**.

INSTALLING THE MIXER

After installing the Digital Audio and Kurzweil Synthesizer drivers, it is time to install the Mixer.

TO INSTALL THE MIXER:
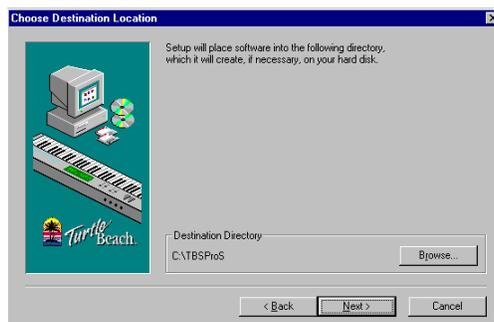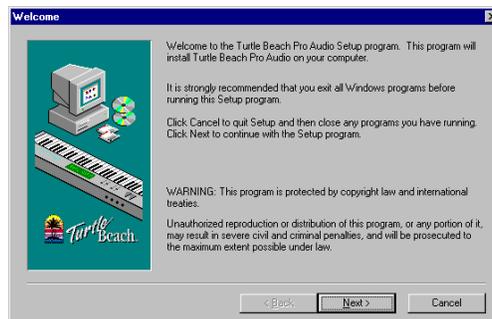
1. Make sure the Pinnacle's Drivers diskette is still in the floppy drive.

2. Click **Start**. Click **Run**.

3. In the Run dialog box type the letter of the floppy drive, followed by \SETUP. If your floppy drive is A: type **A:\SETUP**.

4. Click **OK** to continue.

5. Wait a few moments for the install to initialize. When the Welcome screen appears, click **Next**.

6. The Choose Destination Location dialog box appears. Click **Next** to install the software into the default directory — C:\TBSProS. Note that the directory chosen will be the directory into which the CD applications will install. Once selected, this directory cannot be changed.

7. The Select Program Folder dialog box appears. Click **Next** to select the default Program Folder — TBS Pro Audio — or enter a different name in the text box.
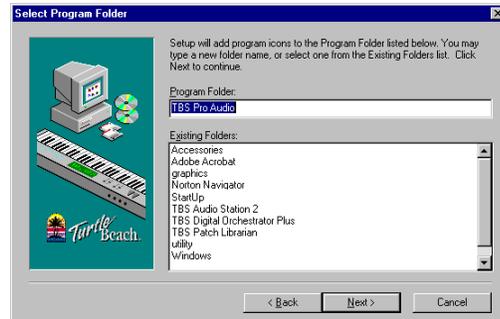
8. If Setup detected that the Digital Audio drivers are not installed or working properly you are prompted with an Error dialog box. Click **OK** to close the dialog box. Refer to the "Troubleshooting in Windows 95" Appendix for information on properly configuring the drivers. Make any changes necessary to the configuration in the Device Manager and after troubleshooting is complete, run Setup again.

9. After the software is finished installing, a dialog box appears asking whether or not you want to set up the Pinnacle's synthesizer as the default MIDI Synth. Click **Yes** to continue. The Multimedia Properties dialog box appears with the MIDI tab selected.
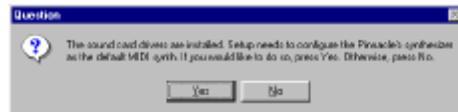
10. Click **TBS Pro Series Kurzweil Main Synth** to select it. It now appears in the Single instrument box.
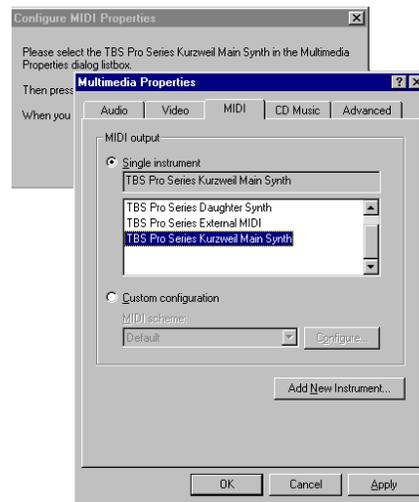
11. Click **OK** to continue.

12. Click **Done** on the Configure MIDI
    Properties dialog box. The
    Pinnacle setup is now complete.

> **NOTE** In order to test the system, you will need to hook up
> some headphones or speakers to the Pinnacle output.
> For more information on hooking up speakers to the
> Pinnacle, refer to the "Making Connections" chapter
> later in this Guide.

At this point, the drivers should be installed and the Pinnacle sound card
should be functional.

If you have not received any error messages, you should run the Testing
and Troubleshooting file located in the TBS Pro Audio program folder to
test your system and make sure it is working properly.

If the installation has detected that the drivers are not functioning
properly, you are prompted with a dialog box asking you to run the
Memory Troubleshooting Help application. Most Pinnacle installation
problems are caused by memory conflicts in the system. This application
helps you configure your system's memory to work with the Pinnacle
board. Carefully follow the instructions in the Troubleshooting Help
window.

After configuring your system's memory and rebooting the system, if the
Pinnacle is still not working, you need to run the Testing and Trouble-
shooting diagnostic and following the instructions for troubleshooting the
system.

TESTING AND TROUBLESHOOTING

If the Pinnacle or your system is not working properly, there is probably a resource conflict in your system. This means that two or more devices in the system are using the same resources. Resource conflicts are fairly typical and are a normal part of the PC hardware installation process — and they are easily resolved.

There are three common types of conflicts that users experience when installing the Pinnacle:

♦   Input/Output Port Address Conflict

♦   Interrupt (IRQ) Conflict

♦   Memory Conflict

Troubleshooting your system involves checking the current settings for each of these common conflicts and trying new settings for the resources that conflict. Note that you may need to try a number of different resource configurations before all the peripherals work together in your PC.

The **Testing and Troubleshooting** diagnostic found in the TBS Pro Audio group of the Windows Start menu helps you troubleshoot these resource conflicts.

Run **Testing and Troubleshooting** now and follow the instructions. More information about this application can be found in the "Troubleshooting in Windows 95" Appendix of this Guide.

The **Testing and Troubleshooting** diagnostic provides an easy way to find and fix audio problems in your system. If you experience any problems installing the drivers, we recommend you run **Testing and Troubleshooting.** For more information on this utility, refer to the "Trouble-shooting in Windows 95" Appendix at the back of this Guide.

I CAN'T REBOOT!

In some rare cases, you may not be able to reboot your system. If you are unable to boot into Windows 95, you can restart in Safe Mode.

TO BOOT IN SAFE MODE:

1. **Restart** your system again.

2. When you see "Starting Windows 95…" press the **F8** key.

3. Select **Safe Mode** from the menu.

Now you can run the **Testing and Troubleshooting** file to help you troubleshoot your system. Note that the audio and MIDI tests will not work, however, until the conflict(s) are resolved and Windows is restarted in Normal Mode.

After the hardware is working properly,
it is time to install the software!
Refer to "The Software" chapter for instructions.

WINDOWS 3.X INSTALLATION

Even though Windows 3.x is not a Plug and Play operating system, installing the Pinnacle is quite easy.

BEFORE YOU INSTALL THE DRIVERS, NOTE…

♦ The Pinnacle sound card must be installed in your system. If you have not already installed the sound card in your PC, refer to the "Installing the Pinnacle" chapter for instructions.

♦ You must set the J9 jumper to one of the three non–Plug and Play choices. This sets the Control Port's address. Refer to the section on "Setting the Jumpers" in the "installing the Pinnacle" chapter for additional information.

♦ Make certain you have removed all old drivers from any previously-installed sound cards. This is extremely important! Refer to the manual from that sound card for instructions on this should be done.

TO INSTALL THE PINNACLE DRIVERS IN WINDOWS 3.X:

1. Start Windows 3.x and make sure the Program Manager is open.

2. Place the Pinnacle's 3.x drivers diskette into your floppy drive.

3. Choose **Run** from the Program Manager's File menu.
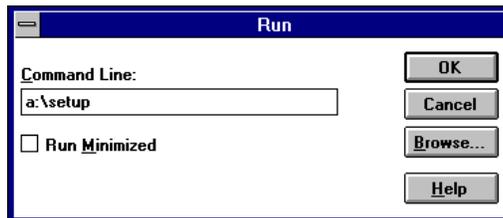
4. In the Run dialog box, type the letter name of the drive followed by **\setup.** If your floppy drive is a:, type **a:\setup**.

5. Click **OK**. The Welcome screen displays. Click **Next** to continue.

6. The Select Target Path dialog box appears. If you do not want the drivers to be placed in the default directory, click the **Browse** button to locate a different directory or type in a different path. Click **Next** to continue.

7. The Select
Program
Folder dialog
box displays.
Click **Next** to
select the
default folder
name — or
type in a
name of your
own. Click
Next to
continue.

8. The Choose Settings for Pinnacle dialog box opens. From this dialog
box you set the following options:
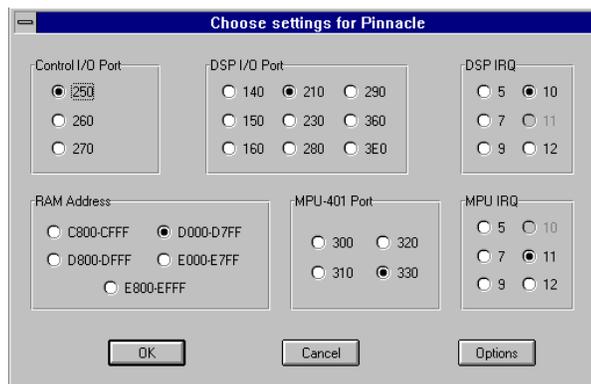
♦ **Control Port** — This number must correspond with the setting
on the J9 jumper on the sound card. If this number does not
match, the card will not operate.

♦ **DSP Port** — You can select any of these options; there are no
jumpers for this setting. However, it is important that this setting
is not in use by another device in the system.

♦ **DSP IRQ** — This is the interrupt request that will be used for the
digital audio. It is important that this setting is not in use by
another device in the system.

♦   **MPU-401 Port** — This is the port address that will be used by the Kurzweil Synthesizer. You can select any of the options; there are no jumpers for this setting. However, it is important that this setting is not in use by another device in the system.

♦   **MPU-401 IRQ** — This is the interrupt request that will be used by the Kurzweil Synthesizer. It is important that this setting is not in use by another device in the system.

♦   **RAM Address** — This is the upper memory block that will be used by the Pinnacle for the transfer of digital audio. This 32 KB range that must be available; it cannot be in use by another peripheral (such as a SCSI or network card) and it must not be shadowed or reserved in the BIOS. If the range is not available, digital audio files will not play correctly and the card may not operate at all.

♦   **Options** — This button brings up another window with several more options that are not necessary for the operation of the Pinnacle, but may be of use to you.

♦   **EIDE Port** — The options are Enabled and Disabled; disabled is the default. If you already have a secondary IDE or EIDE port on your machine, we recommend leaving this option as disabled. Otherwise, a conflict will occur. See the chapter on "Enabling Additional Hardware" for more information.

♦   **Joystick** — The options are Enabled and Disabled; disabled is the default. Enabling the joystick will set it for the standard joystick port address of 200h-201h. If you already have a gameport on your system, enabling this port will cause a conflict. See the chapter on "Enabling Additional Hardware" for information.

9.   After you have made your selections, click **OK**.

10. The software will then either add or modify the EMM386 line to include the memory range that the Pinnacle will be using. Back up files will be made of your AUTOEXEC.BAT and CONFIG.SYS files. Click **OK** to continue.

> **Files backed up...**
>
> ℹ Your AUTOEXEC.BAT and CONFIG.SYS have been backed up to AUTOEXEC.BAK and CONFIG.BAK
>
> OK

11. If the install detects other sound cards, you will be given the option to remove all other sound card drivers or keep the other sound card drivers and operate that other card along with the Pinnacle.

    If you have a Sound Blaster®-compatible card that you use for gaming, you can leave it installed. As long as the resources of the cards do not conflict, the Pinnacle will be able to coexist with another sound card. Refer to "Using Two Sound Cards" later in this chapter for more information.

12. Setup then updates the SYSTEM.INI file. Click **Yes** to continue.

13. The installation is complete. **Reboot** the computer for the changes to take effect and for the Pinnacle drivers to load.

NOTE

In order to test the system, you will need to hook up some headphones or speakers to the Pinnacle output. For more information on hooking up speakers to the Pinnacle, refer to the "Making Connections" chapter later in this Guide.

T<small>ESTING AND</small> T<small>ROUBLESHOOTING</small>

If the Pinnacle or your system is not working properly, there is probably a resource conflict in your system. This means that two or more devices in the system are using the same resources. Resource conflicts are fairly typical and are a normal part of the PC hardware installation process — and they are easily resolved.

There are three common types of conflicts that users experience when installing the Pinnacle:

♦   Input/Output Port Address Conflict

♦   Interrupt (IRQ) Conflict

♦   Memory Conflict

Troubleshooting your system involves checking the current settings for each of these common conflicts and trying new settings for the resources that conflict. Note that you may need to try a number of different resource configurations before all the peripherals work together in your PC.

NOTE   For specific hints and tips on troubleshooting in Windows 3.x, refer to the "Troubleshooting in Windows 3.x" Appendix at the back of this Guide.

I C<small>AN'T</small> R<small>EBOOT</small>!

In some rare cases, you may not be able to reboot your system. If you are unable to boot into Windows 3.x, refer to the "Troubleshooting in Windows 3.x" Appendix for information on how to resolve the problem.

CONFIGURING THE PINNACLE

Should you need to change the resources of the Pinnacle at any time, simply run Setup from the floppy diskette. From here you can re-configure the card's settings.

We recommend you run SETUP.EXE from the installation disk whenever you wish to change Pinnacle's configuration. Select **Configure Already Installed Drivers** when asked.

USING TWO SOUND CARDS

If you know that you will be keeping your existing sound card in the system, it is not necessary to remove that sound card's drivers before installing the Pinnacle's Windows drivers.

The installation procedure automatically detects if you are using another driver for WAVE, MIDI or AUX. It gives you the option of replacing the current primary driver or simply adding the Pinnacle to the list of devices.

For example, if you are currently using Sound Blaster 16 ASP for Windows MIDI, WAVE, and AUX and you wish to use the Pinnacle instead for .WAV files but not .MID files, here is what to do:

1.   Run SETUP.EXE from the Drivers diskette.

2.   When the installer asks you whether you wish to replace the Sound Blaster's driver, choose Replace for WAVE and Add for MIDI and AUX.

PINNACLE AS THE DEFAULT WINDOWS DEVICE

You can also choose whether to set the Pinnacle as the default Windows device. If you choose to do so, a MIDI Mapper that points to the Pinnacle driver will be copied into \WINDOWS\SYSTEM. Your previous MIDI Mapper will be saved as MIDIMAP.TBS.

If an existing MIDIMAP.TBS is found, it will not be overwritten. This prevents your original MIDI Mapper from being lost — even if you run the install several times. However, if you delete MIDIMAP.TBS, you run the risk of losing your previous MIDI Mapper setup.

MEMORY USAGE

The Pinnacle needs to use a 32 KB section of your upper memory. This section must not be used by any other applications you are running, and therefore must be excluded in both the Windows memory manager and your DOS memory manager.

When the Pinnacle drivers and apps are installed, the installer decides on a section in memory based on what areas are already excluded in Windows and DOS. The installation automatically checks for any excludes in both your SYSTEM.INI and CONFIG.SYS when deciding what memory locations to give to Pinnacle. In the CONFIG.SYS, it looks for EMM386 excludes. It will recognize QEMM386 and 386 to the Max drivers but will not change them.

NOTE

If you are using a QEMM or 386MAX memory manager, you need to manually exclude from it the memory that you chose for Pinnacle during installation so that there are no memory conflicts. For specific instructions, refer to the documentation for the memory manager you are using.

NOTE

After the hardware is working properly,
it is time to install the software!
Refer to "The Software" chapter for instructions.

WINDOWS NT 4.0 INSTALLATION

BEFORE YOU INSTALL THE DRIVERS, NOTE ...

♦   The sound card must be installed in your system. If you have not
    already installed the sound card in your PC, refer to the "Installing the
    Pinnacle" chapter for instructions.

♦   Make certain you have removed all old drivers from any previously-
   installed sound cards. This is extremely important!

NOTE   The Pinnacle must be set for non-Plug and Play. Refer to the
"Setting the Jumpers" section in the "Installing the Pinnacle"
chapter for additional information.

INSTALLING THE PINNACLE DRIVERS

TO INSTALL THE PINNACLE IN WINDOWS NT 4.0:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **Multimedia** icon. The Multimedia Properties dialog box opens.

3. Click the **Devices** tab.

4. At the bottom of the dialog box, click the **Add** button. The Add dialog box opens.
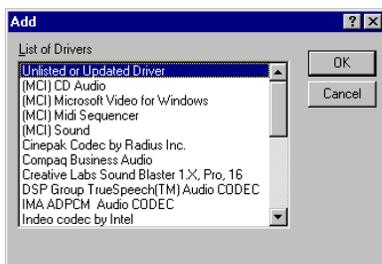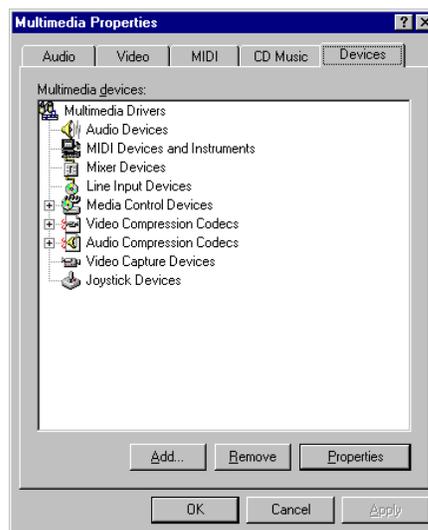
5. From the List of Drivers, click **Unlisted or Updated Driver** then click **OK**. The Install Driver dialog box appears.

6. Place the Pinnacle's **drivers diskette** into the floppy drive. In the Install Driver dialog box type in the name of the floppy drive or click the **Browse** button and select the floppy drive you inserted the drivers diskette into. Click **OK**.

7. The Add Unlisted or Updated Driver dialog box appears with the Turtle Beach Pinnacle driver. Select **Turtle Beach Pinnacle** and click **OK**.
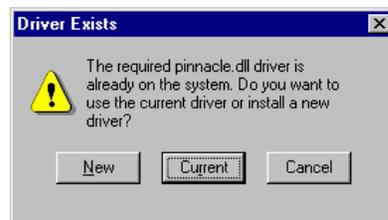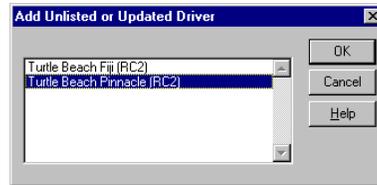
8. If you are reinstalling the Pinnacle or older drivers already exist on your system, you may receive a Driver Exists dialog box. This asks you to install either the current drivers found on your system or new drivers. Click **New** to continue.

9. The MultiSound Configuration dialog box appears. If you have made any changes to the configuration on the Pinnacle card, such as the Control Port address, set them in this dialog box to match the settings on the card.
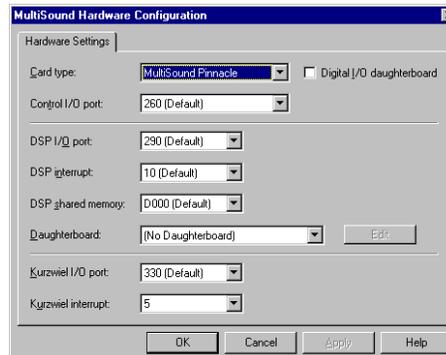
10. Click **OK** when you are done. You are prompted to restart Windows.
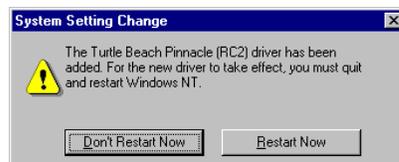
11. Click the **Restart Now** button to restart Windows. When Windows restarts the installation process is complete.
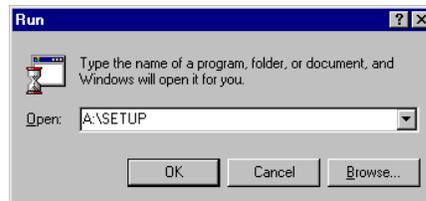
After the Pinnacle drivers have been installed and the system has rebooted, follow these instructions to install the software in Windows NT.

TO INSTALL THE MIXER IN WINDOWS NT 4.0:

12. Click **Start**. Click **Run**.

13. Make sure the Pinnacle's **Windows NT Drivers diskette** is still in the floppy drive.
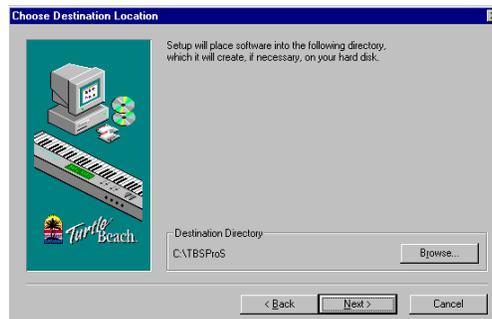
14. In the Run dialog box type the letter of the floppy drive, followed by \SETUP. If your floppy drive is A: type **A:\SETUP.**

15. Click **OK** to continue.

16. Wait a few moments for the install to initialize. When the Welcome screen appears, click **Next**.

17. The Choose Destination Location dialog box appears. Click **Next** to install the software into the default directory — C:\TBSProS.

NOTE

I M P O R T A N T !
The directory chosen will be the directory into which the CD
applications will install. Once selected, this directory cannot
be changed!

18. The Select Program
    Folder dialog box
    appears. Click **Next** to
    select the default
    Program Folder —
    TBS Pro Audio — or
    enter a different name
    in the text box.
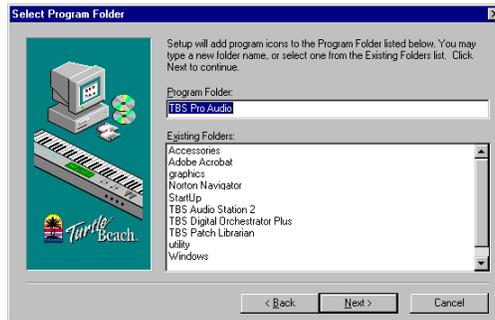
19. After the software has finished installing, a dialog box displays and
    asks if you want to set up the Pinnacle's synthesizer as the default
    MIDI Synth. Click **Yes** to
    continue. The Multimedia
    Properties dialog box
    appears with the MIDI tab
    selected.
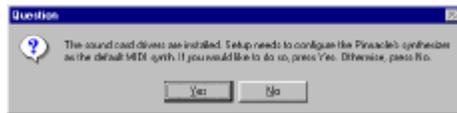
20. Click **TBS Pro Series Kurzweil Main Synth** to select it. It now appears
    in the Single instrument box.

21. Click **OK** to continue.

22. Click **Done** in the Configure MIDI Properties dialog box. The Pinnacle
    setup is now complete.

At this point, the drivers should be installed and the Pinnacle sound card
should be functional.

NOTE

In order to test the system, you will need to hook up some
headphones or speakers to the Pinnacle output. For more
information on hooking up speakers to the Pinnacle, refer
to the "Making Connections" chapter later in this manual.

UNINSTALLING THE PINNACLE DRIVERS

## TO UNINSTALL THE DRIVERS IN WINDOWS NT 4.0:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **Multimedia** icon. The Multimedia Properties dialog box opens.

3. Click the **Devices** tab. A list of the Multimedia drivers is displayed.

4. Click the (+) button to the left of Audio Devices to open it. This displays the **Audio for Turtle Beach Pinnacle** driver.

5. Click **Audio for Turtle Beach Pinnacle** to highlight the driver.

6. At the bottom of the dialog box, click the **Remove** button.

7. Click **Yes,** when prompted with "Are you sure you want to remove the Turtle Beach Pinnace driver?"
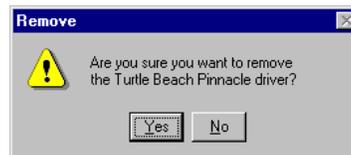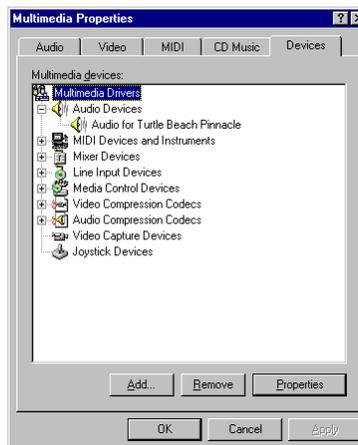
8. Click the **Restart Now** button to restart the computer. When Windows restarts the drivers are removed and the uninstall process is complete.

After the hardware is working properly,
it is time to install the software!
Refer to "The Software" chapter for instructions.
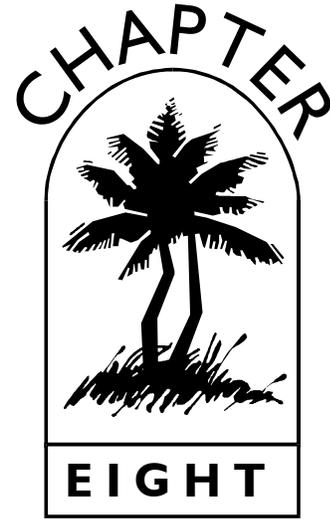
ENABLING ADDITIONAL HARDWARE

If you want to connect a joystick or CD-ROM drive to your MultiSound Pinnacle, the sound card and its drivers must be properly installed in your system. This chapter explains how to enable joysticks and CD-ROM drives in Windows 95 non-Plug and Play, Windows 3.x and DOS mode.

IMPORTANT!!

♦ If you are connecting a CD-ROM drive to the Pinnacle sound card, make certain this drive is an EIDE or IDE drive. At one time, there were four standards for CD-ROM drives — Sony, Panasonic, Mitsumi and EIDE. Older CD-ROM drives which are not EIDE or IDE should NOT be connected to the Pinnacle, as such drives may damage both the Pinnacle sound card and the CD-ROM drive.

♦ If you have a secondary IDE or EIDE port on your motherboard, you will not be able to use the Pinnacle's EIDE interface.

If your motherboard or another sound card in the system has these ports, we recommend that you continue to use them. There is no advantage to moving these ports to the Pinnacle.

Since most users already have an IDE or EIDE CD-ROM interface and gameport on their computers, the Pinnacle's default setting for these two ports is disabled. These ports are provided just in case you do not have them already.

First EIDE port,
connected to
hard drive.

Secondary 40-pin EIDE port.
If you have this on your system,
do not use the Pinnacle's port!
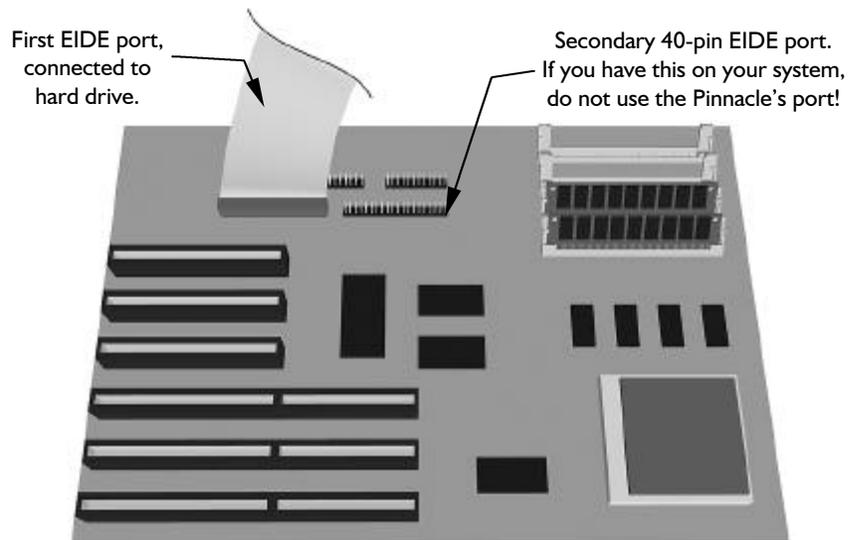
Motherboard with Secondary EIDE Port
(Note that the motherboard in your system
may differ from this graphic representation.)

ENABLING A CD-ROM DRIVE OR JOYSTICK PORT IN WINDOWS 3.X

To enable either or both ports on the Pinnacle, you need to run the SETUP.EXE program in the TBS Pro Audio program group.

TO ENABLE THE CD-ROM OR JOYSTICK PORT:

1. **Start Windows 3.x** and make sure the Program Manager is open. Place the Pinnacle's driver diskette in your floppy drive.

2. Choose **Run** from the Program Manager's File menu.

3. In the Run dialog box, type the letter name of the drive followed by **\setup.** If your floppy drive is a:, type **a:\setup**.

4. Click **OK**.

5. The **Select Target Path** dialog box appears. If you do not want the drivers to be placed in the default directory, click the **Browse** button to locate a different directory or type in a different path.

6. Click **Next** to continue. Since you have installed a Pinnacle card, the **Change Settings for Pinnacle** dialog box appears immediately, without copying the files.

7. Click the **Options** button to open the Options dialog box.

8. Click the option you want to Enable — either **EIDE** or **Joystick** port.

9. Click **OK** and restart the computer for the changes to take effect.

10. Once you reboot, you will need to install the CD-ROM drivers that came with your CD-ROM drive. The Pinnacle's install program only turns on the port; the drivers from your CD-ROM drive's manufacturer make the drive work.

PORT ADDRESSES AND IRQS

Here is a listing of the Port Addresses and the IRQ that the CD-ROM and IDE ports use:

Device	Ports	IRQ
IDE CD-ROM interface (secondary)	170-177 376	15
Joystick (gameport)	200-201	

♦ Remember, if you have a secondary IDE or EIDE port already in the system — almost every Pentium computer and most new sound cards do — do NOT enable the Pinnacle's EIDE port as it will create a conflict.

♦ If you have a sound card or game card in the system — or if your motherboard has a built in joystick — do NOT enable the Pinnacle's joystick port as it will create a conflict.

TO INSTALL THE JOYSTICK PORT IN WINDOWS 95 NON-PLUG AND PLAY:

1. Click **Start**.

2. Point to **Settings**. Click **Control Panel** from the submenu.

3. Double-click the **Add New Hardware** icon. The Add New Hardware Wizard loads.

4. Click **Next**.

5. Select **No** to keep Windows from searching for the new hardware.

6. **Click Next** to continue.

7. From the Hardware types listed, select **Sound, video, and game controllers**.

8. Click **Next** to continue.

9. Click the **Have Disk** button.

10. Place the Pinnacle's Windows 95 drivers diskette in the floppy drive, making sure the floppy is the drive shown in the Install from Disk dialog box. This defaults to a:\. If your floppy drive is b:, click the **Browse** button and choose the b: drive from the dialog box.

11. Click **OK** to continue.

12. In the **Select Device** dialog box, select **TBS Pro Series Joystick**.

13. Click **OK**.

14. Windows displays the settings the joystick will use. Click **Next.**

15. Windows then copies the files from the drivers diskette. You may be prompted to insert your Microsoft Windows 95 CD or floppies, as the core components for the joystick may need to be copied as well.

    If you do not have the Microsoft Windows 95 install CD or floppies, choose **Skip File** for each of the Windows 95 Sound Options and install them later from the Windows 95 Control Panel.

    When you want to install the Windows Sound Options, click **Start**. Point to **Settings**. Click **Control Panel** from the submenu. Double‑click **Add/Remove Programs**. Select the **Windows Setup** tab. Install the appropriate components.

16. Once all of the files have been copied, Windows displays the finish screen. Click **Finish** to continue.

17. When Windows prompts you, **shut down** the computer, **wait** a few seconds and **restart**.

TO ENABLE THE CD-ROM PORT ON THE PINNACLE IN WINDOWS 95 NON-PLUG AND PLAY MODE:

1. Open the **Windows 95 Control Panel** and double-click on **Add New Hardware**

2. When Windows 95 prompts you to search for new hardware, click **No**.

3. Choose **Hard Disk Controllers** as the device category.

4. Click the **Have Disk** button.

5. Insert the **Pinnacle's Windows 95 drivers** diskette.

6. Select the floppy drive letter (a: or b:) from the dialog box.

7. Click **OK**.

8. You have three options:

    ♦ Pinnacle IDE Controller (Control Port 250)

    ♦ Pinnacle IDE Controller (Control Port 260)

    ♦ Pinnacle IDE Controller (Control Port 270)

9. **Choose the same Port address** as you have chosen for jumper J9.

10. Click **Next**. Windows will install the driver at Port 170 IRQ 15.

11. Click **Finish**.

12. Restart your computer.

> **NOTE**
>
> Remember, if you have a secondary IDE or EIDE port already in the system — almost every Pentium computer and most new sound cards do — do not enable the Pinnacle's EIDE port, as it will conflict.

USING THE CD-ROM DRIVE IN REAL MODE DOS

To use the CD-ROM drive in real mode DOS — not a DOS box — you must create a shortcut or add a few lines to your configuration files.

TO CREATE A SHORTCUT:

1. Right-click on your desktop, and select **New…** from the menu that appears. Select **Shortcut** from the next menu.

2. In the text box marked Command Line:, type **COMMAND.COM**

3. You can call the shortcut whatever you like, but remember what you name it! For this example, we will refer to it as **PINNCD**.

4. Click **Finish**. You now have a shortcut on your desktop.

5. Right-click the shortcut you just created — PINNCD — and select **Properties** from the menu that appears.

6. Click on the **Program** tab, and then the **Advanced…** button.

7. Check the option marked **MS-DOS Mode**.

8. Uncheck the box marked **Warn before entering MS-DOS mode**. If you leave this box checked, you will be asked to confirm that you want to go to DOS mode each time you run the shortcut. (This is a matter of personal choice and does not affect performance.)

9. Click the option marked **Specify a new MS-DOS Configuration**. Windows 95 will place some general information in the CONFIG.SYS and AUTOEXEC.BAT files listed. These configuration files will only be used when you run this shortcut.

10. Add this line to the top of the CONFIG.SYS box,

    DEVICE=C:\WINDOWS\PINIDE.SYS /P:170 /I:15 /C:xxx

    where **xxx** is the Control Port that the Pinnacle is using, enter the value at which you set the J9 jumper — 250, 260 or 270.

    If **C:\WINDOWS** is not your Windows 95 directory, change the drive\directory to reflect where Windows is installed on your computer.

11. Add your CD-ROM device driver to the CONFIG.SYS box right below the line you just added. Since each CD-ROM drive is different, you will have to refer to your CD-ROM drive's manual or contact your CD-ROM drive's manufacturer for the correct statement.
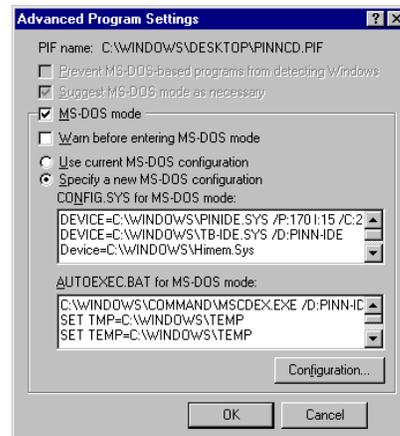
Turtle Beach has written a generic IDE driver that works with most CD-ROM drives. This driver was copied during the install. To use it, add the line

    DEVICE=C:\WINDOWS\TB-IDE.SYS /D:PINN-IDE

This may or may not work for you. If your CD-ROM drive is ATAPI 1.2-compliant, you should have no problems. If it does not work, you will need to use the CD-ROM driver specific for your drive.

12. In the AUTOEXEC.BAT file add the line:

    C:\WINDOWS\COMMAND\MSCDEX.EXE /D:PINN-IDE

    again changing the drive\directory if C:\WINDOWS is not where Windows 95 is installed on your computer.

13. Click **OK** twice to exit out of editing the shortcut. You are all set to use the shortcut, just by double-clicking on it.

This example demonstrates how to get the CD-ROM drive working in real mode DOS by creating a shortcut. If you normally boot to a previous version of DOS, then just add the three lines listed above to your CONFIG.DOS and AUTOEXEC.DOS files that are in the root directory. They will take affect when you boot to a previous version of MS-DOS via the StartUp Menu.

NOTE   DO NOT put those lines in your normal CONFIG.SYS and AUTOEXEC.BAT files. While your CD-ROM drive may work fine, it will be operating in DOS-compatibility mode, which is not the preferred method of operation.

USING THE JOYSTICK IN REAL MODE DOS

To use a joystick in real mode DOS, you can create a shortcut as explained just above in the "Using the CD-ROM Drive in DOS Mode" section.

The steps in that section explain how to set up a shortcut to use a CD-ROM drive in DOS mode. The same procedure is used to create a shortcut for joystick support or to modify the CD-ROM shortcut to include joystick functionality.
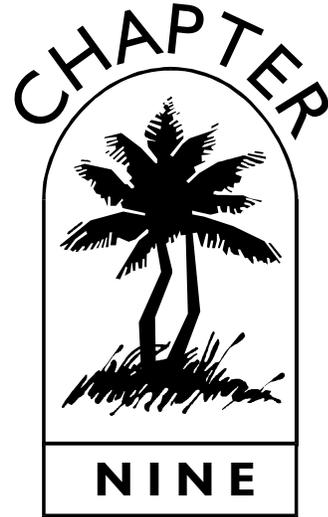
To add joystick support to the CD-ROM shortcut, simply add the line:

DEVICE=C:\WINDOWS\PINGAME.SYS /G:200 /C:xxx

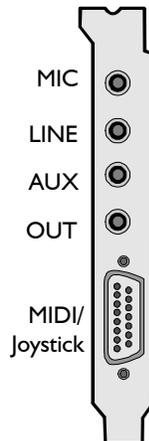to the CONFIG.SYS file in the shortcut, just below the PINIDE.SYS line.

The **C:xxx** value should match the J9 jumper you have chosen — 250, 260 or 270.

MAKING CONNECTIONS

THE BACK PANEL

The back panel of the Pinnacle has Microphone (**MIC**), Line (**LINE**), Auxiliary (**AUX**), Output (**OUT**) and **MIDI/Joystick** connectors. These enable you to connect audio input and output devices to your PC.

The diagram on the left shows the connectors on Pinnacle's back panel.

Aux, Line, Mic and Out on the back of Pinnacle are audio ports requiring 1/8-inch mini-jack external connectors.

Two 1/8-inch stereo to dual RCA cables have been included to provide RCA input and output connectors.

MIC
LINE
AUX
OUT
MIDI/
Joystick

CABLE CONNECTIONS

This diagram shows the hookup of the cables included with the Pinnacle Project Studio.
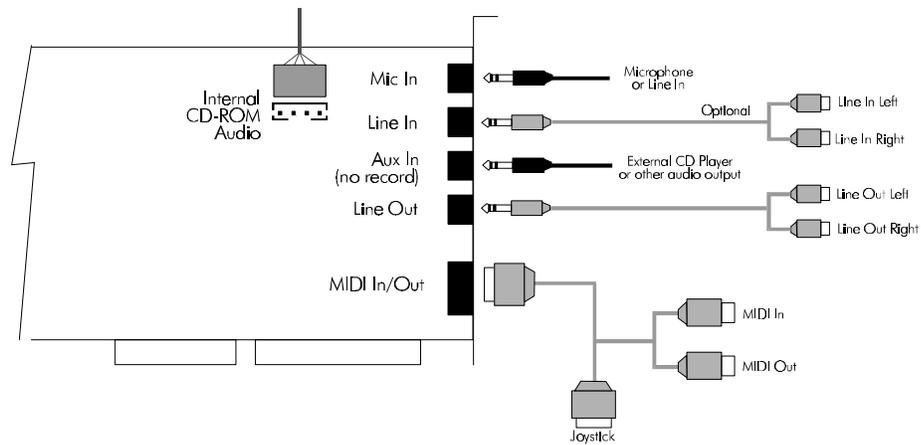
Cable Connections

> *NOTE*
>
> The internal CD-ROM audio will automatically be disabled when an outside source is plugged to the Line In to prevent any PC noise from the CD audio cable.
>
> Use the Mic In connector for your Line In connector if you do not want to disable the internal CD audio.

CONNECTING TO THE PINNACLE

There are several different ways you can connect external equipment to the Pinnacle:

Mic — connects a microphone directly. This can be either a dynamic or condenser microphone — stereo or mono. (See the section on "Setting the Jumpers" to determine the correct jumper setting for the type of microphone you are using.)

You can also connect a Line Input to this connector — such as a mixer. This way, you can leave the hooked up and not disable the internal CD audio. Should you decide to do this, be sure to change the JP2 jumper to the dynamic stereo setting. Refer to the section on the "JP2 Jumper" in the "Installing the Pinnacle Sound Card" chapter for instructions.

Line — connects line level audio sources such as a mixer, tape deck, CD player, etc. Because the internal CD audio cable is susceptible to picking up noise, the internal CD audio is disabled when the line input is in use. This assures the quietest line signal possible in the PC.

Aux— routes the signal through the Pinnacle's internal mixer and merges it with the other output signals. This is very useful for blending a signal from an external keyboard, CD player or other audio source. This also allows you to control the volume level of the device via software. Note that the Aux Input is not a record source.

Output — There are several ways to monitor the output of the Pinnacle.

1. Connect to powered speakers.

2. Connect to a separate power amp/speaker system.

3. Connect to a Mixer Tape or Aux Return. Then connect the Mixer Main or Aux Send to an amplifier/speaker system.

4. Connect headphones directly.

SETTING UP YOUR STUDIO
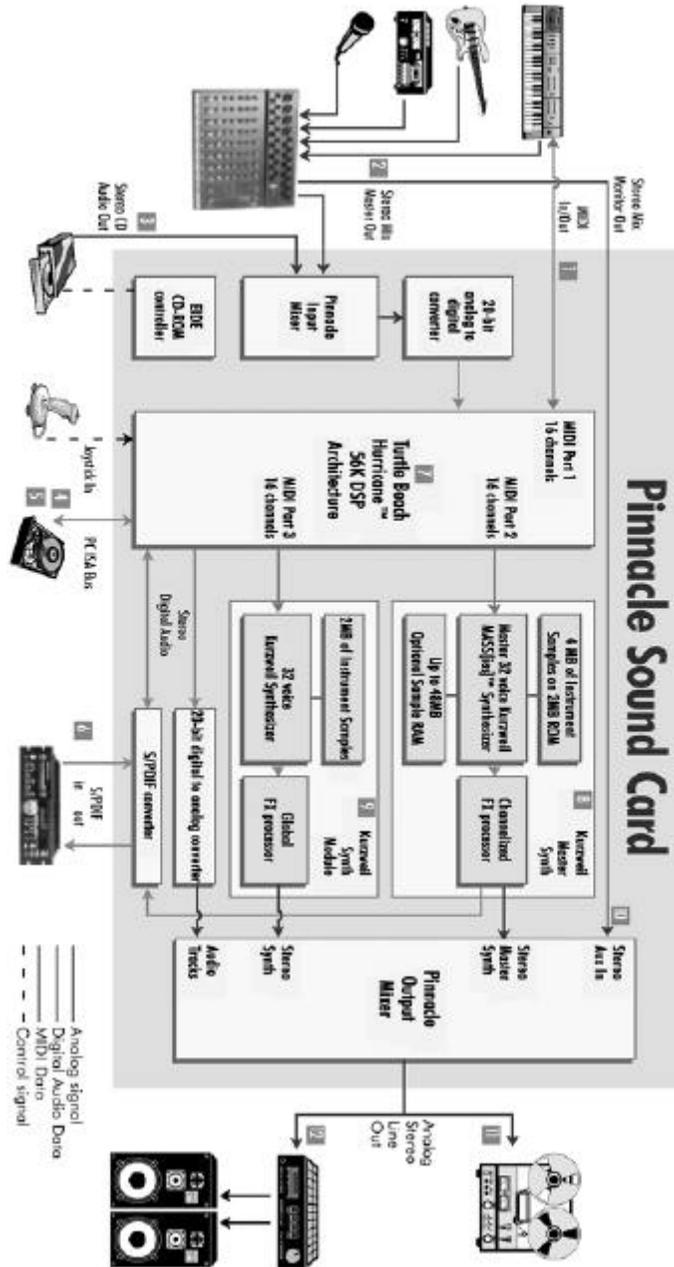
HERE'S WHAT'S INVOLVED…

1. Connect external synthesizers through the MIDI interface (interface cable included).

2. Use your studio mixer to select the input instrument. The Pinnacle's full-duplex feature lets you hear tracks you've already recorded as you lay down each new track.

3. Transfer music tracks, samples and other audio material from the PC's internal CD drive to the hard drive for editing and archiving. (20-bit audio resolution maintains CD quality.)

4. Transfer stereo digital audio from DAT or S/PDIF CD players directly to the PC's hard drive.

5. Store instrument patches, sample libraries, digital audio files, MIDI songs and more on the PC's hard drive.

6. Play and record stereo digital audio directly to external DAT through the S/PDIF interface.

7. Exclusive Turtle Beach Hurricane™ DSP system provides super high-speed data transfer to the PC's hard drive.

8. Professional Kurzweil 32-voice sampler lets you play MIDI tracks enhanced with channelized FX processors. Add up to 48MB of optional sample RAM to create and download your own custom sample libraries stored on the PC's hard drive.

9. A second Kurzweil wavetable synth adds 32 voices enhanced with global FX processing for a total of 64 voices on 32 MIDI channels.

10. Connect your studio mixer output to the Pinnacle Aux input to overdub vocals or additional instruments during final mixdown.

11. Record your finished MIDI and digital audio stereo mix to an external analog deck.

12. Monitor your production with external power amp and speakers.

And, when you want to kick back, you can enjoy high-quality and sound with your Windows games!
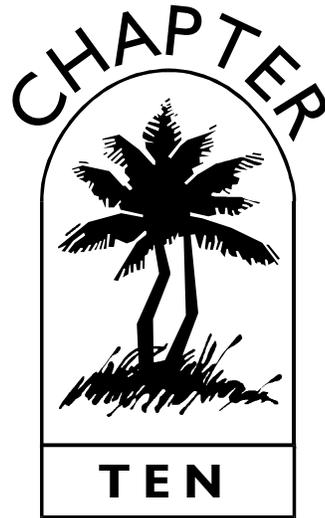
TYPICAL STUDIO SETUP
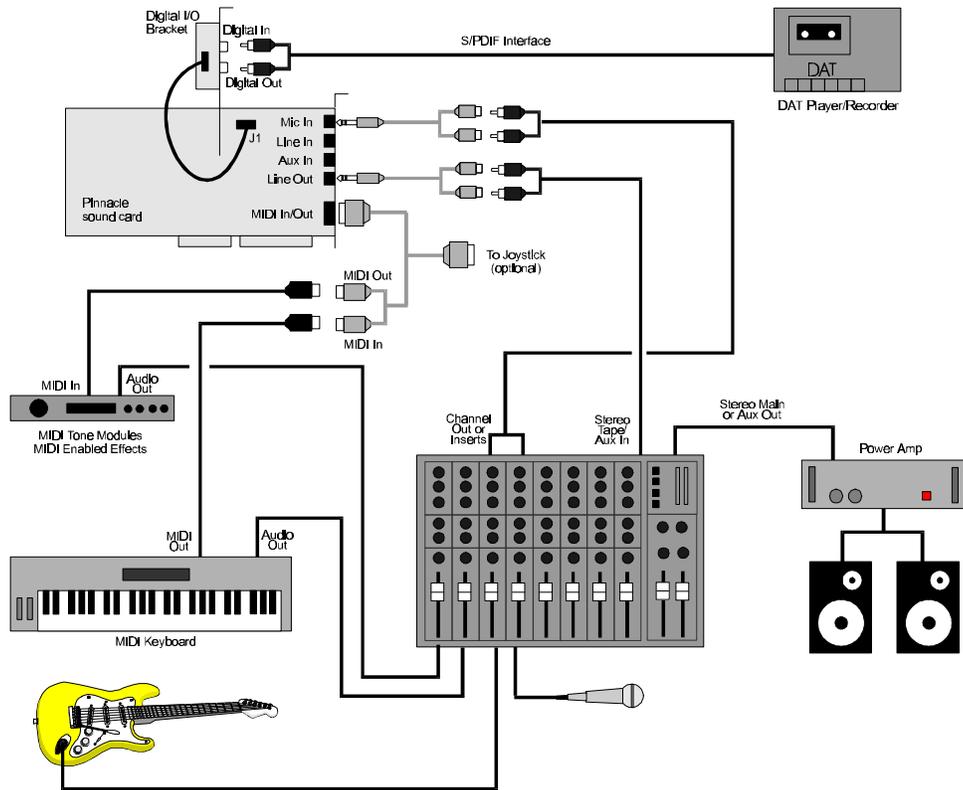
**Typical
Studio Setup**

THE SOFTWARE

The Pinnacle sound card comes with a robust set of software applications that enable you to turn your Windows PC into a MIDI and digital audio recording system. These let you harness the power of the Pinnacle sound card to create professional audio productions.

This section provides a quick overview of the applications bundled with the Pinnacle Project Studio. For more information about these applications, be sure to see the online documentation described in this section.

The software applications can be found on the **Turtle Beach Applications CD**. You will need to install the applications from the CD-ROM to your hard drive before you can use them.
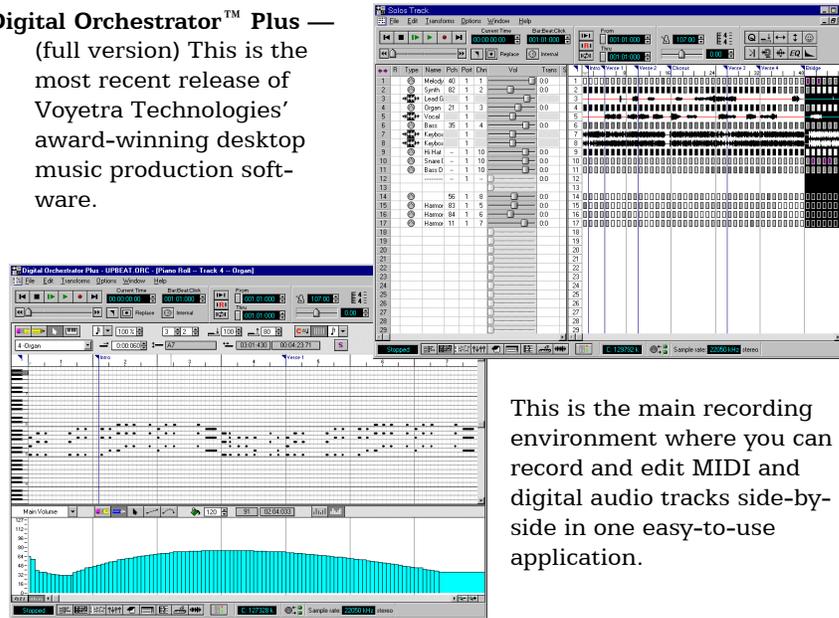
NOTE   The software in this package has been customized for the Pinnacle Project Studio. These applications will only work in a PC with a Pinnacle sound card!

OVERVIEW OF THE APPLICATIONS

Digital Orchestrator™ Plus —
(full version) This is the
most recent release of
Voyetra Technologies'
award-winning desktop
music production soft-
ware.

This is the main recording
environment where you can
record and edit MIDI and
digital audio tracks side-by-
side in one easy-to-use
application.

AudioStation® 2 —
AudioStation controls a
multimedia PC like a
component stereo sys-
tem. It unites your
computer's MIDI, WAV
and CD function so they
are easy to control.

AudioStation includes:

Audio Mixer — Set the volumes for MIDI and WAV recording and
playback. Also use this mixer to easily access the volume controls of
your PC while running other multimedia applications.

CD Player — Play commercial audio CDs on your PC's CD-ROM drive. Use this module to control playback of sampling CDs while recording them in AudioView. This player has the same features as a home CD player — including loop and shuffle play. Make playlists of your favorite songs and save the lists for future listening sessions.

WAV Player — Play and record WAV files. Create playlists of your files and play them back in any order. Edit the files with AudioView™ or Digital Orchestrator Plus™ (both are included).

MIDI Player — Play standard MIDI files. Create playlists of your favorites and lay them back in any order. Modify the files with MIDI Orchestrator™ or Digital Orchestrator Plus (both are included)
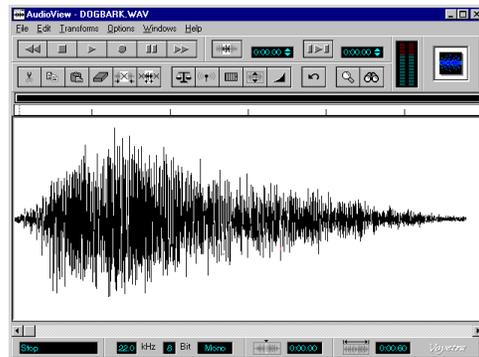
AudioView™ — Edit and record WAV files. Embed sound files into OLE documents using drag-and-drop techniques. Audio-View can be launched directly from within the WAV Player.

MIDI Orchestrator™ — Mix and edit MIDI files by changing instruments, transposing keys, adjusting tempo, muting or soloing specific tracks, and more. This component can be launched directly from within the MIDI Player.
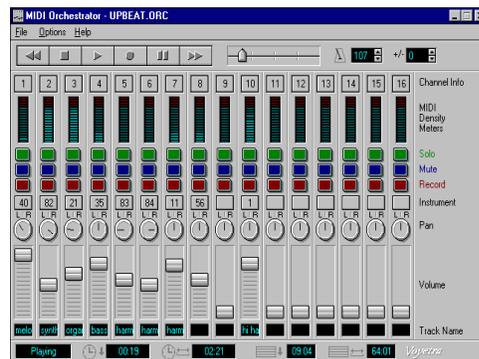
Patch Librarian — Download new patches into the main Kurzweil synthesizer on the Pinnacle sound card. Custom banks can be created for specific Digital Orchestrator Plus recordings.

If you add RAM memory SIMMs to your sound card, you can download patches that include new samples — such as new drum sounds, effects, multisampled instruments and more.
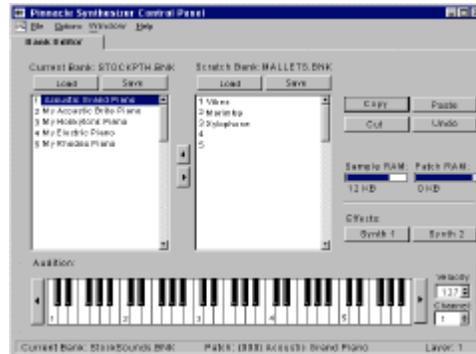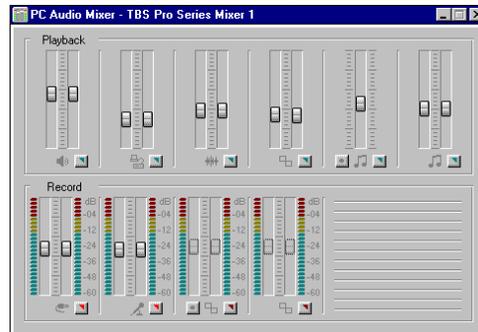
The applications CD contains a directory called PATCHES\ROMBANKS, where you will find custom banks, and a directory called PATCHES\RAMBANKS, which contains custom banks that require Sample RAM to load.

NOTE

The Patch Librarian is a 32-bit application and does not work in Windows 3.x. If you are running Windows 3.x, refer to the online documentation for information on using the Control Panel.

PC Audio Mixer — the PC Audio Mixer controls the volumes for the recording and playback levels on your system's multimedia devices. This mixer also contains individual controls to adjust CD, MIDI, and WAV volumes, as well as the volumes for the Microphone and Auxiliary Inputs.

Use the PC Audio Mixer with all of your Windows multimedia and sound applications.

DIAGNOSTIC UTILITIES

The MultiSound Pinnacle sound card comes with two diagnostic utilities to help you find and correct any audio-related problems you may be having with your system.

Testing and Troubleshooting Diagnostic — This file helps you make certain everything is working correctly and provides troubleshooting tips for getting your system to run properly. For more information about this utility, refer to the "Troubleshooting" appendices at the back of this Getting Started Guide.

SoundCheck™ — This diagnostic utility is included with Digital Orchestrator Plus. It provides information about your system's WAV, MIDI, and CD-ROM drivers and troubleshooting suggestions.

SAMPLE FILES

To help you quickly get started, there are dozens of sample files which can be accessed directly from the CD-ROM. These include sample tracks, demo files, MIDI files, WAV files and more.

Check **What's on the CD?** for more information about these demo files.

> **NOTE**
>
> These sample files are from Voyetra Technologies' **MIDI Music Gallery** and **Digital Sound Gallery** Value CDs. These extensive collections of music files can speed your work by providing finished material to use as a starting point for your own compositions in Digital Orchestrator Plus and AudioStation.
>
> For more information about these CDs — and other audio products — contact Voyetra Technologies Inc. at
> 1.800.233.9377 within the USA
> ~ or ~
> 1.914.966.0600 outside the USA.

DOCUMENTATION

Complete documentation for all of the applications is available online, in PDF file format. Use the **Adobe® Acrobat® Reader** to view — and print — the documentation manuals for the software applications.

ONLINE VIDEOS AND TUTORIALS

The online videos tutorials for Digital Orchestrator Plus let you see and hear how the software works.

These tutorials run directly from the CD-ROM and can be watched on your computer's monitor.

Click the icon in the TBS Pro Audio program group to access these tutorials

WHAT'S ON THE CD?

For a complete listing of information about all the of applications, see the **What's on the CD?** help file.

TO VIEW THE WHAT'S ON THE CD FILE:

1. Place the Turtle Beach Applications CD in your CD-ROM drive.

2. **For Windows 3.1**, open the TBS Pro Audio program group and double-click What's on the CD.

   For Windows 95, click Start. Point to Programs. Point to TBS Pro Audio. Click What's on the CD.

SYSTEM REQUIREMENTS FOR THE SOFTWARE

These are the **minimum** system requirements for the software:

♦   IBM PC or compatible running Windows 3.1 or 95

♦   486DX2/66 or higher processor (Pentium preferred)

♦   8 MB of RAM (16 MB recommended for digital audio applications)

♦   approximately 8 MB hard disk drive space to install the entire software suite

♦   SVGA monitor and adapter capable of displaying 640x480, at least 256 colors

♦   Double-speed or faster CD-ROM drive

♦   MultiSound Pinnacle sound card

♦   Headphones or speakers

NOTE

♦   An external MIDI keyboard, synthesizer, or other MIDI controller is required for recording MIDI files.

♦   A sound source — such as a microphone or CD-ROM — is required for recording WAV (digital audio) files.

INSTALLING THE SOFTWARE

The software has an automatic installation process. During the installa-
tion, you have the option to install all of the applications, or only those
applications that you want.

If, at a later time, you want to install the other applications, you will need
to re-run SETUP.EXE.

TO INSTALL THE SOFTWARE:

1. Make certain you have the **Product ID number**. (This number can
    be found on the Registration Card.)

2. Place the Turtle Beach Applications CD in your computer's
    CD-ROM drive.

    ♦   **For Windows 3.1**, choose Run from the Program Manager's
        File menu.

    ♦   **For Windows 95**, choose Run from the Taskbar's Start menu.
        (When you insert the disc for the first time in Windows 95,
        you are automatically prompted to run it.)

3. In the Run dialog box, type the letter of the drive followed by
    \setup. If your CD-ROM drive is d:, type **d:\setup** and press Enter.

4. Follow the on-screen instructions.

There are online help files and online manuals for the
various applications. Online help can be accessed directly
from within the applications. The online manuals can be
viewed and printed using Adobe Acrobat Reader.

FOR ADDITIONAL INFORMATION

Now that you have the sound card, drivers and software applications installed, you are ready to start making music!

All of the software applications have online manuals in Adobe Acrobat PDF format. Using Acrobat Reader — which you should have installed along with the software applications — you can view and print the manuals and easily search for information about the applications.

NOTE If you did not install the Adobe Acrobat Reader, go to the Acrobat directory on the Turtle Beach Applications CD-ROM and double-click SETUP.EXE. This will install the Acrobat Reader files necessary for viewing and printing the online manuals.

TO OPEN AN ONLINE MANUAL:

1. Place the **Turtle Beach Applications CD** in your CD-ROM drive.

2. **For Windows 3.1**, open the TBS Pro Audio program group and double-click Online Manual.

   For Windows 95, click Start. Point to Programs. Point to TBS Pro Audio. Click Online Manual.

TECHNICAL SUPPORT

This **Getting Started Guide**, the **Pinnacle Project Studio Installation and Overview** videotape, the **Testing and Troubleshooting** utilities and the various help and PDF files should be all you need to get the Pinnacle sound card and the software applications working. However, if you need support, here is how to contact us — Monday through Friday, 9am-5pm, EST.

TO CONTACT TURTLE BEACH TECHNICAL SUPPORT:

Email .... support@tbeach.com
Internet .... http:/www.tbeach.com
Phone 914.966.2150

IF YOU CALL:

1. If possible, use a telephone near your computer.

2. The technician might need to ask about the type of system you are using and the additional hardware installed on the system — for example, a synthesizer, CD-ROM drive or MIDI interface. Try to have the manufacturers' manuals for these peripherals at hand.

3. Be prepared to explain the problems you are having, what you were doing when these problems occurred and any error messages you have received.

TROUBLESHOOTING IN WINDOWS 95

The section will help you troubleshoot problems both for Windows 95
Plug and Play and Windows 95 non-Plug and Play installations.

Before reading the information in this Appendix, you should have
followed the instructions in the "Testing and Troubleshooting" section at
the end of the installation chapter and tried the "Testing and
Troubleshooting" diagnostic in the TBS Pro Audio group.

ERROR MESSAGES

I received the error message:
"TBS Pro Series hardware not found at port resource"
or
"TBS Pro Series hardware is not responding." ❝❞

I have an exclamation point on the TBS Pro Series Digital Audio in the Device Manager.❝❞

The MultiSound Pinnacle software drivers sometimes display an error message after they have been installed. This is most often due to a resource conflict between the Pinnacle and other devices in the system. It usually means that two or more devices in the system are using the same resources — IRQ, Input/Output Address or Upper Memory.

The three common types of conflicts that users encounter when installing the MultiSound Pinnacle are:

♦ Memory Conflict

♦ Interrupt (IRQ) Conflict

♦ Input/Output Range (Port Address) Conflict

Troubleshooting your system involves checking the current settings for each of these resources and eliminating any conflicts. This can be done by removing the conflicting device or trying new settings for the resources that conflict.

Note that installing a hardware device in your PC sometimes requires that you try a number of different resource configurations before all of the peripherals work together in your PC.

After you have tried to eliminate the conflicts in the system, if the Pinnacle is still not functioning, contact Turtle Beach Technical Support at 914-966-2150 between 9AM to 5PM EST.

Our support staff is ready to help you get your system up and running!

CHECKING FOR CONFLICTS

> **NOTE** The Testing and Troubleshooting application walks you through this procedure.

TO CHECK THE DRIVERS' RESOURCES FOR CONFLICTS:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System** icon. The **System Properties** dialog opens.

3. Click the **Device Manager tab**. A list of the components currently installed on your Windows 95 system displays. Note the + and – buttons on the left of each device.

4. Expand the **Sound, video and game controllers** device category by clicking the + button.

   You should see the two Pinnacle drivers that were installed — in addition to any others you may have. If a device is not functioning properly, you may receive one of the two possible warning symbols — an exclamation point "!" or a red "x" — on the device. For information about these symbols, refer to the "Warning Symbols" section of the "Device Manager" Appendix.
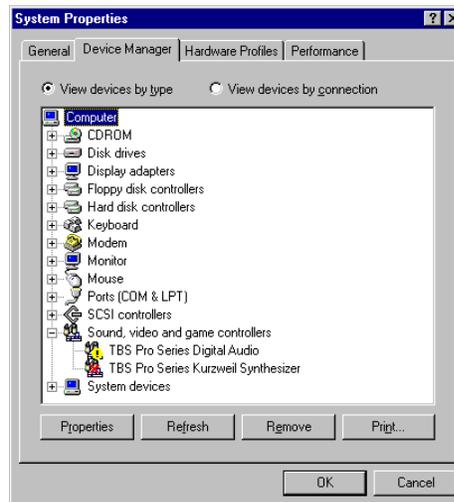
   If there is a warning symbol on a device, you do not have to click the + button to open it. It automatically opens when there is an error.

> **NOTE**
>
> If yellow exclamation points (!) are displayed on both devices, troubleshoot Digital Audio first. The Kurzweil Synthesizer will not work until the Digital Audio is working!

21. **Double-click the device** where the warning is displayed — or the device whose settings you want to change.

22. In the **Properties** dialog box, click the **Resources tab**.

23. Look in the **Conflicting Device List** for messages that indicate a conflict with another device in the system. If a conflict exists, determine if it is a Memory, Interrupt or Input/Output Range conflict. Refer to the following troubleshooting sections for help resolving the conflict. Don't forget you may need to check both TBS Pro Series devices in the Device Manager to help locate potential conflicts.

MEMORY CONFLICTS

The most common area of conflict is the upper memory range. The Multi-Sound Pinnacle uses 32 KB of upper memory for various DSP functions. This area must be seen as free and usable to Windows 95.

Memory conflicts are often difficult to detect. However, since most Pinnacle installation problems are memory-related, we recommend that you configure your system to eliminate the possibility of memory problems.

CONFIGURING YOUR SYSTEM

Here is an overview of how to configure your system. Follow the detailed instructions later in this Appendix.

Step 1: Look in the Windows Device Manager to determine the memory range Windows has set for the TBS Digital Audio device. Use "Automatic Settings" OFF.

Step 2: In the CONFIG.SYS file, add the proper exclude in EMM386 for the memory range.

Step 3: Make sure there are no [386Enh] Enhanced Mode settings in the SYSTEM.INI file that will use the same memory range. Save CONFIG.SYS and restart the computer.

> **NOTE**
>
> Although most Pinnacle installations work fine in Windows 95 systems without EMM386, adding EMM386 with the proper exclude will often clear up any inexplicable memory conflicts the system may be having.

STEP 1: DETERMINING THE CURRENT MEMORY RANGE

Before you can make any changes, you first need to find the current memory range the Pinnacle is using.

TO DETERMINE THE CURRENT MEMORY RANGE:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System** icon. The **System Properties** dialog opens.

3. Click the **Device Manager** tab.

4. Double-click the **Sound, video and game controllers** device category. You should see the two Pinnacle drivers that were installed — in addition to any others you may have.

5. Double-click **TBS Pro Series Digital Audio**.

6. Click the **Resources tab**.

7. Click the Use **Automatic settings** box to deselect it.

8. In the Resource Settings list locate the **Memory Range** (for example, 000D8000-000DFFFF).

9. Write down this number. To modify the CONFIG.SYS file, you will only use the first three digits and the last digit in each segment. For example, if the first segment in the range is 000D8000, you only need D800 to modify the CONFIG.SYS.

STEP 2: MODIFYING CONFIG.SYS

Now that you know the memory range, you can reserve it by adding or
modifying some commands in the CONFIG.SYS file.

TO MODIFY THE CONFIG.SYS FILE:

1. Click **Start**. Click **Run** to display the Run dialog box.

2. Type in **SYSEDIT.EXE** and click **OK**. This runs the System
    Configuration Editor.

3. Click on the window labeled **CONFIG.SYS** to bring it to the front.

4. Look through the file for either of the two following lines (your path
    settings may vary):

    DEVICE=C:\WINDOWS\HIMEM.SYS

    DEVICE=C:\WINDOWS\EMM386.EXE

5. If these lines do not exist, add them now. You should also add
    NOEMS X=(Pinnacle memory range you wrote down)
    so the lines now look something like this:

    If you have RAM
    here, replace it
    with NOEMS

    DEVICE=C:\WINDOWS\HIMEM.SYS

    DEVICE=C:\WINDOWS\EMM386.EXE NOEMS X=D800-DFFF

6. If you already have these lines, just modify them as in the previous
    step. Be sure to add the exclude "X=(Pinnacle memory range)" as
    explained in the previous step.

    If you already have an exclude, just add another one on the end of the
    line. It should then appear as:

    DEVICE=C:\WINDOWS\EMM386.EXE NOEMS X=C000-C7FF X=D800-DFFF

    Previous   Added
    exclude   Pinnacle
    statement   exclude
                     statement

STEP 3: CHECKING SYSTEM.INI FOR ADDITIONAL MEMORY EXCLUDES

While the System Configuration Editor is still open, check the Windows configuration file for any other place that may be using memory.

TO CHECK THE SYSTEM.INI FILE:

1. Click the window titled **SYSTEM.INI**.

2. Use the mouse or the arrow keys to browse through the file and look for the section labeled **[386Enh]**. In the [386Enh] section, look for any lines that appear similar to this:

    EMMExclude=D000-D7FF

3. If you find any of such lines and you know that the memory area is not being used by another device in the system, **REM** the line out by adding a semicolon before it. It should appear as:

    ; EMMExclude=D000-D7FF

4. If you suspect that a particular range is being used by another device operating with older drivers, you will need to avoid using that range for the MultiSound Pinnacle.

5. **Save** the settings for one or both file changes, **power off** and **restart** the computer.

6. Once the computer has restarted, click **Start**. Point to **Programs**. Point to **TBS Pro Audio** and click **Testing and Troubleshooting**.

7. ***If you experience difficulty re-entering Windows 95***, start in Safe Mode (refer to the instructions which follow later in this Appendix), open the System Configuration Editor and remove the REM statement or the semicolon from the lines you have changed.

NOTE You may also want to check your computer's BIOS to make sure there is no memory shadowing for the memory range the Pinnacle needs. Shadowing is usually found under Advanced Setup options in the CMOS/BIOS setup. If memory shadowing is active, you will need to either setup the card in non-Plug and Play mode and select a memory range that is not in use or turn the shadowing off for the range that the Pinnacle is set for. Otherwise, Windows 95 may try to automatically configure the card for a memory address that is being shadowed and you will receive an error message.

INTERRUPT (IRQ) CONFLICTS

Interrupt errors are usually fairly easy to detect, since the effect is commonly a complete lock-up of the system or the failure of a previously working device.

TO CHANGE THE IRQ:

1. If you are able to boot into Windows 95, click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System icon**. The System Properties dialog opens.

3. Click the **Device Manager tab**. A list of the components currently installed on your Windows 95 system displays.

4. Expand the **Sound, video and game controllers** device category, by clicking the + button. If there is a warning symbol on a device, you will not have to click the + button to open it. It automatically opens when there is an error.

5. Double-click the **Device displaying the warning** or whose settings you want to change. This opens the **Properties** dialog box for the device.

6. Click the **Resources** tab.

7. Click the **Use automatic settings** box to remove the check.

8. Double-click the name of the setting you wish to change — in this case **Interrupt Request**. If you are unable to change the resource, you will need to change the setting based on the Basic Configuration to 0001 and try again.

9. Using the Up/Down arrows, select a valid **Interrupt** setting. The Conflict Information display, at the bottom of the window, should tell you if the selected setting is conflicting with any other devices.

10. Click the **OK** button. Normally, when you make changes to resources, Windows 95 prompts you to restart the computer. If it does, then **Restart**. The changes will most likely not take effect until you do. Note that, in most machines, you may need to try a couple different settings.
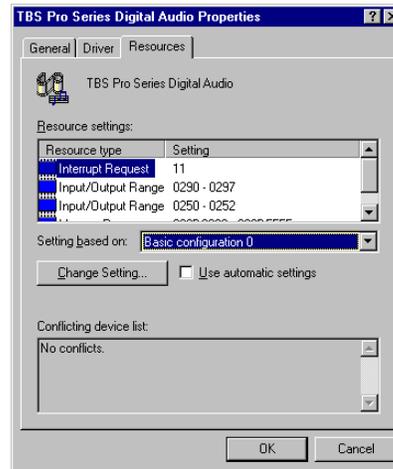
IF YOU ARE UNABLE TO BOOT YOUR SYSTEM…

If you are not able to boot into Windows 95, you can always start in Safe Mode.

TO BOOT IN SAFE MODE:

1. **Restart** your system again.

2. When you see the message Starting Windows 95... press the **F8** key.

3. Select **Safe Mode** from the menu.

Once in Safe Mode you can try different IRQ settings, as previously mentioned and restart your system.

> **NOTE**
>
> If you are having consistent interrupt conflicts that you cannot resolve, check your computer's BIOS to make sure that the IRQs needed by the Pinnacle are not in use.
>
> The most common conflict is PCI interrupt assignments. You only need to assign one IRQ to each PCI card you have in your system

INPUT/OUTPUT RANGE (ADDRESS)

If you have installed the Pinnacle in Plug and Play mode, you probably will not have an Input/Output Range conflict. However, you can check to see if there are any conflicts and resolve them in the Device Manager.

Note that the Device Manager only displays conflicts with Windows 95 drivers and registered hardware. If there is hardware present that is using a SYSTEM.INI driver, its resource will not show conflicts in the Device Manager.

TO CHANGE THE INPUT/OUTPUT RANGE:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System** icon. The System Properties dialog opens.

3. Click the **Device Manager** tab. A list of the components currently installed on your Windows 95 system displays.

4. Expand the **Sound, video and game controllers** device category, by clicking the **+** button. If there is a warning symbol on a device, you will not have to click the **+** button to open it. It automatically opens when there is an error.

5. Double-click the device displaying the warning or whose settings you want to change. This opens the Properties dialog box for the device.

6. Click the **Resources** tab.

7. Click the **Use automatic settings** box to remove the check.

8. Double-click the **Input/Output Range**.

9. Using the Up/Down arrows, select a valid **Input/Output Range** setting. Note that the Conflict Information display should tell you if the selected setting is conflicting with any other devices.

10. Click the **OK** button. Normally, when you make changes to resources, Windows 95 prompts you to restart the computer. If it does, then **Restart**. The changes will most likely not take effect until you do.

CHANGING THE INPUT/OUTPUT RANGE IN NON-PLUG AND PLAY

If you have installed the Pinnacle with the Non-Plug and Play procedure, you must make sure that the Pinnacle's Input/Output Range matches the jumper setting on the card. The Input/Output Range is configured with the J9 jumper block (bottom center of the MultiSound Pinnacle).

The diagram below shows the four possible port settings:

SETTINGS FOR JUMPER J9

250   260   270   Plug and Play

Jumper J9
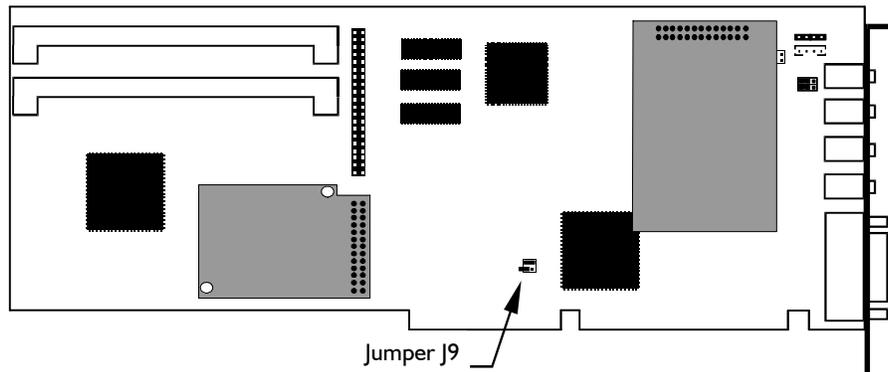
TO COMPARE YOUR HARDWARE SETTINGS TO THE WINDOWS 95 SOFTWARE SETTINGS:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System** icon. The System Properties dialog opens.

3. Click the **Device Manager** tab. A list of the components currently installed on your Windows 95 system displays.

4. Expand the **Sound, video and game controllers** device category, by clicking the **+** button. If there is a warning symbol on a device, you will not have to click the **+** button to open it. It automatically opens when there is an error.

5. Double-click the Device displaying the warning or the device whose settings you want to change. This opens the Properties dialog box for the device.

6. Click the **Resources** tab.
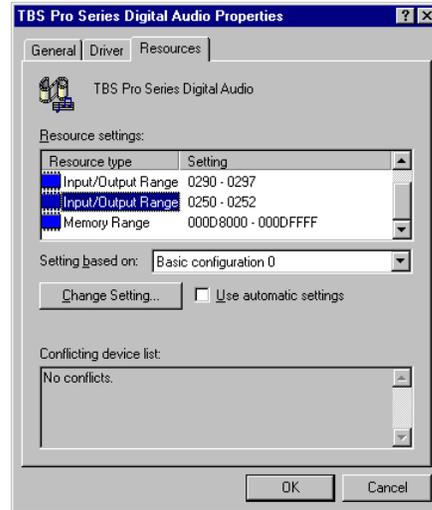
If you find that your hardware does not match the second Input/Output Range, you can change the range in the Device Manager to match the hardware.

TO CHANGE THE INPUT/OUTPUT RANGE:

1. Double-click the **Input/Output Range**.

2. Using the up/down arrows, select the hardware setting you made with the J9 jumpers. If you are not able to change the port, uncheck **Use automatic settings** and try changing the port again.

3. Click **OK** to save your settings and reboot.

UNINSTALLING /REINSTALLING THE MULTISOUND PINNACLE

If you have tried several of the suggestions in this Appendix and the MultiSound Pinnacle is still not working — or if you need to switch from a Plug-and-Play installation to a Non-Plug-and-Play installation — you will need to remove the current MultiSound Pinnacle drivers. To assist you with this, we have provided an uninstall procedure that will remove all MultiSound Pinnacle drivers for both Plug-and-Play and Non-Plug-and-Play installs.

TO UNINSTALL THE PINNACLE'S DRIVERS IN WINDOW 95:

1. Place the Drivers diskette into your floppy drive.

2. Launch the **Windows Explorer** and click the drive letter containing the diskette.

3. In the right-hand pane, double-click **CLEANUP**.

4. A DOS box opens and you are prompted whether or not to continue uninstalling the Pinnacle's drivers. Press **Y** to continue.

5. Follow the directions to uninstall the drivers, answering Yes or No appropriately.

> **NOTE**
>
> If you are switching from a Plug-and-Play to a Non-Plug-and-Play install or vice versa, you must remember to change the J9 jumper to the proper settings. Refer to the J9 diagram earlier in this Appendix.

I have a red X on one of the Pinnacle devices in the Device Manager. "

A red X indicates that the device has been disabled or is not part of the current configuration. If you do not have enough resources to support the card, one or more of the devices will appear with a red X.

For all the functions on the Pinnacle to operate correctly, you must have two free IRQs — one for the Kurzweil Synth, the other for the Digital Audio. These devices can use IRQs 5,7,9,10,11 or 12.

If, for instance, other cards are using all but one of these IRQs in your system, the Pinnacle would only be able to install one of its devices. If this occurs, you will need to re-arrange the settings to accommodate the Pinnacle. One way to do this is to switch one of the cards to an IRQ that the Pinnacle does not use.

You then need to re-enable the device by clicking in the Original Configuration box. Click OK when you are done.

TBS Pro Series Digital Audio Properties

General | Driver | Resources

TBS Pro Series Digital Audio

Device type: Sound, video and game controllers
Manufacturer: Turtle Beach
Hardware version: Not available

Device status
The device is working properly.

Device usage
Place a check mark next to the configuration(s) where this device should be used.
☑ Original Configuration (Current)

OK   Cancel

I can see a MIDI file playing, but I don't hear anything .

♦ Go to the Control Panel and double-click the Multimedia icon. Select the MIDI tab and make sure that the appropriate MIDI device is selected. If you want to play through the Kurzweil Synth by default, choose the option Pinnacle Kurzweil Synth. If you want to play out to a daughterboard attached to the wavetable header or to an external synth connected to the MIDI port, choose the option MultiSound Pinnacle MIDI Port.

♦ Check the PC Audio Mixer and make sure the volume is adjusted properly for the MIDI device you are using.

I am not getting any sound from the card.

♦ Make sure are you using powered speakers and that they are plugged into the correct jack. (The Line Out jack is directly above the Joystick/ MIDI connector.)

♦ Make sure there is power to the speakers and that they are turned on.

♦ Check the Mixer to make sure all of the components' volumes are at least half way to the top. Also, check that none of the components is muted. In particular, check the Master volume setting.

I can see a WAV file playing, but I don't hear anything.

♦ Check the PC Audio Mixer and make sure the volume is adjusted properly for the WAV device.

♦ Go to the Control Panel and double-click the Multimedia icon. Select the Audio tab and make sure that the Pinnacle Wave Out is selected as the playback device.

I installed the Pinnacle and now my computer cannot find the
floppy drive! "

♦   Check your floppy drive's cables. Often while installing a new PC card,
    cables can become dislodged from their proper connections.

♦   Try a different Input/Output Range address by changing the J9 jumper.
    If the Pinnacle is in Plug and Play mode, you will need to switch to non-
    Plug and Play Mode. Refer to the "Windows 95 Non-Plug and Play
    Installation" chapter for proper installation instructions.

Does the Pinnacle work in DOS?"

Partially, it does. The EIDE port and joystick port will both work in DOS
and you can even use thzze on-board Kurzweil Synthesizer as a General
MIDI device for DOS games. However, you cannot use the Digital I/O,
MIDI In, MIDI Out or digital audio features of the card in DOS.

As long as the cards' resources do not conflict, the Pinnacle can coexist
with any other sound card. Since the Pinnacle is not Sound Blaster®-
compatible, placing one of those types of cards in the system should not
be a problem and will provide game support for older DOS games.

NOTE   If the Pinnacle and the Sound Blaster-compatible card are both set
to Plug and Play, Windows may not set them up correctly. You
may need to configure one of the cards for non-Plug and Pay
operation.

TESTING AND TROUBLESHOOTING DIAGNOSTIC

If you are not able to get the Pinnacle to run properly using the tips and techniques in this Appendix, try using the Testing and Troubleshooting diagnostic.

The Testing and Troubleshooting diagnostic is installed with the Pinnacle drivers. This file is an invaluable tool that provides tests and troubleshooting tips to help you confirm that your Pinnacle is installed and working properly. Just follow the instructions in the document and the Pinnacle will be up and running in no time.

TO RUN THE TESTING AND TROUBLESHOOTING DIAGNOSTIC:

1.   Click **Start**.

2.   Point to **Programs**. Point to TBS ProAudio group.

3.   Click **Testing and Troubleshooting.** The file opens.

4.   Follow the instructions to test and troubleshoot your Pinnacle.

TROUBLESHOOTING IN WINDOWS 3.X

WINDOWS 3.X ERROR MESSAGES

When Windows loads, I get the error message:
"Pinnacle Hardware is not responding."

or

"Pinnacle Hardware not found at port resource." "

♦ The most likely problem is that you set the Input/Output Range — or
    the Control Port as the PINCFG.INI file calls it — incorrectly. Remember,
    whatever you set the J9 jumpers for must match the Windows driver. If
    you set the J9 jumpers to 260, run the Pinnacle Setup again and choose
    only to Configure the card. Make sure that the Input/Output Range is set
    to 260. Save the settings and reboot.

    If this does not resolve the problem, there may be another problem such
    as an IRQ or memory address range that is being used by another
    device. Check that you have the HIMEM.SYS and EMM386.EXE lines in
    your CONFIG.SYS. The EMM386.EXE line should have an exclude

statement, such as NOEMS X=E000-E7FF, which covers the memory range being used by the Pinnacle. If this line states RAM instead of NOEMS, change it to NOEMS.

♦   From a DOS prompt, *before* Windows starts, run MSD.EXE to look at the Memory Map. The line starting after the Memory Base and the line immediately above it should be solid black, indicating that the memory in that location is free. It should not be gray and there should be no periods (.) or A's in these lines.

I get the error message:
  "Pinnacle memory address is unavailable. Please check your settings in CONFIG.SYS and SYSTEM.INI." ""

This means that the Pinnacle was unable to access the memory range selected for it. Either the proper exclusions are not in place, the memory range is being used by another device or the memory range is being shadowed or reserved in the BIOS. You must select a region that is available and free.

How can I change the settings on the card?""

The easiest way is to use the Pinnacle Setup program. Once the card is installed, re-running this program will allow you to change the resources that the Pinnacle uses. These settings are stored in the PINCFG.INI file in the Pinnacle directory.

You can change the settings by either:

♦   Double-clicking the Pinnacle Configuration icon from the Pinnacle Program Group.

~or~

♦   Inserting your Pinnacle Drivers diskette and choosing Run from the File menu. If your disk drive is A, type **A:\SETUP** and click OK. Choose Configure already installed Pinnacle.

Windows won't boot. How do I change the settings manually?**

You can manually edit the PINCFG.INI file, though you should only do so if you are unable to get into Windows.

The file will look similar to this:

```
// MultiSound Pinnacle initialization file for PINCFG.EXE
// control port
[ConfigControl]
IOAddress0=250
```

The IOAddress0 setting here must match the JP9 jumper settings on the card. Valid values are 250, 260, and 270.

```
// Logical Device 0 – DSP
// Resources for Digital Audio device
[LogicalDevice0]
Active=1
IOAddress0=210
IOAddress1=0
IRQNumber=10
RAMAddress=D000
```

The valid values for IOAddress0, in [LogicalDevice0], are 140, 150, 160, 210, 230, 280, 290, 3E0, and 360. The valid values of the IRQNumber are 5, 7, 9, 10, 11, and 12. The valid values of RAMAddress are C800, D000, D800, E000, and E7FF.

If the device is enabled, then Active will equal 1. If disabled, it will equal 0. If this device is disabled, none of the others will operate.

```
// Logical Device 1 – Kurzweil Synthesizer MPU-401 device
// Resources for the Kurzweil Synthesizer
[LogicalDevice1]
Active=1
IOAddress0=330
IOAddress1=0
IRQNumber=11
RAMAddress=0
```

The valid values for IOAddress0 are 300, 310, 320, and 330. The valid values of the IRQNumber are 5, 7, 9, 10, 11, and 12. If the device is enabled, then Active will equal 1. If disabled, it will equal 0.

```
// Logical Device 2 - GAME port
[LogicalDevice2]
Active=0
IOAddress0=200
IOAddress1=0
IRQNumber=0
RAMAddress=0
```

The only valid value for the IOAddress setting is 200. No others are used. If the device is enabled, then Active will equal 1. If disabled, it will equal 0.

```
// Logical Device 3 - EIDE CD-ROM port
// Resources for the on board IDE controller
[LogicalDevice3]
Active=0
IOAddress0=170
IOAddress1=0
IRQNumber=15
RAMAddress=0
```

The only valid value for the IOAddress setting is 170, and for the IRQNumber is 15. If the device is enabled, then Active will equal 1. If disabled, it will equal 0.

After installing the Pinnacle, Windows locks up on loading. ❞

The most likely problem is an Input/Output conflict. The default Address for the Pinnacle in Windows 3.x is 250. The three options that you have available to you — 250, 260, and 270 — are controlled by the J9 jumper settings on the card.

In the Control Port section of the PINCFG.INI change the IOAddress0 to match the J9 Jumper setting.

I get no error messages entering Windows, but when I start the Mixer, I get a message box that reads, "Pinnacle Aux is not installed … Exiting." ❞

This means that the Pinnacle drivers did not load, which is usually due to a conflict with something else. In most cases, it will probably be a memory address conflict.

Does the Pinnacle work in DOS? ❝

> Partially, it does. The EIDE port and joystick port will both work in DOS, and you can use the on-board Kurzweil Synthesizer as a General MIDI device for DOS games. However, you cannot use the Digital I/O, MIDI In, MIDI Out or digital audio features of the card in DOS.
>
> As long as the cards' resources do not conflict, the Pinnacle can exist with any other sound card. The Pinnacle is not Sound Blaster®-compatible, placing a Sound Blaster-compatible card in the system should not be a problem and will provide game support for DOS games.

What changes were made to my system?❝

♦   In the CONFIG.SYS file, the EMM386 line was either added or modified. It may look similar to

   DEVICE=C:\DOS\EMM386.EXE NOEMS X=E000-E7FF

Normally, the last "X=" parameter is the one added for the Pinnacle. If you chose to enable the IDE port on the Pinnacle, the following line was added

   DEVICE=C:\TBEACH\PINNACLE\PINIDE.SYS /P:170 /I:15 /C:250

The only option that may differ from yours is the /C: parameter. This number is the Control Port that you selected during the install and will have a value of either 250, 260 or 270. The Control Port settings must match the J9 jumper settings on the board.

♦   In your AUTOEXEC.BAT file, the following line was added

 DEVICE=C:\TBEACH\PINNACLE \PINCFG /FC:\PINNACLE\PINCFG.INI

The directory and drive names may be different. These examples assume the default install directory was used.

> In the SYSTEM.INI file, the following line was added to the [386Enh] section
>
>   EMMExclude=E000-E7FF
>
> where the memory range is the one selected during the install. You may have other EMM excludes in this section as well, if another

device in your system has already installed one. You will also have
lines added to the [drivers] section

> WAVE=C:\WINDOWS\PINDSP31.DRV
> MIDI=C:\WINDOWS \PINKZ31.DRV
> MIDI1=C:\WINDOWS \PINDSP31.DRV
> AUX=C:\WINDOWS \PINDSP31.DRV
> MIXER=C:\WINDOWS \PINDSP31.DRV

Two new sections were also created, [pindsp31.drv] and
[pinkz31.drv]. Both sections will contain several lines beneath them.

I'm confused about the upper memory and how it is used.❞

Your computer's memory is divided into three regions.

♦ The first 640 KB is called Conventional Memory.

♦ The next 360 KB is called Upper Memory.

♦ The remainder of the memory in your system is called High
Memory and is classified as Extended or Expanded Memory.

The Pinnacle will use a 32 KB block of the Upper Memory in order to
transfer digital audio data. This range must be free and available to
do so.

Microsoft provides the drivers HIMEM.SYS and EMM386.EXE to allow
software programs access to the Upper Memory and Extended
Memory regions. This allows programs to run faster as they have
more memory available to use. Since some devices — such as the
Pinnacle, as well as some SCSI and network cards — need to use a
range all by itself, you can exclude areas so that software programs
cannot touch them.

The EMM386 line is where exclusions are handled. A normal line
would look like

DEVICE=C:\DOS\EMM386.EXE NOEMS X=A000-C7FF X=E000-E7FF

Two devices cannot use the same range. The "X=" parameter tells
software that it cannot use that range; it is reserved for another
device. In the above example, the first exclusion is for a video card
and the second exclusion is for a Pinnacle card. Each device must use
its own range and they may not overlap.

The High Memory area can be set either for Extended or Expanded Memory. Most programs can access it either way, but some software will need one or the other. Extended Memory gives you the most memory and is the preferred setting.

    DEVICE=C:\DOS\EMM386.EXE NOEMS

sets the computer to use extended memory and

    DEVICE=C:\DOS\EMM386.EXE RAM

sets the computer to use Expanded Memory. Note that if you use Expanded Memory (with the RAM parameter) then you cannot use the E000-E7FF or E800-EFFF ranges for any devices including the Pinnacle. This is because those ranges are used by the system for the Expanded Memory.

The upper memory regions can also be used by the BIOS to place information from the computer's slow ROM into faster RAM. This is called *shadowing*. Because your system will be using the area, it makes it unavailable to EMM386 or to devices like the Pinnacle. It is NOT a good idea to shadow these regions — and you will need to disable the shadowing of some regions if you want to use the Pinnacle in your system.

Unfortunately, different BIOS manufacturers use different methods of implementing this, so the method to disable it or set it aside differs from system to system. We suggest you contact your system vendor or motherboard manual for information on shutting off shadowing.

Some people use memory managers like 386MAX or QEMM386 instead. Here, the principles are the same. You must have the memory range for the Pinnacle excluded so that nothing else uses it. See the documentation for your particular program to see how this is done.

UNINSTALLING THE PINNACLE'S DRIVERS

1. Run the Pinnacle Configure program from the Pinnacle Program group to determine the current Pinnacle settings. Write down these settings as you will need them to determine which statements to delete.

2. Go to Main program group and double-click the Control Panel.

3. Double-click the Drivers icon.

4. Select Turtle Beach Pro Series Waveform, MIDI, Aux and click on the Remove button on the right side of the dialog box.

5. When Windows asks you to restart Windows, choose Don't Restart.

6. Close the Control Panel. Close the Pinnacle Program group, select it, go to the File menu and choose Delete.

7. Now quit Windows.

8. Delete the Pinnacle directory where you installed all applications. The default is C:\TBEACH\PINNACLE.

9. In the \WINDOWS\SYSTEM directory, delete the MIDIMAP.CFG file.

10. In the \WINDOWS\SYSTEM directory, rename MIDIMAP.TBS to MIDIMAP.CFG.

11. In the \WINDOWS directory, open the SYSTEM.INI file and

    A. Under the [drivers] section, delete:
       ♦ WAVE=PINDSP31.DRV
       ♦ MIDI=PINKZ31.DRV
       ♦ MIDI1=PINDSP31
       ♦ AUX=PINDSP31.DRV

    B. Delete the entire [PINDSP31] section and the entire [PINKZ31] section.

    C. Under the [386Enh] section, delete the EMMExclude statement that corresponds to the RamAddr that the Pinnacle used.

12. Open the CONFIG.SYS file and delete the exclude (such as: X=E000-E7FF) that corresponds to the RamAddr the Pinnacle used.

GENERAL OPERATIONAL TROUBLESHOOTING

The information in this section is not driver-specific. This means that the hints, tips and techniques in this Appendix are applicable whether you have installed the MultiSound Pinnacle in Windows 95, Windows 3.x or Windows NT 4.0.

I cannot hear anything when I play an audio CD from my CD-ROM drive.

♦ You need to hook up the internal audio cable from the back of your CD-ROM to the either the Sony or Panasonic audio connectors on the Pinnacle. See the "Installing the Pinnacle Sound Card" chapter for more information installing the CD-ROM audio cable.

♦ You may have something connected to the Line Input on the back of the Pinnacle card. When you connect an input to the Line Input you disable

the CD-ROM audio. This was designed to eliminate the potential noise often acquired by the internal CD-ROM audio cable when using Line Input devices. If you would like to keep the CD-ROM audio functionality, use the Mic Input instead of the Line Input and reduce the input gain on the mixer. Set Mic to Dynamic/Stereo.

I received the error message:
"There is no input to the digital audio receiver." ••

♦   This is an error you may encounter when the Digital I/O daughterboard is installed. It is a result of the daughterboard not receiving a digital signal. You may get this message if the JP1 jumper is set for microphone (instead of Digital I/O), your DAT machine is not connected correctly to the Pinnacle or your DAT machine is not on. This message is just to inform you of the situation; it does not indicate a problem with the card.

♦   Note that some DAT machines only have one RCA connection for both the In and Out functions. These DATs will not work with the Pinnacle, as the Pinnacle requires a "clock" signal to be constantly supplied to the input. The auto-switching on the single RCA connection does not occur until you press Play on the DAT.

The Kurzweil Synth's volume seems somewhat low.••

♦   The maximum volume of the Kurzweil Synth is considerably lower than the maximum volume of the digital audio portion of the card. The default volume is set to the highest level that 32 voices can play simultaneously without experiencing any distortion.

♦   Open the AudioStation Mixer or the PC Audio Mixer. Select the Advanced button under the Synth slider and adjust the Gain.

I'm trying to record from an external device, which I can hear, but it doesn't record.**

The Pinnacle has three analog inputs on the card — Mic In, Line In and Aux In. When you are recording from a device, it must be connected to either the Mic In or Line In. Devices connected to the Aux In can only be listened to, not recorded.

I can't hear my recording source.**

♦   Check the PC Audio Mixer and make sure that both the Playback and Record sliders are not muted and are set at an appropriate level.

♦   Make sure that the source you are recording from is selected in the Recording Mixer.

My microphone doesn't work with the Pinnacle.**

Make sure that the microphone is connected to the Mic In connector on the Pinnacle. Since the Pinnacle can accommodate both a condenser mic and dynamic mic, you must set the JP2 jumpers on the card for the type of microphone you are using. Refer to "Installing the Pinnacle Sound Card" for more information on setting jumpers.

NOTE

The Mic Input can double as a Digital I/O connector when the Digital I/O daughterboard is connected. If you choose not to use the Digital I/O panel, you can use the Mic Input as a digital input. However, you must make sure the JP1 jumper on the card is set correctly for whichever mode you are using the microphone jack.

Be aware that if you chose to use the Mic Input as a digital input, you will not be able to use a microphone. You should use one of the RCA 1/8-inch cables that were supplied with the Pinnacle Sound Studio.

If your condenser microphone uses a battery, to supply its own power, make sure Jumper JP2 is set to dynamic microphone.

THE DEVICE MANAGER IN WINDOWS 95

This section provides a brief overview of how to make changes to devices installed in Windows 95 — using the Device Manager.

When troubleshooting, the first thing you need to do is locate the problem. The Device Manager contains information about the devices you have installed on your system. Here, Windows 95 allows you to access some of the information that is stored in the Registry about these devices.

TO OPEN THE DEVICE MANAGER:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System** icon. The System Properties dialog opens.

3. Click the **Device Manager** tab. A list of the components currently installed on your Windows 95 system displays. Note the + and – buttons on the left of each device. If there is a warning symbol on a device, you will not have to click the + button to open it. It automatically opens when there is an error.
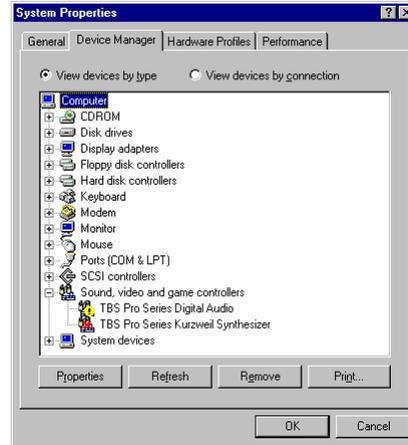
WARNING SYMBOLS

If a device is not functioning properly, you may receive one of the two possible warning symbols — an Exclamation Point "!" or a Red "x" on the device.

There also may be a blue "i" on a device. However, this is not a warning symbol; it is Windows way of telling you that the device is in manual configuration mode.

EXCLAMATION POINT

The yellow circle with an exclamation point indicates that there is a problem with the device: the hardware may not be installed, there is a resource conflict or the drivers are not all installed.

If a device displays with an exclamation point, double-click the device to display a screen similar to the one shown here.

Windows 95 has some advanced features, but it cannot tell specifically what may be wrong with the device. In most cases, it is a resource conflict. To check this, click the Resources tab.
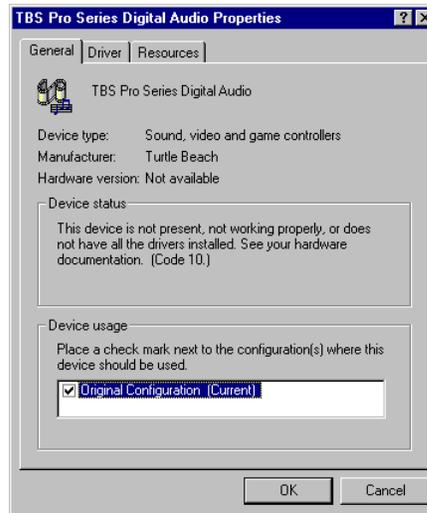
RED "X"

The red "x" indicates that the device has been disabled.
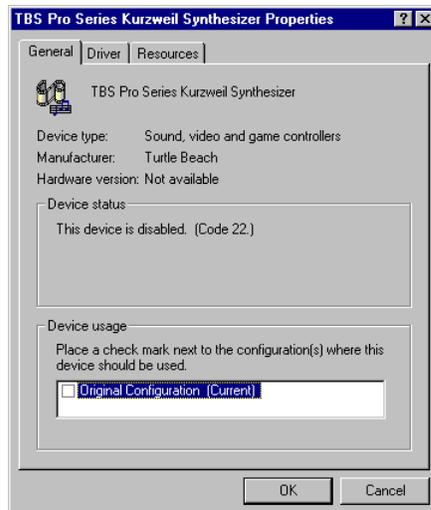
If a device displays a red "x," double-click the device to display a screen similar to the one shown here.

Notice that the box on the bottom shows that the device is not being used in the current configuration. Checking the box will normally remove the "x." (A reboot will be necessary.) If your system does not have sufficient resources to support the card, one or more of the devices will appear with a red "x."

For example, if you have only two IRQs available when installing the Pinnacle — 9 and 15 — the Pinnacle will need one for digital audio and one for the Kurzweil Synth. Since 15 cannot be used by either of these devices, only one IRQ is available to the Pinnacle, which means one device will be disabled. You will need to rearrange settings to accommodate the Pinnacle. Perhaps another card in your system can be switched to IRQ 15 instead of the IRQ it currently is using so that the Pinnacle used the IRQ that you made available.

The Pinnacle can only use the following IRQs:
            5   7   9   10   11   and   12.

BLUE "I"

The blue "i" is not really a warning symbol. It is Windows way of indicating that the device is in manual configuration mode.

When Windows 95 boots up, it sometimes shuffles device resources around to make room for other Plug and Play devices that have been installed. When automatic settings are turned off for a device, Windows 95 will leave the settings as they are.

If a device displays a blue "i," do not worry about it. It is not something that affects the performance of the device. It is simply a signal that the device is under the user's control.

RESOURCES TAB

The Resources Tab opens the resource settings — Input/Output Range, IRQ and Memory Range — for your device. Here you can make changes to these settings. Usually, after changing a setting, you will have to restart Windows for the settings to take affect.

Click to manually change the resource settings.

Contains all the resources that the device is using. Use the scroll bar to view all the resources.

Click to turn On/Off manual editing of the resources.

Indicates whether or not devices are conflicting.

TBS Pro Series Digital Audio Properties

General | Driver | Resources

TBS Pro Series Digital Audio

Resource settings:

Resource type	Setting
Interrupt Request	11
Input/Output Range	0290 - 0297
Input/Output Range	0250 - 0252

Setting based on: Basic configuration 0

Change Setting...   ☐ Use automatic settings

Conflicting device list:

No conflicts.

OK   Cancel

TO CHANGE A RESOURCE SETTING:

1. Click **Start**. Point to **Settings**. Click **Control Panel** from the submenu.

2. Double-click the **System** icon. The System Properties dialog opens.

3. Click the **Device Manager** tab. A list of the components currently installed on your Windows 95 system displays. Note the + and – buttons on the left of each device.
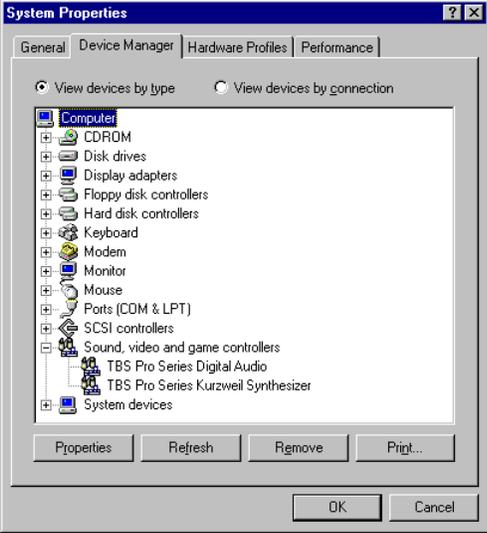
4. Expand the "Sound, video and game controllers" device category, by clicking the (+) button. You should see the two Pinnacle drivers that we installed (in addition to any others you may have). If there is a warning symbol on a device, you will not have to click the (+) button to open it. It automatically opens when there is an error.

5. Double-click the Device whose setting you want to change. This opens the Properties dialog box.

6. Click the Resources tab.

7. Click the "Use automatic settings" box to remove the check.

8. Double-click the name of the setting you wish to change — IRQ, I/O Range or Memory.

9. Using the Up/Down arrows, select a valid setting for that Resource.

10. Click the OK button.

11. Normally, when you make changes to resources, Windows 95 prompts you to restart the computer. If it does, then Restart. The changes will most likely not take effect until you do.

INTERRUPT REQUEST

This is also known as the IRQ. When the computer needs to access a device, it requests this number. The device then sends back information on that number. You cannot have more than one device using the IRQ or an information jam will occur. This can cause a lock up of the computer or prevent Windows from booting properly.

Normally, each device that receives or transmits data will have an IRQ. The Digital Audio and Kurzweil Synthesizer components each use one IRQ.

INPUT/OUTPUT RANGE (ADDRESS)

The Input/Output Range is the address of the device in your system. Normally, every device has an address so information can find its way to the device. Occasionally, devices like to use certain addresses, so it is possible a conflict could occur.

When the Pinnacle is in Plug and Play mode, the Digital Audio component will use one address; when Plug and Play is disabled, it uses two addresses. The Kurzweil Synthesizer component uses one address in either case.

When in non–Plug and Play mode, the extra address is the Control Port. This tells the system where to find the Pinnacle. The J9 jumpers on the board set this address and the driver must be set to match it.

The Control Port is easily identified because it can only be set to 0250, 0260 or 0270. The other address, the DSP Port, cannot use the same address — this prevents any conflicts. When in non–Plug and Play mode, make sure that the range listed matches how you set the jumpers on the card, otherwise nothing on the card will work, because the computer can not "see" the card.
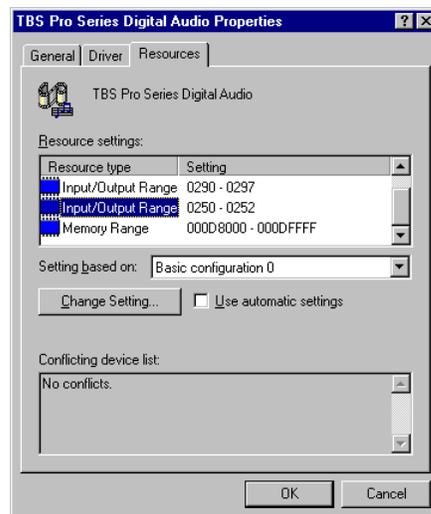
MEMORY RANGE

This is how the Pinnacle transfers digital audio through the system. Two devices cannot share the same memory range.

If another device is using the same memory range, it may result in files not playing back completely or the system locking up when recording.

NOTE

Windows 95 Help System contains useful information about using the multimedia devices on your system. To open Windows 95 Help, press F1 when you are on the desktop.

RUNNING MULTIPLE
PRO SERIES CARDS

It is now possible to run up to four Pro Series cards in one system! To do this, you must either:

♦   Have all but one card configured in legacy mode, using different jumper settings for the control port.

~ or ~

♦   Use the PROGRAM.BAT utility in the EEPROM folder to re-program and serialize your E2PROM's.

The principle behind the second option is that in order to run multiple, otherwise identical, cards in Plug and Play mode, the system must be able to identify the cards as separate devices. For this to happen, each card must be given a globally-unique serial number. PROGRAM.BAT provides the ability to do this.

♦ PROGRAM.BAT should only be run under DOS. (You should completely exit Windows and go out to DOS, not run it under Windows in a DOS window.)

♦ If you are in an operating system that does not support Plug and Play, the cards must be set up in legacy mode (non-Plug and Play mode) and each must have a unique base address. Since there are only three base addresses available, in non-Plug and Play mode, you can only run a maximum of three cards.

♦ In Plug and Play, the cards are distinguished by their unique serial numbers, as opposed to their base addresses.

TO RUN MULTIPLE PRO SERIES SOUND CARDS IN PLUG AND PLAY MODE IN WINDOWS 95:

1. Install the first card in non-Plug and Play mode. (The card MUST be in non-Plug and Play mode for PROGRAM.BAT to work.)

2. Run PROGRAM.BAT from the EEPROM directory and follow the instructions.

3. Turn the system Off. Reset the jumpers on the first card to Plug-and-Play. Then reinstall it.

4. Install a second card in non-Plug and Play mode.

5. Run PROGRAM.BAT to create a serial number for the second card. (This will not affect the first Plug and Play card.)

6. Turn the system Off. Reset the second card to Plug and Play and reinstall it.

7. Follow this same procedure to install all of the remaining cards.

APPENDIX

F

TECHNICAL DATA

The following is a list of the audio specifications of the Pinnacle sound card.

PHYSICAL CHARACTERISTICS

Board Size:
16-bit ISA bus interface card measuring 11.5″ by 4″

Internal Connectors:
CD-ROM Audio: Sony and Panasonic 1x4 pin headers
CD-ROM IDE Interface: 40-pin header
Daughterboard Connector: 26-pin header
Digital I/O Connector: 26-pin header

External Connectors:
3.5mm Audio Jack for Stereo Mic-In (digital option)
3.5mm Audio Jack for Stereo Line-In
3.5mm Audio Jack for Stereo Aux-In
3.5mm Audio Jack for Stereo Line-Out
15-pin Joystick/MIDI connector

ELECTRICAL CHARACTERISTICS

Audio Input:

Mic Input	Level:	380 mV$_{pp}$ @ full gain
	Impedance:	10 kΩ
Line Input	Level:	1.88 V$_{pp}$ @ unity gain
	Impedance:	10 kΩ

Audio Output:

Line Out	Level:	2 V$_{rms}$
	Impedance:	75 Ω

Frequency Response:
10 Hz – 22 kHz +0/-1 dB

Signal to Noise Ratio:
> 97 dB

DSP:
Motorola 56002

KURZWEIL MA-1 SYNTHESIZER CHIPSET SPECIFICATIONS

General MIDI compatible, 32 simultaneous voices
Wavetable synthesis using Kurzweil VAST Architecture

Wavetable size:
   2 MB of ROM samples (compressed from 4 MB by K8 proprietary
      Kurzweil technique)
   Two SIMM sockets for up to 48 MB of sample RAM

Synthesizer engine:
   Kurzweil MA-1

Memory Configurations:
   4 MB, 8 MB, 16 MB, 32 MB; any combination up to 48M

CPU:
   Motorola 68330 10MHz

Effects:
   Channelized 24-bit reverb and chorus built into the MA-1

Performance:
   32 dynamically allocated voices at a sampling rate of either
      44.1 or 48 kHz

MIDI IMPLEMENTATION CHART

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	X	1-16	
	Changed	X	1-16	
Mode	Default	X	Multi	
	Messages	X	Modes 1,3,4	
	Altered	X		
Note Number		X	0-127	Key range:
	True	X	12-108	CO-C8
	Voice			
Velocity	Note ON	X	O	
	Note OFF	X	O	
After Touch	Keys	X	O	
	Channel	X	O	
Pitch Bend		X	O	
Control	0,32	X	O	Bank Select
Change	1,33	X	O	Mod Wheel
	6,38	X	O	Data entry
	7,39	X	O	Volume
	10,42	X	O	Pan
	11,43	X	O	Expression
	64	X	O	Sustain Pedal
	66	X	O	Sostenuto Pedal
	67	X	O	Soft Pedal
	91	X	O	Reverb Depth
	93	X	O	Chorus Depth
	96	X	O	Data increment
	97	X	O	Data decrement
	100	X	O	Reg. Param LSB
	101	X	O	Reg. Param MSB
	120	X	O	All Sound Off
	121	X	O	Reset All Controllers
	123	X	O	All Notes Off
Program		X	O	
Change	True #	X	0-127	
System Exclusive		X	O	
System	Song Pos	X	X	
Common	Song Sel	X	X	
	Tune	X	X	
System Real	Clock	X	X	
Time	Messages	X	X	
Aux Messages	Local	X	X	
	Control	X	O	
	All Notes	X	X	
	Off	X	X	
	Active			
	Sense			
	Reset			

O=YES   X=NO

GENERAL MIDI PATCH SET, DRUM NOTE MAP AND CONTROLLERS

Listings of the General MIDI Patch Set, the General MIDI Drop Note Map and General MIDI Controller Types appear on the following pages.

GENERAL MIDI PATCH SET

The General MIDI Patch Set was designed to ensure compatibility between files by defining a common set of instrument names and MIDI numbers. This means, for example, that if you set a track to Patch #4, "Honky-tonk Piano," it should sound pretty much the same when played on any other General MIDI synthesizer or sound card.

PIANO
1 Acoustic Grand Piano
2 Bright Acoustic Piano
3 Electric Grand Piano
4 Honky-tonk Piano
5 Rhodes Piano
6 Chorused Piano
7 Harpsichord
8 Clavinet Chromatic

PERCUSSION
9 Celesta
10 Glockenspiel
11 Music box
12 Vibraphone
13 Marimba
14 Xylophone
15 Tubular Bells
16 Dulcimer

ORGAN
17 Hammond Organ
18 Percussive Organ
19 Rock Organ
20 Church Organ
21 Reed Organ
22 Accordion
23 Harmonica
24 Tango Accordion

GUITAR
25 Acoustic Guitar (nylon)
26 Acoustic Guitar (steel)
27 Electric Guitar (jazz)
28 Electric Guitar (clean)
29 Electric Guitar (muted)
30 Overdriven Guitar
31 Distortion Guitar
32 Guitar Harmonics

BASS
33 Acoustic Bass
34 Electric Bass (finger)
35 Electric Bass (pick)
36 Fretless Bass
37 Slap Bass 1
38 Slap Bass 2
39 Synth Bass 1
40 Synth Bass 2

STRINGS
41 Violin
42 Viola
43 Cello
44 Contrabass
45 Tremolo Strings
46 Pizzicato Strings
47 Orchestral Harp
48 Timpani

ENSEMBLE
49 String Ensemble 1
50 String Ensemble 2
51 SynthStrings 1
52 SynthStrings 2
53 Choir Aahs
54 Voice Oohs
55 Synth voice
56 Orchestra Hit

BRASS
57 Trumpet
58 Trombone
59 Tuba
60 Muted Trumpet
61 French Horn
62 Brass Section
63 Synth Brass 1
64 Synth Brass 2

REED
65 Soprano Sax
66 Alto Sax
67 Tenor Sax
68 Baritone Sax
69 Oboe
70 English Horn
71 Bassoon
72 Clarinet

PIPE
73 Piccolo
74 Flute
75 Recorder
76 Pan Flute
77 Bottle Blow
78 Shakuhachi
79 Whistle
80 Ocarina

SYNTH LEAD
81 Lead 1 (square)
82 Lead 2 (sawtooth)
83 Lead 3 (calliope lead)
84 Lead 4 (chiff lead)
85 Lead 5 (charang)
86 Lead 6 (voice)
87 Lead 7 (fifths)
88 Lead 8 (bass + lead)

SYNTH PAD
89 Pad 1 (new age)
90 Pad 2 (warm)
91 Pad 3 (polysynth)
92 Pad 4 (choir)
93 Pad 5 (bowed)
94 Pad 6 (metallic)
95 Pad 7 (halo)
96 Pad 8 (sweep)

SYNTH EFFECTS
97 FX 1 (rain)
98 FX 2 (soundtrack)
99 FX 3 (crystal)
100 FX 4 (atmosphere)
101 FX 5 (brightness)
102 FX 6 (goblins)
103 FX 7 (echoes)
104 FX 8 (sci-fi)

ETHNIC
105 Sitar
106 Banjo
107 Shamisen
108 Koto
109 Kalimba
110 Bagpipe
111 Fiddle
112 Shanai

PERCUSSIVE
113 Tinkle Bell
114 Agogo
115 Steel Drums
116 Woodblock
117 Taiko Drum
118 Melodic Tom
119 Synth Drum
120 Reverse Cymbal

SOUND EFFECTS
121 Guitar Fret Noise
122 Breath Noise
123 Seashore
124 Bird Tweet
125 Telephone
126 Helicopter
127 Applause
128 Gunshot

GENERAL MIDI DRUM NOTE MAP

Like the General MIDI Patch Set, the General MIDI Drum Note Map ensures that the drums you designate in your MIDI file will sound the same when played back on other General MIDI sound cards or synthesizers.

In the table below, the left column indicates the MIDI number, the middle column represents the key on a MIDI instrument and the right column displays the corresponding drum sound.

MIDI number	Key on MIDI instrument	Drum Sound
35	B2	Acoustic Bass Drum
36	C3	Bass Drum 1
37	C#3	Side Stick
38	D3	Acoustic Snare
39	D#3	Hand Clap
40	E3	Electric Snare
41	F3	Low Floor Tom
42	F#3	Closed Hi-Hat
43	G3	Hi Floor Tom
44	G#3	Pedal Hi-Hat
45	A3	Low Tom
46	A#3	Open Hi Hat
47	B3	Low–Mid Tom
48	C4	High-Mid Tom
49	C#4	Crash Cymbal 1
50	D4	High Tom
51	D#4	Ride Cymbal 1
52	E4	Chinese Cymbal
53	F4	Ride Bell
54	F#4	Tambourine
55	G4	Splash Cymbal
56	G#4	Cowbell
57	A4	Crash Cymbal 2
58	A#4	Vibraslap

59	B4	Ride Cymbal 2
60	C5	High Bongo
61	C#5	Low Bongo
62	D5	Mute High Conga
63	D#5	Open High Conga
64	E5	Low Conga
65	F5	High Timbale
66	F#5	Low Timbale
67	G5	High Agogo
68	G#5	Low Agogo
69	A5	Cabasa
70	A#5	Maracas
71	B5	Short Whistle
72	C6	Long Whistle
73	C#6	Short Guiro
74	D6	Long Guiro
75	D#6	Claves
76	E6	High Wood Block
77	F6	Low Wood Block
78	F#6	Mute Cuica
79	G6	Open Cuica
80	G#6	Mute Triangle
81	A6	Open Triangle

GENERAL MIDI CONTROLLER TYPES

General MIDI Controller Types are specified with numbers from 0-127 and control various instrument parameters such as pitch bend, effects depth, and volume.

#	NAME	POSSIBLE VALUES
1	MOD WHEEL	0 - 127
2	BREATH	0 - 127
4	FOOT PEDAL	0 - 127
5	PORTAMENTO TIME	0 - 127
6	DATA SLIDER	0 - 127
7	MAIN VOLUME	0 - 127
8	CONTINUOUS RELEASE	0 - 127
10	PAN	0 - 127
11	EXPRESSION CONTROL	0 - 127
64	SUSTAIN	0 = off/127 = on
65	PORTAMENTO SWITCH	0 = off /127 = on
66	SUSTENUTO SWITCH	0 = off /127 = on
67	SOFT SWITCH	0 = off /127 = on
68	2ND RELEASE SWITCH	0 = off /127 = on
84	PORTAMENTO	0 - 127
91	EFFECTS 1 DEPTH	0 - 127 (Normally Reverb)
92	EFFECTS 2 DEPTH	0 - 127
93	EFFECTS 3 DEPTH	0 - 127 (Normally Chorus)
94	EFFECTS 4 DEPTH	0 - 127
95	EFFECTS 3 DEPTH	0 - 127
96	DATA PLUS	0 = off/127 = on
97	DATA MINUS	0 = off/127 = on
121	RESET ALL CONTROLLERS	normally 0
123	ALL NOTES OFF	normally 0
124	OMNI MODE OFF	normally 0
125	OMNI MODE ON	normally 0
126	MONO MODE ON	0/all voices to mono
127	POLY MODE ON	normally 0

WARRANTY AND
LICENSING INFORMATION

This Appendix includes the warranty for the MultiSound Pinnacle sound card, the Voyetra End-User License Agreement for the software suite in this package and the FCC and EMC Declarations of Conformity.

HARDWARE WARRANTY

Voyetra Technologies Inc. ("Voyetra") warrants to the original end-user purchaser ("Purchaser") that the Turtle Beach Systems MultiSound Pinnacle ("Product") will be free of defects in materials and workmanship for a period of one (1) year from the date of purchase by Purchaser ("Warranty Period").

If a defect should occur during the Warranty Period, the Purchaser must obtain a Return Merchandise Authorization ("RMA") from Voyetra and be responsible for all costs incurred in returning the defective Product to and from an authorized Voyetra service center, or to the repair facility located at Voyetra's corporate headquarters. The Product must be returned in a static-proof bag, similar to the one included with the original packaging. A copy of the dated proof of purchase must be included with the defective Product and the RMA number must be clearly indicated on the outside of the package.

In the event of a defect, Purchaser's sole and exclusive remedy and Voyetra's sole liability is expressly limited to the correction of the defect by adjustment, repair, or replacement of the Product at Voyetra's sole option and expense.

This warranty does not cover, and Voyetra is not responsible for, damage caused by misuse, neglect, fire, acts of God, or unauthorized modification of the Product or damage resulting from the use of the Product with hardware or software programs not provided or specifically recommended by Voyetra.

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DECLARATION OF CONFORMITY (FCC)

Declaration of Conformity

Manufacturer's Name: Turtle Beach Systems
Manufacturer's Address: 52 Grumbacher Rd.
                              York, PA 17402

Declares, that the product:

    Product Name: Sound Card
    Model Number(s):   MultiSound Pinnacle
    Year Of Manufacture: _____

Conforms to the following Product Specification(s):

    FCC: C63.4-1992
                              CFR 47, Part 15.109-Class B

Supplementary Information:

    The product herewith complies with the requirements to the FCC self declaration process.

Signature: _Martin Goldberg_   **Date:** 10/17/96

Printed name: Martin Goldberg   **Place:** Fremont, CA

Title: President/CEO

Note new address:
Turtle Beach Systems
5 Odell Plaza
Yonkers, NY 0701

DECLARATION OF CONFORMITY (EMC)

Declaration of Conformity

Manufacturer's Name: Turtle Beach Systems
Manufacturer's Address: 52 Grumbacher Rd.
                                 York, PA 17402

Declares, that the product:

    Product Name: Sound Card
    Model Number(s):   MultiSound Pinnacle
    Year of Manufacture: _____

Conforms to the following Product Specification(s):

    EMC: EN 50081-1:1992/EN 55022:1992 Class B
                                 EN 50082-1:1992 - Generic Immunity

                    EN 61000-4-2:1995, 4kV CD, 8kV AD
                    EN 50140:1995, 3 V/m, 80 - 1000 MHz, 80%
                    EN 61000-4-4:1995, 0.5kV I/O, 1kV Power

Supplementary Information:

    The product herewith complies with the requirements to the EMC Directive 89/336/EEC.

    I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s)

Signature: _[signature: Martin Goldberg]_   Date: 10/17/96

Printed name: Martin Goldberg   Place: Fremont, CA

Title: President/CEO

Note new address:
Turtle Beach Systems
5 Odell Plaza
Yonkers, NY 0701

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