PIPER Research Incorporated

SoundPiper 16™ Stereo Sound Adapter User's Guide

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FCC Notice

This adapter may generate radio frequencies during operation. If the adapter is not installed and used properly in accordance with the manufacturer's instructions, this product may cause interference to radio and television reception. This adapter has been tested and certified to comply with Class B limits for a computer device, pursuant to Part 15 of the FCC rules, which provide reasonable protections against such interference when used in a residential environment. However, there is no guarantee that interference will not occur in a particular environment. If this does occur, on or more of the following measures are suggested to correct the interference:

- Reorient the receiving antenna away from the computer.
- Increase the separation between the equipment and the receiver.
- Connect the computer into a different outlet so it is on a different outlet than the receiver.
- Consult the dealer or an experienced radio-TV technician for assistance.

Notice: Any changes or modifications not approved by Piper Research, Inc. could void the user's authority to operate the equipment.

FCC ID: LQD-SP16-2A

Contents

1: Getting Started

The SoundPiper 16™ Stereo Sound Adapter is a state-of-the art, high-integration, 16-bit stereo sound card for PS/2™ Micro Channel™ architecture personal computers. The SoundPiper 16 can record, compress, and playback voice, sound, and music with computer controlled mixer settings and Yamaha OPL-3 based FM synthesis.

This chapter provides general information about the SoundPiper 16 stereo sound adapter. It contains:

- an overview of the SoundPiper 16 stereo sound adapter
- a list of items shipped in the SoundPiper 16 package
- a list of the other hardware and software you need to complete the installation

There is also a step-by-step guide to installing the SoundPiper 16 stereo sound adapter in your system. If you have previously installed add-in boards, you may not need to consult the hardware installation section.

About the SoundPiper 16 Adapter

The SoundPiper 16 adapter implements industry standards using an embedded microprocessor, 16 bit stereo A/D and D/A, DMA control, programmable time, and Micro Channel interface logic. In addition, connections are provided for CD audio, line-in, joystick/MIDI and speakers.

The SoundPiper 16 has a built-in 5 channel mixer for both recording and playback. It has stereo inputs for CD audio, line-in, music synthesis, and digital audio, plus a mono input for a microphone. are provides stereo capabilities and a five channel mixer. See your computer's hardware manual for a description of its capabilities.

The SoundPiper 16 adapter can be used for PS/2 audio, business audio, Microsoft Windows Sound System™, multimedia, games, and custom applications. DOS, Windows™, and OS/2™ environments are supported.

What's in the SoundPiper 16 Package

The SoundPiper 16 package contains the following:

- the SoundPiper 16 stereo sound card
- the SoundPiper 16 documentation package which contains this guide, the *SoundPiper 16 Quick Start Guide*, the *SoundPiper 16 Drivers & Utilities* disks, and the warranty registration card

If anything is missing or damaged, please contact your SoundPiper 16 dealer.

What You'll Need

In addition to the items shipped in the SoundPiper 16 package, you will need the following items to complete the installation:

- An 80386- or 80486-based IBM® PS/2 Micro Channel computer or compatible with at least one free expansion slot, a hard disk with approximately 6.5 MBytes of free disk space, and a high density diskette drive
- DOS operating system, version 3.1 or later recommended
- (Optional) Windows 3.1 or later, installed
- (Optional) OS/2, installed

Your computer and operating system manuals would also be useful.

PS/2 System Configuration

When you install a SoundPiper 16 stereo sound adapter in a PS/2 computer, you must set up the system using a PS/2 configuration file before you can use the SoundPiper 16 stereo sound adapter.

PS/2 computers are supplied with a program that sets up the computer's configuration. The program reads available configuration files and saves the information in system memory. You use this program the first time you set up your computer and whenever you add boards or options.

The file @5130.ADF, supplied on the SoundPiper 16 Display Drivers & Utilities Disk 1, contains information about the SoundPiper 16 stereo sound adapter.

Follow the instructions supplied with your computer to copy the @5130.ADF file from the SoundPiper 16 disk to a backup copy of the PS/2 Reference Diskette and configure your system to use the SoundPiper 16 stereo sound adapter.

The I/O Address, Interrupt, and DMA channels used by the SoundPiper 16 are assigned during PS/2 system configuration. View the SoundPiper 16 configuration details before you leave the configuration program. Note the values selected before you proceed. When you install SoundPiper 16 software, select the same values for SoundPiper 16 software operation.

Installing the SoundPiper 16 Adapter

You can usually install the SoundPiper 16 sound adapter and have it up and running in only a few minutes. In these installation instructions, we assume that you are familiar with your computer's hardware.

CAUTION Electronic equipment and components can be damaged by static electricity. Try to work in a static free environment whenever you handle electronic equipment. When you remove a board or component from its protective packaging and move it to a work surface or install it in a system, hold the board or component in one hand and discharge any static by touching a grounded surface (like the computer power supply) with your other hand before putting the part in position.

1. **Turn the system off.**

   If you have been using your system, turn off the power to your system unit and all connected peripherals. Do not attempt to install the SoundPiper 16 adapter in a system while the system is turned on. To do so may cause injury to yourself, damage your computer, or damage the SoundPiper 16 stereo sound adapter.

2. **Remove the computer's cover.**

   First, unlock the system unit cover. Then, loosen the cover mounting screws.

3. **Select the expansion slot where you will install the SoundPiper 16 stereo sound adapter.**

   The SoundPiper 16 can be installed in any empty expansion slot.

4. **Loosen the screw on the expansion slot cover blank and remove it from the computer back panel at the position where you want to install the SoundPiper 16 stereo sound adapter.**

Note Save the expansion slot cover. If you remove the SoundPiper 16 adapter at some later time, you may want to replace the expansion slot cover.

5. **Insert the SoundPiper 16 stereo sound adapter into the selected system expansion slot.**

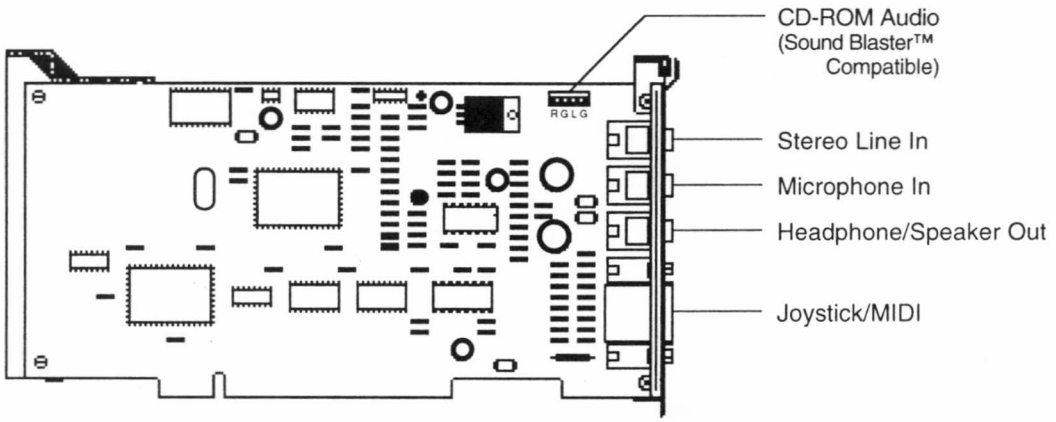
   Align the connector on the bottom of the SoundPiper 16 stereo

sound adapter directly over the slot. Press firmly until the adapter board snaps into place. Be sure that the connector is completely seated in the slot. Tighten the screw.

6. **Replace the cover on the system unit. Replace and tighten the screws in the back panel.**

7. **Connect the interface cables between the SoundPiper 16 adapter and your sound input or output devices.**

   You can connect a joystick, headphones or speakers, an amplifier, microphone, tuner or tape, or a CD-ROM player to your SoundPiper 16 sound card.



8. **Turn the computer ON.**

   Restart the system using the backup Reference Diskette you prepared earlier. Run the automatic configuration option in the 'Set configuration' program.

The SoundPiper 16 hardware installation is complete.

2: SoundPiper 16 Utilities for DOS

The SoundPiper 16 Utilities for DOS includes two useful DOS utilities.

SPCONFIG.EXE is useful for determining the configuration of your SoundPiper 16 adapter. If you have technical questions and are calling technical support at Piper Research, please have this utility available.

SPVOL.EXE is a DOS based Mixer/Volume control utility. Use it to adjust the output levels of the sound.

To use these utilities, copy the program files from the SoundPiper 16 Disk 1 to your hard disk.

Using SoundPiper 16 with DOS Applications

SoundPiper 16 can be used with many DOS applications that are Sound Blaster™ Pro compatible. For typical DOS use, set the application to use Music = ADLIB and Sound FX = Sound Blaster Pro.

Please note that the application's I/O Address, Interrupt, and DMA channels settings must match the SoundPiper 16 setup in the system configuration. Use the System Reference Diskette or the SPCONFIG program to determine the current adapter settings.

A command to set up the Blaster environment variable should also be included in the AUTOEXEC.BAT file.

The Blaster environment variable specifies the I/O address, Interrupt, and DMA channel settings of the SoundPiper 16 adapter. The environment variable must be set in the DOS environment. Use any text editor to add this command string to your AUTOEXEC.BAT file:

```
SET BLASTER=A240 I5 D1 T4
```

Remember to reboot the system for the new settings to take effect.

Special note to DOS game users

Most DOS games will work best if the game is set for a Sound Blaster™ or Sound Blaster Pro™. If the game has separate settings for MUSIC and SOUND FX, use the ADLIB setting for MUSIC and the SOUND BLASTER setting for Digital Sound Effects.

Please make sure that your software setup for Port, Interrupt, and DMA channel match your SoundPiper 16 adapter. If you do not know how your SoundPiper 16 is configured, use your Micro Channel reference diskette or the SPCONFIG utility to determine your settings.

Special note to DOOM™ and DOOM II™ users

The setup program that is shipped with DOOM and DOOM II has a bug in it that causes the wrong address to be specified for the Sound Card in the DEFAULT.CFG file. In order for DOOM and DOOM II to work properly you must modify the DEFAULT.CFG file as follows.

Original DEFAULT.CFG file settings:

```
snd_sbport   544      or      snd_sbport   576
```

should be:

```
snd_sbport   220      or      snd_sbport   240
```

Again, make sure that the Port, Interrupt, and DMA channel used match your SoundPiper 16 configuration.

3: SoundPiper 16 Utilities for Windows

The SoundPiper 16 Utilities for Windows enable you to record, store, and play back voice, music, and other sound on your PC in Microsoft Windows. These applications are designed to enhance communication and improve productivity by incorporating audio into your daily use of the computer.

The SoundPiper 16 applications take full advantage of the capabilities of the SoundPiper 16™ Micro Channel sound card.

The SoundPiper 16 Utilities for Windows are compatible with Microsoft Windows 3.1 and comply with Windows 3.1 Object Linking and Embedding (OLE) requirements.

SoundPiper 16 Utilities for Windows enable you to add, edit and update voice annotations in OLE-compliant Windows applications such as WordPerfect, Word, Excel, and Lotus 123.

SoundPiper 16 Utilities for Windows are compatible with the Microsoft Windows Sound Recorder for recording and play back. You can use Audio Applications to record and play audio files in the PCM (Pulse Code Modulation) format, compatible with Windows 3.1 and other sound cards that use this format.

The SoundPiper 16 Utilities for Windows provide a full variety of audio control programs for generating, controlling and manipulating sound in Windows. These applications are included:

- **Audio Recorder** records, compresses, stores and plays voice, music, and other sound in .WAV and .AUD formats.
- **Recording Control** regulates the recording level and stereo balance of multiple sources during recording.
- **Volume Control** regulates the volume and stereo balance of sound during playback.
- **Mixer** combines signals from multiple sources during playback.

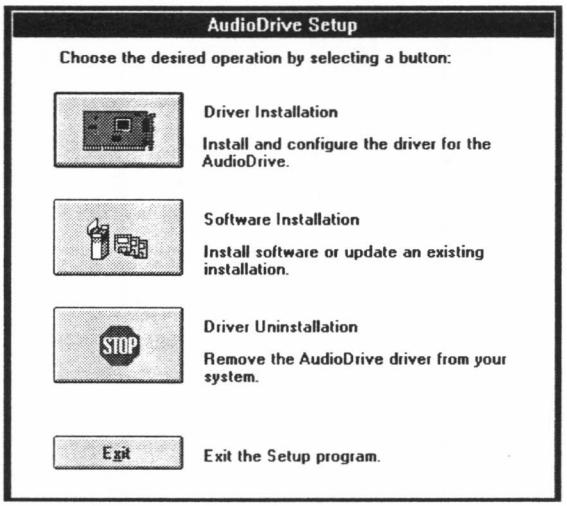
- **Extended Recorder** records, compresses, and stores audio files directly to the hard disk, giving you longer recording times.
- **Audio Clip Library** enables you to organize your audio files in folders. It includes a variety of audio files in the music, phrases and sounds folders.
- **Talking Calculator** announces numbers entered, operation executed and resulting answers.
- **Talking Clock** announces the time on request.
- **Chime** provides a choice of audio announcements at 15, 30 or 60 minute intervals.
- **Audio Reminder** features two alarms that can be set with the audio announcement of your choice selected.
- **Stopwatch** announces time elapsed.
- **Timer** announces time remaining.

Installation

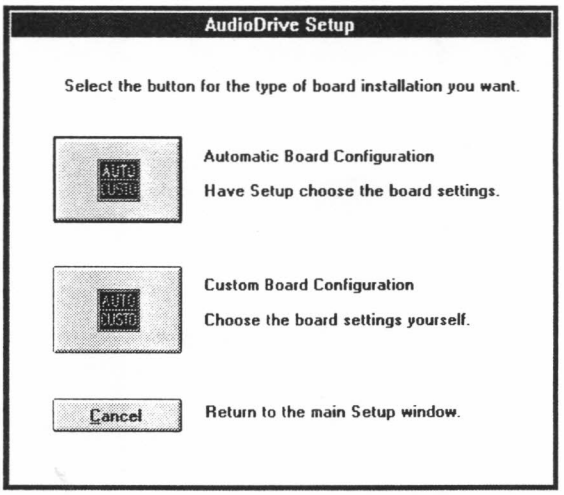
The SoundPiper Setup program provides an easy way for you to install and verify the SoundPiper settings for the driver and applications. Follow these steps to install the SoundPiper 16 *Audio* Driver and Audio Applications:

1. Start Windows 3.1 or higher.
2. In Program Manager, choose **Run** from the File menu.
3. Place Disk 1 in a floppy drive. In the Run dialog box, type the letter of the drive and **setup** (for example **`B:\setup`**), then click the **OK** button. The first SoundPiper Setup window appears. Note the instructions, then click **Continue** to go on, or **Exit** to leave Setup.

4. In the Setup window, click the first button to install the hardware driver.



5. The **Driver Installation** window appears.



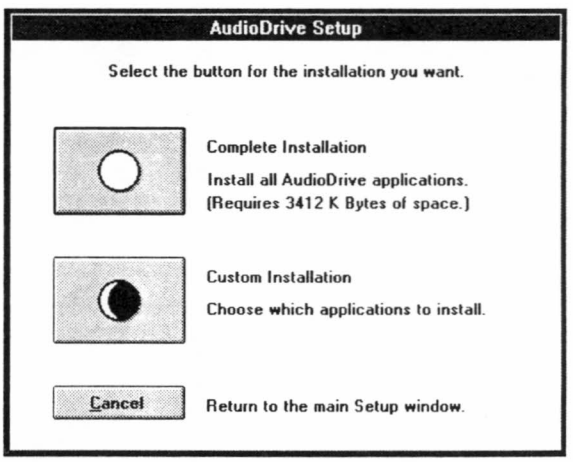
Unless you need to configure the board settings, choose the **Automatic Board Configuration** button to install the hardware driver.

6. In the next window, choose **Install Software**. (If the Audio Applications are already installed, choose **Restart Windows** and from the main Setup window, click the **Software Installation** button to install the Audio Applications.)

   The default directory where the software is installed on your hard disk is **PCAUDIO**. To store the Audio Applications in another directory, type its name and click **OK**. If the directory you specify does not exist, Setup will create it for you.

   If the Audio Applications have been previously installed, a dialog appears, prompting you to indicate where you wish to install the files. Choose **Change Directory** to install the files in another directory, preserving the previous installation.

7. The **Audio Applications** installation window appears:

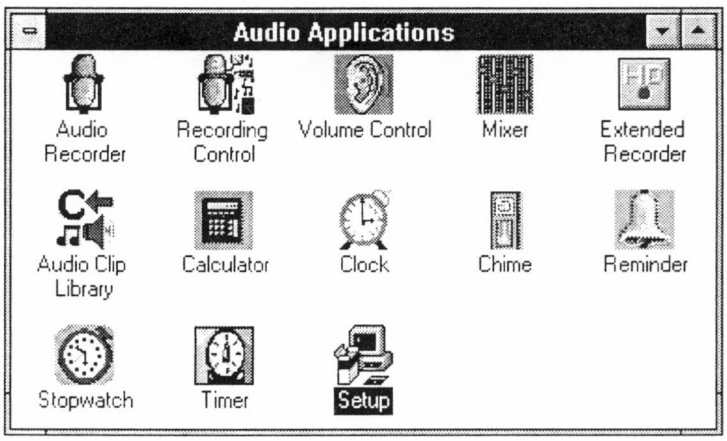


   To install all the Audio Applications, click the **Complete Installation** button. To install only some Audio Applications, choose **Custom Installation**.

If you choose **Custom Installation**, this window appears:

To exclude an application from the installation, click its box. To store the applications in another directory, choose **Change Directory** and specify the directory. Choose **Install** to install the selected Audio Applications.

9. After the software is installed, the application icons appear in the Audio Applications program group window.



The SoundPiper 16 software installation is complete.

Changing the Setup after Installation

You can change the SoundPiper 16 software installation any time after the initial setup by running the Setup again.

1. Start Windows and open the Audio Applications program group.
2. Double-click the **Setup** icon, or select the icon and press the **Enter** key.

The SoundPiper Setup window appears.

Note: If you have a previous version of the software and the Setup program is unable to load the driver, follow this procedure:

1. Exit Windows and reboot your system.
2. Delete **sp16.drv** and **vspdrv.386** from the directory **windows\system**, if any of these files are present.
3. Restart Windows, ignoring any Windows error messages.
4. Insert Disk 1 in a drive, then choose **Run** from the File menu, enter **a:** or **b:** and **setup**, and click the **OK** button.
5. Go through the Setup program again.

Changing Audio Boards

You may at some time wish to change your audio board. Run the Setup program and choose the **Driver Uninstall** option before you turn off the computer to change the board.

Once the new board is installed, run the Setup program again and choose the **Driver Installation** option. This procedure loads the correct MIDI mapper configuration file and other system information.

Skipping the driver reinstallation procedure may cause the audio system to malfunction.

Audio Recorder

The Audio Recorder records, compresses, stores and plays voice, music, and other sound in .WAV and .AUD formats.

Use Audio Recorder to record, compress, store and playback voice, music, and other sound. It provides settings for sound attributes such as mono/stereo, compression level, and sampling rate. You can use it to embed sound objects in documents created in applications that support object linking and embedding (OLE). The Audio Recorder's record, edit and playback capabilities are compatible with the Windows Sound Recorder and other recorders that record and playback in the PCM format.

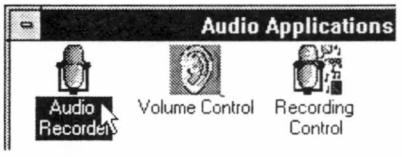
The Audio Recorder can record to and playback from both .WAV and .AUD formats. WAV is the Microsoft Windows 3.1 audio file format. The AUD format uses ESPCM®/ADPCM compression to produce an audio file. The Audio Recorder provides a choice of linear PCM, ADPCM and low, medium, and high ESPCM compression.

The following chart shows the capabilities of the *Audio* Drive on-chip compression/decompression feature:

Compress/Decompress Format	SoundPiper 16
ESPCM Low (4-bit) Record	Yes
ESPCM Low (4-bit) Playback	Yes
ESPCM Medium (3-bit) Record	No
ESPCM Medium (3-bit) Playback	Yes
ESPCM High (1-bit) Record	No
ESPCM High (1-bit) Playback	Yes
ADPCM Record	No
ADPCM Playback	Yes

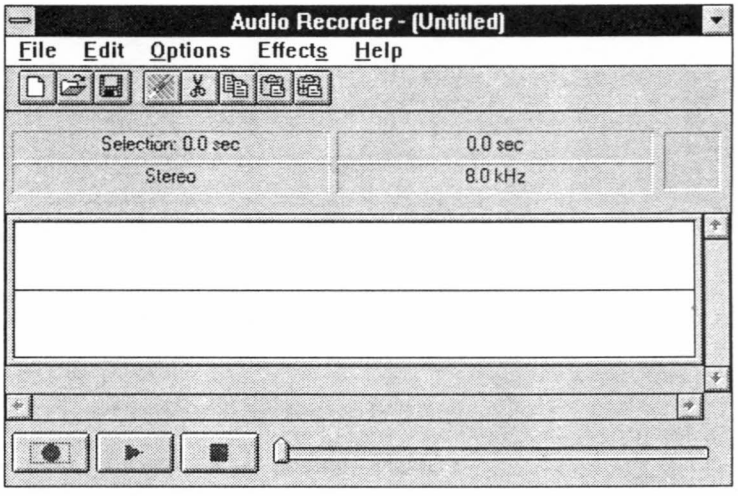
Starting the Audio Recorder

To start the Audio Recorder, open the Audio Applications program group and double-click the Audio Recorder icon.



You can also choose **Run** from the Program Manager's File menu and type **`c:\pcaudio\audiorec`**. Click the **OK** button to start the Audio Recorder.

The Audio Recorder window appears:

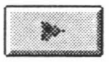
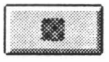


The Audio Recorder can receive input from microphones, a cassette tape player, a compact disk player, or any other line-in source.

Areas under the button bar show the length of a selected part of the current audio file, the total time, mono or stereo, and the sampling rate in kilohertz.

The large area in the center of the window shows the waveform of the current audio file. Note that waveforms are not displayed for compressed files.

The buttons at the bottom of the Audio Recorder window enable you to start and stop recording and playback.

Button	Function	Description
	RECORD	Begins recording
	PLAY	Begins playback
	STOP	Ends recording/playback

Audio Recorder Menu Commands

The following commands are available in the Audio Recorder menus.

File Menu

New Begins a new audio file. The Audio Recorder starts with a new file.

Open Enables you to load an existing audio file.

Save Stores the current audio file to disk under its existing file name.

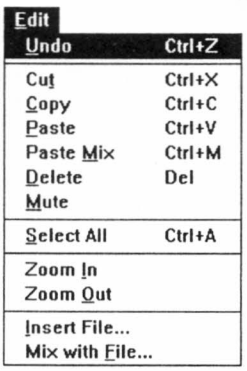
Save As Enables you to change the name of the audio file before saving it. Choosing this command displays the **Save As Sound File** dialog box.

Revert Restores the previously saved version of the current audio file.

Properties Displays the Properties dialog box, from which you can see and change properties of the current audio file.

Exit Closes the Audio Recorder window.

Edit Menu



Undo Reverses the last change you made to the current audio file.

Cut Erases the selected audio portion and stores it on the Clipboard.

Copy Copies the selected audio portion to the Clipboard without removing it.

Paste Inserts the Clipboard audio at the cursor, pushing other material ahead. If audio is selected, **Paste** replaces the selection with the Clipboard audio.

Paste Mix Mixes the Clipboard audio with the audio beginning at the cursor.

Delete Erases the selected portion of the recording. To recover a deleted sound, use the **Undo** command immediately after using **Delete**.

Mute Silences the selected portion of the audio file, leaving it blank. To recover a muted sound, use **Undo** immediately after using **Mute**.

Select All Select the entire recording.

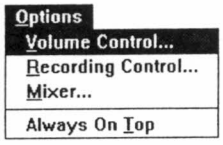
Zoom In Enlarges the waveform display.

Zoom Out Reduces the waveform display.

Insert File Displays the Insert File dialog box. From the Insert File dialog box you select an audio file to be inserted into the current file at the cursor. If audio is selected, the inserted audio file replaces the selected audio.

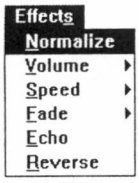
Mix with File Displays the Mix with File dialog box. From here you select an audio file to be mixed with the current file, beginning at the cursor.

Options Menu



Volume Control	Adjusts the play volume.
Recording Control	Mixes audio from several sources in a recording.
Mixer	Combines audio from several sources during playback.
Always On Top	Displays the Audio Recorder on top of other windows.

Effects Menu



The Effects commands change the waveform of the audio you have selected. If there is no selection, the entire file is affected. To change the audio back to what it was before you used an Effects command, choose **Undo** from the Edit menu before using any other command.

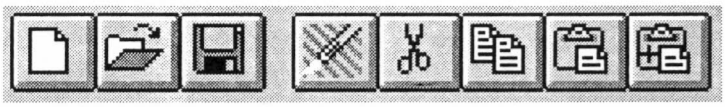
Normalize	Amplifies the selected audio to the maximum volume possible without distortion.
Volume	Increases or decreases the amplitude of the selected audio by 25%.
Speed	Changes the selected audio to be 100% faster or slower. The frequency is not changed.
Fade	Causes the selected audio to **Fade In** from its lowest amplitude to its highest, or **Fade Out** from its highest amplitude to its lowest.
Echo	Displays the Echo Rate dialog box. From this dialog box you set the echo delay and echo volume for the selected audio.
Reverse	Flips the selected audio, so the end becomes the beginning and the beginning becomes the end.

Help Menu

Contents	Displays topics you can choose for information.
About Audio Recorder	Displays version number and copyright information.

The Audio Recorder Toolbar

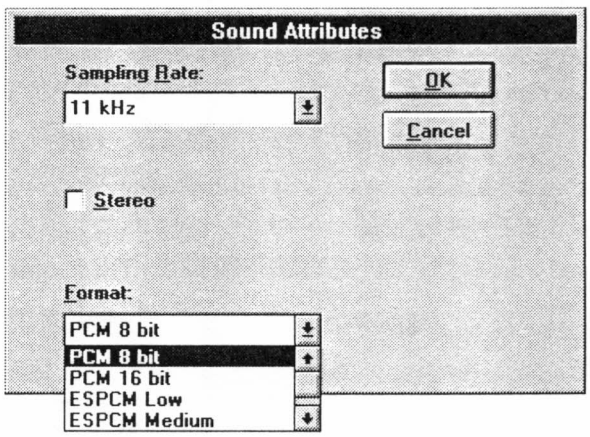
Eight often-used menu commands are also available as toolbar buttons at the top of the Audio Recorder window. Here is a description of each button's function:



New Open Save Undo Cut Copy Paste Paste Mix

Making a Recording

1. Select **New** from the File menu. The Sound Attributes dialog box appears:



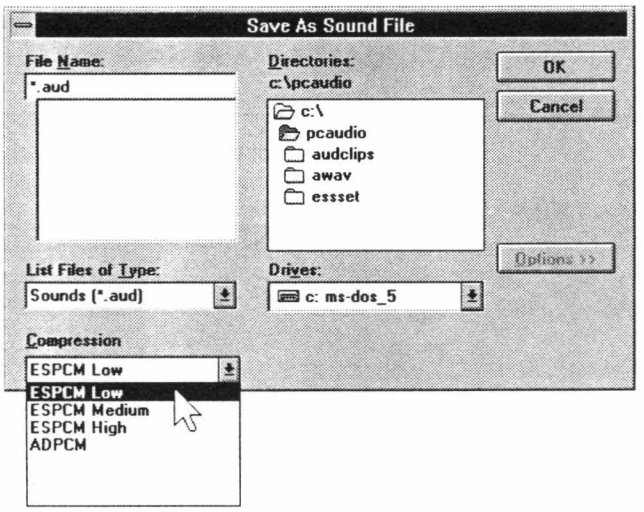
2. In the Sound Attributes dialog box, choose settings for Sampling Rate, Stereo (on or off), and Format, then click the **OK** button.

   - Choose one of the PCM (uncompressed) formats if you want the highest sound quality, or it you wish to edit or modify the recording with Effects commands before you save it.
   - Choose an ESPCM or ADPCM compression format if you wish to save disk space and don't mind sacrificing some sound quality.

3. In the Audio Recorder window, click the **Record** button. Speak into the microphone or turn on the line-in source.

4. Click the **Stop** button to end the recording.

5. Select **Save As** from the File menu. This dialog box appears:



6. In the Save As dialog box:

   - If the file is uncompressed and you wish to save it uncompressed, do *not* click the **Options** button. Just choose a directory location, enter a name for the audio file, then click the **OK** button to save it. The extension for an uncompressed audio file is **.wav**.

   - If the file is uncompressed and you wish to compress it, click the **Options** button and select the compression you want, then click the **OK** button. The extension for a compressed audio file is **.aud**.

You can use the Recording Control window to regulate the mix of audio from several sources. To display this window, choose **Recording Control** from the Options menu. If you do not open the Recording Control window, the Audio Recorder uses the source settings previously in effect. See the Recording Control section for more information.

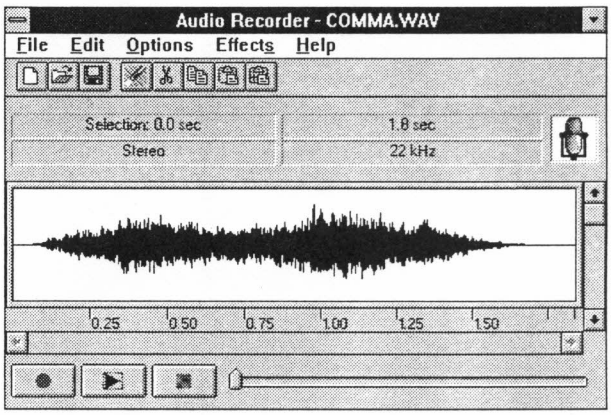
Playing an Audio File

1. Load an audio file into the Audio Recorder. It can be a recording you have just made, or use the **Open** command in the File menu to load a file stored on disk.

2. Click the Audio Recorder's **Play** button to hear the audio file. The file will play to the end unless you interrupt it by pressing the **Stop** button.

Using the Waveform Display

The Audio Recorder's waveform display provides a graphic representation of the audio file currently in memory. You control the display with the vertical and horizontal scroll bars.



- To zoom in on (or magnify) the waveform, move the vertical scroll button down. To zoom out, move the vertical scroll button up.
- To see more of the waveform ahead or behind the part currently displayed, click the right or left area of the horizontal scroll bar.
- To mark a portion of the audio file for playback, use the mouse to select that portion in the waveform display. Then choose **Play** to hear the selected section.
- To deselect a selected portion of the waveform, click anywhere in the waveform display.
- To select the entire file, double-click anywhere in the waveform display.

Adding the Volume Control and Mixer

To regulate the playback sound level or stereo balance, choose **Volume Control** from the Options menu. The Volume Control window appears. See the Volume Control section for more information.

To play the current audio file together with other sound sources, choose **Mixer** from the Options menu. The Mixer window appears. See the Mixer section for more information.

Editing an Audio File

Use the **Open** command (File menu) to load an audio file from disk to the Audio Recorder. You can also edit a file you just recorded.

Delete an audio section

1. With the mouse, select the waveform of the audio to be deleted.
2. Press the **Del** key, or choose the **Delete** command. The selected audio disappears, joining the audio before and after it. If you wish to save the deleted section, use the **Cut** command instead of **Delete**.

   To restore a deleted audio section, choose the **Undo** command before making any other changes to the audio file.

Mute an audio section

1. Select the waveform of the audio to be muted.
2. Choose **Mute** from the Edit menu. The selected audio is silenced; its waveform is reduced to a flat line.

   To restore a muted audio section, choose the **Undo** command before making any other changes to the audio file.

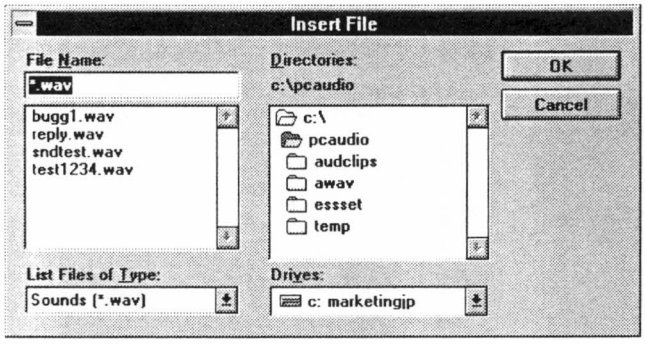
Move or copy an audio section

1. Select the waveform of the audio to be moved or copied.
2. Click the **Cut** button to erase the selected audio and place it on the Clipboard, or click the **Copy** button to leave the selected audio as is while copying it to the Clipboard.
3. Place the cursor where you want the Clipboard material to appear and click the **Paste** button.

Record new audio and place it on the Clipboard	1. Place the cursor at the end of the waveform, or play the file to the end. 2. With microphones or other input sources ready, click the **Record** button to record new material. Click the **Stop** button to finish. 3. Use the mouse to select the section just recorded, then click the **Cut** or **Copy** button to put that audio section onto the Clipboard.
Insert audio from the Clipboard:	1. Place the cursor at the point in the waveform where you want to insert audio from the Clipboard. 2. Click the **Paste** button. The Clipboard audio waveform appears at the cursor. No audio is erased.
Replace the selected audio with Clipboard audio:	1. Use the mouse to select the waveform of the audio to be replaced. 2. Click the **Paste** button. The Clipboard audio appears in place of the selected audio.
Mix Clipboard audio with the selected audio	1. Place the cursor at the beginning of the audio to be mixed, or select a section of audio to be mixed. 2. Click the **Paste Mix** button. The Clipboard audio is combined with the audio after the cursor. If a section of audio was selected, the Clipboard audio is combined with the selected audio until the end of either the Clipboard or the selected audio.

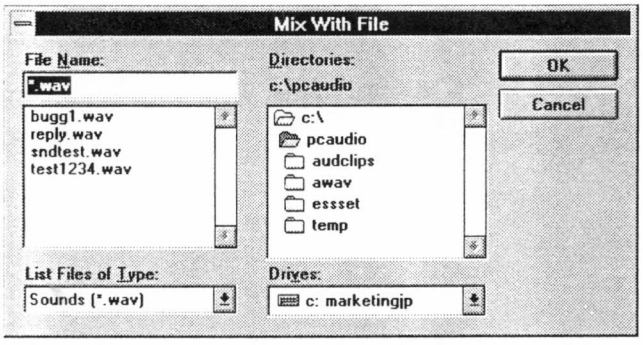
Insert audio from a file or replace a selected audio segment with audio from a file

1. Place the cursor at the point in the waveform where you want to insert an audio file, or select the audio you want to replace with an audio file.
2. From the Edit menu, choose **Insert File** to display the Insert File dialog box. Then choose an audio file to insert into the current file. If audio is selected, the inserted audio file replaces the selected audio.



Mix audio from a file

1. Place the cursor at the beginning of the audio to be mixed.
2. From the Edit menu, choose **Mix with File** to display the Mix With File dialog box. Then choose an audio file to combine with the current file, beginning at the cursor.



Change the Waveform with Effects commands

The Effects commands change the waveform of the audio you have selected. If there is no selection, the entire file is affected. The commands are:

Normalize	Highest amplitude possible
Fade	**In** or **Out**
Volume	**Increase** or **Decrease**
Echo	Set the delay, volume
Speed	**Faster** or **Slower**
Reverse	Reverses the recording

Add Sound to a Document: Drag and Drop

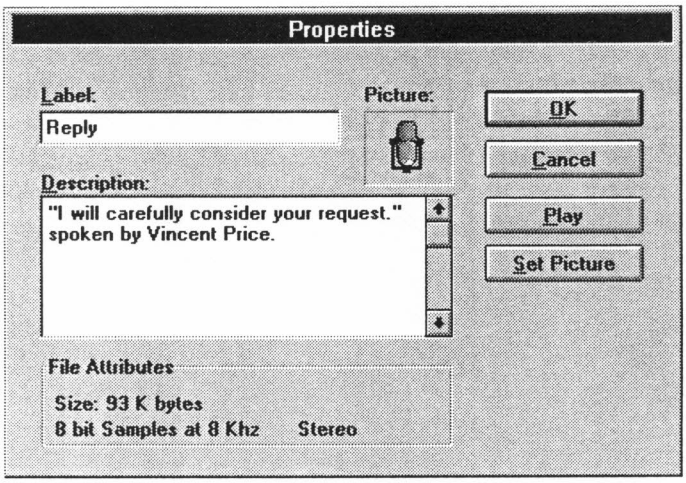
The Audio Recorder's drag and drop feature enables you to embed audio files in documents.

1. Open a document in the appropriate Windows application.
2. Load an audio file from disk to the Audio Recorder, or use an audio file you just recorded.
3. Move the cursor to the icon at the top right of the Audio Recorder. The cursor changes into a hand. Hold the mouse button and drag the icon to the document window, then release the button at the place you want the audio icon to appear.
4. To play an audio object in a document, double-click its icon.

You can also add audio to a document from the document's application. Place the cursor where you want the audio icon to appear, choose the application's command for inserting an object, then select Audio Recorder in the list box. Refer to the OLE section of Windows User Guide for more information.

Changing an Audio File's Properties

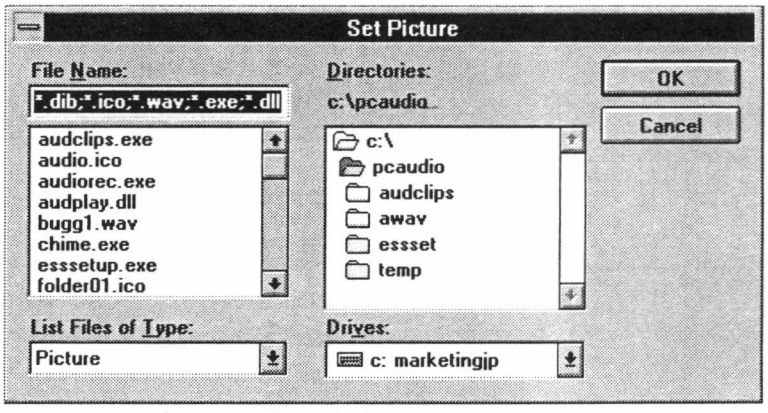
An audio file contains more than sound. You can attach a title, description, and an icon to the current audio file. To do so, choose **Properties** from the File menu. The Properties dialog box appears.



In this dialog box, you can place the cursor in the Label or Description area to add or change the label or description for the audio file.

Click the **Play** button to hear the audio file.

The Audio Recorder assigns a default picture of a microphone to each audio file. To select another picture more representative of the audio file's contents, click the **Set Picture** button. The Set Picture dialog box appears:



From here, select the picture to appear with the audio file. It can be any graphic contained in a bitmap (.BMP or .DIB), wave (.WAV), icon (.ICO), executable (.EXE) or library (.DLL) file.

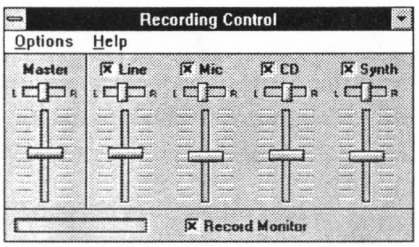
The picture you select will appear in the Audio Recorder. It will also appear in any document in which you embed the audio file.

When you are finished, click the **OK** button.

Recording Control

The Recording Control enables you to regulate the recording level and stereo balance at which sound is recorded from multiple sources. You use the Recording Control with the Audio Recorder during recording.

To start Recording Control, double-click the Recording Control icon in the Audio Applications program group. Alternately, select Recording Control from the Audio Recorder Options menu. The Recording Control window appears.



The Recording Control can receive input from a microphone, a compact disk player, a synthesizer, or any other line-in source. The Recording Control displays recording level and stereo balance controls for each of your computer's hardware sources.

To include a recording source, click the check box in front of its name. To adjust the stereo balance of any source, drag its top horizontal sliding bar left or right. To adjust the recording level of a source, drag its vertical sliding bar up or down. To monitor a recording in progress, click the **Record Monitor** check box.

The following commands are available in the Recording menus.

Options Menu

Always On Top	Enable to display the Recording Control on top of other windows.

Help Menu

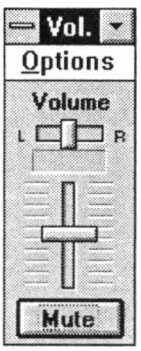
Contents	Displays topics you can choose for information.
About Recording Control	Displays version number and copyright information.

Volume Control

Volume Control

Volume Control enables you to regulate the volume and stereo balance at which sound is played. You can use the Volume Control with the Audio Recorder during playback. If you are playing multiple sources, you can use the Mixer to combine them, with the Volume Control as a master regulator.

There are several ways to start the Volume Control. Open the Audio Applications program group and double-click the Volume Control icon. Or, from the Audio Recorder or the Mixer, open the Options menu and choose the **Volume Control** command.



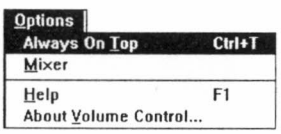
The Volume Control window appears.

The Volume Control can receive input from a microphone, a cassette tape player, a compact disk player, or any other line-in source.

To adjust the stereo balance, drag the horizontal sliding bar left or right. To adjust the volume, drag the vertical sliding bar up or down. To turn the sound off, click the **Mute** button. The word **MUTE** appears. To turn the sound back on, click the **Mute** button again.

The Volume Control Options menu contains the following commands.

Options Menu



Always On Top — Enable to display the Volume Control on top of other windows.

Mixer — Displays the Mixer window if you want to mix the playing of sounds from several sources.

Help — Displays information on how to use the Volume Control.

About Volume Control — Displays version number and copyright information.

Mixer

Mixer

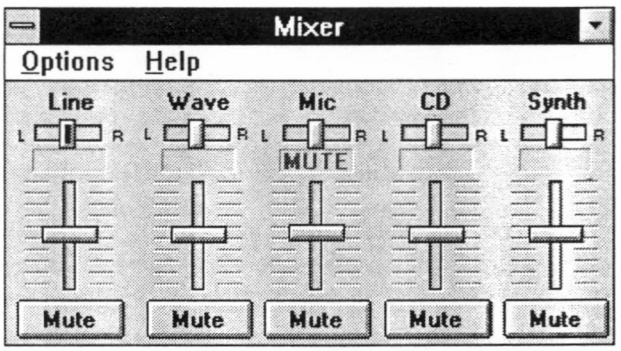
The Mixer enables you to combine signals from several audio sources during playback, with control over the volume and stereo balance of each source.

When you use the Audio Recorder to play an audio file, you can open the Mixer to combine the audio from the file with audio from other sources.

The Volume Control is a natural companion to the Mixer. The Volume Control acts as a master regulator of the combined signal from the Mixer.

To start the Mixer, double-click the Mixer icon from the Audio Applications program group. Or, choose **Mixer** from the Audio Recorder or Volume Control window.

The Mixer window appears.



The Mixer can receive input from a waveform audio file, a microphone, a compact disk player, a synthesizer, or other line-in source.

To adjust the stereo balance of a source, drag its top sliding bar left or right. To adjust the volume of a source, drag its vertical sliding bar up or down.

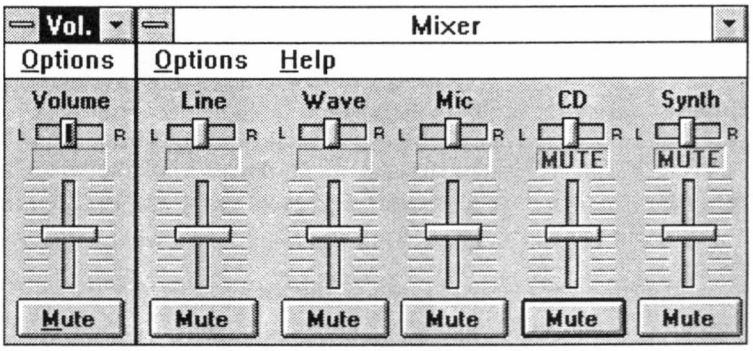
To turn off the audio from any source, click its **Mute** button. The word **MUTE** appears. Click the **Mute** button again to turn the audio back on.

The following commands are available in the Options menu.

Options Menu

Always On Top — Enable to display the Mixer on top of other windows.

Volume Control — Displays the Volume Control at the left side of the Mixer. The Volume Control serves as a master control to the Mixer.



Help Menu

Contents — Displays topics you can choose for information.

About Mixer — Displays version number and copyright information.

Extended Recorder

Extended Recorder

The Extended Recorder is designed as a tool for recording meetings, conversations, and dictation. Like the Audio Recorder, the Extended Recorder records, compresses, stores, and plays voice, music, and other sound. Unlike the Audio Recorder, the Extended Recorder compresses and stores the audio file directly to your hard disk, using on-chip ESPCM compression. The recording time is limited only by the amount of hard disk space you have available.

The Extended Recorder can record to and playback from both PCM and .AUD formats. PCM is the Microsoft Windows 3.1 audio file format. The .AUD format uses ESPCM compression to produce an audio file. The Extended Recorder provides a choice of linear PCM (8 or 16 bits) and ESPCM low (4 bits) compression.

If you wish to use 16-bit stereo at 44 kHz for recording or playback, we recommend that your computer have the following capabilities:

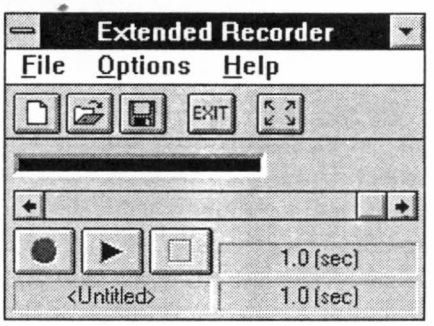
- a 486 running at 50 MHz or more
- 8 megabytes or more of RAM
- an average hard disk access time of 15 milliseconds or faster

Computers without these capabilities may lose data if you attempt 16-bit stereo, 44 kHz recording or playback.

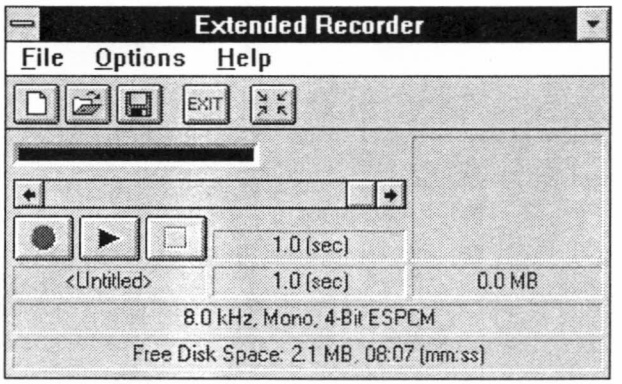
Use the Extended Recorder with a hard disk compression utility only if you have a high-performance system and are using a low data rate for recording and playback. Otherwise, the computer's CPU may become overloaded.

To start the Extended Recorder, open the Audio Applications program group and double-click the Extended Recorder icon.

The Extended Recorder window appears.

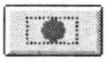
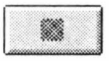


To expand the window so it shows more information, turn on **Expanded View** in the Options menu:



The boxes show the current file's name, the current location in seconds, the total length in seconds, the length in megabytes, the sample rate, mono or stereo, bits per sample, and the free disk space and recording time available.

These buttons enable you to start and stop recording and playback:

Button	Function	Description
	RECORD	Begins recording
	PLAY	Begins playback
	STOP	Ends recording/playback

Extended Recorder Menu Commands

The following commands are available in the Extended Recorder menus.

File Menu

New Creates a new audio file. When you start the Extended Recorder, a new file is created automatically.

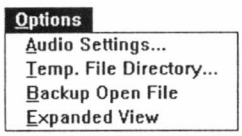
Open Displays the Open dialog box, from which you can select an audio file to bring into the Extended Recorder.

Save Saves any changes to the audio file.

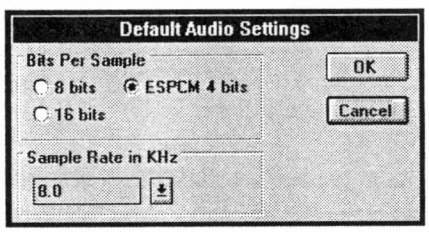
Save As Saves the audio file with the name and in the location you specify.

Exit Closes the Extended Recorder.

Options Menu



Audio Settings Displays the following dialog box:



From the Default Audio Settings dialog box you can change the number of bits per sample and the sample rate. These settings remain in effect until they are changed.

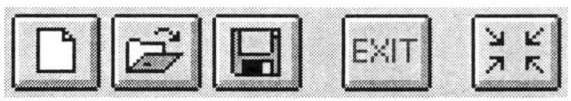
Temp. File Directory Enables you to set the hard drive location for the .TMP files that the Extended Recorder creates while recording. When you save an audio file, its .TMP file is copied to the name and location you specify.

Backup Open File When enabled, the Extended Recorder makes another copy of the current file before you use it. You can then modify the file without affecting the original. When this setting is OFF, the Extended Recorder makes changes directly to the original audio file when you record. The default value for this setting is ON. If you want to open a long sound file or record for an extended period or record to fill up free disk space, you must turn this setting OFF. Otherwise, the Extended Recorder might be too slow in opening or saving a long sound file, or it might run out of disk space in an attempt to make a back-up file.

Expanded View Enlarges the Extended Recorder window to show the length of the recording, the sample rate, mono or stereo, and bits per sample, and the amount of free disk space and recording time available.

The Extended Recorder Toolbar

Five often-used menu commands are also available as toolbar buttons at the top of the Extended Recorder window.



New **Open** **Save** or **Save As** **Undo** **Expanded View**

Making a Recording

1. Open the File menu and select **New**. If the command is shaded, a new file is already in the Extended Recorder.
2. To change the settings for bits per sample or sampling rate, go to the Options menu and select **Audio Settings**. Make any changes you want in the Default Audio Settings dialog box, then click the **OK** button.
3. Click the **Record** button. Speak into the microphone or turn on the line-in source.
4. Click the **Stop** button to pause or end the recording.
5. Open the File menu and select **Save As**. In the Save As dialog box, choose a directory location and type a name for the audio file, then click the **OK** button to save it.

Adding the Recording Control

If your hardware includes a mixer, you can use the Recording Control window to regulate the mix of audio from several sources. If you do not open the Recording Control window, the Extended Recorder uses the source settings previously in effect. See the Recording Control section for more information.

Playing an Audio File

1. Load an audio file into the Extended Recorder. It can be a recording you have just made, or use the **Open** command (File menu) to load a file stored on disk.
2. Click the Extended Recorder's **Play** button to hear the audio file. The file will play to the end unless you interrupt it by pressing **Stop**.

You don't have to play an audio file from the beginning. Use the scroll bar to select any place in the file to begin playing.

Adding the Volume Control and Mixer

To regulate the playback sound level or stereo balance, open the Volume Control window. See Volume Control for more information.

To mix the audio file with other sound sources, open the Mixer window. See the Mixer section for more information.

Audio Clip Library

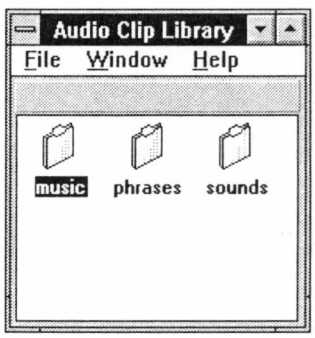
From the Audio Clip Library you can select and play audio files stored under three headings (or folders): music, phrases, and sounds. You can also add folders and audio files of your own to the Audio Clip Library.

You can play any audio file in the library by using the Audio Recorder (opened automatically by the Audio Clip Library), the Microsoft Sound Recorder, or other recorders compatible with the Windows .WAV format.

Audio Clip Library folders are stored in the directory PCAUDIO under the subdirectory AUDCLIPS.

To open the Audio Clip Library, open the Audio Applications program group and double-click the Audio Clip Library icon.

The Audio Clip Library displays folders titled **music**, **phrases**, and **sound**. The Music folder contains short musical interludes. The Phrases folder contains phrases used in business settings. The Sound folder contains a variety of mechanical and animal sound clips.



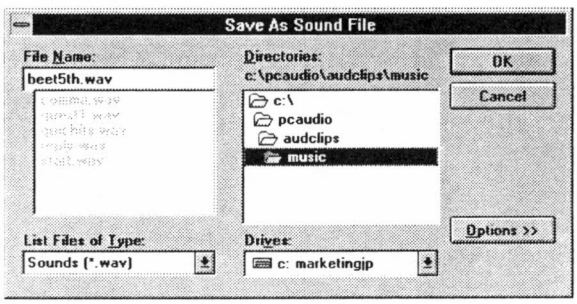
Double-click a folder or select one and choose **Open** from the File menu. The folder's window appears on top of the Audio Clip Library window.

Open an audio file

In the music, phrases, or sounds window, double-click the name of an audio file or select the name and choose **Open** from the File menu. The Audio Recorder opens automatically, and the file you selected is loaded. For information on recording, editing, and playback, see the Audio Recorder section.

Add an audio file to the Audio Clip Library

1. Bring the audio file into the Audio Recorder.
2. From the Audio Recorder, choose **Save As** from the File menu.
3. In the dialog box, select the directory PCAUDIO, select the AUDCLIPS subdirectory, then select a subdirectory (folder) for the audio file, and enter a file name. For example, you could store a clip from Beethoven's Fifth Symphony in the music folder:



4. Click the **OK** button. The next time you open or refresh the music folder window, the new audio file appears.

Add a new folder to the Audio Clip Library

1. From the DOS prompt or a file manager, select the directory PCAUDIO, then select the subdirectory AUDCLIPS.
2. Create a subdirectory with the name you want on the new folder. The next time you open or refresh the Audio Clip Library window, the new folder appears.

Change a file name

1. With the music, phrases, or sounds window open, select the audio file whose name you wish to change.
2. Choose **Rename** from the File menu. The Rename dialog box appears with the current name of the file.
3. Type a new name and click **OK**. The file name is changed.

Audio Clip Library Menu Commands

The following commands are available in the Audio Clip Library menus.

File Menu

Open — Displays the currently selected item. From the Audio Clip Library window, **Open** displays the files in the selected folder. From a folder window, **Open** loads the selected audio file into the Audio Recorder.

Rename — Enables you to change the name of the currently selected file.

Exit — Closes the current window. Choose **Exit** from a folder to close it and display the Audio Clip Library window. Choose **Exit** from the Audio Clip Library window to quit the program.

Window Menu

Refresh — Checks the directory and updates the contents of the Audio Clip Library window or folder window.

Help Menu

Contents — Displays topics you can choose for information about the Audio Clip Library.

About ... — Displays version number and copyright information.

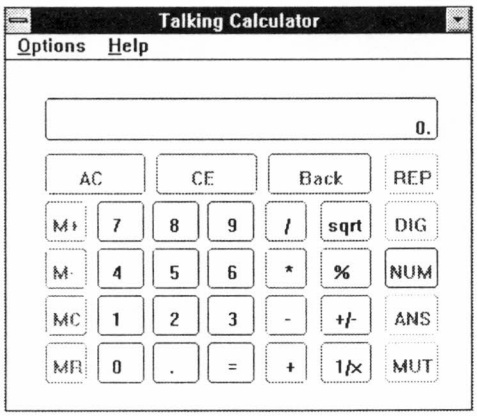
Calculator

Talking Calculator

The Talking Calculator enables you to perform all the operations of a regular calculator. In addition, it tells you each number and operator as you enter it, then announces the result when you choose the equal operator.

Open the Audio Applications program group and double-click the Talking Calculator icon to start.

The Talking Calculator window appears.



The calculator is easiest to use with the mouse—just point to a calculator number or function button and click it. You can also use the keyboard for basic operations such as addition (+), subtraction (-), multiplication (*), division (/), and summation (=). As you work, the Talking Calculator speaks each number and operation you enter, as well as the resulting answer.

Perform a calculation

1. Enter the first number in the calculation.
2. Choose the operator you want to use. See the next section for a list of calculator buttons, keyboard equivalents, and functions.
3. Enter the next number. To erase a digit, click the **Back** button. To erase the entire line, click the **CE** (Clear Entry) button.
4. To hear and see the result, click the = (equal) button. From the keyboard, press either the = key or the **Enter** key.

To erase the entire calculation and start again, click the **AC** (All Clear) button or press the **Esc** key.

Calculator Functions

Button	Key	Function
AC	Esc	All Clear--deletes the current calculation.
CE	Del	Clear Entry--deletes the current number.
Back	Backspace	Deletes the last digit of the current number.
+	+	Addition
-	-	Subtraction
*	*	Multiplication
/	/	Division
sqrt	@	Square root of current number
%	%	Percentage
+/-	F9	Change the sign of the current number
1/x	r	Reciprocal of the current number
=	= or Enter	Result of the current calculation. Click again to repeat the operation
.	. or ,	Decimal point
REP		Repeat the last announcement
DIG		Hear each digit of the result
NUM		Hear the result as a whole number
ANS		Hear only the result
MUT		Silence the calculator

Using Calculator Memory

The buttons to the left of the numbers enable you to store a value and recall it at any time. When a value is stored in memory, it appears with an **M** in the top left of the display.

Button		Key	Function
M+	Mem Plus	Crtl+P	Store the current value
M-	Mem Minus	Ctrl+M	Store the negative of the current value
MC	Mem Clear	Crtl+L	Erase any value stored in memory
MR	Mem Recall	Ctrl+R	Insert the value stored in memory

Regulating Announcements

To repeat any announcement, click the **REP** button.

To hear *each digit* of the result, click the **DIG** button or choose **Digit** from the Options menu. To hear the result as a *whole number*, click the **NUM** button or choose **Number** from the Options menu.

To hear only the result announced, click the **ANS** button or choose **Answer Only** from the Options menu.

To hear results announced to three decimal places, choose **3 Decimal** from the Options menu. To hear all the decimal places announced, choose **All Decimal**.

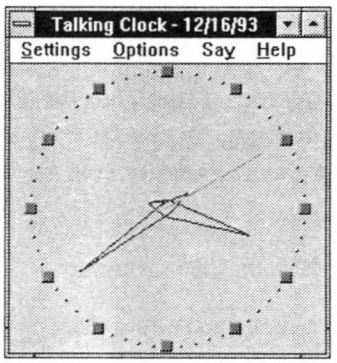
Talking Clock

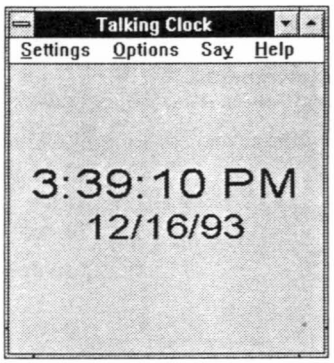
The Talking Clock displays the time in an analog or digital format. It also announces the time whenever you choose the **Say** command.

You can set the time and whether or not the date and seconds appear. For the digital time, you can choose the font used and select the 12 or 24 hour format.

To start the Talking Clock, open the Audio Applications group and double-click the Clock icon.

The Talking Clock window appears with the analog or digital time display.





Positioning the Clock

As with most windows, you can size and move the Talking Clock window as you like. The System menu (the button in the top left corner of the window) provides two additional settings for positioning the clock.

Always On Top displays the clock window or icon on top of other windows, even if they are selected.

Always Minimize keeps the Talking Clock minimized to an icon, with the time and date (if on) visible. To announce the time, double-click the icon. To display the window again, click the icon to open the System menu, turn off **Always Minimize**, then open the System menu again and choose **Restore**.

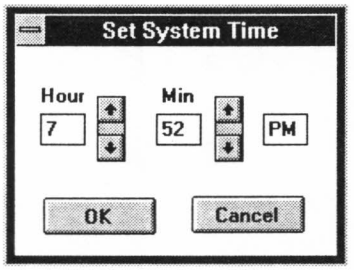
Announcing the Time

To announce the current time, click **Say** in the Clock menu bar.

To announce the time by double-clicking the icon, turn on **Always Minimize** from the System menu.

To set the time

1. From the Settings menu, choose **Set Time**. This dialog box appears:



2. Select the hour and minute and type new values, or use the up or down arrows to increase or decrease the number of hours and minutes.

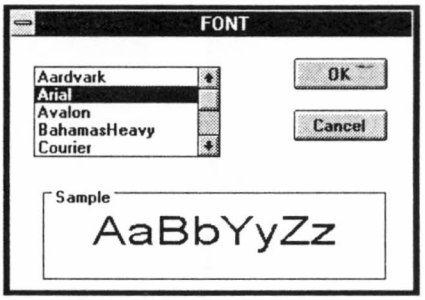
3. Click the **OK** button.

Switch between the analog and digital display

Choose **Analog** or **Digital** from the Settings menu.

Change the font used by the digital display

1. From the Settings menu, set the display to **Digital**.
2. Choose **Set Font** from the Settings menu to display the Font dialog box.



3. Select a font from the list box.
4. Click the **OK** button.

Turn the seconds display on and off

From the Settings menu, choose **Seconds**.

Turn the date display on and off

From the Settings menu, choose **Date**.

Select the 12 hour or 24 hour digital display

From the Options menu, choose **24 Hour Mode** or **12 Hour Mode**.

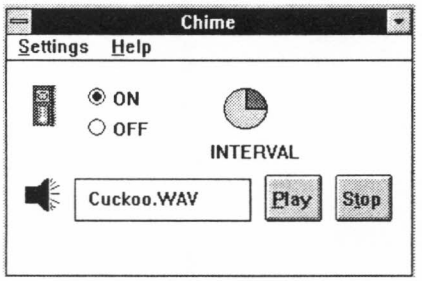
Help Menu

Contents	Displays a list of topics you can choose for information on the Talking Clock.
About Talking Clock	Display version number and copyright information.

Chime

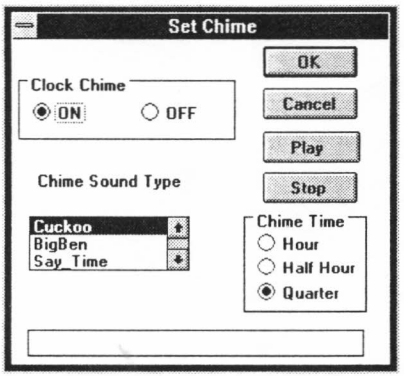
The Chime announces the time or plays other sound every hour, half hour, or quarter hour.

From the Audio Applications group, double-click the Chime icon. The Chime window appears.



To activate or deactivate the Chime, click the **ON** or **OFF** button. To hear the chime, click the **Play** button. Click the **Stop** button to halt the playing. The Chime continues to be active if you reduce it to an icon.

To set the Chime, click the Settings menu. The Set Chime dialog box appears:



To activate or deactivate the Chime, click the **ON** or **OFF** button. To hear the Chime, click the **Play** button. To change the Chime's sound, select the one you want from the Chime Sound Type list box. To change the Chime interval, under Chime Time select **Hour**, **Half Hour**, or **Quarter**. When you are finished, click the **OK** button.

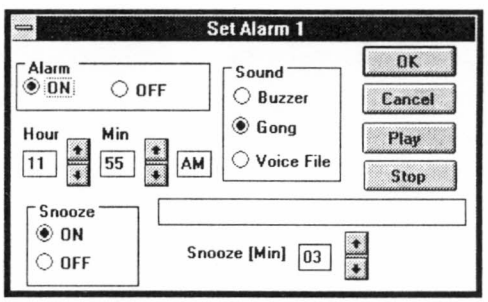

Reminder

Audio Reminder

The Audio Reminder has two alarms, each with a separate time, sound, and snooze settings. Once you set the alarms, they will go off on schedule every day as long as the Audio Reminder window is open or minimized to an icon.

In the Audio Applications group, double-click the Reminder icon. The Audio Reminder window appears:

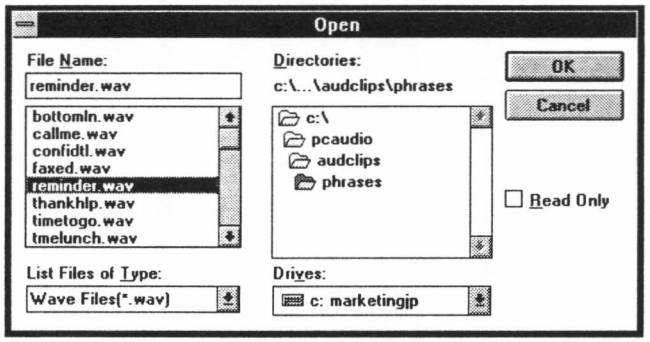
The Audio Reminder provides two alarms. To set one, choose **Set Alarm 1** or **Set Alarm 2** from the Settings menu. The Set Alarm dialog box appears:



In the **Alarm** area, click ON or OFF to enable or disable the alarm.

Under **Hour** and **Minute**, set the time for the alarm to go off.

In the **Sound** area, select **Buzzer**, **Gong**, or **Voice File**. If you select **Voice File**, a dialog box appears for you to choose an audio file:



Choose an audio file and click the **OK** button. The path and name of the audio file appear in the Set Alarm dialog box. To hear what the alarm sounds like, click the **Play** button.

Snooze

If ON, the snooze feature will continue sounding the alarm after it first goes off. With the settings above, for example, the alarm will first go off at 2:30 PM, then at 2:33, 2:36, 2:39, and so on until you turn it off.

Under **Snooze**, click ON or OFF to enable or disable the snooze feature.

After **Snooze (Min)**, set the interval to wait before replaying the alarm.

When you are finished setting the alarm, click the **OK** button.

The Audio Reminder window now reflects the new settings.

To enable or disable either alarm, click its **ON** or **OFF** button. To hear either alarm, click its **Play** button. To stop an alarm currently playing, click its **Stop** button.

To hear the alarms go off on schedule, leave the Audio Reminder window either open or minimized to an icon.

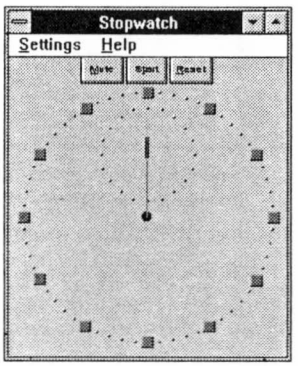
Set Alarm 1 and **Set Alarm 2** in the Audio Reminder Settings menu enable you to specify the time, sound, and snooze interval for each alarm.

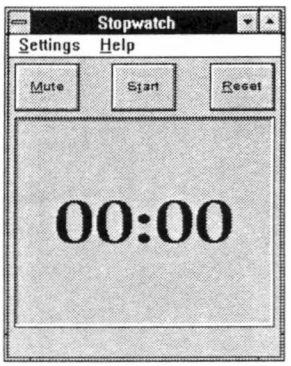
In the Help menu, **Contents** displays a list of topics you can choose for information. **About Audio Reminder** gives version number and copyright information.

Stopwatch

The Stopwatch keeps track of the time elapsed since it was started. You can set the Stopwatch to sound a tick each second it is running and announce the amount of time elapsed since it was activated.

Double-click the Stopwatch icon from the Audio Applications group to start. The Stopwatch window appears with the analog or digital display.





Operating the Stopwatch

To begin the Stopwatch, click the **Start** button. While the Stopwatch is running, the **Start** button is replaced with the **Stop** button.

Click the **Stop** button to stop the Stopwatch and announce the elapsed time. The **Stop** button is replaced with the **Start** button. To resume the timing, click the **Start** button again.

The Stopwatch ticks as it runs. To stop the ticking click the **Mute** button.

To set the Stopwatch to **00:00** again, click the **Reset** button.

Controlling the Stopwatch Appearance

From the Settings menu, choose **Analog** or **Digital** to change the format.

Choose **Set Font** to change the font of numbers in the digital display. In the Font dialog box, select the font you want and click the **OK** button.

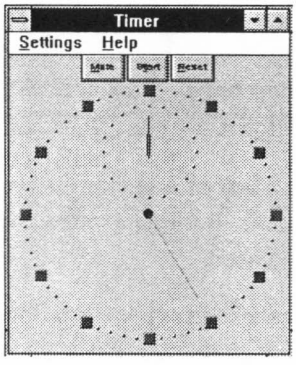
To reduce the Stopwatch to an icon, choose **Minimize** from the Stopwatch System menu. The icon continues to show the elapsed time.

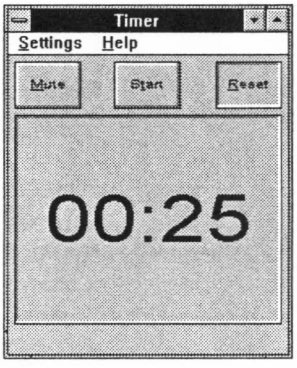
To keep the Stopwatch window or icon on top of other windows, choose **Always On Top** from the System menu.

Timer

The Timer works the opposite of the Stopwatch. The Timer counts down from the time you set to 00:00. Whenever you stop the Timer, it announces the amount of time remaining. The Timer sounds a bell each second it is running. From 19 seconds on down, the Timer announces each second. You can also set the Timer to announce each minute.

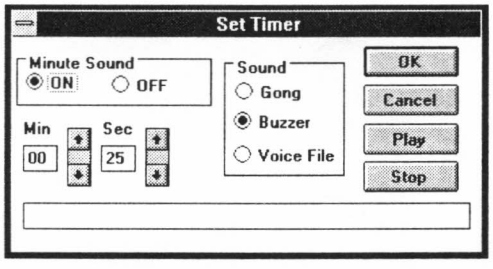
Double-click the Timer icon from the Audio Applications group to start. The Timer window appears with the analog or digital display.





Setting the Timer

To set the timer, choose **Set Time** from the Settings menu. The Set Timer dialog box appears:



Under Min and Sec, set the time period for the Timer to count down.

In the Minute Sound area, choose **ON** or **OFF** to activate or deactivate the voice announcement of each minute as it passes.

In the Sound area, choose **Gong**, **Buzzer**, or **Voice File** for the sound to be played when the Timer runs out (reaches 00:00). If you choose **Voice File**, choose an audio file from the dialog box. The name and path of the file will appear in the rectangle at the bottom of the window.

To hear the sound when the timer runs out, click the **Play** button.

When you are finished, click the **OK** button.

Operating the Timer

To begin the Timer, click the **Start** button. While the Timer is running, the **Start** button is replaced with the **Stop** button.

Click the **Stop** button to stop the Timer and announce the time remaining. The **Stop** button is replaced with the **Start** button. To continue the countdown, click the **Start** button again.

The Timer sounds a bell each second as it runs. To silence the bell, click the **Mute** button. If the announcement of each minute is ON (see above), it is also silenced.

To set the Timer back to its original starting time, click **Reset**.

Controlling Timer Appearance

From the Settings menu, choose **Analog** or **Digital** to change the format.

Choose **Set Font** to change the font of numbers in the digital display. In the Font dialog box, select the font you want and click **OK**.

To reduce the Timer to an icon, choose **Minimize** from the System menu. The minimized icon continues to show the time remaining.

To keep the Timer window or icon on top of other windows, choose **Always On Top** from the System menu.

4: Troubleshooting

Sometimes things go wrong. If you have a problem, read through this checklist of problems and possible solutions. If your problem is described here, try the suggested solutions first. If you are not able to pinpoint the problem, there may be a malfunction in your system, your software, or in the SoundPiper 16 adapter itself. You may want to try reinstalling your SoundPiper 16 . If you still have a problem, consult your dealer, an experienced technician, or Piper Research for additional help.

PROBLEM:	POSSIBLE SOLUTIONS:
No Sound	■ Your headphones or speakers may be improperly connected or defective. First make sure that your speakers or headphones are in proper working order. After this, check that the speakers or headphones are plugged into the proper connector on the SoundPiper 16. See the Getting Started section or the *SoundPiper 16 Quick Start Guide* for the location of the Headphone/Speaker Out connector . ■ The Volume Control or Mixer Levels may be set too low. Make sure that the Master Volume and appropriate Source Volumes are set to audible levels. These levels may be set with the **SPVOL** utility (located on Disk 1) or in Windows with the **MIXER** and **VOLUME** applications. Also note that many DOS applications have methods to set the levels independently of the two methods mentioned above.

PROBLEM:	POSSIBLE SOLUTIONS:
No Sound (continued)	■ SoundPiper 16 not properly installed or set up. Make sure that the SoundPiper 16 is installed and that your application(s) are set up to the proper Interrupt, I/O Address and DMA channels. These parameters may be determined by running the **SPCONFIG** utility located on Disk 1. DOS applications have a wide variety of ways to select the Sound Card parameters. The SoundPiper 16 Windows Driver determines your settings automatically for you. ■ There may be a Windows Driver conflict. Make sure that you remove all other Windows sound adapter drivers, especially any Creative Labs Sound Blaster drivers, from your system as these do cause conflicts with the SoundPiper 16 driver.
Waveform Output Sound "Repeats" in Windows or OS/2	■ The Interrupt is not set to the proper level or is not functioning. Make sure that you selected the proper Interrupt, I/O Port, and DMA Channel during the driver installation process for Windows or OS/2. Use the **SPCONFIG** utility to determine your cards settings. See the **README.TXT** on Disk 1 for further and updated information.

PROBLEM:	POSSIBLE SOLUTIONS:
No Sound or Music in DOS games	■ The DOS game may be set up improperly. In most cases, the SoundPiper will deliver sound and music if the DOS applications are set up for **ADLIB** (for music) and **Sound Blaster Pro**. (for Sound FX) In some cases, Interrupt usage may conflict with the way the SoundPiper 16 was set up during installation by the Micro Channel Setup program. Experimentation may be required to find a functioning combination of Interrupt, DMA, and I/O Address. Some games may also work if the game is told that the sound card is set to Interrupt 2 when in fact it is set to Interrupt 9. ■ No BLASTER environment variable. Most DOS games require the presence of a BLASTER environment variable that is set in the AUTOEXEC.BAT file. Refer to page 7 for more information.

PROBLEM:	POSSIBLE SOLUTIONS:
Blaster environment variable not found	■ The command to set up the Blaster environment variable may not be included in the AUTOEXEC.BAT file. The Blaster environment variable specifies the I/O address, Interrupt, and DMA channel settings of the SoundPiper 16 adapter. The environment variable must be set in the DOS environment. Use any text editor to add this command string to your AUTOEXEC.BAT file: `SET BLASTER=A240 I5 D1 T4` Remember to reboot the system for the new settings to take effect.
"Noise" on the Output	■ Levels may be set improperly. Be sure that the Synthesizer, Line-In, Wave, and CD Audio levels are not set too high. It is preferable to set these levels as low as possible and use the Master Volume level to adjust the overall volume of the output. Additionally, some DOS games leave the Synthesizer section in an awkward state that generates noise. A system reset or a reset of the card will fix this. The card may be reset by running Windows or by various other means such as resetting you machine.

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