BASE 2 PCI

INSTALLATION GUIDE V1.0

ENGLISH

CE declaration

We:

TerraTec Electronic GmbH, Herrenpfad 38, D-41334 Nettetal, Germany

hereby declare that the product:

TerraTec Base2 PCI

to which this declaration refers is in compliance with the following standards or standardizing documents:

1. EN 55022

2. EN 50082-1

The following are the stipulated operating conditions and environmental conditions for said compliance:

Residential, business and commercial environments and small-company environments.

This declaration is based on:

Test report(s) of the EMC testing laboratory

CONTENTS

PREFACE

TerraTec Base2PCI.

CONGRATULATIONS

On your decision to buy a TerraTec sound card - and join the steadily growing group of quality-conscious multimedia users. You have made the right choice, and you will find that this User Guide contains the information you need to get your TerraTec Base2PCI up and running in the shortest possible time. We know that no-one enjoys ploughing through manuals (we certainly don't ☺), so a quick-reference guide has been included for experienced users. Remember, though, that it might be worthwhile glancing through the rest of the User Guide, particularly if you run into difficulties or if a problem arises, or simply if you would like some background facts and figures. You never know what useful snippets of information you might find.

Enjoy your TerraTec Base2PCI !

Your TerraTec Team

INTRODUCTION

TerraTec Base2PCI

Install it and go.

The TerraTec Base2PCI is sure to impress you from the very start with its simple installation and ease of use, also under Windows 98.

Thanks to Plug & Play, installation problems are a thing of the past. Just install it and go. A broad range of software is available to let you take full advantage of the card's capabilities.

Experience a new acoustic dimension with V-Space 3D, adding previously unheard of depth and spatial quality to your sound.

The card also has a lot to offer in the MIDI sector. Two sample sets based on state-of-the-art DLS1 technology are available for wavetable playback under Windows 95 and Windows 98. Together with the Cubasis AV Lite sequencer application, these offer a new freedom for your musical ideas.

The same goes for the MixmanBE. This program lets you slip into the role of a DJ. Release your creativity with two turntables at your fingertips.

If you have access to the Internet, use InternetPhone for long-distance calls at a fraction of the usual connect charges.

The full-duplex capabilities of the Base2PCI really come into their own with this application, allowing you to speak and listen to your conversation partner at the same time.If you also own a Windows-compatible video camera, you'll even be able to see your partner.

For your gaming pleasure, the Base2PCI provides complete SoundBlaster compatibility under real-mode DOS as well as in Win95 DOS boxes, with convenient configuration under Windows.

Analog and digital joysticks are supported under Windows to ensure that you always stay in control.

Needless to say, you can also connect the audio outputs of your CD-ROM drive to the Base2PCI.The card can also be upgraded with an additional wavetable module.

TECHNICAL DATA

KEY FEATURES

- PCI Plug & Play

- Real-Mode DOS SoundBlaster / Pro compatible

- Integrated wavetable

- VSpace 3D-Sound

- Wavetable connector

- Enhanced Full Duplex

COMPATIBILITY

- Microsoft DirectSound

- Microsoft DirectSound 3D

- General MIDI

- MPU-401 compatible

- SoundBlaster / PRO

- OPL3-compatible hardware FM synthesis

DIGITAL AUDIO

- VSpace 3-D effect

- 8/16-bit audio stereo/mono for recording and playback with 48kHz

- Enhanced Full Duplex

- Record and playback all audio sources

WAVETABLE[*]

- 32 simultaneous voices

- 1 MB Sample set, DLS1 compatible

- 3 MB Sample set, DLS1 compatible

- GM compatible

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* Only available under Windows 95 / 98

AUDIO MIXER

• Individual level controls for all audio sources

MIDI/JOYSTICK INTERFACE

• DirectInput compatible

• MPU-401 (UART mode) compatible

• SoundBlaster MIDI interface

• Standard dual gameport (Y-cable)

EXTERNAL CONNECTIONS

• Switchable speaker/line-OUT (3.5 mm jack)

• Line-IN (3.5 mm jack)

• Mic-IN (3.5 mm jack)

• MIDI/joystick interface (IBM 15-pin Sub-D)

ONBOARD CONNECTIONS

• Wavetable connector (WaveBlaster pin compatible)

• IDE / Sony CD-audio connectors

• Internal pick-offs for Line Out, Line In, Mic In

ONBOARD AMPLIFIER

• Stereo amplifier, 2 x 500 mwatts

DRIVER

• MS-DOS 7.0

• Windows 95

• Windows NT 4.0

SOFTWARE

- Cubasis AV Lite

- InternetPhone V. 4.5

- Mixman BE

- AudioRack

- SmartWord Command + Control

- SmartWord Naturally Speaking 2.2 30-day evaluation version

- Various shareware applications

SYSTEM REQUIREMENTS

- One free PCI slot

- P166, P200 MMX recommended

- 16 MB, 32 MB recommended

- CD-ROM drive for Driver & Installation CD

- 10 MB free hard disk space

- Speakers or headphones

- Windows 95, Windows 98 or Windows NT 4.0

SCOPE OF DELIVERY

- TerraTec Base2PCI

- Driver & Installation CD

- Documentation

- Quick Start Guide

- Registration card with serial number

INSTALLING THE SOUND CARD

Before installing the sound card, please take note of any special points pertaining to the configuration of your computer. Also refer to the handbook of your computer and other expansion cards for their settings.

Please observe the following instructions to ensure a trouble-free installation.

If difficulties arise nevertheless, please reread the relevant chapter in this handbook carefully.

Please call our service hotline if you are still having problems. The phone numbers and hours of the hotline can be found in the Appendix of this documentation.

Start by making sure that nothing is missing.

You should have received:

- 1 TerraTec Base2PCI sound card
- 1 Driver & Installation CD
- 1 Documentation
- 1 Quick Start Guide
- 1 registration card with the serial number

Return the registration card to us at the earliest possible opportunity or register online at **www.terratec.de/register.htm.** This is important for support and hotline services.

> *WARNING!*
> *Before opening the case, unplug the mains cable from the wall socket as well as from the PC.*

ESD (electrostatic discharge) may damage disk drives, add-on boards and other components. The steps described should only be carried out at an ESD workstation. If one is not available, you can prevent electrostatic discharge by wearing an antistatic arm band and holding it to a metal part of the system housing.

Please note that opening the housing in no way breaches the conditions of guarantee provided that you do not carry out any modifications to the hardware components inside. Any unauthorized expansion of the PC may however affect your rights under the terms of the guarantee. Any such work should be discussed beforehand with your specialist dealer.

Now it's time to arm yourself with a phillips screwdriver.

And here's what to do, step by step:

- Switch off your PC and all connected periphery, in other words printer, monitor and so on. Leave the AC cord connected for the time being, so that your computer is still grounded.

- Touch the metal chassis at the rear of the PC to ground yourself and discharge static. Now unplug the cord from the AC mains socket.

- Remove the cover from the case of your PC.

- Look for a free PCI expansion slot, remove the screw holding the slot blanking plate and remove the plate. To ensure the optimal function of your sound card, look for an expansion slot that is not immediately next to an already-installed card. Some cards, such as video adapters, can send out signals which can interfere with the sound card.

- Carefully remove the sound card from its packaging and pick it up by the edges with one hand while your other hand is resting on the metal of the PC case.

- This will ensure that your body is completely discharged via your computer without affecting the sound card. Do not touch the components of the card under any circumstances.

- Set the jumper (J1) to deactivate the onboard amplifier if you are going to connect loudspeakers with integral amplifiers or your hifi stereo system to the sound card.

- Align the holder at the rear of the sound card in the expansion slot in such a way that the card's gold-colored connectors are directly in line with the slot's socket.

- Carefully seat the card in the slot. You might have to press the card firmly into the slot to make a good contact. Take care to ensure that the contacts are precisely in line, in order to avoid damaging the sound card or the mainboard in your PC.

- Insert and tighten the screw from the slot cover to secure the sound card in its slot.

- Connect the CD-ROM drive to the sound card with the audio cable. (In general, this cable is provided with the CD-ROM drive). (Please also read chapter *Connecting external periphery* on page 28).

- Reinstall the cover of your PC case.

- Connect your speakers or hifi stereo system to the sound card (Please also read chapter *Connecting external periphery* on page 28).

- Reconnect the mains and all other cables. Make sure that your speakers or hifi system is set to low volume. Start your computer.

- Please continue with the chapter *Driver installation* (page 12) .

DRIVER INSTALLATION.

PREFACE

In the following driver installation instructions, the `<CD>` stands for the drive letter assigned to your CD-ROM drive. If you have more than one CD-ROM drive, please use the letter of the drive containing the *Base2PCI Driver & Installation CD*.

WINDOWS 95A OR OSR1

After you have installed the card, insert the *TerraTec Base2PCI Driver & Installation CD* into your CD-ROM drive and start Windows 95.

Select "Driver from disk provided by hardware manufacturer" and click *OK*.
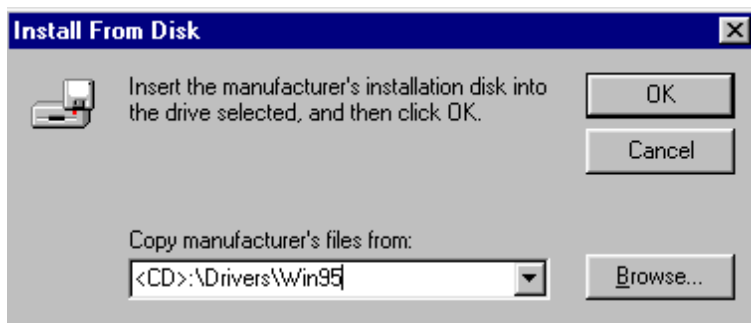
Type the path `<CD>:\Drivers\Win95` and click *OK*, or click *Browse* to locate the correct folder using the mouse.

If you selected *Browse*, switch to your CD-ROM drive in the following window. Next, switch to the folder `<CD>:\Drivers\Win95\` and click *OK*.

Confirm the path by clicking *OK*.

The installation is complete once all hardware components have been found and the appropriate drivers have been set up.

WINDOWS 95 OSR2.

After you have installed the card, insert the *Base2PCI Driver & Installation CD* into your CD-ROM drive and start Windows 95.

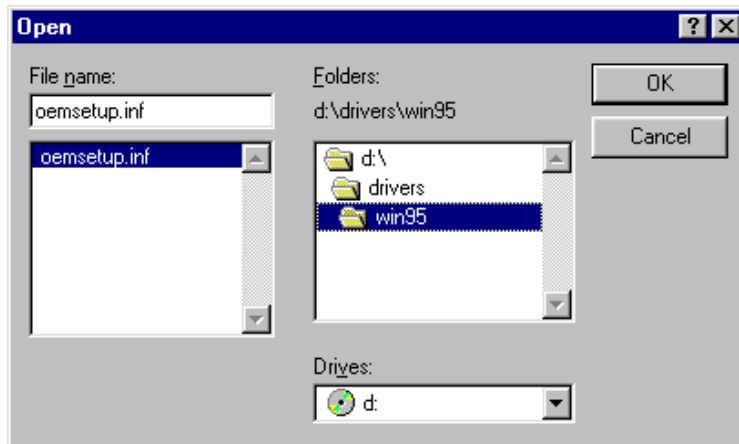The following screen will appear.

Click on *Next* with the left mouse button.
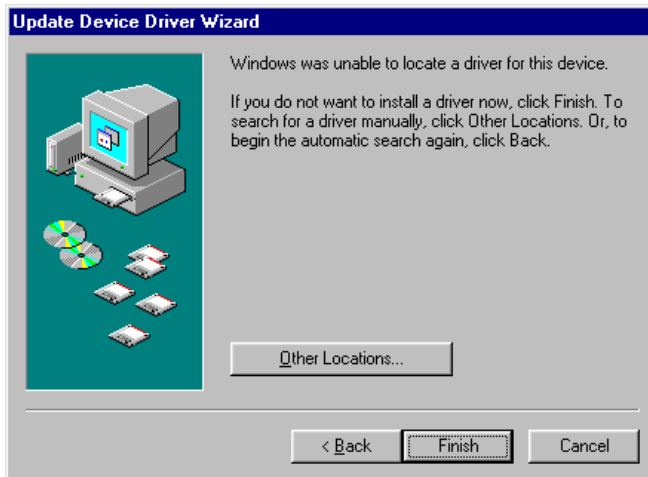
Click on *Other Locations*.
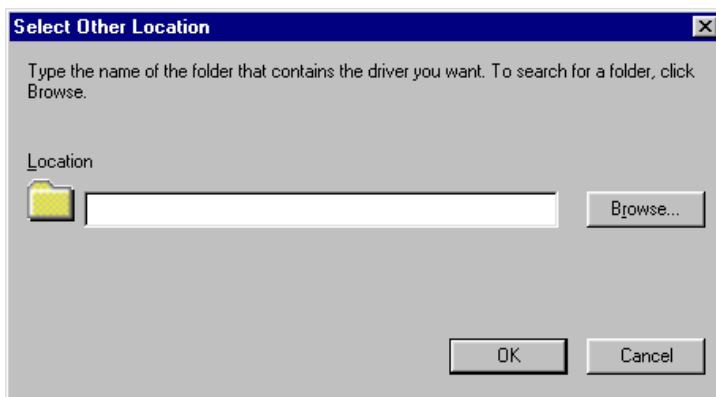
Type the path **<CD>:\Drivers\Win95** and click *OK* or click *Browse* to locate the correct folder using the mouse.
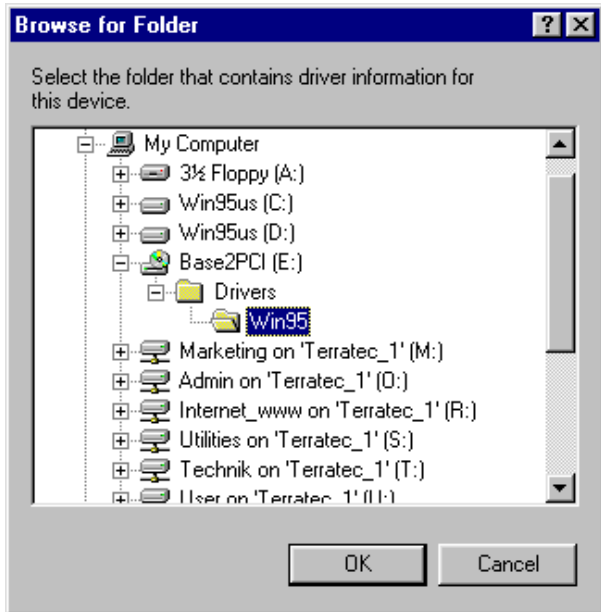
If you selected *Browse*, switch to your CD-ROM drive in the following window. Next, switch to the folder
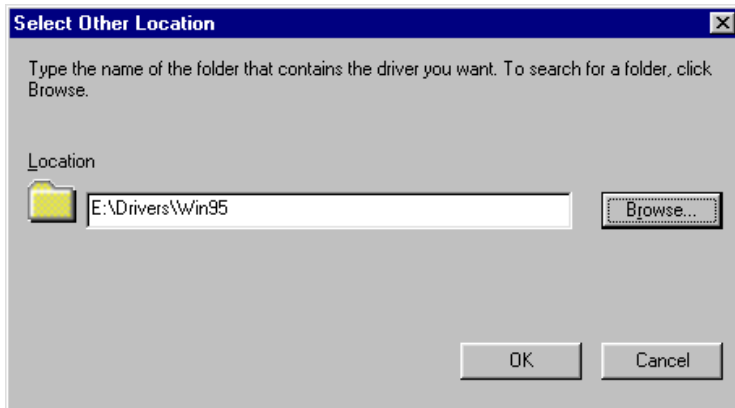
`<CD>:\Drivers\Win95`. Click on *OK*.

Confirm the path by clicking *OK*.

Click on *Finish* to install the drivers for the TerraTec Base2PCI.

Click on *OK*.

Type the path
<CD>:\Drivers\Win95
and click *OK*, or click *Browse*
to locate the correct folder
using the mouse.

If you selected *Browse*,
switch over to the folder
<CD>:\Drivers\Win95
on your CD-ROM drive in
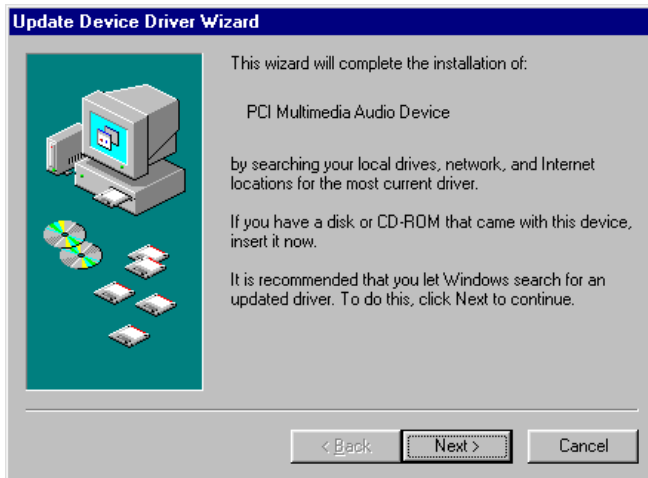the following window.

Click on *OK*.

Confirm the path by clicking *OK*.

The installation is complete
once all hardware components
have been found and the appro-
priate drivers have been set up.

Next, check the MIDI settings.

Open the control panel and double-click *Multimedia*. Go to the *MIDI* tab.

If you do not have an external wavetable or wavetable daughter-board, please ensure that the *TerraTec Base2PCI Internal Wavetable** or *TerraTec Base2PCI FM Synthesis* entry is active, not *TerraTec Base2PCI MPU-401 Interface*.

If you have an external wavetable or wavetable daughterboard installed, use this window to set the MIDI output to suit your requirements.

Regardless of your Windows 95 version, the Base2PCI should appear in the *Device Manager* as follows.

UNINSTALLING THE DRIVERS UNDER WINDOWS 95

Should it ever be necessary to uninstall the Base2PCI drivers, proceed as follows, the procedure is identical for Windows 95a and Windows 95b.

Open the Control Panel, for example by

Double-clicking on *My Computer* with the left mouse button. Open the *System Properties* window and select the *Device Manager* tab.
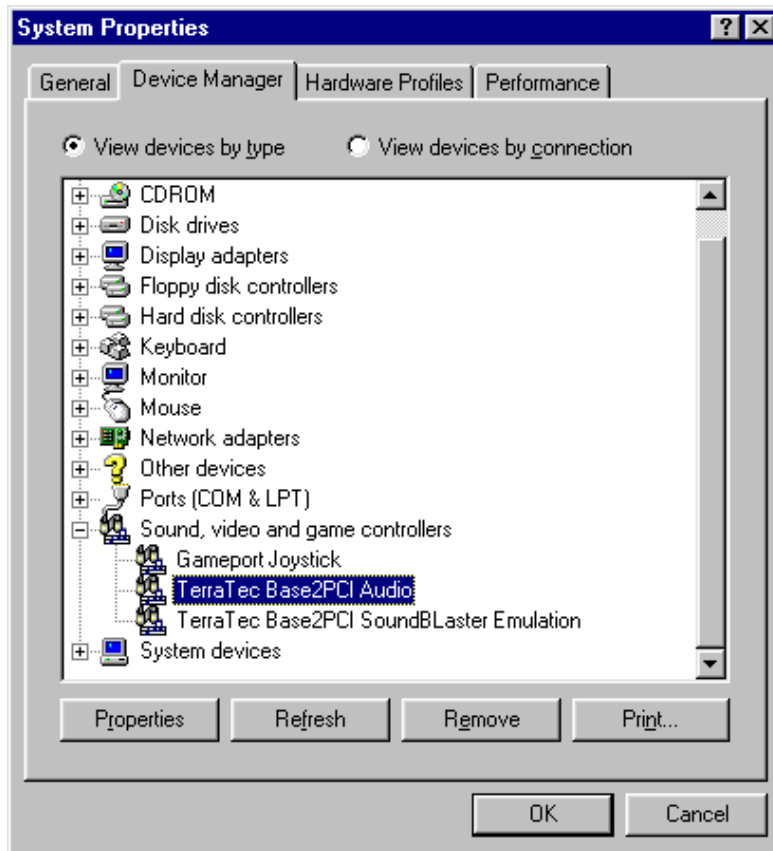
Click on the plus sign in front of the device category *Sound, video and game controllers* and mark the *TerraTec Base2PCI Audio* entry with a second click.

Next, click on *Remove* and confirm the following question regarding the removal of the device from the system configuration with *OK*.

Once the device has been successfully removed, please click on *Close*.

WINDOWS 98.

After you have installed the card, insert the *Base2PCI Driver & Installation CD* into your CD-ROM drive and start Windows 98.

The following screen will appear.

Click on *Next* with the left mouse button.
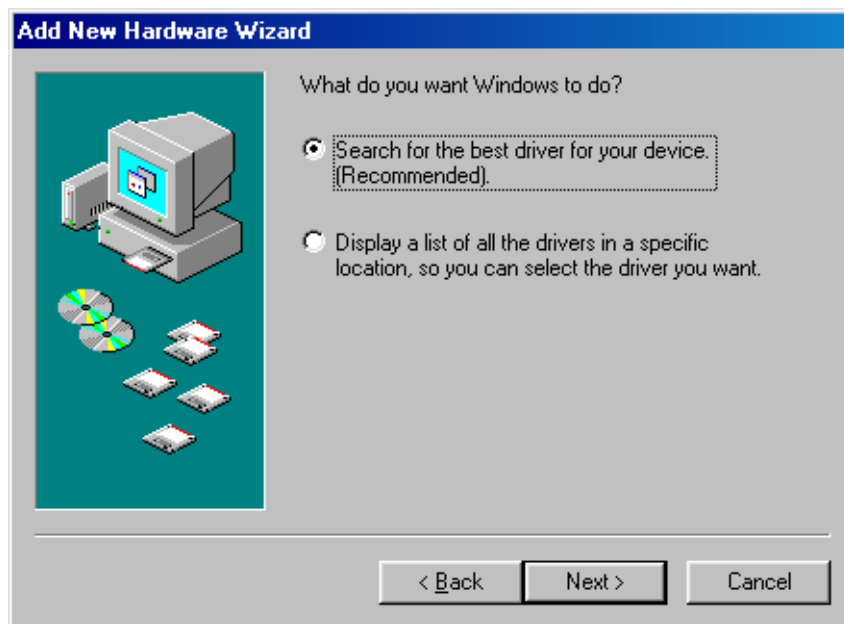
Confirm with *Next*.

Type the path

`<CD>:\Drivers\Win95` and click *OK* or click on *Browse* to switch over to the correct directory using the mouse.
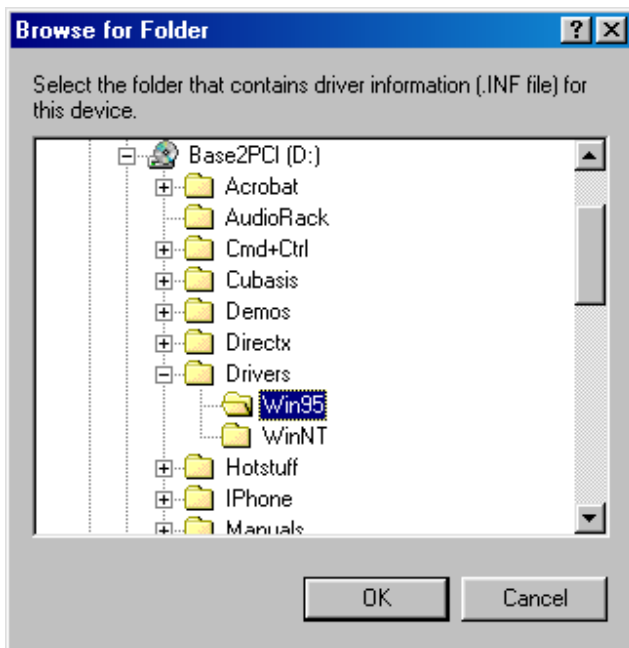
If you selected *Browse*, switch to your CD-ROM drive in the following window. Next, switch to the folder `<CD>:\Drivers\Win95`. Click on *OK*
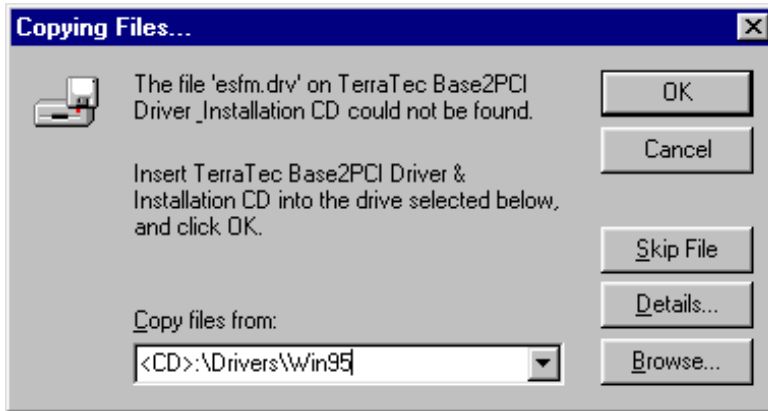
Confirm the path by clicking *OK*.

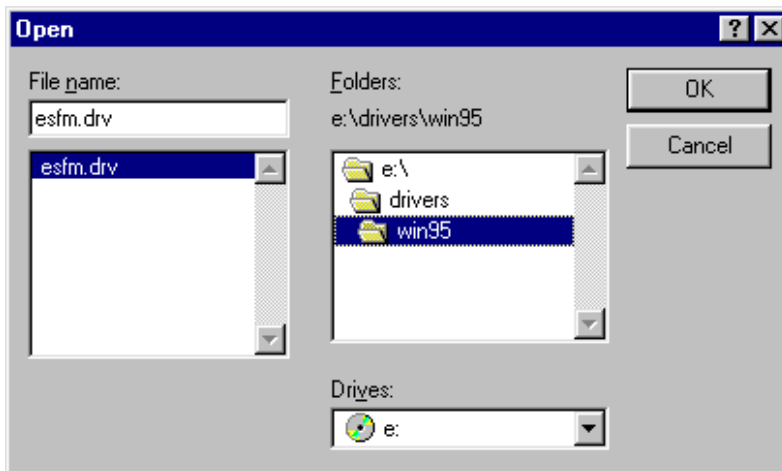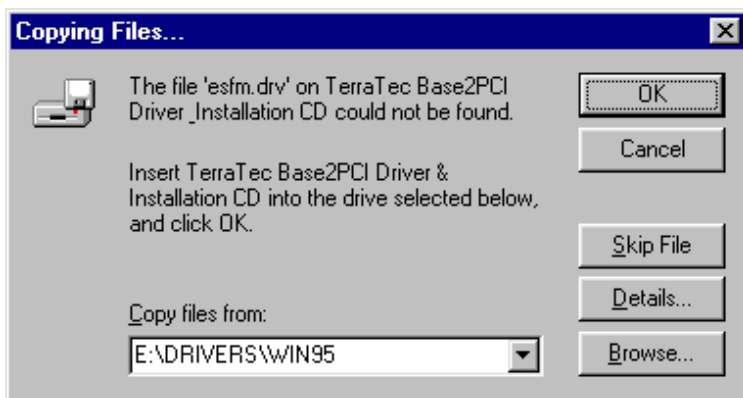Click on *Next* to install the drivers for the TerraTec Base2PCI.

Click here on *Finish*.

The installation is complete once all hardware components have been found and the appropriate drivers have been set up.
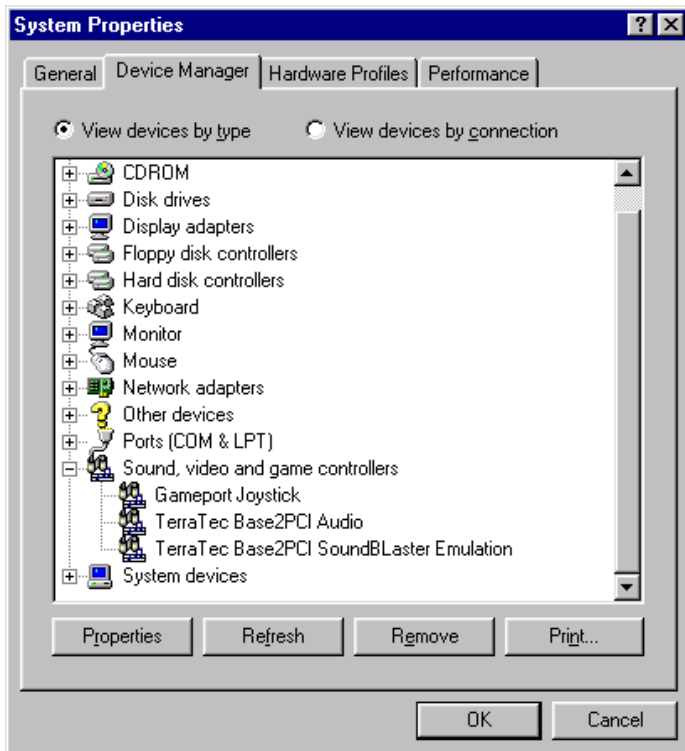
Next, check the MIDI settings.

Open the control panel and double-click *Multimedia*. Go to the *MIDI* tab.

If you do not have an external wavetable or wavetable daughterboard, please ensure that the *TerraTec Base2PCI Internal Wavetable* or *TerraTec Base2PCI FM Synthesis* entry is active, not *TerraTec Base2PCI MPU-401 Interface*.[*]

If you have an external wavetable or wavetable daughterboard installed, use this window to set the MIDI output to suit your requirements.

Regardless of your Windows 95 version, the Base2PCI should appear in the *Device Manager* as follows.

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[*]   This entry will be displayed after the installation of the software wavetable (page 23)

THE SOFTWARE WAVETABLE.

INSTALLATION OF THE SOFTWARE WAVETABLE.

- Start the program `SETUP.EXE` in the `<CD>:\Wavetable\Disk1` folder of the *Base2PCI Driver & Installation CD*.

- Confirm the next two screens with *Next* and the last with *Finish*.

- This concludes the installation.

CONFIGURATION OF THE SOFTWARE WAVETABLE.

After installation, the software wavetable is enabled and the 1 MB DLS sample set is loaded. The installation automatically redirects the MIDI output to the software wavetable.The entry for the software wavetable is *Base2PCI Internal Wavetable*.

Proceed as follows to disable the software wavetable or to use the 3 MB sample set instead of the 1 MB DLS sample set:

- Right-click on *My Computer*.

- In the context menu, select the entry *Properties*.

- Go to the *Device Manager* tab.

- Mark the *TerraTec Base2PCI Audio* entry and click on *Properties*.

- Go to the *Wavetable* tab.

The following screen will appear.
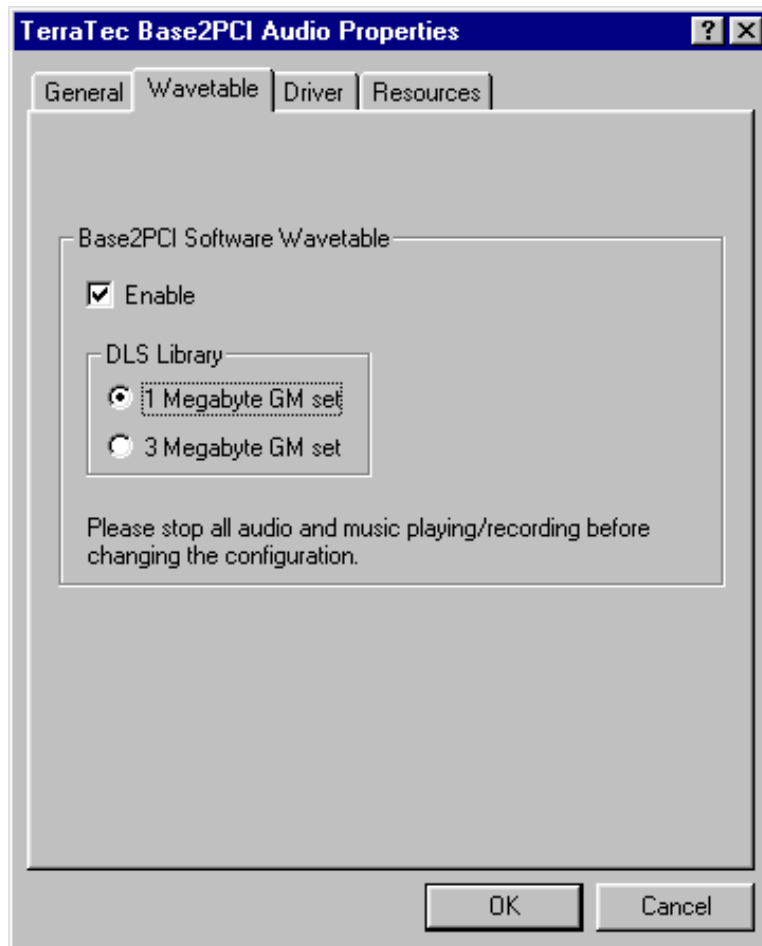
The *Enable* checkbox toggles the software wavetable. The wavetable is active if *Enable* is checked. It is not enabled if the box is not checked and the *DLS Library* area cannot be selected.

To use the 3 MB sample set instead of the 1 MB set, simply click on *3 Megabyte GM set*. Switch back in the same manner if you would like to return to the 1 MB DLS sample set.

WINDOWS NT 4.0.

Go to:

Next,
double-click
Multimedia.
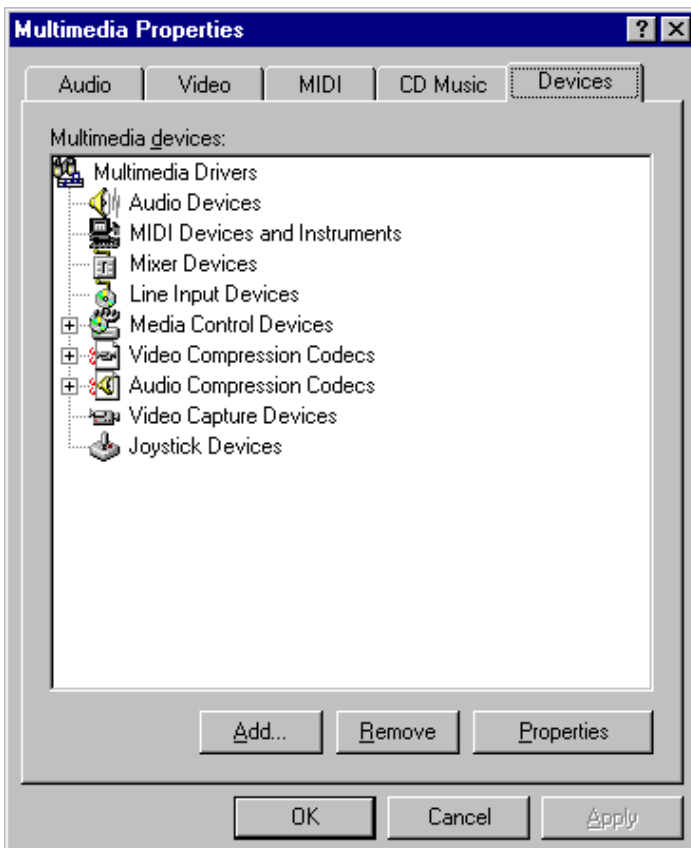
In the *Multimedia Properties* window, go to the *Devices* tab and click *Add.*
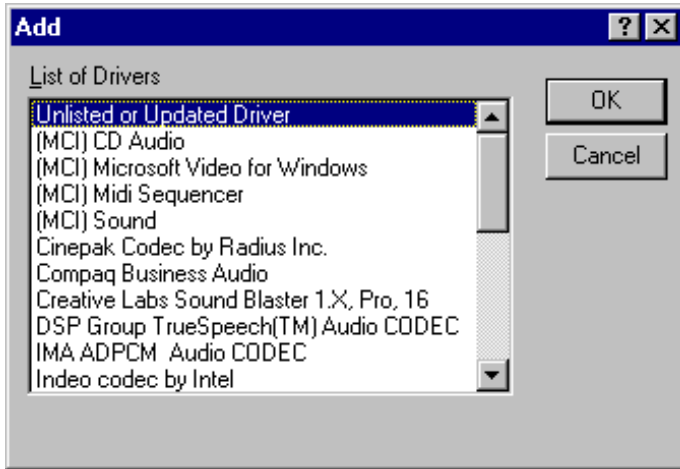
Select *Unlisted or Updated Driver* and click *OK*.
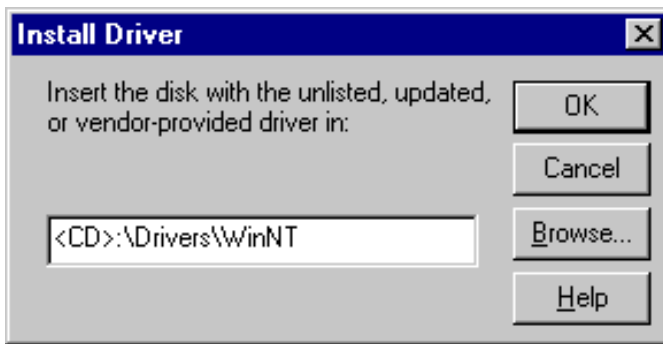
Type the path

`<CD>:\Drivers\WinNT` and click *OK*, or click *Browse* to locate the correct folder using the mouse.
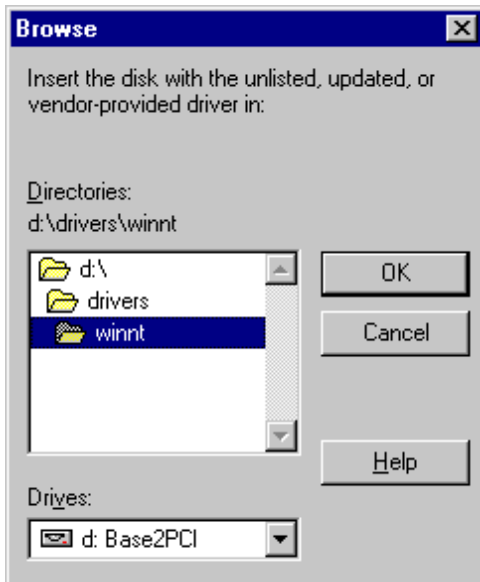
If you selected *Browse*, switch to your CD-ROM and to the folder `<CD>:\drivers\winnt`.

In the following window, select *Base2PCI Audio Drivers* and click *OK*.

Confirm that you would like to install the drivers once again in the next window.
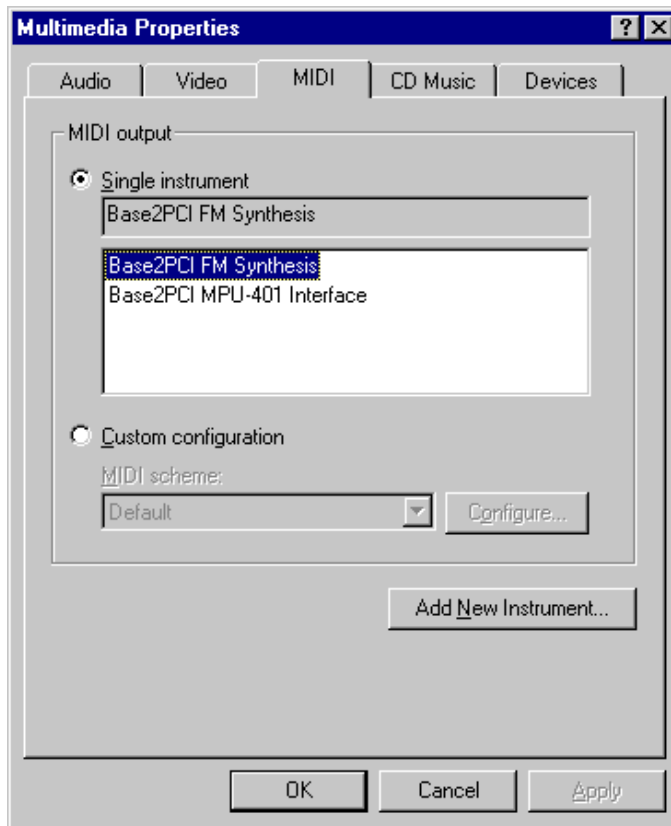
Next, check the MIDI settings.
Open the *Control Panel* and double-click *Multimedia*. Go to the *MIDI* tab.

If you do not have an external wavetable or wavetable daughterboard, please ensure that the TerraTec Base2PCI FM Synthesis entry is active, not TerraTec Base2PCI MPU-401 Interface.

If you have an external wavetable or wavetable daughterboard installed, use this window to set the MIDI output to suit your requirements.

Once the drivers have been successfully installed, please restart your computer.

This concludes the installation.

CONNECTING EXTERNAL PERIPHERY

The external peripheral devices you can connect to your Base2PCI include loudspeakers or headphones, a CD-ROM drive, a MIDI keyboard, a microphone, a joystick and an external audio unit (MD player, CD player, tuner, mixer, etc.).

CONNECTING PASSIVE OR ACTIVE LOUDSPEAKERS.

The output of the sound card is suitable for connection to passive speakers and headphones, or to active speakers or a stereo system. The output marked *Speaker / LINE-OUT* can be used for all external devices such as headphones, passive or active speakers or your stereo system.

LINE OUT
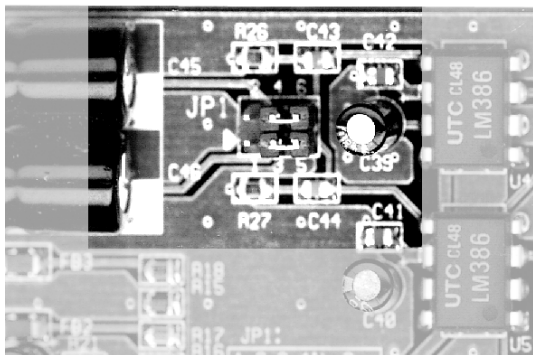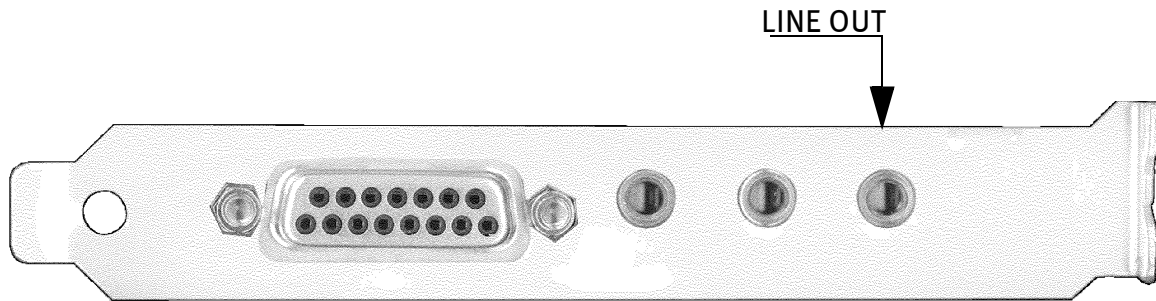
If you are planning to connect passive speakers or headphones, i.e. devices without amplifiers of their own, then enable the onboard preamplifier of the Base2PCI using the jumper (JP1).
The preamplifier is disabled by default. Here's how to enable or disable the preamplifier:

Line OUT
(amplifier off)
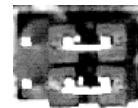
Speaker OUT
(amplifier on)

CONNECTING A MICROPHONE.

A microphone can be connected to the input marked *MIC*. The input sensitivity should be adequate for most mainstream commercially available capacitor-type and dynamic microphones.
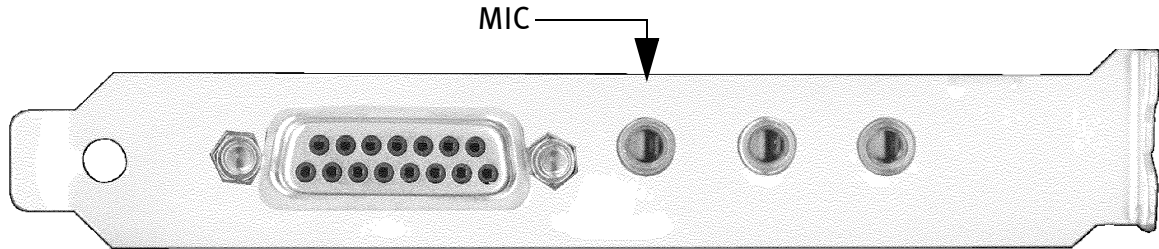
CONNECTING AN EXTERNAL AUDIO SOURCE.

Use the input labeled *LINE IN* for connecting external periphery such as a mixer, CD player, cassette recorder or similar. These external audio sources can be mixed with the internal audio sources using the software-driven mixer, or digitally recorded.
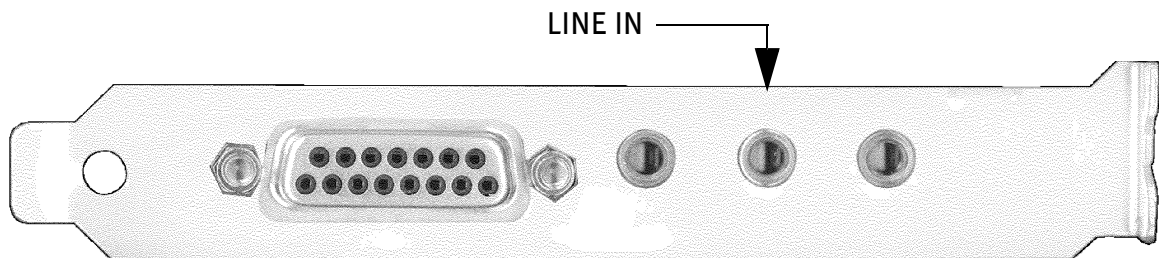
MIDI PORT

A special cable, which is optionally available as the TerraTec MIDI-KIT, is necessary to connect your sound card to a MIDI keyboard, an external synthesizer or expander. This cable is included with TerraTec keyboards. When connected to the game/MIDI port, it provides joystick, MIDI In and MIDI Out connections.

> **Important: Use only the MIDI cable provided by the sound-card OEM.**

Connect the MIDI Out of your keyboard to the MIDI In of the MIDI-KIT. You can now record music using your keyboard and a sequencer program. If you would like to play back your MIDI files using external MIDI devices as well, connect the MIDI Out plug of the MIDI kit to the MIDI In socket of your expander, synthesizer or keyboard.

The port labeled *"MIDI/Game"* is a 15-pin socket to which you can also connect a joystick.

GAME/MIDI PORT
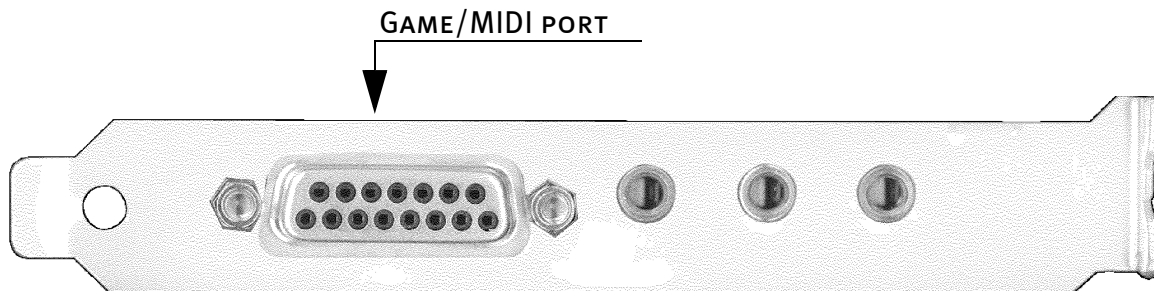
CONNECTING THE JOYSTICK

The 15-pin socket mentioned above can be used to connect one or two analog joysticks. The port can be enabled and disabled via the configuration. Bear in mind that you can have only one active joystick port in your PC configuration. If you want to use the port on your sound card you will have to deactivate any other joystick port in the system.

CONNECTING THE CD-ROM AUDIO CABLE

Connect the CD-ROM drive's audio cable to one of the audio inputs on the sound card. The ports are marked on the sound card as CD1 and CD2. Most IDE CD-ROM drives can be connected to the CD2 port. The audio cable should always be supplied with the CD-ROM drive. Please see the documentation of your CD-ROM drive or the *Frequently Asked Questions* (page 39) in the Appendix of this handbook for further information.
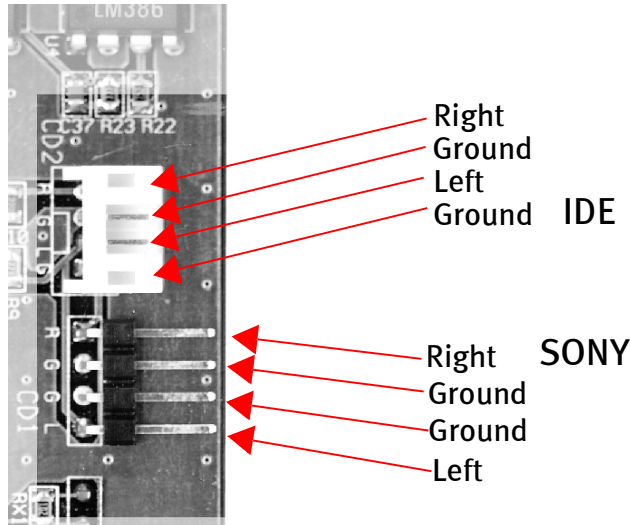
CONNECTING UPGRADE CARDS

CONNECTING A WAVETABLE MODULE
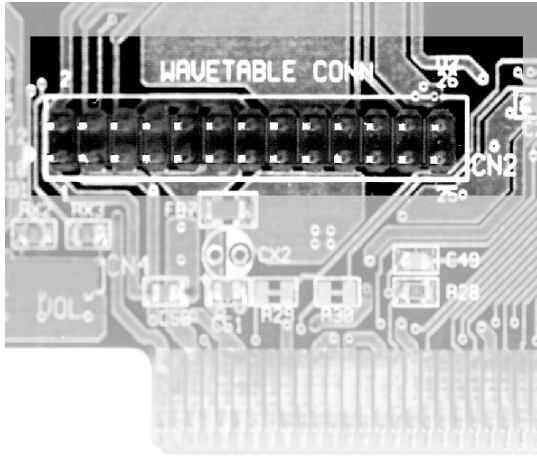
The connector labeled CN2 can be used to connect wavetable modules which are pin-compatible to Waveblaster. Take care to connect the wavetable module correctly, i.e. pin 1 on the Base2PCI to socket 1 of the wavetable module. Both connector rows must be correctly aligned to one another. Please also refer to the documentation supplied by the manufacturer of the wavetable module.

INTERNAL TAPS
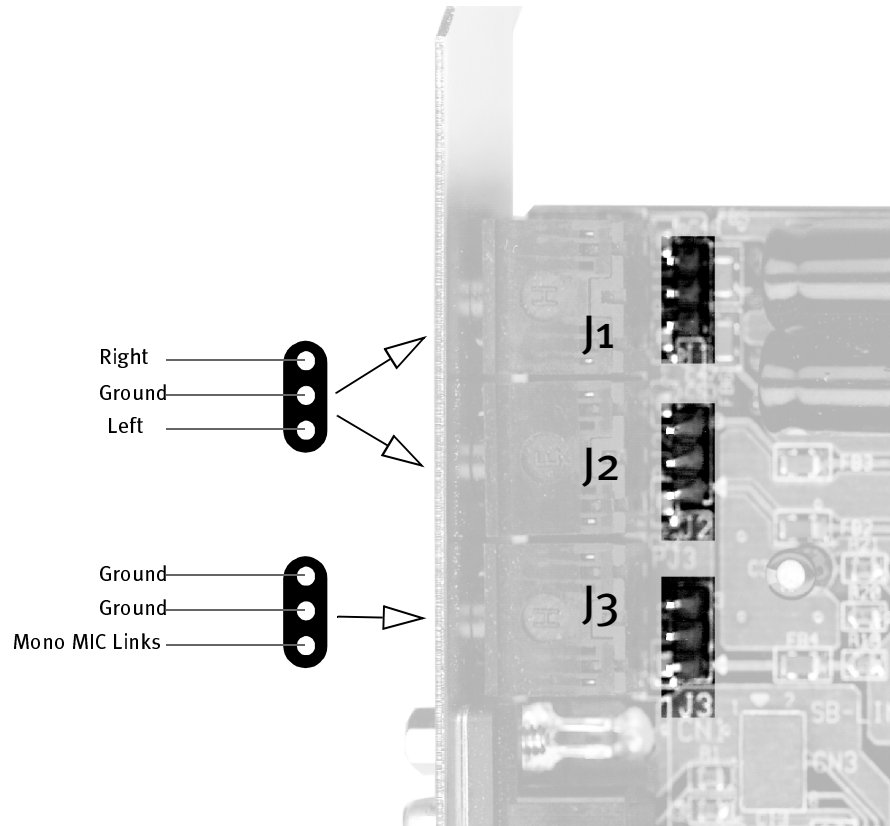
Three internal taps are also available in addition to the previously mentioned external connections. These are connected in parallel to the external audio connections (Spk/Line Out, Line In, Mic In). The corresponding external audio connection may no longer be used when using the internal taps. The parallel operation of the internal and external connections is not possible.

J1	(speaker/line OUT)
J2	LINE IN
J3	Mic IN

LEGACY AUDIO CONFIGURATION

Modifying the *Legacy Audio* settings will not be necessary in most cases. Should the need arise however, if a game requires settings other than the default, or you have an additional sound card in your system, refer to this section for details.

The free resources of your PC are checked and recorded in a list of possible basic configurations during the installation of the Base2PCI. The most suitable configuration is at the head of the list.

Configuration	AdLib I/O Port	SoundBlaster Pro I/O Port	MPU 401 I/O Port	SoundBlaster Pro DMA Channel
Basic Conf. 0	388h	220h or 240h	300h, 320h, 330h, 340h	1
Basic Conf. 1	388h	220h or 240h	300h, 320h, 330h, 340h	0 or 3
Basic Conf. 2	388h	220h or 240h	300h, 320h, 330h, 340h	0, 1 or 3

Use the following process to manually eliminate conflicts.
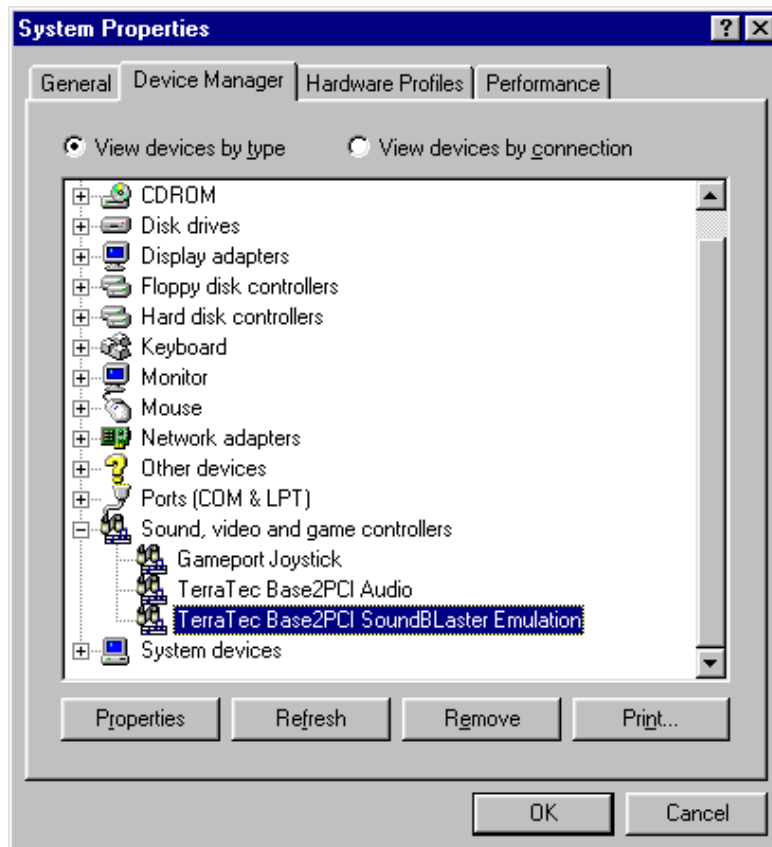
Open the Windows 95 *Device Manager*. Click on the plus sign in front of *Sound, video and game controllers* to access the properties of the SoundBlaster emulation.

Highlight the entry *TerraTec Base2PCI Sound-BLaster Emulation*.

Click on *Properties* and on the *Resources* tab in the following window.

Remove the check mark next to *Use automatic settings* to permit the settings to be changed manually. Next, select one of the basic configurations in order to manually change the

resources. Next, click *Change settings…*. Please note that not every basic configuration permits the modification of settings. Try a few different basic configurations until you find one that permits resources to be changed manually.

You can then assign different resources once you have found such a basic configuration.

Please bear in mind that manual configuration may prevent some applications which require default settings from accessing resources. Please refer to the documentation of your application if necessary to determine which resources the program requires.

> ***To change the SoundBlaster Pro interrupt, go to the TerraTec Base2PCI Audio entry. Click on "Properties" and on the "Resources" tab in the following window. Next, continue as described above.***

Some applications require the so-called BLASTER environment variable. The appropriate modifications were made to your AUTOEXEC.BAT and DOSSTART.BAT files automatically while installing the Base2PCI drivers.

Your AUTOEXEC.BAT and DOSSTART.BAT should then look something like this:

```
PATH=C:\WINDOWS
```

·

·

·

```
C:\ESSOLO.COM
```

The ESSOLO.COM setup utility automatically sets the BLASTER environment variable every time the AUTOEXEC.BAT or DOSSTART.BAT files are run.

If your computer does not display the Windows 95 logo while booting, you should see the following entry.

```
ESS PCI Audio Device Setup Utility, Version 2.06b
(c) ESS Technology, Inc., 1996-1998. All rights reserved.
DMA Mode is DDMA
Current Solo PCI IRQ: 9   PCI IO Base: D400

Current Solo SBPro Game Settings:
SB IO=220h   IRQ=9   DMA=1
MPU401 IO=330h
Game port is on
```

In the event that your computer does display the Windows 95 logo, use the *Escape* key to switch to the appropriate view to see which drivers and programs are being loaded.

If Windows 95 is being started instead of DOS, the driver is automatically removed from the computer's memory to ensure optimum Windows 95 performance, as Windows 95 does not use the driver.

APPENDIX

WAVETABLE INSTRUMENT TABLE

Program	Instrument Name	Voices	Program	Instrument Name	Voices	Program	Instrument Name	Voices
0	(Grand) Piano 1	1	43	Contrabass	1	86	Lead 7 (fifths)	2
1	(Bright) Piano 2	1	44	Tremolo Strings	1	87	Lead 8 (bass+lead)	2
2	(El. Grd) Piano 3	1	45	Pizzicato Strings	1	88	Pad 1 (new age)	3
3	Honky-tonk Piano	2	46	Orchestral Harp	2	89	Pad 2 (warm)	1
4	El. Piano 1	1	47	Timpani	1	90	Pad 3 (polysynth)	2
5	El. Piano 2	1	48	String Ensemble 1	1	91	Pad 4 (choir)	2
6	Harpsichord	1	49	String Ensemble 2	1	92	Pad 5 (bowed)	2
7	Clavi	2	50	Synth Strings 1	2	93	Pad 6 (metallic)	2
8	Celesta	1	51	Synth Strings 2	1	94	Pad 7 (halo)	2
9	Glockenspiel	1	52	Choir Aahs	1	95	Pad 8 (sweep)	2
10	Music Box	2	53	Voice Oohs	2	96	FX 1 (rain)	2
11	Vibraphone	1	54	Synth Voice	1	97	FX 2 (soundtrack)	2
12	Marimba	1	55	Orchestra Hit	1	98	FX 3 (crystal)	2
13	Xylophone	1	56	Trumpet	1	99	FX4 (atmosphere)	2
14	Tubular Bells	1	57	Trombone	1	100	FX 5 (brightness)	2
15	Dulcimer (Santur)	1	58	Tuba	1	101	FX 6 (goblins)	2
16	Drawbar Organ	1	59	Muted Trumpet	1	102	FX 7 (echoes)	1
17	Percussive Organ	2	60	French Horn	2	103	FX 8 (sci-fi)	2
18	Rock Organ	1	61	Brass Section	1	104	Sitar	1
19	Church Organ	1	62	Synth Brass 1	1	105	Banjo	1
20	Reed Organ	1	63	Synth Brass 2	1	106	Shamisen	1
21	Accordion (french)	2	64	Soprano Sax	2	107	Koto	1
22	Harmonica	1	65	Alto Sax	1	108	Kalimba	1
23	Tango Accordion	2	66	Tenor Sax	2	109	Bag pipe	1
24	Ac. Guitar (Nylon)	1	67	Baritone Sax	1	110	Fiddle	1
25	Ac. Guitar (Steel)	1	68	Oboe	1	111	Shanai	1
26	El. Guitar (jazz)	2	69	English Horn	2	112	Tinkle Bell	2
27	El. Guitar (clean)	1	70	Bassoon	1	113	Agogo	1
28	El. Guitar (muted)	1	71	Clarinet	1	114	Steel Drums	1
29	Overdriven Guitar	1	72	Piccolo	1	115	Woodblock	1
30	Distortion Guitar	1	73	Flute	1	116	Taiko Drum	1
31	Guitar harmonics	1	74	Recorder	1	117	Melodic Tom	1
32	Acoustic Bass	2	75	Pan Flute	2	118	Synth Drum	1
33	Elec. Bass (finger)	2	76	Blown Bottle	2	119	Reverse Cymbal	1
34	Elec. Bass (pick)	2	77	Shakuhachi	2	120	GuitarFretNoise	1
35	Fretless Bass	1	78	Whistle	1	121	BreathNoise	2
36	Slap Bass 1	2	79	Ocarina	2	122	Seashore	2
37	Slap Bass 2	1	80	Lead 1 (square)	1	123	Bird Tweet	1
38	Synth Bass 1	1	81	Lead 2 (sawtooth)	1	124	TelRing	1
39	Synth Bass 2	3	82	Lead 3 (calliope)	3	125	Helicopter	1
40	Violin	1	83	Lead 4 (chiff)	1	126	Applause	2
41	Viola	1	84	Lead 5 (charang)	1	127	Gunshot	1
42	Cello	1	85	Lead 6 (voice)	1			

WAVETABLE PERCUSSION TABLE

Note	Key	Instrument	Note	Key	Instrument	Note	Key	Instrument
C2	36	Rock Bass Drum	F#3	54	Tambourine	C5	72	Long Whistle [EXC2]
C#2	37	Side Stick	G3	55	Splash Cymbal	C#5	73	Short Guiro [EXC3]
D2	38	Snare Drum 1	G#3	56	Cowbell	D5	74	Long Guiro [EXC3]
D#2	39	Hand Clap	A3	57	Crash Cymbal 2	D#5	75	Claves
E2	40	Snare Drum 2	A#3	58	Vibraslap	E5	76	Hi Wood Block
F2	41	Low Floor Tom Tom	B3	59	Ride Cymbal 2	F5	77	Low Wood Block
F#2	42	Closed HiHat [EXC1]	C4	60	Hi Bongo	F#5	78	Mute Cuica [EXC4]
G2	43	High Floor Tom	C#4	61	Low Bongo	G5	79	Open Cuica [EXC4]
G#2	44	Pedal HiHat [EXC1]	D4	62	Mute Hi Conga	G#5	80	Mute 3angle [EXC5]
A2	45	Low Tom	D#4	63	Open Hi Conga	A5	81	Open 3angle[EXC5]
A#2	46	Open HiHat [EXC1]	E4	64	Low Conga	A#5	82	Shaker
B2	47	Low-Mid Tom	F4	65	High Timbale	B5	83	Jingle Bell
C3	48	Hi Mid Tom	F#4	66	Low Timbale	C6	84	BellTree
C#3	49	Crash Cymbal 1	G4	67	High Agogo	C#6	85	Castanets
D3	50	High Tom	G#4	68	Low Agogo	D6	86	Mute Surdo [EXC6]
D#3	51	Ride Cymbal 1	A4	69	Cabasa	D#6	87	Open Surdo [EXC6]
E3	52	Chinese Cymbal	A#4	70	Maracas	E6	88	-
F3	53	Ride Bll	B4	71	Short Whistle[EXC2]	F#3		

Frequently Asked Questions

This section contains brief instructions on how to solve problems that may crop up during installation or operation of your sound card.

Please ensure that you are using the latest *TerraTec Base2PCI* driver versions.

The latest versions are available from the following sources:

TerraTec ReActor BBS: +49 (2157) 8179-24 (analog)

                          +49 (2157) 8179-42 (ISDN)

TerraTec in the Internet: **http://www.terratec.net**

or simply send a self-addressed envelope to the TerraTec Support Department.
(Please specify the product name and your registration number)

Please refer to this chapter if you encounter problems, as most can be resolved easily.

The joystick doesn't work.

Only one joystick port can be active in your PC configuration. Ensure that either the joystick port of your motherboard/controller or that of the sound card is switched off.

When using certain programs, I get error messages similar to "Environment variable not found" and/or my sound card remains silent.

Some programs expect a DOS environment variable in the SoundBlaster or SoundBlaster Pro modes. This environment variable is defined in a line of the `AUTOEXEC.BAT`. Here's the format of the variable:

```
SET BLASTER=Awww Ix Dy Tz
```

in which the lower-case letters stand for the following values:

"www"   = SoundBlaster port address   (default: 220)
"x"   = SoundBlaster interrupt level   (default: 5)
"y"   = SoundBlaster DMA channel   (default: 1)
"z"   = Card type (2 for SoundBlaster or 4 for SoundBlaster Pro)

A typical line could look like this:

```
SET BLASTER = A220 I5 D1 T4
```

Please note that some programs also need this variable in their own `AUTOEXEC.BAT` in the DOS window under Windows 95.

I can't select IRQ 9 for SoundBlaster Pro mode in my DOS game.

As IRQ 2 and IRQ 9 are cascaded, it's only necessary to select IRQ 2 in your DOS game.

A keyboard connected to the sound card does not react when I hit a key.

1. First, ensure that the driver for communications with the keyboard has been installed.

2. If the driver is installed, it must be selected as the MIDI input device in the sequencer software. Please see your sequencer handbook for details on this. Most sequencer programs have a menu item labeled "Setup/MIDI Devices", where you can select MIDI input and MIDI output devices.

If both these conditions are satisfied and the problem persists, in other words the software does not react when you hit a key or no sound is audible, the MIDI connecting cable is almost certainly the cause of the trouble.

Experience has shown that there's an enormous number of different MIDI connector cables which unfortunately are all identical externally. These cables should contain a so-called optocoupler suitable for the sound card's levels.As it's not possible to check this from the outside, always use the sound card manufacturer's MIDI cable. Our product range includes such a cable which you can obtain from your equipment retailer.

THE TERRATEC HOTLINE

If you still have problems or questions, please review all of the instructions in this handbook first. If you have questions related to MIDI or wavetable synthesis, please refer to the MIDI guide on the setup CD.

Questions related to settings of the included software are covered in the online software handbook. This handbook can be used to quickly solve a wide range of problems.

If you are certain that you can't solve your problem without assistance, please call our hotline.

- Your registration number

- The manuals

- A printout of your configuration files

- The handbook of your motherboard

- A screenshot of your BIOS configuration.

If possible, call from within reach of your running computer. Please also note the name of the support team member who answers your call, as you will need it if you have to return a defective card.

Another source of help is our Internet support page:

http://www.terratec.net/support.htm

It is also useful to keep all of the information relevant to your computer handy when using this resource. Providing detailed information about your problem increases the chances of getting quick assistance.

Please do not send us calls for help by snail mail, fax or carrier pigeon. For organizational reasons we will not be able to respond.

TERRATEC SERVICE

TerraTec offers direct service, in other words if a malfunction occurs you can contact us instead of going through a retailer.

Your advantages are:

• Shorter lines of communication: Go straight to us instead of going though retail, wholesaler and distributor.

• Better hands-on supervision: The more intermediaries involved the bigger the chance of shipments going missing or suffering damage.

• Faster handling: Shipments are processed in the order in which they are received and not held back by a wholesaler or distributor who waits until a bulk shipment cuts costs.

• Direct feedback: If we have any queries we can contact you quickly and directly.

If you run into a problem you cannot solve please phone our hotline and note the name of the person who takes your call, because this will ensure that your card is not sent in vain.

This precaution will help save unnecessary cost. Experience shows that the chances of solving a problem on the phone are very high. The number of cards that are actually defective, on the other hand, is negligible by comparison.

If a problem crops up, always adopt the following procedure:

1. Consult the appropriate part of the User Guide, just in case you missed something.

2. Complete the customer service card, describing the problem as accurately as possible.

3. Carefully pack the sound card in its original packaging, complete with your address and the customer service card and send it to us. Please note that for organizational reasons we cannot accept shipments for which postage is not prepaid in full.

SWITCHING OF THE MIDI INTERFACE

MIDI OUT

MIDI IN

GAME PORT

orange

red

220 pF

220 pF

270 Ohm

220 Ohm

2N3904

2N3904

10 kOhm

MIDI

12

5 Ground

4 Ground

2,2 kOhm

+5V

1,9,8

MIDI

560 Ohm

15

8   7   6   5

6N138

1   2   3   4

1N4148

270 Ohm

black

brown
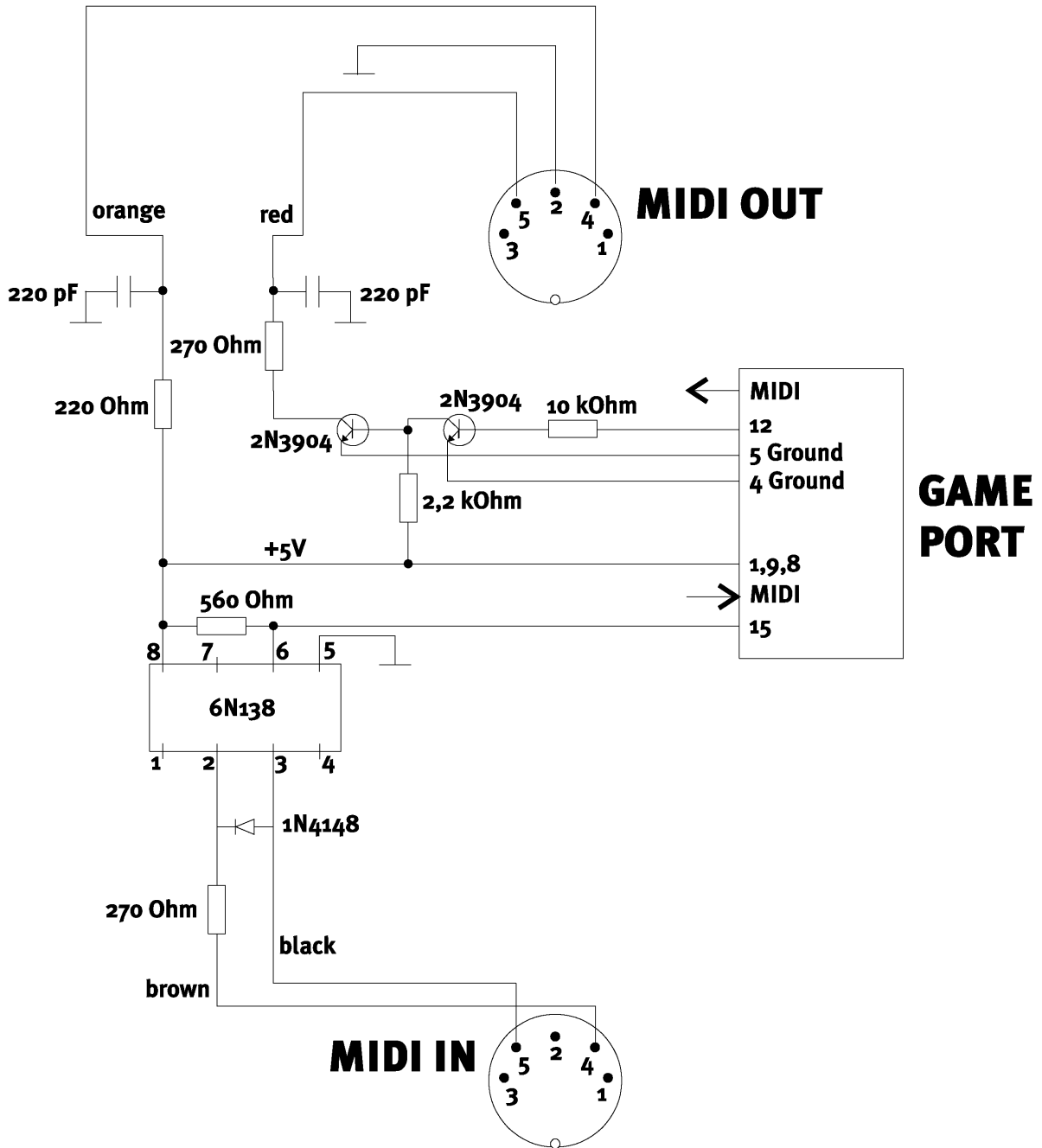
GLOSSARY.

µ-LAW

Compression and decompression algorithm in compliance with US telephone standard. Non-linear compression means that the dynamic range can be extended to 72 dB with a sampling resolution of 8 bits.

3D ALGORITHMS

Processing rules designed to achieve a spatial audio effect using only two speakers. Unlike AudioRendering, the exact positioning of acoustic events within a virtual space is not possible. In principle, this process "only" involves delays and frequency-dependent phase shifts of the audio material as a whole.

4OP+

Special algorithm for generating FM sounds with 4 operators.

5,25" MODULE

Modular insert for the EWS64 XL AudioSystem (optionally available for the EWS64 L) in the format of a 5.25" PC drive. This module contains 4 5-pin DIN connectors (2 MIDI In/Out) for the connection of devices to the two MIDI interfaces, as well as 1 switchable optical/coaxial digital input, 2 coaxial digital outputs and a headphone socket. It also contains the connector for an optional wavetable module.

8 MBIT

ROM memory for PCM samples for wavetable synthesizing, corresponds to 1 Mbyte.

16-BIT EXPANSION SLOT

Slot accommodating an expansion card for the ISA bus. Two contact arrays are arranged in parallel to permit parallel 16-bit data transfer via the bus.

ADLIB

One of the earliest manufacturers of sound cards, not to be confused with a current manufacturer of sound cards of the same name. The Adlib standard defines the address for the generation of FM sounds.

ADPCM

Adaptive Differential Pulse Code Modulation. Compression and decompression algorithm with a 4 : 1 compression ration. In other words, a 16-bit sample is compressed to 16 bits so that samples can be transferred at high quality via networks and telephone lines.

A-LAW

Compression and decompression standard in compliance with the European telephone standard. Non-linear compression means that the dynamic range can be extended to 72 dB with a sampling resolution of 8 bits.

ANALOG

Stepless transition between two states. All phenomena of the natural environment are analog.

APPLICATIONS

Another name for programs through which the user communications with the computer.

ATAPI-IDE

Advanced Technology Attachment Packet Interface. Further development of the IDE standard for faster data communications between the processor and mass storage devices such as hard disks and CD-ROM drives, also known as Enhanced IDE.

AUDIORENDERING

A process introduced by TerraTec for the exact positioning of acoustic events in a virtual 3-dimensional space in real time. The result can be experienced using two or four speakers, or with headphones.

Audio streams

Streams of digital audio data. They are sent from the hard disk to the sound card by the CPU, processed to an analog signal and played back over speakers.

Beeper

Signaling device on the PC motherboard which generates one or more *beeps* to signify a variety of conditions, generally configuration faults. This device is normally directly connected to the internal PC speaker.

Operating system

The level above BIOS for communication with the computer. The operating system provides the user with basic functions for organizing the workflows on the computer. It is the interface between the BIOS and the applications.

Screenshot

A printout of the screen contents obtained by hitting the *Print key* on the computer's keyboard.

BIOS

Basic Input Output System, the program which controls the low-level processes in the computer. The BIOS establishes the means of communication within the computer and thus provides the connections between the individual system components.

BIOS configuration

The BIOS settings parameterized with the aid of one or more screen pages. It is usually possible to access these settings by pressing and holding down the Delete key at some point during the system boot process .

Boot

The start or run-up procedure of a computer. A distinction is drawn between warm starts, triggered by pressing the key combination *Ctrl + Alt + Del*, and cold starts triggered by pressing the reset button or switching the computer off and on again.

Burst mode

Fast data transfer mode via the PC's ISA bus which, unlike DMA transfer, requires processor activity but does not reserve DMA channels.

Cache

RAM-chip buffer in which command and data are stored temporarily for fast access by the CPU.

CD-ROM

Storage medium based on the same technology as audio CDs. The difference is in the structure of the data, to which on a CD-ROM only a computer has access and not a CD player.

Chip

Another name for integrated circuit (IC).

CODEC

An integrated circuit for both analog-to-digital coding and digital-to-analog decoding.

Controller

Subprocessor which controls data traffic between various interfaces and the bus. The most popular controllers are those for SCSI and Enhanced-IDE.

CPU

Central Processing Unit, the main processor in a computer.

CREATIVE LABS
Manufacturer of the *Soundblaster* and *Soundblaster Pro* sound cards often considered de facto standards by games manufacturers.

DAC
Digital Analog Converter

DAT RECORDER
A cassette recorder which records digital audio data on media similar to regular compact cassettes by means of a rotating recording and playback head (similar to that of a VCR). In addition to analog inputs and outputs, DAT recorders also have digital inputs and outputs. The S/PDIF or AES/EBU formats are used, depending on the class of the unit.

DIGITAL
States represented by means of differentiated digital values. A status change involves a number of steps, with the sampling rate and the resolution defining the size of the steps. A computer can process only digital, in other words coarse-resolution information, but it does so very quickly.

DIGITAL INPUT AND OUTPUT
Interface for the interconnection of digital audio units. From the physical standpoint, it is necessary to differentiate between optical, coaxial, and symmetrical XLR connections. The XLR connection is used only on professional units in conjunction with the AES/EBU protocol for the transfer of audio data using symmetrical copper conductors. The other two connector types use the S/PDIF protocol with optical fiber or asymmetrical copper conductors.

DIN CONNECTORS
5-pin connectors for standard MIDI connections.

DIRECT MEMORY ACCESS
DMA - Direct access to the RAM, bypassing the CPU.

DIRECTSOUND
A standard software interface developed by Microsoft to provide more direct access to sound hardware under Windows 95. DirectSound is a component of DirectX, which also relates to hardware such as graphics boards, 3D accelerators, joysticks, modems, etc.

DIRECTSOUND STATIC BUFFER
A memory range on a sound card which can be used for a variety of recurring sounds, such as in games. These sounds generally include shots, explosions, engine noises or similar sounds.

DMA
Direct Memory Access.

DMA CHANNELS
Signal lines for direct memory access.

DOUBLE-SPEED
Double rotational speed of CD-ROM drives as opposed to audio CD players, used to achieve a higher data transfer rate from the CD-ROM. Modern CD-ROM drives operate at considerably higher rotational speeds.

Download

1. The process of transferring data from a remote computer, generally a BBS system or Internet server, to a local computer.

2. The transfer of information from the main memory or hard disk to the memory of an expansion card. In the case of a sound card such as the EWS64 L/XL, these especially include samples and instrument definitions for wavetable sounds.

Drumkit

A set of matched percussion instruments

Dual DMA

Use of two separate DMA channels for simultaneous recording and playback of audio data in a computer. This mode, also known as full duplex, is important for hard-disk recording and acoustic data transfer via telephone lines or network connections.

dynamic microphone

Principle of an acoustic converter which employs a thin wire coil moving in a magnetic field to convert the sound waves stimulating a thin diaphragm into electric voltages.

EEPROM

Electrically Erasable Programmable Read-Only Memory.

Input/output address

Address of a memory area reserved for input and output devices. Each input/output device requires a defined area addressed directly by means of the I/O address.

Enhanced Full Duplex

mode which permits a different sampling frequencies to be used for each mode in simultaneous recording and playback of audio data.

Enhanced IDE

Expansion of the IDE standard for faster data communication between CPU and mass storage media such as hard disks and CD-ROM drives, also known as Enhanced IDE.

Equalizer

Adjustable multiband filter which can be used to adapt the frequency response of a signal to an existing audio system.

Expander

Unit such as a MIDI generator such as a synthesizer or sampler, or the keyboard. These expanders can be controlled only via MIDI from a separate keyboard or a sequencer/computer.

Extended Full Duplex

Extended option for the simultaneous playback and recording of audio data. In this case, several stereo audio files can be played back during a stereo recording.

FM

Frequency Modulation, in this case an algorithm for synthetically generating sounds. Complex waveforms are generated with the aid of sinusoidal generators which can mutually influence their respective frequencies.

Full duplex

Simultaneous recording and playback of audio data in a computer. Important for hard-disk recording and for computer-aided telephony applications.

GAMEPORT

Interface for connecting one or two joysticks to a PC for controlling games.

GAME/MIDI PORT

Combination interface for connecting one or two joysticks and MIDI I/O. This port is usually integrated in the end panel of the sound card.

GENERAL MIDI

Standard for the assignment of instruments to the 127 program numbers of a MIDI channel. It additionally defines Channel 10 as the drum channel and the assignment of percussion instruments to MIDI note numbers.

GENERAL SYNTHESIZER

Extension of the General MIDI standard to include sounds that can be reached with the aid of the bank change commands and an effects processor for diverse echo and chorus programs.

HARD DISK RECORDING

A multi-track recording process which uses a hard disk as a recording medium instead of tape. The advantage of this process is direct access to any part of the recorded audio material without tape forwarding or rewind times. The disadvantages of this process are the relatively high costs of the recording medium and difficult interchange with other systems.

MAINBOARD

Motherboard on which the main components of the computer are mounted, including power supply unit, CPU, RAM, BIOS, bus system and expansion slots.

MAIN PROCESSOR

CPU, central processing unit.

INPUT/OUTPUT ADDRESS

Address of a memory area reserved for input and output devices. Each input/output device requires a defined area addressed directly by means of the I/O address.

INTERNET

Worldwide, non-hierarchical network which is gaining ever more importance for global communications. The World Wide Web (WWW) is the multimedia-based part of the Internet.

INTERRUPT

Instruction which tells the CPU that a process has to be interrupted so that data from a system component or an external device can be accepted.

IRQ

Interrupt request, see above.

ISA BUS

Industry Standard Architecture, the most common bus system in the PC industry for data transfer between expansion boards and the CPU or the storage medium.

JOYSTICK

Device for fast, convenient control of movements in games, usually equipped with diverse fire-control buttons for firing at will.

JUMPER

Small, two-pole short-circuit bridge used for configuring the mainboard or expansion cards.

Keyboard

Input device, alphanumeric in the case of a computer, or in musical parlance the piano-like set of keys for generating the MIDI control signals.

Capacitor microphone

Principle of an acoustic converter which converts the sound waves stimulating a thin diaphragm of an electrically polarized material (electret) into electric voltages.

Configuration files

The start files CONFIG.SYS and AUTOEXEC.BAT, as well as the Windows 3.x initialization files SYSTEM.INI and WIN.INI are the files which control the configuration of the computer and its software with the aid of drivers. The registry, which can be edited with the program REGEDIT.EXE, performs these functions in Windows 95.

Loop

When wavetable sounds are played back the middle pat of the sound is looped so that the sound can be prolonged for any length of time.

BBS

A computer which can be accessed via telephone lines using a modem. BBSs (bulletin board systems) are used by companies to provide users with fast access to new drivers, utilities and information. BBSs are also maintained by private operators, offering shareware, bulletin boards and other forms of communication to the system's users.

Motherboard

The mainboard on which the major components of the computer are mounted, including power supply unit, CPU, RAM, BIOS, bus system and expansion slots.

MCI

Media Control Interface. A software interface for controlling diverse media devices. This non-device-specific interface provides a command set for indirectly addressing the device drivers from within a program or multimedia application.

Microsoft Sound System

A package consisting of a sound card plus diverse applications formerly produced by Microsoft. The 16-bit sound card used special resources now established as a standard especially under Windows. Some games now support MSS for audio output.

MIDI

1. Specialist term from the world of ladies' fashion, referring to a hemline between Mini and Maxi.

2. Musical Instruments Digital Interface. The interface for standardized data interchange between synthesizers, computers, samplers and keyboards. This is usually a serial interface, so the only data carried is the control information which causes the target, signal-producing MIDI devices to play back music in the desired form (which often works).

MIDI kit

A special cable for connecting the game/MIDI port and MIDI devices. The cable has special electronics enabling it to emulate the MIDI standard on the one hand and a joystick port on the other.

MIDI keyboard

A piano-like keyboard for driving MIDI sound generators

MOD

A song format originally designed for Commodore Amiga computers. This format contains a variety of samples in several tracks as well as the instructions for the playback thereof and the associated effects.

MPC

Hardware standard for PCs satisfying certain minimum requirements for running multimedia applications.

MPEG

Motion Picture Expert Group. Committee for developing standards for digitizing motion pictures, generally films. Modern films on video CDs are compressed in accordance with the MPEG-1 standard.

MPU-401

Hardware interface for MIDI-compatible PCs. Today, this interface is an established standard for GM/GS music playback in games under DOS as the games require direct access.

Multimedia PC

MPC. Hardware standard for PCs satisfying certain minimum requirements for running multimedia applications.

PCI

Peripheral Component Interconnect. Bus system for fast data transfer between the processor and expansion cards. The bus rate is 32- MHz with 32- or 64-bit data blocks.

Pentium

Intel processor family, the successor of the 486 processor.

Plug and Play

A standard developed by Microsoft and Intel which aims at optimized, conflict-free automatic assignment of system resources when the computer boots. The frequently troublesome assignment of resources using jumpers is thus no longer necessary.

PnP

Plug and Play (see above).

Polyphonic

Multiple voices. The expression refers to the number of voices which instruments can produce simultaneously. A flute, for example, is monophonic (one voice). A guitar is generally polyphonic with six voices (six strings), and a piano with eight octaves is polyphonic with 96 voices (8 x 12 keys).

PS/2 SIMM module

RAM module on a small board with 72 contacts for socket mounting. These sockets are present on all modern mainboards to allow the RAM to be upgraded.

Buffer

Temporary intermediate memory to facilitate continuous, fast data flows.

Resources

Number and type of data lines and size of memory areas that can be utilized by the system and expansion cards.

ROM

Read Only Memory; memory medium which permits read accesses but not writes.

SAMPLE FORMAT

File format for digitized audio data. It generally consists of a header with information pertaining to the sample size, resolution, sample rate, etc. In professional samplers these also include instrument definitions such as loop points, keyboard mapping, filter and envelope settings, etc.

SAMPLER

An expression used in the music sector for an electronic musical instrument which uses digitized audio data as its basic sound source. This can be produced in the sampler itself. In a sample player this audio material is hard-wired in ROM and cannot be overwritten with user sounds. These are often referred to among musicians as "romplers" (ROM samplers).

SAMPLE RAM

Memory in which samples, instrument definitions and sound banks can be loaded to produce sounds via MIDI.

SAMPLER RATE

Frequency at which the analog signal is registered and converted into a digital value. The higher the frequency the better the result of subsequent digital-to-analog conversion to restore the original signal.

SAMPLING

Conversion of analog information to digital. This term is generally used for audio information digitized by means of sampling and then made available for processing in the computer.

SB PRO

Soundblaster Pro. A model of the Creative Labs Soundblaster series with digital recording and playback in 8-bit stereo and OPL3 FM synthesis for music playback.

SCSI

Small Computer System Interface. Internal and external bus system for data transfer between the PC and peripherals such as hard disks and removable media, CD-ROM drivers, scanners, etc.

SEQUENCER PROGRAM

Software for recording, editing and playing back MIDI information. In this way music can be composed on a computer.

SFX KIT

A drumkit program which maps various acoustic effects to keys on the computer keyboard.

SIGNAL-TO-NOISE RATIO

The ratio between data signal and interference signal for audio devices. Stated in dB, the higher the value the lower the intrinsic noise level of the device.

SLOT

1. Bay accommodating an expansion card in a PC. Slots are of different types, depending on the bus system.

2. Processor unit in the synthesizer section of the EWS64 L/XL AudioSystem. 64 of these units provide the sound card with a variety of audio editing options.

SOUNDBLASTER

One of the first sound cards from Creative Labs which, because of its popularity, established itself as the first de facto standard for sound cards. Even today, the Soundblaster standard is still supported by virtually all manufacturers of games.

Soundblaster Pro

A model of the Creative Labs Soundblaster series with digital recording and playback in 8-bit stereo and OPL3 FM synthesis for music playback.

S/PDIF

Sony/Philips Digital Interface. Used for the interconnection of digital audio devices. The interface is physically specified as an optical or asymmetrical coaxial connection in this format. The protocol is similar to data transfer as per AES/EBU.

START FILES

Files which are automatically processed by the operating system during the boot to configure and initialize the computer system. The start files in DOS are CONFIG.SYS and AUTOEXEC.BAT, in Windows 3.1 and 3.11 the SYSTEM.INI and WIN.INI, and in Windows 95 the registry with the SYSTEM.DAT and USER.DAT files.

SYNTHESIZER

Electronic musical instrument which creates sounds by means of analog or digital synthesis.

TERRATEC ELECTRONIC GMBH

German manufacturer of professional multimedia products; headquarters in Nettetal. TerraTec played a major role in the rapid spread of wavetable technology for sound cards.

DRIVER

Driver Software which establishes the connection between the operating system and the hardware. The driver is responsible for resource accessibility and hardware initialization. There is a set of drivers for each operating system.

ENVIRONMENT VARIABLE

A variable added to the environment memory of the COMMAND.COM command interpreter by means of the DOS command SET. Programs can fetch the value of this variable when needed.

WAVETABLE

Name of a sound generation technology based on the reproduction of digitized natural sounds. The sounds are generally stored in ROM as samples.

WEB PAGE

A document page which can be accessed via the World Wide Web, the multimedia section of the Internet. A web page can contain text, graphics, sound, animation and other multimedia events.

WINDOWS 95

32-bit operating system from Microsoft, which, unlike its predecessors, is no longer based on the DOS operating system.

WSS

Windows Sound System. A package consisting of a sound card plus diverse applications formerly produced by Microsoft. The 16-bit sound card used special resources now established as a standard especially under Windows. Some games now support MSS for audio output.

Y-ADAPTER

A cable with three connectors connecting the joystick port to two joysticks and thus enabling two-player mode in games.