

USER MANUAL

PCI - SOUND CARD

March 1998

FCC
Version 1.0

A311D20

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FEDERAL COMMUNICATIONS COMMISSION (F.C.C.) STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

NOTE: 1. The use of a non-shielded interface cable with this equipment is prohibited.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

1. DESCRIPTION

This is a new audio adapter that provides the next generation of PCI audio performance to the PC market. The adapter not only meets the new demands of advanced PC audio applications but also enables the integration of a complete multimedia subsystem on a single adapter. The adapter functionality and interfaces are compliant with all major industry standards, including SoundBlaster Compatible, PC97, Windows 9 5 Direct Sound, Windows Sound System and PCI 2.1 bus specification.

1.1. Features

- ⇒ 500-MIPS-equivalent processor performance to accelerate multi-stream PC audio.
- ⇒ HRTF 3D positional audio under DirectX™ 5.0
- ⇒ Proprietary Wave Cache technology
- ⇒ AC-3 speaker virtualization.
- ⇒ IS/zoomed support
- ⇒ AC '97 CODEC interface
- ⇒ Up to 20-bit ADC/DAC audio resolution.
- ⇒ Distributed & PC/PCI DMA, Compaq/Intel serial IRQ support and transparent DMA.
- ⇒ 3.3V power supply; 5V-input tolerant.
- ⇒ Supports up to 12 GPIO pins.

System Interface

- Complies with Microsoft ACPI 1.0 and PPMI 1.0 (D0~D3).

Hardware interface

- MPU-401 interface with FIFO.
- High performance Game Port.
- General-purpose I/O Port.
- Communication interface.
- I² S Digital audio Input.
- Programmable Audio CODEC Interface.

*AC '97 CODEC interface.
Other 16 to 20-bit CODECs.
Secondary CODEC interface.*

Wavetable Synthesis

- Programmable effects including Reverb, Chorus, Flange, Echo, Treble, Bass and 3D spatial enhancement.
- 64-voice wavetable synthesis.

Built-in 2-channel Power Amplifier (optional)

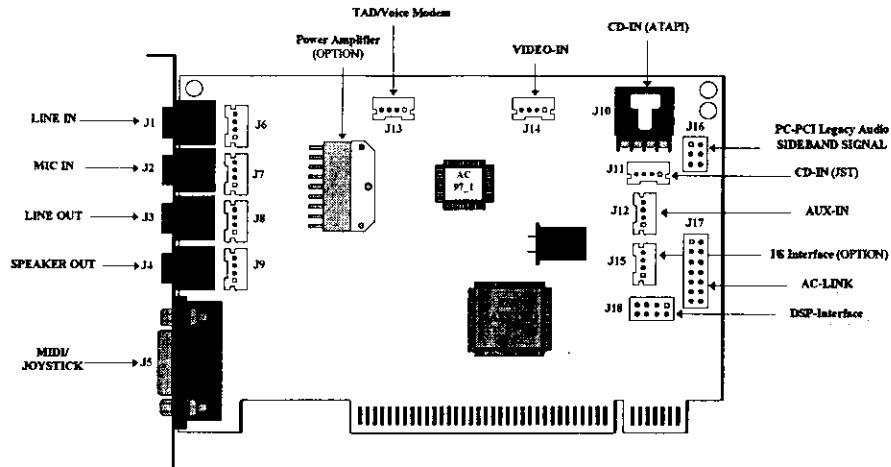
- 2.5 Watt per channel output, (TEA 2025).
- 6 Watt per channel output, (TDA 1517).

PCI Sound Card

Compatibility

- Fully SoundBlaster and SoundBlaster Pro compatible.
- Windows Sound System hardware register compatible.
- Windows 95, Direct Sound, Microsoft Active X, AdLib compatible.

1.2. Card Figure



1.3. Connectors

This PCI Sound Card includes up to thirteen internal connectors, four external Jack Ports, and one external MIDI/ Joystick connector.

1.3.1. External Connectors:

- J1:..... ϕ 3.5mm Phone Jack for **LINE IN**.
J2:..... ϕ 3.5mm Phone Jack for **MIC IN**.
J3:..... ϕ 3.5mm Phone Jack for **LINE OUT**.
J4:..... ϕ 3.5mm Phone Jack for **SPEAKER OUT**.
J5:..... Connector for **MIDI/JOYSTICK**.

1.3.2. Internal Connectors:

- J6:..... Internal Connector for **LINE IN**.
J7:..... Internal Connector for **MIC IN**.
J8:..... Internal Connector for **LINE OUT**.
J9:..... Internal Connector for **SPEAKER OUT**.
J10:..... Connector for **IDE CD-ROM AUDIO IN. (ATAPI)**

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- J11: Connector for IDE CD-ROM AUDIO IN. (JST)
- J12: Connector for AUX.
- J13: Connector for TAD/VOICE MODEM.
- J14: Connector for VIDEO-IN.
- J15: Connector for I²S INTERFACE.
- J16: Connector for PC-PCI Legacy Audio SIDEBAND SIGNAL.
- J17: Connector for AC-LINK.
- J18: Connector for DSP INTERFACE.

1.3.3. Audio Connectors:

J10: CD-Audio-In
ATAPI



L G G R

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

J11: CD-Audio-In
JST



R G L G

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

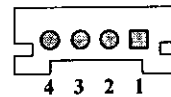
J12: AUX-In



R G G L

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

J13: TAD/
Voice Modem



4 3 2 1

1 PHONE
2 GROUND
3 GROUND
4 MONO OUT

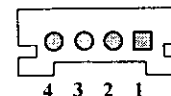
J14: VIDEO-IN



R G G L

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

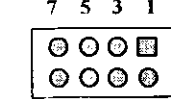
J15: I²S Interface



4 3 2 1

1 SERIAL CLOCK
2 FRAME SYNC
3 SERIAL DATA
4 GROUND

J18: DSP Interface



8 6 4 2

1 SERIAL DATA OUTPUT
3 SERIAL DATA INPUT
5 SERIAL CLOCK
7 FRAME SYNC
2/4/6/8 GROUND

2. HARDWARE INSTALLATION

2.1. Handling the PCI Sound Card

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

Follow these precautions when handling the card:

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

2.2. Installing the PCI Sound Card

- Step 1.** Turn off the system and all peripheral devices.
- Step 2.** Disconnect the power cord and all peripheral devices from the system.
- Step 3.** Remove the system cover and identify an unused PCI slot.
- Step 4.** Unscrew the slot cover plate, plug in the PCI Sound Card, and tighten it with the screw.
- Step 5.** If you have speakers or amplifiers, plug the cable into the **J3** or **J4** Jack on the back of the Sound Card.
- Step 6.** If you have a microphone, plug the respective cable into the **J2** Jack on the back of the Sound Card.
- Step 7.** Please plug the cable for your MIDI/Joystick device into the **J5** Jack on the back of the PCI Sound Card.
- Step 8.** Depending on what type of CD Audio cable you have connect **J10** or **J11** on the Sound Card and the Audio output at the back of the CD-ROM drive. Make sure pin 1 of **J10** or **J11** is connected to the leftmost pin of the CD-ROM Audio output.
- Step 9.** Put back the system cover, reconnect the system power cord and all peripheral devices. Check and make sure all connections are correct before you turn on the system.

3. SOFTWARE INSTALLATION

3.1. Software Contents

There is one CD-title which comes with this package.

This CD-title includes the necessary device driver and Application Software Bundles (“\Win95Rac”) for Microsoft Windows 95 operating system.

3.2. Device Driver Installation Under Windows 95

To install the device driver under Windows 95, please follow the steps below:

- 1.) After you have installed the PCI Sound Card, restart your Windows 95 operating system.
- 2.) The "New Hardware Found" dialog box will display the message "PCI Multimedia Audio Device". Choose the option "**Driver from disk provided by hardware manufacturer**".
- 3.) To continue the driver installation, select the drive letter and the directory “\D20soft\”, where all necessary device driver files have been installed and enter the **Win95** path.
- 4.) Make sure the dialog box specifies the correct drive letter and click on “OK”. This will start the copying process.
- 5.) Follow the on screen instructions and you should be able to install the device driver easily.

3.3. Installing the Device Driver for the first time under Windows 95 OSR2

To install the device driver under Windows 95 system, please follow the steps below:

- 1.) After you have installed the PCI Sound Card, restart your Microsoft Windows 95 OSR2 operating system.
- 2.) An “Update Device Driver Wizard” dialog box appears, showing you that an PCI Multimedia Audio Device has been detected by the system. Just click on the “Next” push button to continue the installation.
- 3.) The next “Update Device Driver Wizard” dialog box informs you that the system cannot find the device driver. Please insert your CD-title into your CD-ROM drive and click on the “Other Location” push button.
- 4.) The “Select Other Location” dialog box will ask you to specify the directory where the drivers are located. Please type “**D:\D20soft\Win95**” and click on the “OK” push button, assuming your CD-ROM drive is D.
- 5.) An “Update Device Driver Wizard” dialog box will inform you that the system has found the device driver. Please click on the “Finish” push button to continue.

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- 6.) An "Insert Disk" dialog box will ask you to insert the CD-title into your CD-ROM drive, please click on the "OK" push button.
- 7.) The "Copying Files" dialog box will appear. You are asked to specify the directory. Please type "D:\D20soft\Win95" and click on the "OK" push button.
- 8.) An "Insert Disk" dialog box may ask you to insert your Windows 95 CD-ROM into your CD-ROM drive. Just do it and click on the "OK" push button.
- 9.) A "Copying File" dialog box may ask you to locate the Windows directory, please locate it and click on the "OK" push button.
- 10.) You will see that Windows 95 is extracting the files from your Windows 95 CD-ROM. The Sound System driver and Game Port driver should be installed into your Windows 95 OSR2 operating system.
- 11.) Follow the on screen instructions and you should be able to install the device driver easily.

3.4. Application Installation Under Windows 95

To install the Software application under Win95, please follow the steps below:

- 1.) Start up your Microsoft Windows 95 system.
- 2.) Click on the START button and choose the RUN item.
- 3.) Please, insert the CD-title into your CD-ROM drive. Assuming your CD-ROM drive is D, type D:\D20soft\Win95Rac\SETUP.EXE in the command line of the RUN dialog box.
- 4.) Click on the OK push button and follow the on screen instructions. The Software application will be installed into your system.

3.5. How to play games under the DOS Mode

If you want to play games under the DOS mode, please specify your drive letter first.

Assuming drive C is used please add the following line to your CONFIG.SYS file:

DEVICE=C:\AECU.SYS

After rebooting your system, please type the file name "MAESTRO.COM" under the root directory. For example: "C:\MAESTRO.COM".

Follow the on screen instructions to continue the program.

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