

High Quality 4-in / 4-out
PCIe Audio Interface



User's Guide



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Revision 1, December 2008

www.esi-audio.com

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1. Introduction

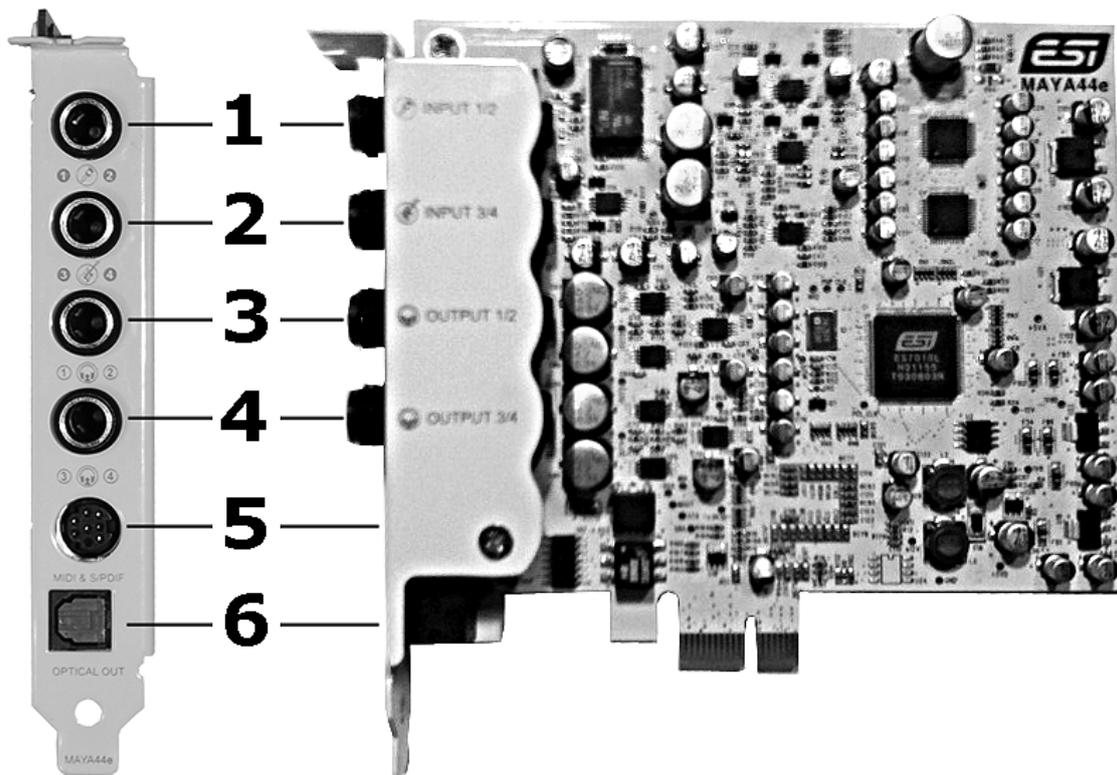
Thank you for choosing the ESI MAYA44e, a high quality 24-bit / 96 kHz 4-in / 4-out PCIe audio interface, providing a number of powerful and amazing features optimized for home recording on a professional quality level and for various DJ applications.

The card can easily be used by home users making their first steps in computer audio as well as by professionals who produce music on a budget, looking for a professional, yet affordable, PCIe audio solution.

MAYA44e provides 2 stereo analog line inputs, 2 stereo line outputs, a microphone input with +48V phantom power and preamp, a Hi-Z guitar instrument input, a MIDI I/O interface with 16 input and 16 output channels, as well as an optical and coaxial S/PDIF output and a coaxial S/PDIF input (via the included breakout cable).

2. Description of MAYA44e

2.1 PCIe card connectors



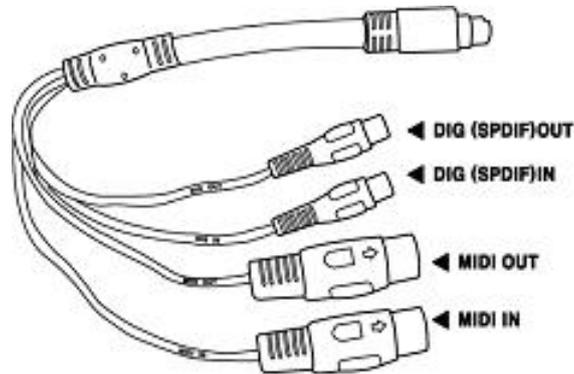
1. **INPUT 1/2:** analog line input connector (stereo) / microphone input (mono)
2. **INPUT 3/4:** analog line input connector (stereo) / Hi-Z instrument input (mono)
3. **OUTPUT 1/2:** analog line output connector (stereo) / headphone output (stereo)
4. **OUTPUT 3/4:** analog line output connector (stereo) / headphone output (stereo)

5. **MIDI & S/PDIF**: connects to the breakout cable for MIDI and S/PDIF I/O

6. **Optical Out**: optical digital S/PDIF output

2.2 Breakout Cable

MAYA44e comes with a special breakout cable.



This cable provides coaxial S/PDIF inputs and outputs and 16 MIDI I/O channels via one MIDI input and one MIDI output.

2.3 Minimum System Requirements

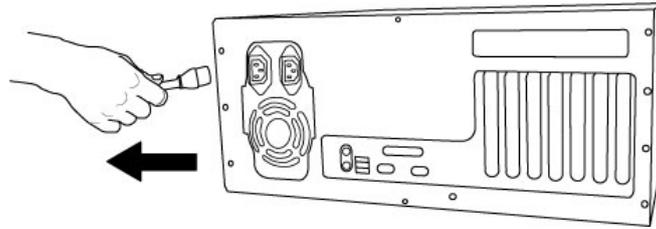
- Intel Pentium 4 1.0 GHz CPU or equivalent and compatible AMD CPU
- 512 MB RAM
- Direct X 8.1 or higher
- one available PCIe 1x or PCIe 16x slot
- DVD-ROM drive (for Cubase LE 4 installation)
- internet connection (for Cubase LE 4 activation)
- recent version of Microsoft Windows XP (SP2 or higher) or Windows Vista (32-bit & 64-bit)
- the latest chipset and mainboard utility drivers for your system must be installed

3. Hardware Installation

3.1 Preparation for Hardware Installation

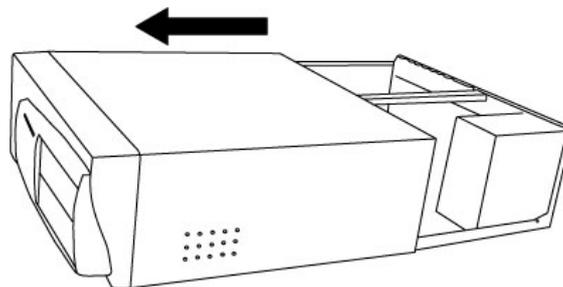
The MAYA44e PCIe card and other components in the computer can be damaged easily by electrical shock. You should use an anti-static device that can discharge the static electricity of your body to avoid potential static damage to the cards. If you do not feel capable of installing a PCIe card into your computer please contact a computer specialist.

Turn off the computer power and remove the power cable from your computer power supply.



Disconnecting the Power Cord

Refer to your computer user’s manual and remove the computer cover. Make sure that you have an available PCIe slot on your motherboard to install the MAYA44e.



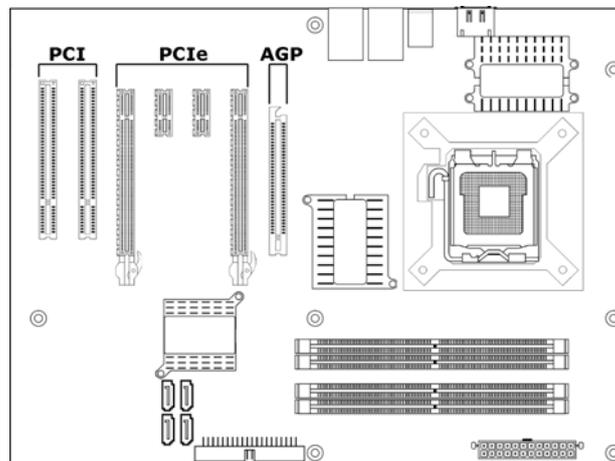
Removing the computer cover

To avoid possible static shock damage to the computer parts, discharge it by touching the computer case or something grounded. We recommend you use an anti-static device such as an anti-static wristband.

When holding the MAYA44e card, touch only the guide or the edge of card. Do not grab the card by the board or connector.

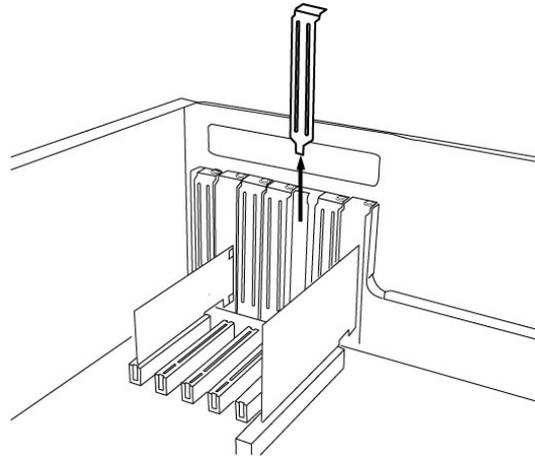
3.2 PCIe Card Installation

Find an empty PCIe slot on the motherboard. If you are unsure, please check the manual of your mainboard or computer to identify the PCIe slot, or consult a computer specialist. There are different types of PCIe slot, MAYA44e will work both in a shorter PCIe 1x and in a longer PCIe 16x slot, however not in old standard PCI slots.



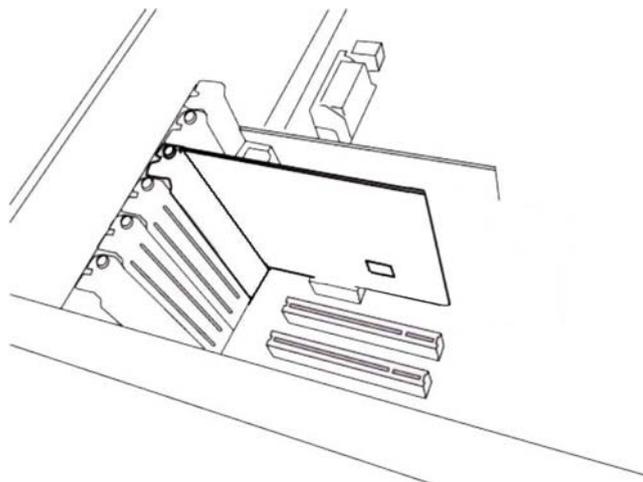
Typical PC Motherboard Slot Configuration

If a faceplate or cover is behind the PCIe slot, you can remove it by removing the screw holding it in place or by prying it off with a screwdriver.



Removing the slot faceplate

Insert the MAYA44e card into the PCIe slot, firmly pushing the card into the slot until it is seated securely. Replace the screw, and tighten.



MAYA44e Installed in a PCIe 1x slot, next to two standard PCI slots

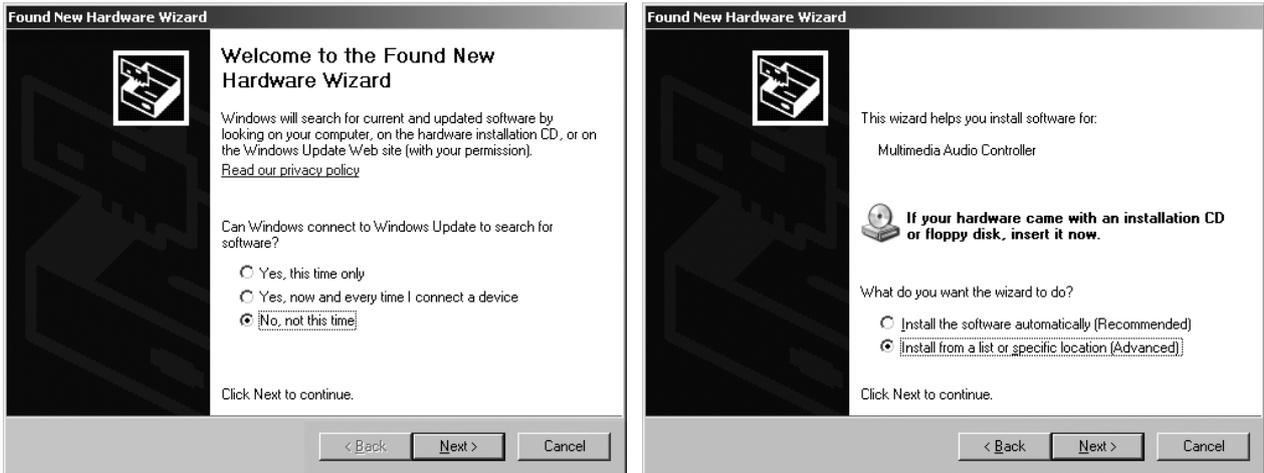
Once finished, close the computer case.

4. Driver Software Installation

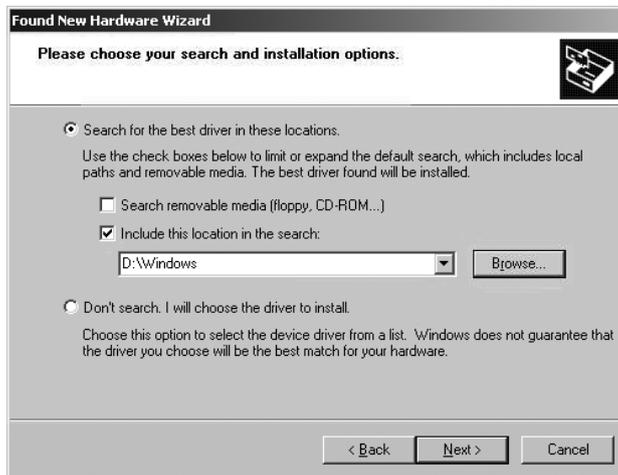
Before installing the drivers of MAYA44e, we recommend to check on the download section of www.esi-audio.com for updated drivers.

4.1 Windows XP

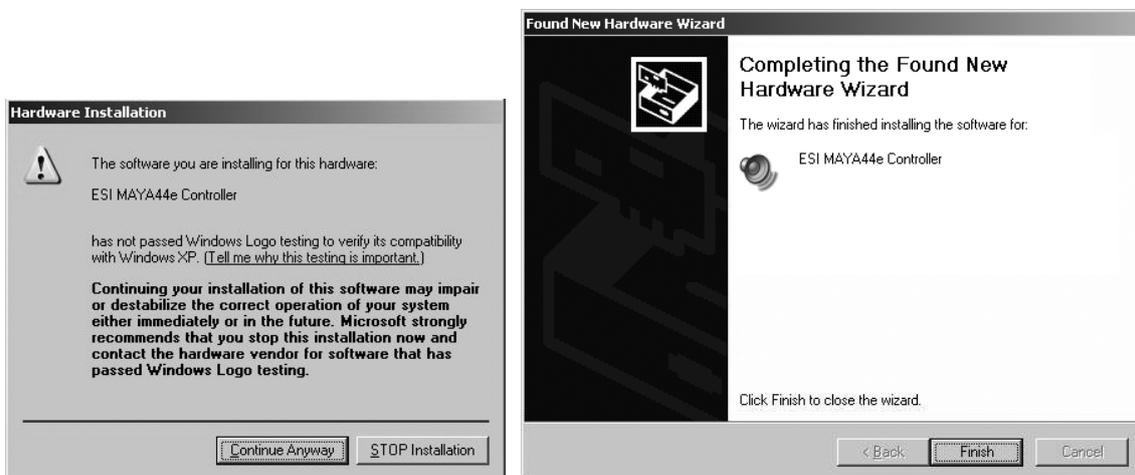
Turn on your computer. Windows will automatically detect a new device installation and the *Found New Hardware Wizard* window will appear as seen on the following picture on the left.



Select *No, not this time* and click *Next*. On the following dialog select *Install from a list or a specific location (Advanced)* and click *Next*. The dialog below will appear.



Make sure to select *Search for the best driver in these locations* and below that only select *Include this location in the search*. Via *Browse*, you can select the folder that contains the driver data. If you install from the original CD, select your CD-/DVD-drive and the *\Windows* folder. Otherwise select the folder that contains the unzipped driver data from our website. Once done, click *Next*.



Windows will now prompt you to confirm the Windows Logo testing in the *Hardware Installation* dialog with *Continue Anyway* before the driver installation proceeds. After some time, the installation of the *ESI MAYA44e Controller* device will be completed and you need to click *Finish*.

Once this is done, the *Found New Hardware Wizard* will automatically appear again. Please follow the exact steps one more time, this time to install the *ESI MAYA44e Audio* device. After that is finally confirmed on the last dialog via *Finish*, the MAYA44e driver software has been completely installed. To confirm this, please check if the ESI icon is displayed in the taskbar notification area as shown below.



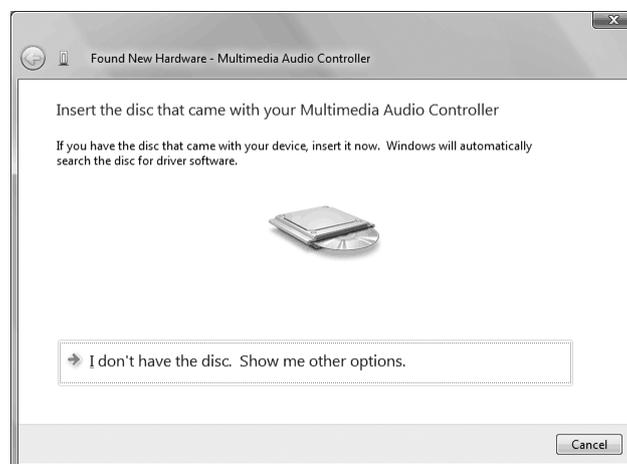
If yes, the driver installation has been completed successfully. Note that on some systems the computer has to be rebooted (Windows will display a message in that case) before everything is completed.

4.2 Windows Vista

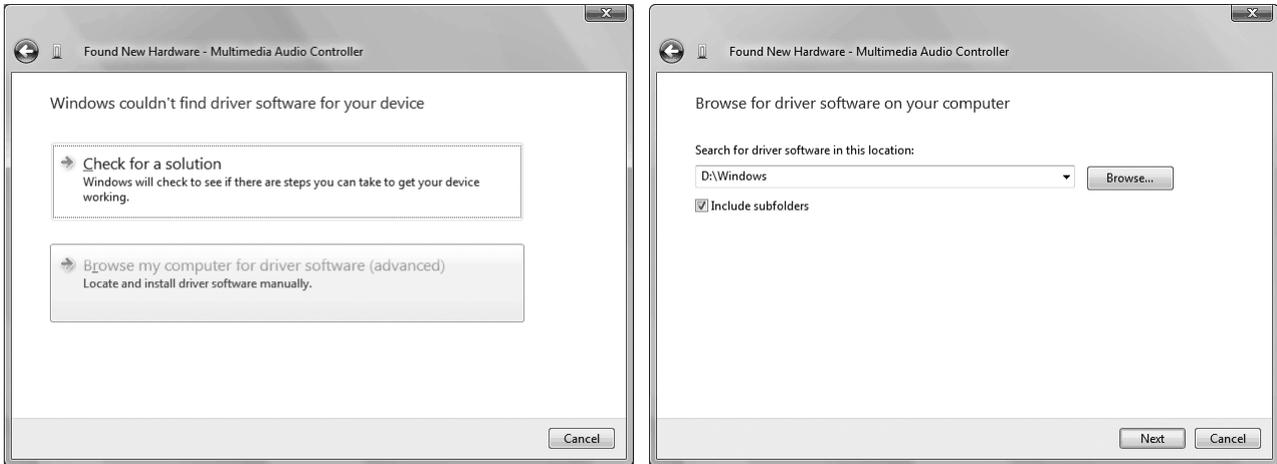
Turn on your computer. Windows will automatically detect a new device installation and the *Found New Hardware* window will appear as seen on the following picture.



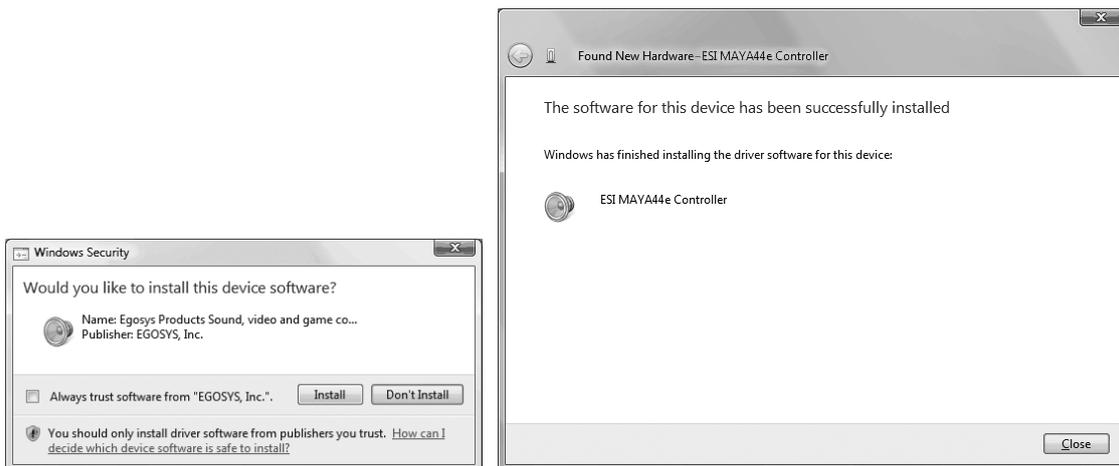
Select *Locate and install driver software (recommended)*. Insert the driver CD only if you are installing the original driver from the CD. If you are installing an updated driver from our website, proceed by clicking on *I don't have the disc. Show me other options.* on the following dialog.



If the following window on the left will appears, click on *Browse my computer for driver software (advanced)* in order to show Windows where the driver files are located. The dialog on the right will appear.



Via *Browse*, you can select the folder that contains the driver data. If you install from the original CD, select your CD-/DVD-drive and the *\Windows* folder. Otherwise select the folder that contains the unzipped driver data from our website. Once done, click *Next*.



Windows will now prompt you to confirm the installation in the *Windows Security* dialog with *Install* before the driver installation proceeds. After some time, the installation of the *ESI MAYA44e Controller* driver will be completed and you need to click *Close*.

To confirm the completion of the installation, please check if the ESI icon is displayed in the taskbar notification area as shown below.

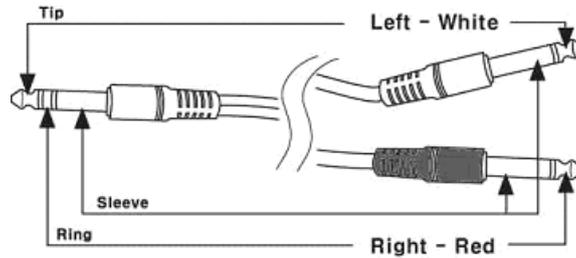


If yes, the driver installation has been completed successfully.

5. Connecting External Devices

5.1 MAYA44e Line Connectors

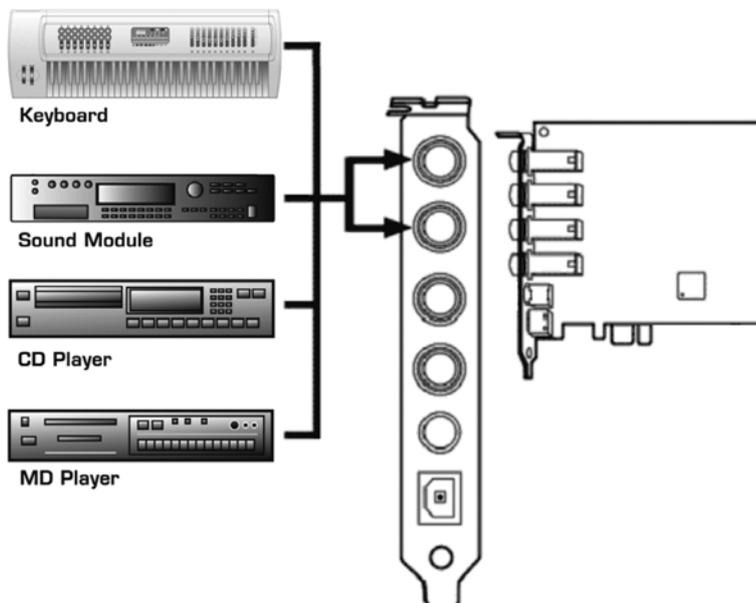
The line input and line output connectors of MAYA44e are unbalanced stereo, using a 1/4" TRS connection. This means that in order to have separate stereo connectors, you might need to use a special cable that is shown on the following picture. It converts one stereo (seen on the left) 1/4" jack with two mono (typically left/white and right/red) 1/4" jacks for the separate mono signals.



The tip of the stereo TRS connector is connected with the tip of the left TS connector. The ring of the stereo TRS connector is connected with the tip of the right TS connector. The sleeve is connected with sleeve / ground of both channel connectors.

The same type of cables are typically used as so-called insert-cables to connect effects units to many mixing consoles. This information might help you when you want to make or purchase such a cable.

5.2 Connection Examples

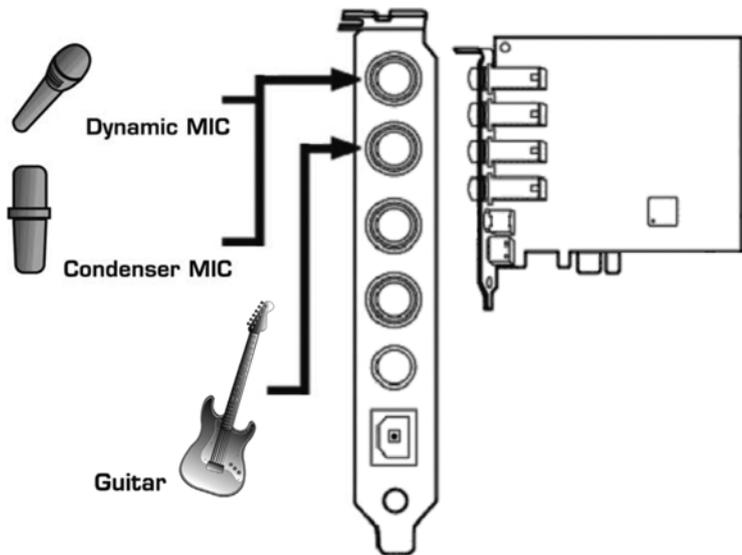


Line Inputs

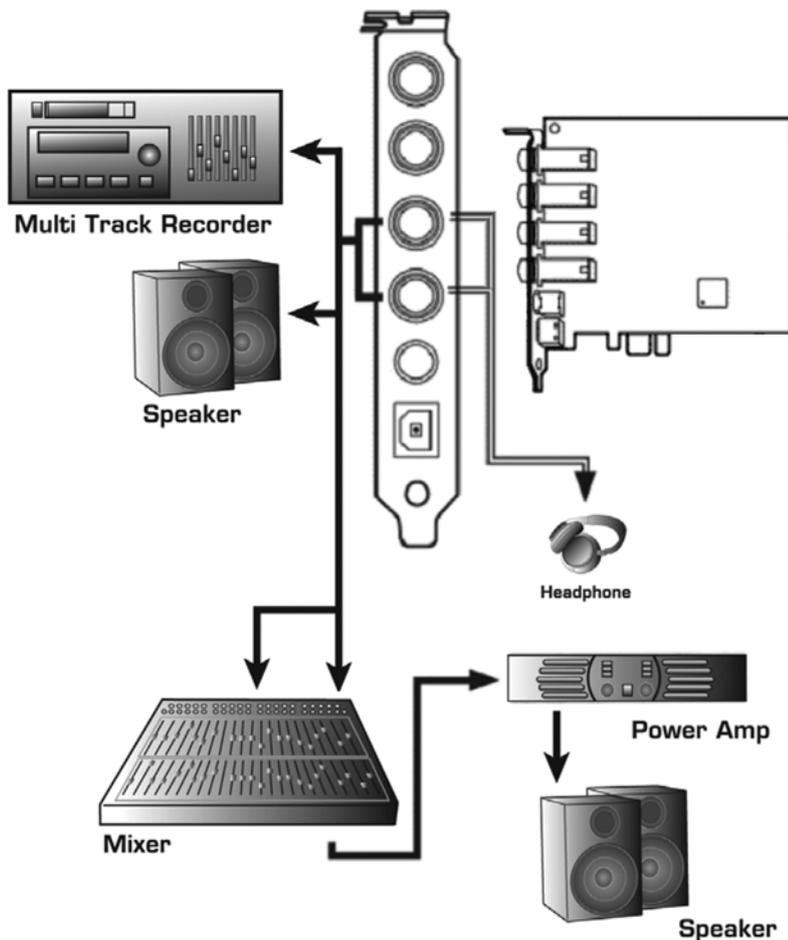
MAYA44e has two stereo line inputs (*INPUT 1/2* and *INPUT 3/4*) that can be connected to any device with regular unbalanced -10dBv line output such as the output of a mixing console, a CD or MD player, a sound module, a keyboard with sound engine, a synthesizer or others.

Instrument and Microphone Inputs

MAYA44e has a built in professional microphone preamp with +48V phantom power support. You can connect a dynamic microphone as well as a condenser microphone to the top input. *INPUT 1/2* has to be switched to accept microphone signals in the Control Panel (see chapter 6 of this manual). If you use a condenser microphone, you need to enable +48V in the Control Panel as well. Please make sure to use a fully balanced XLR to TRS microphone cable.



In addition, MAYA44e has a Hi-Z instrument input that can be used for a direct connection to an electric guitar. *INPUT 3/4* has to be switched to accept guitar signals in Control Panel (see chapter 6 of this manual). Note that the input signal will be mono only.



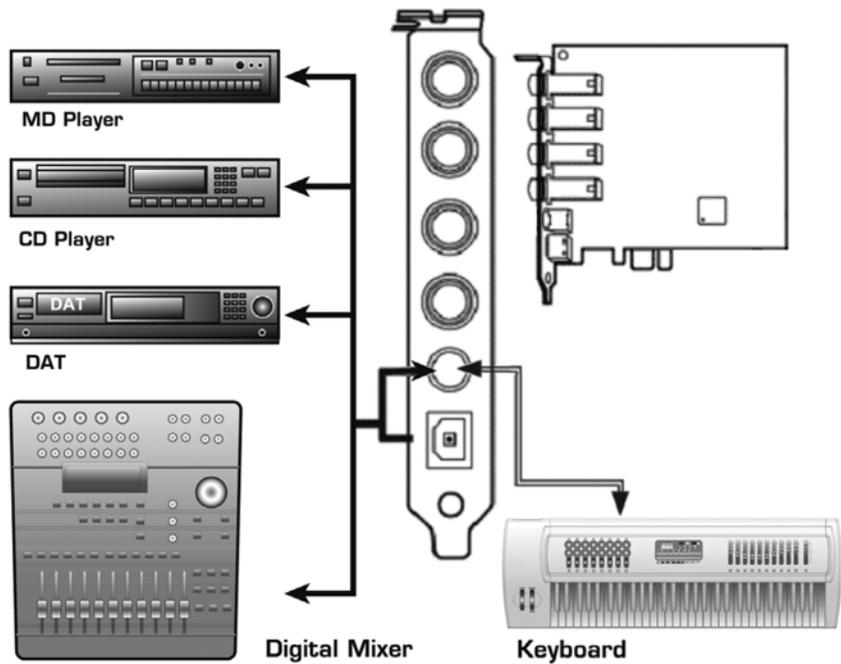
Line and Headphone Outputs

The MAYA44e stereo line outputs (*OUTPUT 1/2* and *OUTPUT 3/4*) can be connected to external devices with line input such as multi track recorders, a HiFi stereo system, active monitoring speakers, a power amplifier or analog mixing consoles. As the two stereo output pairs are totally independent, they can be connected to different channel of a mixer or to different devices altogether and different audio signals can be sent out to them simultaneously. This is especially nice in situations where you need two independent stereo signals, for example in a DJ setup for the main and pre-listen signal.

In addition, both stereo line outputs can be enabled used as headphone outputs.

S/PDIF and MIDI I/O

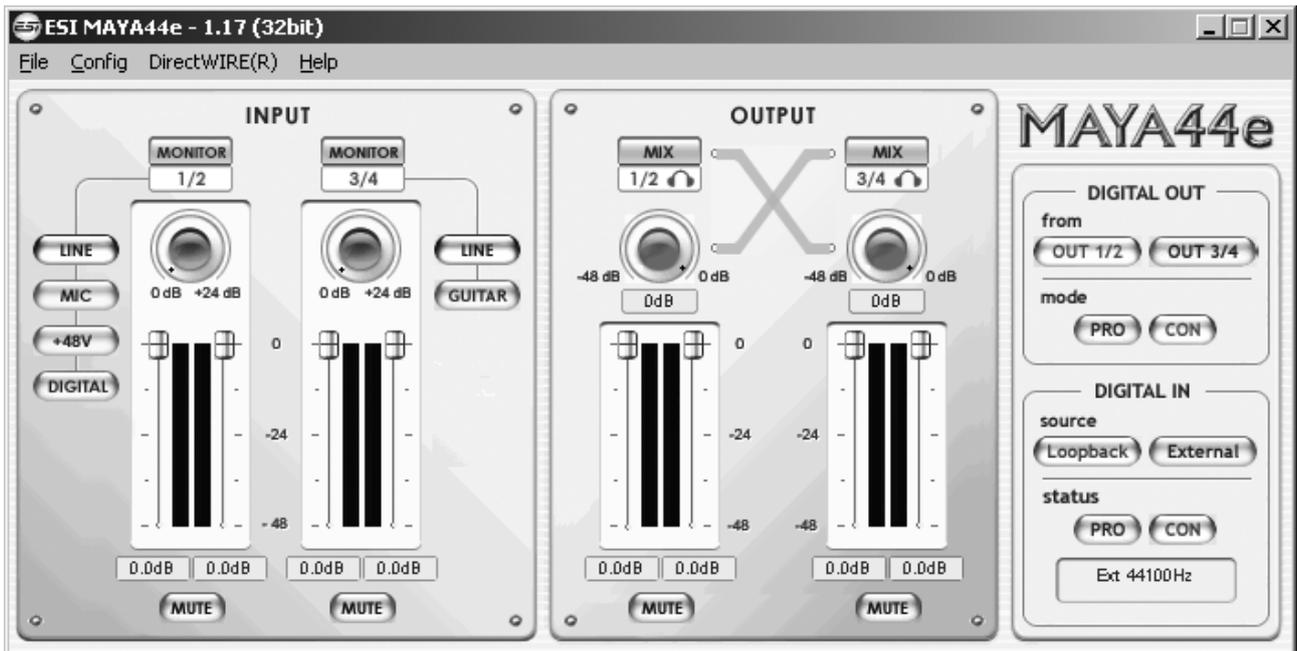
MAYA44e provides an optical and coaxial (via breakout cable) S/PDIF digital output. You can use this to send signals to the digital input of an MD Player, CD Recorder, DAT-Recorder or Digital Mixer. Via the breakout cable, there is also a coaxial S/PDIF input via the breakout cable that you can use to record signals from devices with a coaxial S/PDIF output. The Control Panel (see chapter 6 in this manual) allows you to control S/PDIF input and output parameters.



The MIDI I/O ports via the breakout cable allow you to connect MAYA44e to other MIDI devices such as a keyboard or sound module. Connect the MIDI output of MAYA44e to the MIDI input of an external device and the MIDI output of such a device to the MIDI input of MAYA44e.

6. MAYA44e Control Panel

This chapter describes the MAYA44e Control Panel. To open the panel double click on the ESI icon in the task notification area. The following dialog will appear:



6.1 Pull-Down Menus

File – Exit: will close the MAYA44e control panel window but it will not shut down the control panel. You can always launch control panel the by clicking ESI icon on the system tray.

Config – Mouse Wheel: controls the increment at which the volume is adjusted when using a mouse wheel. The adjustment step is from 1 to 8.

Config – Latency: adjusts the latency (also often referred as buffer size) of MAYA44e. A lower latency is achieved by selecting smaller sample size which is ideal for software synthesizer and precise timing recording. However, the latency is also limited by your system performance. For most recording applications, select a sample size between 64 ~ 512, select 256 or higher on slower systems or at very high system load. Buffer size 48 is reserved only for very fast and reliable ASIO driver environments on fast computer systems. Note that this value has to be setup before launching any audio application using MAYA44e.

Config – Factory Default: resets the control panel to default settings.

Config - Always On Top: this enables to place the control panel on top of every open window, which makes it easy to work with MAYA44e and other audio applications simultaneously.

Config – Link: links the L-R faders for stereo operation. Unselect the entry, if you need to control the levels of left and right channels independently.

DirectWIRE: opens the DirectWIRE dialog, described in section 6.5 of this manual.

Help – About: allows you to check current driver information.

6.2 Input Section

Monitor buttons: with this button you can enable the input monitoring for the corresponding input channel. When enabled, the input signal is audible via the output.

Line/Mic/+48V/Digital selection: by default, input channel 1/2 is processing the stereo line input signal coming in from *INPUT 1/2* (when *LINE* is selected). However, it can also be switched to process the mono input signal from a microphone connected to MAYA44e as described in chapter 5 of this manual – for that, *MIC* must be selected. If a condenser microphone that requires power supply is connected, the *+48V* switch must be enabled to enable phantom power. Note that *+48V* should be enabled only after a condenser microphone has been connected. Never enable *+48V* when a dynamic microphone or no microphone at all is connected to MAYA44e. Input channel 1/2 can also process the digital input signal from the coaxial S/PDIF input of MAYA44e. For that, *DIGITAL* must be selected.

Line/Guitar selection: by default, input channel 3/4 is processing the stereo line input signal coming in from *INPUT 3/4* (when *LINE* is selected). However, it can also be switched to process the mono input signal from a guitar connected to MAYA44e as described in chapter 5 of this manual – for that, *GUITAR* must be selected.

Gain knobs: as the output level of a microphone typically is very low and requires amplification, the gain knobs allow you to control the built-in amplifier in order to raise and match the input signal in order for the signal to be further processed. The range is from 0dB to +24dB amplification.

Level faders: these faders allow you to adjust the input level for the analog input 1/2 and 3/4. The levels can be set using the mouse, mouse wheel, or cursor keys. Depending on the *Link* setting (refer to section 6.1), you can control left and right channels simultaneously or independently.

Mute buttons: this button allows you to mute the input signal on channel 1/2 or on channel 3/4. When the button is red, mute is enabled – otherwise disabled.

6.3 Output Section

Mix buttons: with these buttons it is possible to mix the output 1/2 and 3/4 signals to each other. This is especially important if you want to listen to the same signal played through only one channel pair on both outputs, especially with headphones connected to one of the outputs. When *Mix* is enabled, the blue arrow will display that the signal is transferred to the other channel.

Mix level knobs: controls the level for mixed signal to adjust the level that you wish to send to the other channel. Make sure not to confuse the mix knobs with the gain knobs in the input section.

Level faders: these faders allow you to adjust the playback level for the analog output 1/2 and 3/4 signals. The levels can be set using the mouse, mouse wheel, or cursor keys. Depending on the *Link* setting (refer to section 6.1), you can control left and right channels simultaneously or independently.

Mute buttons: this button allows you to mute the output signal on channel 1/2 or on channel 3/4. When the button is red, mute is enabled – otherwise disabled.

6.4 Digital Section

Digital Out section: here you can select the source for the optical and coaxial S/PDIF output. It can either be *from OUT 1/2* or *from OUT 3/4*, depending on the selection. The MAYA44e S/PDIF output is capable to send out professional (*PRO*) and consumer (*CON*) status bits, depending on the selection. Some digital devices will only process either one of the two signal types on their S/PDIF input.

Digital In section: allows you to select the digital input source. When this is set to *Loopback*, the digital input signal will be internally taken from the S/PDIF transmitter – this means that you can internally record and process 1:1 copies on a pure hardware level inside the MAYA44e hardware. The recommended and default setting is *External*, as it processes the signal from the physical coaxial S/PDIF input from MAYA44e instead. Below that, the *status* area displays the current S/PDIF input signal state.

6.5 DirectWIRE

What is DirectWIRE?

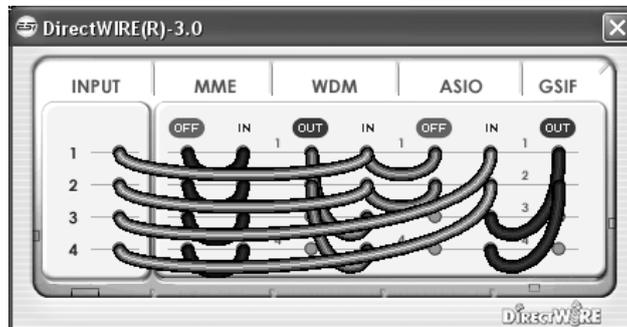
DirectWIRE is a driver technology, developed by ESI, which can be used for routing audio streams internally within applications using EWDM Audio MIDI Drivers exclusively developed by ESI.

With the DirectWIRE router, an application can record from other application's audio outputs without external wiring or any loss of data when they are running at the same time.

DirectWIRE also allows you to easily rip any audio stream in real time by transferring data through DirectWIRE from MP3s, live On-line Broadcast and On-demand content, and more.

DirectWIRE Panel

Click on *DirectWIRE* on the MAYA44e control panel. The DirectWIRE dialog as shown below will appear. DirectWIRE digital virtual wiring technology, developed by ESI, routes audio streams internally within applications using standard audio drivers such as WDM, ASIO and MME, even when they are running at the same time.



The number on the row represents the input or output port. The columns represent ins and outs (on and off) of the respected drivers. Patch the virtual cables from one point to another as you drag your mouse point.

INPUT section: It's used to route signals from the card's hardware inputs.

MME section represents general application's I/O: Ex.) WinAmp, WaveLab (non ASIO mode), Cakewalk, Audition, Vegas, etc.

WDM section represents Multi-MME application's I/O: Ex.) SONAR (when using WDM/KS), PowerDVD, WinDVD, etc.

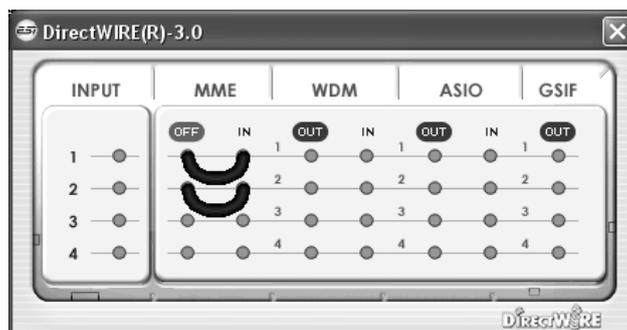
ASIO section represents ASIO application's I/O: Ex.) Cubase, Logic, Reason, Nuendo, SONAR (when using ASIO), Samplitude, etc.

GSIF section represents GSIF application like GigaStudio.

Note that some applications support multiple driver modes.

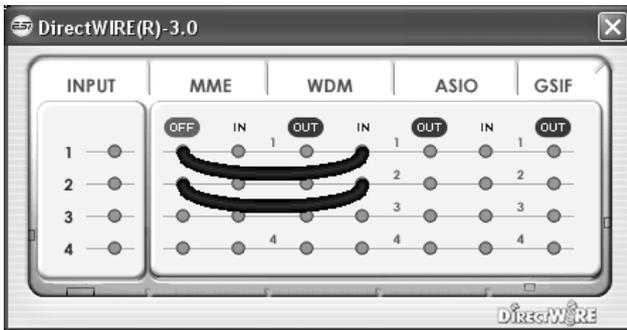
DirectWIRE Examples

Example 1. Recording from WinAmp (MME) to WaveLab (MME).

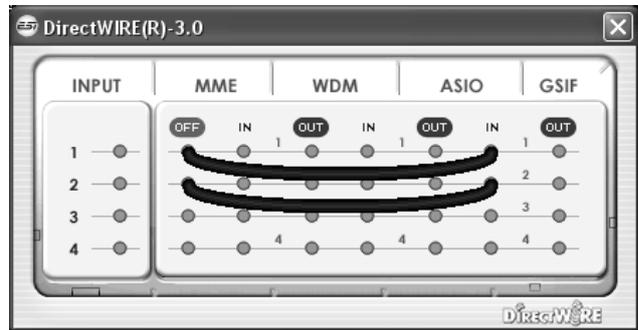


If you want to record what's played back in WinAmp, but don't want to hear the sound, you should click the *OUT* button in the MME section so it'll change to *OFF*.

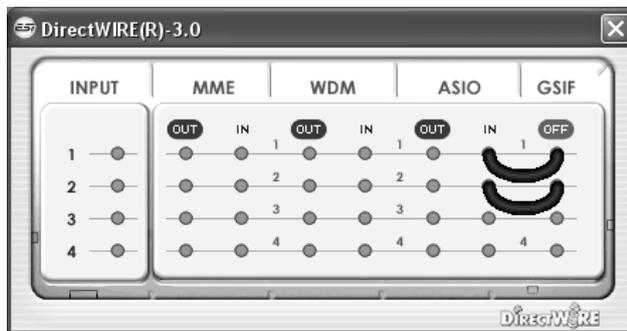
Example 2. Recording from WinAmp (MME) to SONAR (WDM).



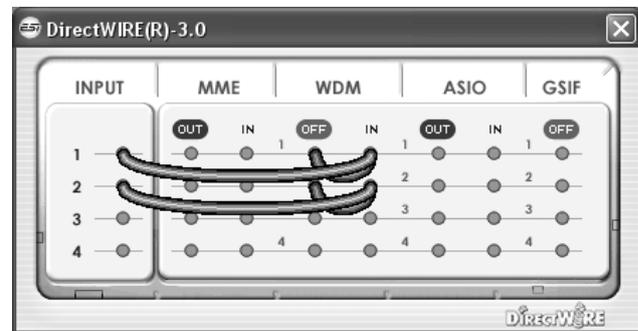
Example 3. Recording from WinAmp (MME) to Cubase, Logic, Nuendo (ASIO).



Example 4. Recording from GigaStudio (GSIF) to SONAR (WDM).



Example 5. Recording from GigaStudio (GSIF) to Cubase (ASIO).



7. Audio Applications

This chapter contains basic configuration examples for some software applications. Please also refer to the manual of the audio software you use for detailed information.

7.1 Windows Multimedia Setup

The Windows multimedia setup is required if you want to use your MAYA44e as the main sound device for Windows multimedia applications. Go to *My computer* -> *Control panel* -> *Sounds and Audio Device Properties* -> *Audio*. Select the MAYA44e entry as your playback device to make sure that all standard signals are played via the MAYA44e hardware.

Please note that some advanced properties buttons in this area will be grayed out because some of the mixer features of MAYA44e are not compatible with the functions provided by the Windows default mixer that was designed for consumer audio hardware. However, this does not mean you do not have any advanced options - the MAYA44e control panel described in the previous chapter includes all professional audio features that you might need and which are simply not always compatible with the basic mixer control from Windows.

7.2 Cubase LE 4

MAYA44e ships with a DVD-ROM with Cubase LE 4 from Steinberg. If you are using a different recording software, you can skip this section.

Installation

To install Cubase LE 4, insert the DVD-ROM into the DVD-ROM drive of your computer. Under Windows, the installation will normally start automatically – if not, you can launch it manually by starting the installer from the DVD-ROM drive.

To proceed with the installation, follow all instructions on screen. During the installation the *Syncrosoft License Control* software will be installed as well. To use Cubase LE 4 for more than 30 days, you need to activate it with this software via the internet. This means that you need an active internet connection on the computer you are installing Cubase LE 4. We recommend you to activate the software as early as possible.

Initial Setup

As most digital audio applications, Cubase LE 4 requires some initial configuration, before it can be used properly with a new audio interface like MAYA44e. Start Cubase LE 4 and select *Device Setup* from the *Devices* menu. Select *VST Audio System* on the tree structure on the left part of the window and then make sure to select *ESI MAYA44e ASIO* as *ASIO Driver* entry. You can verify your selection by selecting the *ESI MAYA44e* device on the left. The dialog, now lists all input and output channels. Note that the *Control Panel* button has no effect. Confirm your changes by clicking *OK*.

After that its time to select the input and output channels. From the *Devices* menu, select *VST Connection*. The *VST Connections* window appears. Configure your input bus in the *Inputs* tab and your output bus under *Outputs*. A bus can be either mono or stereo and added with *Add Bus*.

After that you can start using Cubase LE 4 by opening an existing project or creating a new project. The input and output busses you have created can be assigned to the individual tracks of your project.

8. Specifications

<Analog Audio>

1. Sample Rates
 - 32, 44.1, 48, 88.2, 96 kHz recording & playback
2. Analog Input
 - 1) connector type: 4 channel analog inputs
 - * 1/4" TRS (stereo) jack (line in 1 and 2) common with microphone input
 - * 1/4" TRS (stereo) jack (line in 3 and 4) common with Hi-Z input
 - 2) peak level: 0dBFS @ +6dBV
 - 3) programmable gain: -48dB ~ +24dB (1dB step size)
 - 4) impedance: 10K Ohm
3. Analog Output
 - 1) connector type: 4 channel analog line outputs
 - * 1/4" TRS (stereo) jack
 - 2) peak level: +6dBV @ 0dBFS
 - 3) attenuation: -48dB ~ +0dB (1dB step size)
 - 4) impedance: 33 Ohm (line out 1 and 2, headphone out), 33 Ohm (line out 3 and 4, headphone out)
4. Microphone Preamp
 - 1) mic preamp gain: +21dB
 - 2) peak level: 0dBFS @ 246mV
 - 3) +48V phantom power supply
 - 4) impedance: 3.3K Ohm
5. Hi-Z / Guitar Input
 - 1) impedance: min. 330K Ohm
6. Headphone Amplifier
 - 1) load impedance range: 32-300 Ohm (for best performance)
 - 2) output power: 125mW @ 32 Ohm per channel

<Digital Audio>

1. Sample Rates
 - 1) 32, 44.1, 48, 96 kHz input and output
2. A/D Converter
 - 1) SNR: 102dBA (0dB @ fs=48kHz)
 - 2) dynamic range: 102dBA
 - 3) THD: -95dB (1kHz, -1dBFS)
 - 4) interchannel isolation: 90dB
3. D/A Converter
 - 1) SNR: 108dBA (0dB @ fs=48kHz)
 - 2) dynamic range: 108dBA
 - 3) THD: -97dB(1kHz, 0dBFS)
 - 4) interchannel isolation: 100dB
4. Digital Input
 - 1) connector type: coaxial (via breakout cable)
 - 2) format: IEC-60958 Consumer (S/PDIF)
 - 3) resolution: 24-Bit
5. Digital Output
 - 1) connector type: optical, coaxial (via breakout cable)
 - 2) format: IEC-60958 Consumer (S/PDIF)
 - 3) resolution: 24-Bit
 - 4) digital pass thru

<MIDI>

1. MIDI I/O
 - 1) 1-in, 1-out; 16 MIDI channels in and out
 - 2) connector type: standard MIDI 5-pin DIN (via breakout cable)

9. General Information

Trademarks

ESI, and MAYA44e are trademarks of EGOSYS, Inc. and ESI Audiotechnik GmbH. Windows is a trademark of Microsoft Corporation. Other product and brand names are trademarks or registered trademarks of their respective companies.

The FCC and CE Regulation Warning

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. Caution : Any changes or modifications in construction of this device with are not expressly approved by the party responsible for compliance, could void the user's authority to operate equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. If necessary, consult an experienced radio/television technician for additional suggestions.

Correspondence

For technical support inquiries, contact your nearest dealer, local distributor or ESI support online at www.esi-audio.com.

Disclaimer

All features and specifications subject to change without notice.

Parts of this manual are continually being updated. Please check our web site www.esi-audio.com occasionally for the most recent update information.